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**SUB-SAHARAN AFRICA AND GLOBAL CAPITAL MARKETS:
PAST AND PRESENT**

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Abstract

External financial flows to sub-Saharan Africa are gaining increased attention, not least due to the current boom in global commodity prices and the expansion of Chinese interests in the region. This paper focuses on the impact of market-based financial instruments such as equities, bonds and commercial bank lending on economic development. It reviews the theoretical and empirical evidence concerning the nature and behaviour of these instruments in developing countries compared with more traditional development finance, such as foreign aid. This provides a foundation for analysing past and present trends in sub-Saharan Africa.

It is argued that, like many other low income countries in the past, sub-Saharan Africa has received negligible inflows of external commercial financing. If anything, the region has been additionally excluded from these flows due to very weak levels of financial sector development even compared to other low income countries. At the same time, recent changes in both global and domestic factors mean the situation is evolving rapidly. There is mounting evidence to show that many economies in sub-Saharan Africa are enjoying significantly expanded access to commercial external capital flows. Given good prospects that this trend will continue, the playing field for traditional donors in the region is likely to alter significantly. The paper concludes by reflecting on these emerging policy challenges.

1. Introduction

Despite the increasing liberalization of financial markets and their deepening global integration, the distribution of capital flows remains skewed towards high- and middle-income countries. In principle, low income countries should benefit most from additional investments financed by a wide variety of external capital inflows. However, many of these countries remain dependent on overseas aid and receive only moderate inflows of private direct investment. This contradicts the predictions of textbook economic theory, giving rise to what has been called an ‘allocation puzzle’.¹ A recent study (Prasad et al., 2006) points that global capital flows have become more perverse over recent years – on average, lower income countries have become net exporters of capital to richer economies. The extent of access to external capital inflows is pertinent for sub-Saharan Africa given the extent of the developmental challenge across the region and low levels of domestic savings (Aryeetey, 2004). Moreover, not only is there significant debate regarding the capacity of foreign aid to drive sustained economic development, but also many observers doubt that regular promises of large increases in foreign aid will be delivered.

This study has two main objectives. In light of the global context which dominates discussions of capital flows, it seeks to investigate the general characteristics and impacts of private capital flows to developing countries. The focus is on the determinants of these financing instruments and their expected economic outcomes. Secondly, the study asks whether sub-Saharan Africa (SSA) is in some way a ‘special case’. To put it another way, based on an understanding of global patterns the study explores whether external private capital flows have behaved differently towards SSA. In this light, the study also explicitly considers the challenges arising from very recent developments in SSA that are connected to improvements in the external debt positions of many countries (via debt relief), as well as renewed external interest in debt and equity markets in the region.

Throughout the discussion, primary attention is given to ‘new’ financing instruments. These refer to flows of equity, bond and commercial bank lending from private institutions. Although these instruments are hardly new in historical terms, they are not the traditional means by which SSA has gained access to external capital (see Section 3). The nature of the above questions suggests that a comparative perspective may be useful. Thus, flows of ‘new’ finance

¹ See Gourinchas and Jeanne (2007) for further discussion.

to SSA are compared to more 'traditional' flows of foreign direct investment (FDI) and overseas development aid (ODA). In addition, the experience of SSA with respect to private capital inflows is considered in relation to that of other developing countries.

A central argument of this study is that these 'new' external financing instruments *can* offer significant advantages to recipient countries vis-à-vis the alternatives such as FDI and ODA. However, the risks of exposure to non-FDI private capital inflows may be significant, especially in the presence of domestic weaknesses such as thin financial markets. The empirical evidence clearly shows that despite large increases in the net volume of private capital flows to developing countries, their relative economic size remains small in most cases. Moreover, low income countries (LICs) have enjoyed very limited access to non-FDI capital and this access has, if anything, become relatively more restricted over time. Plausible explanations of these trends refer to the existence of market imperfections at both the domestic and global levels. While these frustrate the possibility of arriving at robust theoretical and empirical results for individual countries, they do suggest that the extent to which private capital flows can support economic development is likely to be conditional on the interaction between global and domestic distortions.

With respect to SSA, the evidence indicates that most countries in the region have suffered somewhat greater exclusion from non-FDI private capital flows than other lower income countries. This is not to argue that SSA is an outlier. Rather, factors frequently identified in the literature, such as the extent of financial market development and external vulnerability, appear to be strong candidate explanations for this additional exclusion. At the same time, and as with most financial markets, the past is not a good guide to the future. Very recent developments in SSA suggest that there has been a shift in the landscape and that non-FDI flows will come to play a much more significant role over the medium-term. Although data remains sketchy, this is indicated by trends in both debt and equity markets in the region. However, it is argued that given the low level of development of local financial markets, domestic financial deepening will be vital both to enable more effective management of risks from external flows and to capture a larger proportion of their potential developmental benefits. In turn this points to a range of concrete policy priorities that should be considered by governments and foreign donors in the region.

The rest of the study is structured as follows: the next section clarifies a number of technical matters pertaining to the definition and measurement of private capital flows. Section 3 sets the context, presenting seven stylized observations of trends in private capital flows to developing countries since 1985. Section 4 reviews the theoretical and empirical literature that

has attempted to explain these patterns. In view of these findings, Section 5 considers whether trends in private capital flows to SSA have in some way deviated from more general global trends (the stylized observations). However, recognising the highly dynamic nature of financial markets, the implications of very recent financial developments in SSA are also discussed. This leads, in Section 6, to a review of the policy challenges these developments raise and subsequent priorities for the donor community. Section 7 concludes.

2. Definitions and data sources

At the outset it is useful to define the kinds of capital flows in focus here and identify the relevant sources of data. The standard definition of external portfolio investment applied by multilateral organizations covers cross-border investments in equity and debt securities, excluding direct investment or reserve assets.² This definition focuses on assets that may be tradable in a secondary market and does not embrace either short- or long-term lending by banking institutions at market rates. These tend to be classified as ‘other private capital flows’ but are an important class of assets through which private overseas investors gain exposure to emerging market risks, especially where securities markets are underdeveloped. Both portfolio investment and bank lending are the main focus of this study which, together, can be grouped under the rubric of external non-FDI private investment flows.

Non-FDI flows embrace an enormous diversity of financing instruments. While water-tight categorizations are not possible, the three major sub-categories can be elaborated further as follows:

- *Equity portfolio investment*: refers to investments in relatively small percentages of equity stock (less than 10%) without recourse to managerial participation. By defining portfolio equity as a ‘hands-off’ form of investment, both venture capital and private equity flows are excluded – these tend to place the investor in a managerial role and, therefore, can be classed as a form of FDI. From a balance of payments point of view, inflows of

² A comprehensive source of official definitions for external financial flows is the online OECD statistical glossary located at: <http://stats.oecd.org/glossary/index.htm>. Direct investment typically refers to equity stakes of at least 10% and / or those that include managerial involvement of the investor.

portfolio equity capital refer to sales made to foreigners on a local exchange or to new equity issues by local firms on foreign exchanges (e.g., via American Depositary Receipts or Global Depositary Receipts). In the former case, foreigners may be involved in purchasing an initial equity offering or in trading in the secondary market. In the latter case, however, external inflows will occur only at the capital raising stage.³

- *Bond portfolio investment*: refers to a wide range of debt securities issued by government and corporate agencies. Once again this category embraces securities issued abroad (in a foreign currency) as well as those in the domestic market. The extent to which debt securities are traded in secondary markets varies, largely in accordance with the appetite of investors. However, while domestic debt securities can have a very limited secondary market, especially when they are purchased by financial institutions for investment purposes, the majority of international issues have a more active secondary market. Note that the underlying structure of the debt security can take a wide variety of forms, ranging from standard sovereign treasury bonds to corporate revenue bonds and future-flow securitisations used for project financing (on the latter see Ketkar and Ratha, 2004).
- *Bank lending*: also covers a wide range of different lending arrangements. At the one extreme are short-term money market and trade finance instruments mainly used for treasury and cash-flow operations. At the other extreme is long-term lending including syndicated loans for project finance purposes. A defining characteristic is that these credits are non-tradable and are issued at commercial or non-concessionary rates. As a result, certain forms of lending by official agencies, including export credit agencies, will be captured here depending on the underlying lending terms.

From these definitions it is clear that aggregate categories obscure much of analytical interest, such as the distinction between raising new capital and trading activities. To appreciate some of the particular features of non-FDI flows, Figure 1 presents a crude categorization of different financing instruments based on the currency in which the instrument (asset) is denominated and whether or not it is tradable in a secondary market.⁴ For convenience the former is taken to correspond to where the asset was issued – domestically or overseas – and, thus, the

³ Of course, equity portfolio outflows will be registered in the balance of payments when domestic investors purchase equities listed on a foreign exchange using onshore money.

⁴ Of course this does not mean that the asset is in fact traded. Alternative categorizations might cover the nature of the beneficiary (e.g., public, bank, non-bank institution), the nature of the investor and the maturity, price or default terms of the underlying asset.

extent to which the domestic financial system is involved in the transaction. The figure shows that non-FDI flows occupy a large fraction of the hypothetical financing space, substantially extending the range of financing possibilities beyond ODA and FDI. Moreover, certain non-FDI instruments indicate a close engagement with domestic financial markets via secondary market activities in contrast to the more restricted role of domestic financial markets under ODA and FDI. These themes are taken up in Section 4.

Figure 1: Simple classification of financial instruments

		Tradable on a secondary market	
		No	Yes
Currency (location)	Foreign	A <i>ODA (grants & loans)</i> <i>Foreign Direct Investment</i> <i>Remittances</i> <i>Venture capital</i> Inter-bank lending Syndicated lending	B Euro- / Brady-bonds Overseas equity listings Asset-backed securities
	Local	C <i>Domestic credit</i> <i>Venture capital</i> <i>Microfinance</i> <i>Government debt</i> <i>Savings bonds</i>	D Government debt Corporate bonds Domestic equities

Note: Instruments in italics are excluded from the definition of external private capital flows and therefore are not the primary focus of this study. Box C refers to flows originating domestically, mainly associated with the banking system. Box D includes instruments that may be purchased both by residents and non-residents (although restrictions on the latter are found in many countries).

The very diversity of external financing instruments generates considerable measurement complications. Problems are particularly acute for non-FDI flows as both investors and beneficiaries encompass a wide array of agents, the consistent valuation of financial instruments is not straightforward, and there are strong incentives promoting non-disclosure at both the national and international levels (for example see Florini, 1999). Also, although annual data is of interest, higher frequency data may be required to understand key market dynamics such as changes in volatility and liquidity. In the case of most developing countries, however, there are few reliable and/or comprehensive sources of this kind of data even at the national level. As a result, where cross-country comparisons are in focus, highly aggregate annual data must be relied upon such as that collated by the World Bank (e.g., World Development Indicators; Global Development Finance) and the IMF (e.g., International Finance Statistics). Capital flows series generally employ official estimates from individual countries and, therefore, are subject to country-level estimation and classification errors. As discussed widely in the liter-

ature, such errors may be significant for LICs with weak capacity and financial reporting standards, stimulating numerous calls for improved practices (e.g., Mishkin, 2001). In sum, data limitations mean that many important analytical questions cannot be addressed adequately.

This is not to say that no analysis can be undertaken. For the purposes of this study, annual data from the World Development Indicators (World Bank, 2006a) are used to review trends in capital flows to developing countries. Subject to the above caveats, the WDI is one of the most comprehensive, up to date and extensively analysed sources of information on external capital flows to developing countries. Non-FDI flows are taken as the aggregate of three broad sub-categories which conform to the description of equities, debt securities and commercial lending given above. In addition, data on both FDI and ODA flows are included for comparative purposes. The focus of the empirical analysis is on net annual flows reported in current USD – i.e., the sum of gross inflows minus gross outflows over a 12 month period. While there are arguments in favour of separating inflows and outflows, the net figure captures the effective size and direction of any resource transfer. The analysis pursued in this study restricts attention to the period 1986-2005 and focuses only on low and middle income countries. These are split into three non-overlapping groups based on the World Bank's country classification system; they are: (a) low income countries; (b) lower and upper middle income countries; and (c) a composite group of major emerging market players comprising Brazil, India, China, Thailand and South Africa (the "BICTS").⁵

As emphasised throughout this paper, methodological choices are important but controversial. In particular, the application of meaningful volatility measures to capital flow data is problematic because there is no standard methodology on which to draw and different measures can lead to quite opposite conclusions. Detailed discussion of this issue is beyond the scope of this study; however, two volatility measures are employed in this study and are presented in Appendix B. In terms of the comparison of capital flows over time and space, both their share in GDP and net flows per worker are used as approximate indicators of the economic significance and potential developmental influence of capital flows.⁶ In addition, a new measure of

⁵ As shown in Section 3, the BICTS group dominates non-FDI flows to developing countries (in aggregate terms) and thus is excluded from the other groups to enhance the comparability of results *within* income groupings. Note that none of the BICTS countries appear in either group (a) or (b) above.

⁶ The point is that where a given capital inflow represents a very small share of domestic GDP, its corresponding aggregate economic impact is also likely to be small.

the distribution of capital flows across countries is introduced to illustrate the extent to which countries can be identified as being relatively preferred or excluded beneficiaries of different capital flows (see Section 5; also Appendix C). Finally, in the absence of a strong case in favour of any specific weighting scheme, country averages are calculated by applying uniform weights only; i.e., each country has the same influence on grouped results.

3. Global patterns in capital flows

By way of background and in order to provide a framework for the ensuing analysis, this section presents seven stylized observations about changing patterns of private capital flows to developing countries. These represent descriptions of trends in the available data, and focus on broad aggregates (or averages) rather than specific country cases. The first two observations refer to general trends in capital flows, while the remaining five concentrate on non-FDI flows. The merit of this exercise is that it outlines the empirical matter that any convincing theory needs to explain and sets the global context within which the case of SSA can be examined.

The stylized observations go as follows:

- (1) *Since the early 1990s there has been a large aggregate increase in net annual flows of external capital to developing countries. As shown in Figure 2, growth in external capital going to developing countries has been driven by private flows. The aggregate value of these flows, comprising FDI and non-FDI, has risen from under USD 20 billion in 1986 to over USD 250 billion in 2005. ODA, however, has been comparatively stagnant at around USD 40 billion per year. As a result, private flows now account for around 80% of total net flows to developing countries versus under 50% in the mid-1980s.*
- (2) *Despite this absolute increase, the relative size of total net external capital flows to developing countries has shown a remarkable stability over time. This is evident from Figure 3 – for each group of countries the ratio of net external flows to GDP has remained broadly constant since 1986 (despite compositional changes). For example, the ‘average’ developing country received net external capital inflows equal to 13.5% of GDP in 1986-90, while in 2001-05 the average was 13.3%.*

- (3) *Compared to trends in both ODA and FDI flows, non-FDI private capital flows have followed a more erratic path over the period 1986-2005. Although Figure 2 indicates that FDI flows have grown relatively consistently and ODA has stayed broadly stable, Figure 4 illustrates that non-FDI flows have followed four distinct regimes. These are: from 1986-91 non-FDI flows were comparatively small and dominated by bank lending; 1992-97 saw an explosion of all forms of non-FDI private capital, with commercial lending maintaining a strong role; the period 1998-2002 saw a significant restructuring of global portfolios (following the 1998 Asian crisis) with net outflows of bank lending and only small equity and bond inflows; 2003-2005 (and beyond) has witnessed another explosion of non-FDI flows but in this period equity and bond finance have played a more pronounced role relative to commercial lending.*
- (4) *Relative to other developing countries, low income countries have been consistently marginalized from global non-FDI flows. Figure 5 shows that LICs receive lower average per capita volumes of both FDI and non-FDI than either middle income countries or the BICTS (which dominate). Access of LICs to non-FDI also appears to be more restricted than to FDI – on average, net non-FDI flows correspond to less than USD 5 per capita versus around \$50 per capita in the BICTS (1996-05). Moreover, Figure 6 indicates that the share of low income countries in the total of both FDI and non-FDI flows to all developing countries has stayed broadly constant since 1986.⁷ To put it another way, ODA has been the dominant form of net external flows to LICs.*
- (5) *The composition of non-FDI capital flows has shown persistent variations between country groupings. Historical data (see Figure 5 and Figure 6) suggest that bank lending has been the predominant form of non-FDI flows to lower income countries, although only in very moderate volumes.⁸ In contrast, equity flows are almost entirely restricted to major players (e.g., the BICTS) while bond financing has made inroads into middle income countries (only) over recent years. The jump in the share of non-FDI flows captured by non-BICTS middle income countries in the most recent period is of interest. This reflects the net outflows of bank lending from the BICTS (being replaced by equity and bond financing) compared to rapid expansion of bank lending and bond financing to middle*

⁷ This is a manifestation of the “allocation paradox” discussed in the introduction.

⁸ It is also worth noting that bank lending appears to have shifted out of the BICTS in the most recent period to be replaced by equity and bond financing; however, bank lending has expanded rapidly in middle income countries on average.

income countries. Broadly this suggests that investor appetite may have expanded to embrace a wider range of middle income countries, but that LICs (on average) remain excluded.

- (6) *Volatility measures indicate that non-FDI flows have a higher level of annual variability compared to both ODA and FDI. Based on the two measures presented in Appendix B, Figure 7 illustrates the volatility estimates for both FDI and non-FDI flows across country groupings. For the unadjusted measure, FDI appears to be a more volatile source of financing than non-FDI private capital in low and middle income countries. However, this reflects the much larger average size of FDI flows to these countries, many of which face extremely limited access to non-FDI flows. As expected, the picture changes once scaled volatility measures are used. These suggest that non-FDI flows are more volatile across all country groupings and that non-FDI volatility may be higher in low income countries than the other groups. Non-parametric tests confirm both these propositions.*⁹
- (7) *Comparing non-FDI financing instruments, there are no clear differences in volatility either between instruments or over time (on an adjusted basis). These results are illustrated in Figure 8. Note that the unadjusted volatility measures for non-FDI subcomponents continue to reflect the underlying size of average inflows. The adjusted results present a more homogeneous picture, broadly confirming the previous stylized fact of higher volatility in LICs. Even so, there is no significant difference in adjusted volatility between instruments, partly explained by the low number of useful observation for many (lower income) countries due to their limited access to these flows. Also, the five-year horizon annual measures of volatility used here indicate no unambiguous increases in volatility over time.*¹⁰ This refers both to non-FDI instruments as a group as well as its specific subcomponents.

⁹ Using the Wilcoxon signed-rank test one finds a statistically significant difference between the FDI and non-FDI scaled volatility measures both overall and within each income group. A median test for non-FDI scaled volatility also confirms that low income countries represent a significantly larger proportion of observations that are greater than the overall median. Note these tests assume independence of observations which may not hold strongly in practice.

¹⁰ This does not preclude the possibility that short-term financial crises have become more frequent; however, the measurement horizon employed here is unlikely to capture these trends adequately.

4. Explanatory frameworks

4.1 TEXTBOOK THEORY

How can we start to make sense of the above patterns and illuminate the impact of different kinds of capital flows on economic development? Although contrived, it is helpful to start with the textbook case of neoclassical economic theory. This predicts that higher income countries will be net exporters of capital to lower income countries. The underlying rationale is simple – given initial differences in levels of capital per worker between countries, a law of diminishing marginal returns tells us that rates of return to new capital investments will be higher in capital-scarce countries. Motivated by these higher returns, investment capital will flow to lower income countries, increasing capital-labour ratios and thus wage incomes.

The important point about the textbook case, as highlighted by Lucas (1990), is that the only economically-relevant difference between countries is their ratio of capital per worker. Overall levels of productivity (technology and human capital) are assumed to be the same, agents are well-informed and trade in capital goods is competitive and frictionless, including complete markets for all contingencies. The force of these assumptions leaves no scope for arbitrage and a law of one price for capital must hold for investments offering the same rate of return. To put it another way, the theory makes no distinction between different financing instruments for a given investment good because these are immaterial to final outcomes.¹¹ The welfare implications of capital flows under this case are extremely benign. So long as differences in levels of capital per worker exist, capital is guaranteed to flow to LICs for investment purposes. The presumed efficiency of markets also means that the allocation of capital will be Pareto optimal. Additionally, capital flows will support global risk-sharing via portfolio diversification, thereby promoting consumption smoothing. In sum, neoclassical theory suggests that the volume of net capital flows will be predictable and welfare enhancing. However, there is no reason to expect systematic patterns in the composition of these flows.

¹¹ Note this echoes the Modigliani-Miller theorem – under the assumptions of complete and frictionless markets, symmetric access to arbitrage-free capital markets is guaranteed for all agents making them indeterminate as to how investments are financed (see Villamil, 2008).

4.2 REAL WORLD COMPLICATIONS

The stylized observations set out in Section 3 make clear that the textbook case does not hold. Rather, there are persistent variations between actors (countries and firms) as regards the terms and extent of their access to different financial instruments. To make sense of this, the relevant starting point is to adopt a prism of market imperfections and frictions. A widely noted distinguishing feature of financial markets is that uncertainty, information asymmetries and transaction costs are prevalent (e.g., United Nations, 2005; Basili, 2001). Deviations from the textbook setting simultaneously help explain why certain financial products exist *and* why borrowers may have unequal access to financial instruments. Moreover, once we admit that markets are incomplete, risks become economically relevant in the sense that they hold real implications for (expected) economic returns. Allowing for the ‘complications’ of the real world thus means that factors such as information costs, the depth of financial market development, macroeconomic performance and general political risks (e.g., contract enforcement, corruption) may determine financing outcomes.

Table 1: Summary characteristics of financial instruments

	Cost	FX risk	Reversibility	Tradability	Conditionality
<i>Traditional financing:</i>					
ODA grants	Zero	Zero	Zero	Zero	High
ODA credits	Low	High	Low	Zero	High
FDI	Very high	Low	Low	Low	Medium
<i>Portfolio equity:</i>					
Overseas listing	High	High	Medium	High	Medium
Local listing	High	Low	Medium	Medium	Low
<i>Bonds:</i>					
Currency	Medium	High	Medium	High	Medium
Domestic	Medium	Low	Medium	Medium	Low
<i>Bank lending:</i>					
Inter-bank	Medium	High	Very high	Zero	Low
Trade finance	Medium	High	Medium	Zero	Low
Syndicated	Medium	High	Low	Low	Low

Note: all measurements are from the perspective of the beneficiary – e.g., high FX risk implies that the beneficiary not the investor takes on the currency risk. Conditionality refers to broad public or country-level requirements rather than specific contractual details.

Market imperfections mean that the law of one price may not hold. Consequently, the structures of different financing instruments take on substantive economic interest. As noted by Williamson (2001), alternative financing arrangements present different combinations of risks and rewards which, in turn, affect their relative prices. To the extent that a relatively high level

of risk is borne by the lender, the price quoted to equilibrate risks and rewards may be so high as to ration demand towards zero. Table 1 presents a summary of some of the main features of different instruments, indicating how the costs and benefits of different forms of non-FDI capital compare to ODA and FDI. The latter, for example, places both project- and currency-risk on the investor, thereby explaining the high price of the investment (a controlling equity stake). In contrast, inter-bank lending engages the lender in a much lower risk burden which corresponds to the lower price of these loans in comparison to FDI. The point to emphasise is that market imperfections combine with different risk-reward combinations to produce a complex range of possible financing structures with differing economic characteristics.

As indicated in Table 1, two additional factors can influence the evaluation of investor-risk. First, and as is well known for ODA, conditions imposed by investors can act as a form of risk mitigation. Conditions also can be found in the case of FDI where a given investment is predicated on tax breaks or freedom from restrictions that apply to domestic firms.¹² Non-FDI private capital instruments, however, tend to show lower levels of conditionality and may contribute to a higher perception of risk from the investor perspective. Issuance requirements and listing standards can operate as important pre-conditions for access to market-based instruments; however, these are reliant on wider institutional factors such as regulatory quality.

Secondly, the speed and cost at which the asset can be liquidated (reversing the inflow) also influences the final risk profile of a given instrument. This introduces the polemical concept of volatility and its implications for economic outcomes. It has been argued, particularly with reference to the Asian crisis of 1998 (e.g., Sarno and Taylor, 1999), that the sudden reversibility of private capital flows can generate significant macroeconomic complications, taking on real effects in the form of bankruptcies. This is likely to be compounded where risk management at the domestic level is inadequate and/or there exist incentives for excessive risk-taking. There are a number of reasons to suggest that non-FDI private capital flows may be *inherently* more prone to reversal than both ODA and FDI. The market value of non-FDI assets can be highly sensitive to small changes in observable (risk) factors such as interest rates, exchange rates etc.. This characteristic may be important for investors motivated by portfolio concerns, who require precise (short-term) valuations of individual assets. Where these motives are in play, it follows there may be a strong preference for assets that can be rapidly liquidated, lead-

¹² Note that this can work the other way where the recipient places conditions on the investor in the form of local-content requirements. However, this tends to be found where the supply of funds is more competitive and investor-risks are deemed to be lower.

ing investors to favour instruments that are tradable on secondary markets or have short-term maturities. The same short-term price sensitivity of non-FDI flows, however, also means that where arbitrage opportunities exist they are most likely to be used by speculators. This is in contrast to FDI, for example, which involves a sticky investment in physical assets and is valued with reference to the net present value of long-term cashflows. This is because these instruments may be favoured by investors with motives other than (long-term) investment returns.

A related issue, discussed in detail by Fernandez-Arias and Montiel (1996), is that access to external capital may exaggerate domestic market imperfections thereby increasing the costs of subsequent adjustment. Relevant distortions include the misallocation of capital to unproductive projects, speculative bubbles and non-credible government policies. Macroeconomic pressures from large capital inflows, (e.g., Dutch Disease), also are likely to be more severe in the presence of domestic market weaknesses such as limited financial market development. In each case distortions may contribute to excessive volumes of capital (in)flows and can severely undermine, and even reverse, their potential welfare benefits. The point is that differences in inherent volatility between financing instruments take on developmental (and thus policy) significance when net flows interact with domestic distortions. These effects are likely to be more evident with non-FDI flows given their short-term, price-sensitive nature. In addition, and as noted by (Williamson, 2001), capital reversal is likely to be more severe in the case of non-tradable (debt) instruments as only volumes rather than prices can adjust to changes in risk perceptions.

So far the discussion has focussed on the implications of distortions at the country-level for both the composition and welfare effects of capital flows. However, imperfections in global financial markets may also affect the pattern of non-FDI private capital flows. In theory, the 'home bias' of international investors (Lewis, 1999), the existence of 'original sin' whereby developing countries cannot access foreign financing in local currency (Khan, 2005) and the regulatory structure of advanced markets (see the contributions in Griffith-Jones et al., 2003) may encourage shorter-term (speculative) flows and further exclude access of certain borrowers to non-traditional financing instruments. In addition, network externalities in financial markets (Economides, 1993) can contribute to investor herding and/or the total avoidance of relatively small and illiquid markets by foreign investors. It is also worth highlighting that global market conditions, such as advanced country interest rates and liquidity levels, are likely to affect the volume of flows precisely because such factors alter the relative rewards of investment overseas. Thus, both domestic "push" factors and global "pull" factors may interact to determine the volume and composition of capital flows.

Turning to the more positive theoretical aspects of non-FDI private capital flows, the previous discussion indicates that in providing for a more diverse combination of risks and rewards, these instruments substantially widen the theoretical financing space. The literature also suggests that important efficiency benefits can spillover from access to external private capital flows in general, and non-FDI flows in particular. Firstly, expansion of the total supply of capital to the economy (i.e., shifting the supply schedule outwards) can lower the average cost of funds for all firms. Secondly, by placing more risks on the beneficiary (compared to FDI), non-FDI instruments may stimulate an increase in demand for financing, also contributing to lower financing costs where supply is highly elastic and/or mobilizing domestic savings. Thirdly, and as emphasised by recent research on domestic bond markets (e.g., Christensen, 2005; Burger and Warnock, 2004), the activity of foreign investors on local equity and debt markets can help strengthen the development of the financial system in general, holding positive implications for domestic savings, the efficiency of capital markets and the cost of funds. Furthermore, where financing occurs in public markets the increased exposure of public or private agents to wider scrutiny can serve a useful disciplinary function (reducing moral hazard), support the correct pricing of risk throughout the economy and provide signals on macroeconomic developments to non-market participants. Note these latter benefits are exclusive to certain forms of non-FDI private capital flows (external and domestic) and are not common features of either FDI or ODA.

In sum, the theoretical literature suggests that both access to non-FDI financing and its welfare effects are likely to be conditional on factors operating at both the domestic and global levels. It has been emphasised that a framework of externalities and market imperfections is necessary to appreciate why capital composition matters and why net inflows may not always have benign welfare effects. This brings into focus the different properties of financial instruments, including the benefits and risks particular to non-FDI flows. It also highlights the divergent motives that capital flows can reflect – e.g., investment returns, portfolio diversification and financial speculation. At the same time, the wide variety of plausible deviations from the neoclassical setting frustrates our ability to develop precise theoretical predictions regarding the composition of global capital flows or their developmental effects. As the World Bank (2001) admits, theory is ambiguous as to the impact of capital flows on development.

4.3 EMPIRICAL RESULTS

The stylized observations presented in Section 3 certainly are compatible with the broad outlines of the non-textbook theoretical story. For example, non-FDI capital flows appear to be a more volatile form of financing than FDI; and LICs have enjoyed comparatively restricted

access to these non-traditional instruments. This suggests that imperfections in both domestic and global financial markets have been and remain severe. In light of the indeterminacy of theory, empirical work is required to isolate the specific causative mechanisms that have been at play. Unfortunately however, it is frequently recognised that robust empirical results of this kind are in short supply (Fernandez-Arias and Montiel, 1996; IMF, 2007a).¹³ Rather, both the determinants and welfare effects of global capital flows continue to be active and highly controversial areas of economic research.

Notwithstanding these reservations, a few well-known results can be drawn from previous studies. First, a common finding is that domestic *and* global factors affect global capital flows.¹⁴ One of the IMF's latest global financial stability reports (IMF, 2007a), for example, states that the recent 'explosion' of investor appetite for emerging market assets has been driven by high levels of liquidity in global markets and low interest rates in advanced markets. This is in addition to the effect of improved fundamentals in many emerging market economies arising from strengthened foreign reserves and lower external debt positions. The relative weight of global versus domestic factors is more controversial however. Some scholars argue that recent years have seen a shift in market structure towards greater pro-cyclicality, herding and short-termism of capital flows to developing countries (e.g., Persaud, 2002). Others argue that domestic factors, such as financial depth, are primary determinants of these flows (e.g., Caselli, 2007).

Second, while it is well known that financial markets are significantly weaker in LICs, evidence presented in IMF (2007a) suggests this directly constrains (non-FDI) external private capital flows and is associated with higher levels of financial volatility (confirming stylized observation 6, Section 3). In this connection, and third, it seems clear that financial crises can generate real economic costs and that higher levels of financial volatility may lower growth (Easterly and Levine, 2001). Griffith-Jones and Gottschalk (2004), for example, estimate an annual loss of USD 150 billion in global GDP from crises during the period 1995-2002. Based on a survey of episodes of large capital inflows, IMF (2007b) concludes that a weaker external

¹³ As the IMF put it: "The accepted wisdom is that a well-functioning and deep financial system should help attract [capital] inflows and provide less incentive for rapid outflows, thereby lowering volatility and mitigating any negative effects on the real economy. [However] ... few empirical studies verifying these conjectures have been conducted to date." (IMF, 2007a: 79)

¹⁴ See UN (2005), for example, for a general review of the literature. On the determinants of bank lending, for example, see Montiel and Reinhart (1999) and Jeanneau and Micu (2002) on bank lending.

financial position, such as a large current account deficit, tends to increase a country's vulnerability to rapid capital reversals. This confirms earlier results, which indicate that the ability of developing countries to manage volatility often improves as their external financial positions become more robust (World Bank, 2001).

Fourth, evidence of a causal path running from private capital flows (FDI and non-FDI) to investment through to growth is at best weak, and may be diminishing. Earlier research tended to posit a relatively consistent positive effect of FDI on growth compared to most other forms of private capital inflows (e.g., Bosworth and Collins, 1999). Recent literature often takes a more 'ambiguous' line, however, arguing that a host of minimum threshold conditions need to be in place for growth spillovers to arise (e.g., Girma, 2005). Similarly, the World Bank (2001) argue that a growing share of total private capital flows reflects a motive of portfolio diversification (or speculation) rather than investment returns. This is seen to stem from the trend increase in the share of FDI aimed at mergers or acquisitions (rather than green-field investments), as well as growth in equity and bond trading flows. In an influential study, Rogoff et al., (2006) confirm the difficulty of finding robust evidence in support of the proposition that financial integration (in general) helps developing countries improve growth and reduce macroeconomic volatility. Prasad et al. (2006) also show that developing countries which have relied on foreign capital have not shown higher growth rates. Rather, they find a positive relationship between the current account balance and growth – i.e., countries that have been net exporters of capital appear to have grown faster on average, whether or not they have received large inflows of private capital. In short, there is little consistent evidence robustly linking private capital inflows generally and non-FDI flows specifically with improved developmental outcomes.

Despite the above, evidence can also be found to support both positive investment and efficiency effects arising from non-FDI private capital inflows. A robust general empirical result is the existence of a strong correlation between economic and financial market development including, in particular, the depth of local debt and equity markets (e.g., Levine, 1997).¹⁵ The point to emphasise is that where external inflows contribute to financial deepening, this can yield direct positive growth effects. This is result found in numerous specific studies. Abbas and Christensen (2007), for example, find that moderate levels of domestic debt (related to the use of bond markets by the public sector) stimulate growth in low income countries mainly via investment efficiency effects and strengthening of local financial markets. Consistent with

¹⁵ See Dolar and Meh (2002) for an accessible review of this literature.

theory, Henry (2000) finds that external liberalization of stock markets in emerging markets tends to reduce the cost of equity capital. Looking at SSA in particular, Collins and Abrahamson (2006) also report a similar result – that the larger, more liberalized equity markets enjoy the lowest costs of equity in the region. Finally, Reisen and Soto (2001) find that of all private capital flows, portfolio equity is most strongly associated with growth. Consequently, while positive effects are not guaranteed and threshold effects are likely to operate, there is some empirical confirmation that non-FDI flows can support economic development in low income countries.

As this discussion shows, beyond confirming the existence of multiple market imperfections neither theory nor empirical evidence gives a precise answer to the ‘allocation puzzle’. It has been emphasised, however, that this is at least partly a data problem. The available data does not allow us to identify the motive underlying a given capital flow. Data on ownership of financial assets is patchy and the rapid pace of financial innovation means that many risks are hedged via off-balance sheet derivatives. This means that analysis must rely on incomplete and broad aggregates which contain a lot of noise relative to useful information. Despite these challenges, the literature generally supports the notion that both the size of inflows and the likelihood of reaping any subsequent developmental benefits from them are conditional on domestic conditions. In other words, the quality of domestic institutions and the depth of local financial markets are critical factors. As these are highly correlated with overall levels of economic development (see above), LICs are expected to face the greatest restrictions in access to non-FDI capital and may be poorly equipped to ensure positive investment and/or efficiency spillovers. However, domestic constraints are not the only relevant factors. The structure of global financial markets can exaggerate speculative flows of non-FDI private capital, further weakening their capacity to promote sustained growth in LICs in particular.

5. Is sub-Saharan Africa different?

5.1 LOOKING BACK

Excluding South Africa, which is not in focus here, it hardly needs emphasising that the SSA region is dominated by LICs, many of which encountered severe macroeconomic challenges during the 1980s and 1990s. Indeed, of the 49 countries that constitute the low income group used here (see Appendix A), 70% are from SSA; or of the 44 SSA countries in the sample, 34

fall in the low income group. The findings from the previous sections immediately suggest that factors conducive to attracting private capital flows may have been absent from SSA. The pertinent question is whether access by SSA countries to non-FDI private capital flows has been consistent with broad global trends, or whether additional factors have been at play – i.e., can SSA be considered a ‘special case’. This subsection attempts to answer this question.

The theoretical and empirical ambiguity surrounding the precise drivers of private capital flows suggests there is no straightforward answer. One approach, however, is to start by assuming that average income represents a general (but not comprehensive) proxy for the extent of market imperfections and financial depth in a given country.¹⁶ If it could be established that SSA has been more severely excluded from non-FDI private capital flows than countries with similar income levels, this would then indicate that SSA countries have been subject to specific weaknesses that are not captured by average income levels. In other words, one could deduce that factors commonly found in SSA, but which have been absent from non-SSA low income countries, may have been at play.

While econometric tools are an obvious choice for investigations of this kind, the absence of a well-specified and complete model means these tools may be biased. As a result, it is appropriate to rely on more simple tests for difference although these do not pinpoint the underlying sources of variation. The measure employed for this purpose is new. Taking all countries in the sample, it calculates the ratio between a country’s individual share of aggregate capital flows and its share of GDP over each 5 year period. The result indicates whether a country has been over- or under-weight in a given financing instrument relative to its GDP share. Further details of this measure are outlined in Appendix C. The notion is that insofar as average incomes are an adequate proxy for differences in access to capital flows, one would expect to find no systematic differences between countries on the chosen measure. Significance testing is based on the non-parametric generalized rank-sum measure developed by O’Brien (1988). This is preferable to parametric alternatives as it is distribution free and robust to scale differences between groups. To enhance comparability with SSA, the focus is on lower income countries only. The comparator (control) group is constructed from all non-SSA low and middle income countries in the sample which are eligible for loans from the International Development Association (IDA) arm of the World Bank. By definition, these countries are financially vulnerable in the sense that they are unable to access sources of private capital at market rates (Moss et. al, 2004). The BICTS countries are also excluded for obvious reasons

¹⁶ This corresponds to the stylized facts of Goldsmith’s (1969); see Section 4.3 above.

(see the stylized observations). Average characteristics of the two groups (described hereafter as ‘SSA’ and ‘non-SSA’) are given in Table 2.

Starting with a descriptive comparison, trends in aggregate FDI and non-FDI flows to the two groups are shown in Figure 10. This shows that FDI has been an important source of financing for both groups since at least the early 1990s. In the non-SSA group, however, access to FDI appears to have suffered in the aftermath of the Asian financial crisis (1998), recovering steadily from 2001 to date. No such effect is evident in the SSA group where FDI growth has been comparatively consistent. With respect to non-FDI flows, one notes considerable differences between the two groups on aggregate. The SSA group has received negligible volumes of this form of capital; in contrast, while the non-SSA group has had greater exposure to non-FDI capital flows, their volume appears to have been affected heavily by the 1998 crisis showing a recovery only in 2004/05.¹⁷

Table 2: Selected indicators for country groups

	1986-1995	1996-2005	1986-1995	1996-2005
	SSA	SSA	Non-SSA	Non-SSA
GDP (USD p.c.)	1208.4	1302.0	1111.1	1365.8
ODA flows (net USD p.c.)	131.4	91.8	149.2	139.1
FDI flows (net USD p.c.)	14.2	36.1	46.8	49.2
Non-FDI flows (net USD p.c.)	4.8	-0.4	0.9	3.6
Domestic savings (%GDP)	6.8	8.3	10.5	11.2
M2 (%GDP)	39.3	30.7	39.3	39.4
External debt (%GDP)	125.6	125.7	98.7	67.7

Note: country groups are as described in the text; all USD values refer to current prices; values give annual un-weighted averages.

Source: author's calculations from World Bank (2006)

Trends in the relative economic size of different forms of non-FDI capital to the two regions are summarised in Figure 10. Due to the large number of missing and zero observations in the data, average values may not be robust indicators of central tendency. The figure therefore also includes a measure of market access. This simply counts the number of times a given instrument was employed over each 5 year period, with a net inflow in a given year counting

¹⁷ This suggests non-FDI flows to the non-SSA group have tracked the regime shifts described by stylized observation three (see page 8), but have had a more delayed recovery since 1998 to date.

as plus one and a net outflow as minus one.¹⁸ While interpretation of the two sub-figures is not straightforward, important differences in access to non-FDI instruments between the two groups are apparent. The first pane of Figure 10 suggests that there has been a switch in non-FDI trends. The SSA group shows larger average net inflows (per capita) in the first 10 year period arising mainly from bank lending, but these are considerably smaller (in total) in the most recent decade. In contrast, average non-FDI flows to the non-SSA group seem to have grown significantly over the two periods, also being dominated by changes in bank credit. The market access measure, however, suggests that the shifts in bank lending captured in the first pane may be driven by a small number of lumpy loans and are not reflective of all countries within each group. This is because the net direction of access has been negative on average for all groups over time. Even so, one notes that access to positive net inflows is *more* restricted in the SSA case as the market access measure for bank credit is relatively smaller (negative) in each period.

Table 3: Distribution measures and corresponding statistical tests for difference

	1986-95			1996-05			1986-05
	SSA	Non-SSA	<i>prob.</i>	SSA	Non-SSA	<i>prob.</i>	<i>prob.</i>
ODA	3.22	2.68	0.06	3.47	3.24	0.28	0.06
FDI	0.98	1.58	0.16	1.59	1.54	0.68	0.16
Non-FDI	-0.03	0.15	0.04*	-0.05	0.23	0.01**	0.02*
Equity	0.14	0.08	0.55	0.20	0.10	0.40	0.32
Bonds	-0.04	-0.11	0.50	-0.07	0.06	0.04*	0.02*
Bank lending	-0.08	0.20	0.03*	-0.54	0.80	0.00**	0.00**
All flows	2.33	2.03	0.04*	2.48	2.22	0.19	0.03*

Note: SSA and non-SSA columns give average values for the distribution measure presented in the text, (also see Appendix C). Probability is that of falsely rejecting the null hypothesis that the two measures are statistically different for the two groups (* denotes the result is significant at the 95% level; ** at the 99% level). The final column gives the same probability for the average of the distribution measure over the entire period (1986-05).

Both bond and equity flows seem to play a minor role in comparison to bank lending – average net flows of these instruments are under USD 1 per capita versus USD 100 in ODA flows. At the same time, however, one notes a distinct increase in market access and net per capita inflows of equity investment for the SSA group in the second decade (compared to a

¹⁸ For example, if a country over a 5 year period records two years of positive net inflows and one year of a net outflow (and two years with zero movement) the resulting count will be +1.

much smaller increase for the non-SSA group). Moreover, confirming the discussion of Section 4.2, equity flows do not show the same marked tendency for reversal (net outflows) as does bank credit. For bonds there is an indication of a slight improvement in access (per capita) for the non-SSA group only, but the numbers are so small here that they can hardly be taken as indicative of a marked trend.

Turning to the statistical analysis, Table 3 presents group averages for the distribution measure and the corresponding probability that the difference between the two groups is significant. As expected, the overall picture confirms that LICs are comparatively overweight in ODA and considerably underweight in non-FDI flows. FDI flows, however, broadly match the pattern of GDP shares in the sense that the average score is much closer to one. If anything, the distribution has become more balanced over time reflecting relatively faster growth in FDI to SSA in the most recent period. Importantly the analysis finds no significant differences in the relative distribution of both ODA and FDI between SSA and non-SSA countries. This implies that average incomes are broadly adequate proxies for the domestic determinants of these capital flows.

Non-FDI flows represent a far more diverse picture, suggesting that these flows may be comparatively *more sensitive* to non-income differences between countries than alternative instruments. Not only is there a significant difference in total non-FDI flows between the two groups in both periods, but this divergence has increased over time (shown by the reduction in probability from 4% to 1%). The components of non-FDI flows indicate this is driven by bonds and bank credit while the measures for equity flows are not significantly different for the two groups. Reflecting the story of Figure 9, the non-SSA group registers improved access (an increase in the distribution measure) over the two periods for both of the two debt instruments. In contrast, the SSA group marks a decline on average. These divergent trends are most acute for bank credit which remains the dominant source of overall differences in access to non-FDI between the two groups.

A final question is whether private capital flows are more volatile in SSA in comparison to non-SSA countries. Scaled volatility measures for capital flows are shown in Figure 11 (for discussion of these measures see Section 3, also Appendix B). The results are not especially revealing. They confirm the conclusion of the sixth stylized observation – that non-FDI flows are comparatively more volatile than other flows controlling for differences in flow volumes. There are, however, no clear differences either across non-FDI instruments or between the SSA and non-SSA groups in terms of volatility. As a result, there appears to be no specific volatility effect in SSA despite differences in access to non-FDI flows.

What might account for these results? First, recall from Section 4.1 that non-FDI instruments are likely to be more sensitive than other instruments to financial sector risks such as interest rate and currency movements. Second, SSA countries on average perform poorly on rankings of financial sector development, even in comparison to other LICs.¹⁹ This is highlighted by the problem that domestic savings have been and remain extremely low across the region, indicative of very low levels of financial intermediation. According to Table 2, the average SSA country experienced a reduction in financial depth over the period (as measured by the money supply relative to GDP) as well as continued low levels of saving at under 10% of GDP.²⁰ This contrasts to the BICTS group, for example, which achieved average savings of 28% over the same period. Consistent with this perspective, a number of scholars have noted that extensive financial liberalization on the continent has been associated with increases in average real interest rates as well as persistently low levels of domestic credit creation. According to Christensen et al. (2006), for example, in 2004 the average real lending rate in SSA was 13%, versus 8% in other low- and middle-income countries and only 3.5% in industrial countries. Extremely high collateral requirements and weak legal institutions also operate to skew lending away from certain sectors and firms, particularly those in the agricultural sector. In addition, there is good evidence to suggest that instead of pursuing domestic investment opportunities, capital flight from SSA also is high in comparison to other developing countries (Boyce and Ndikumana, 2001; Collier et al., 2001). This supports the notion that attractive financial intermediation opportunities are lacking in the region as the following comment makes clear:

African countries lack diversified financial instruments that could broaden claims on the prosperity that could be generated by a growing and profitable business sector. This ... represents a missed opportunity to give a wider group of influential Africans a stake in sustained economic growth. (Honohan and Beck, 2007)

This subsection has established, at least tentatively, that SSA has faced greater exclusion from non-FDI flows relative to a comparable group of non-SSA countries. This finding broadly controls for income effects and, thus, suggests that more specific weaknesses may have been at play in SSA. Although a rigorous model is not developed, the comparative lack of domestic financial depth as well as continued high levels of external debt represent plausible explanatory

¹⁹ For more extensive reviews of the relevant data see Honohan and Beck (2007); Gulde et al. (2006); also Sacerdoti (2005).

²⁰ Focussing only on countries in the low income group, average savings over the entire period were below 5% in SSA versus 12% in the remaining countries.

factors for these differences. Note that these explanations refer to orthodox determinants of capital flows (as discussed in Section 4). Consequently, and in line with Moss et. al (2007), this suggests that SSA is treated by international investors in a similar way to other emerging markets. Indeed, this is confirmed by the finding that SSA shows relatively 'normal' access to both portfolio equity and FDI flows.²¹

5.2 LOOKING FORWARD

One of the lessons from any historical analysis of financial markets is that past trends are not good guides to the future.²² Recent changes in SSA therefore merit attention, particularly given there is no evidence that capital flows to SSA operate according to separate laws of motion. The first observation to make is that the financial landscape in SSA is changing rapidly. Strong progress in macroeconomic fundamentals over recent years appears to reflect a more permanent improvement in economic conditions for many countries. Not only is the region "... enjoying its best period of sustained growth since independence." (IMF, 2007b: 95), but also consumer price inflation has fallen to single digit levels (7.3% in 2006) and current account balances appear to be contained at manageable levels on average. Even excluding Nigeria and South Africa, total official reserves in SSA have doubled from USD 22.5 billion in 2002 to USD 47.5 billion in 2006 (IMF, 2007c). These developments are reflected in the IMF's description of a number of SSA low income countries as 'mature stabilizers' as well as Radelet's (2006) conclusion that the era of severe macroeconomic crisis that haunted many LICs during the 1980s and 1990s is now drawing to a close. A related aspect of the changed landscape in SSA is the impact of substantial debt reduction via debt relief (and in some cases repayments). This has led to considerable improvements in overall debt sustainability across the region – an important component of external credit worthiness. As documented in IMF (2007c) the latest estimates are that Africa's external debt as a percentage of GDP has fallen nearly threefold over a short period from 183.8% in 2002 to 68.7% in 2006.

There are two further reasons why we cannot expect past trends in capital flows to SSA to be repeated. As is frequently commented, financial globalization is deepening in scope and has been characterized most recently by closer South-South integration and expanding (direct) access of corporate entities based in developing countries to international capital markets (see

²¹ As discussed in Section 4, these are relatively high-risk, high-return forms of investment and, as such, reflect the high premiums demanded by external investors for exposure to risk in the SSA region.

²² This is demonstrated by the (global) effects of the Asian crisis – see Figure 2.

World Bank, 2006, 2007). As discussed further below, these trends have not been absent from SSA. For example, the share of banking assets in SSA owned by foreign banks is among the highest of all developing regions – at 55% versus under 15% in the Middle East, South Asia, East Asia and the Pacific (Van Horen, 2007: Table 2). Moreover, the share of Southern foreign banks in all foreign banks is highest for SSA at 45% (data for 2000-04), underlining the importance of financial globalization between developing countries for the SSA region.

Secondly, the appetite for emerging market risk among international investors appears to be increasing and widening in scope to include new markets and SSA in particular. Certainly this is driven by a number of (potentially short-term) global factors mentioned in Section 4.2 such as trends in commodity prices, excess liquidity and low interest rates in advanced countries. The combination of historically high commodity prices alongside deeper South-South globalization has intensified competition for access to a range of developing country markets. This is particularly pertinent for SSA given the existence of large unexplored reserves and the historical reticence of Northern investors in the region.²³ Moreover, and as Christian (2006) argues, investment in commodities (as well as other assets linked to commodity prices) has increased substantially over recent years due to their low correlation with alternative asset classes. Once again this dynamic is important for SSA where economic diversification is relatively low and exports are dominated by primary products. Thus, SSA assets are gaining increased prominence as important contributors to portfolio diversity, particularly in the midst of financial volatility in advanced markets.

In addition, a more fundamental shift may be taking place whereby economic dynamics in developing countries are increasingly decoupled from dependence on the advanced economies (e.g., USA, Euro area). This is based on the (not uncontested) opinion that the major emerging market economies of China, Russia, India and Brazil have sufficient growth momentum and economic weight to withstand a moderate downturn in the advanced economies. In other words, emerging economies are seen as important drivers of future global growth and, in some cases, a lower source of risk than developed markets. This more benign view of investment in major emerging markets has positive potential spillover effects for other developing countries, particularly where South-South globalization has strengthened economic ties with the larger players. Taken together these factors support the growing contention that Africa is becoming “an important asset class for investors from the OECD area” (Blommestein and Horman, 2007: 1).

²³ Of course the sustainability of the current commodity boom is uncertain (see Christian, 2006).

Assuming these trends are sustained, they broadly suggest that the SSA region is likely to enjoy enhanced access to international capital markets in the future. Recent evidence supports this conclusion. Data on equity market activity in SSA (excluding South Africa) indicate rapid growth over the past few years in a number of markets. This is in stark contrast to the relative stagnation that previously characterised most markets in the region.

Table 4: Market capitalization of selected African stock markets as % GDP

	1995-99	2000-04	2005	2006	2007*
Botswana	0.1	0.2	0.2	0.4	1.0
Ghana	0.2	0.2	0.1	0.3	1.7
Kenya	0.2	0.1	0.3	0.5	0.8
Malawi	0.1	0.1	0.1	0.3	0.8
Mauritius	0.6	0.3	0.4	0.6	1.3
Nigeria	0.1	0.1	0.2	0.3	1.0
Zambia	0.1	0.1	0.1	0.1	0.8
Zimbabwe	0.3	0.6	0.6	4.6	-
Average	0.2	0.2	0.2	0.3	1.1

Sources: Compiled by the author from Standard and Poor's database (<http://emerging-africa.com>), IMF (2007c), Moss et al. (2007), Yartey and Adjasi (2007), and UNDP (2003)

Note: * estimates based on half-year results and IMF (2007c) GDP forecasts

Table 4 presents relevant data and shows that for many of the countries concerned, activity in domestic stock markets appears to have entered a new phase since around 2005.²⁴ As can be seen, preliminary evidence for this year suggests valuations have increased significantly, which reflects considerable growth in trading volumes as well as investor appetite.²⁵ In Kenya, for example, the volume of shares traded in 2006 was equal to over 5% of GDP, up from less than 1% annual volume from 1995-2003. Of course, this is not direct evidence of increased foreign activity on these domestic equity markets and data here is largely lacking. Anecdotal reports, however, suggest foreign capital has played an important role in recent equity and debt market development (IMF 2007a; Yartey and Adjasi, 2007). It is also worth noting that part of the growth in local equities relates to new equity issues by subsidiaries of multinationals (such as Barclays Bank in Kenya). This reinforces the point that financing instruments do not operate in isolation but that increases in FDI, for example, can stimulate increases in non-FDI usage (see Persaud, 2001).

²⁴ See Yartey and Adjasi (2007) for further discussion.

²⁵ Although the sharp rise in valuations in Zimbabwe appears to refer to a quite different process – namely, a speculative bubble associated with the emergence of hyper-inflation.

In addition to growing attention to equity markets, there is substantial interest among the more mature SSA stabilizers in undertaking bond issues on local and international markets. The lead has been taken by Ghana which issued SSA's first international bond (excluding South Africa) in September 2007. The issue raised USD 750 million with a 10 year maturity at a competitive yield of 8.5%. Financial analysts note that market appetite for the bond was extremely high (at over USD 3 billion) and that this may pave the way for other sovereign issues as well as direct issues by larger corporate entities as these typically can only be priced relative to a sovereign benchmark. Indeed, Africa Research Bulletin (Volume 44, Number 6, 2007) notes that Nigeria, Kenya and Zambia also are actively considering international bond issues.

With respect to local bond markets, not only have various multilateral institutions given renewed attention to the beneficial role of these debt markets (see above Section 4.2 for references) but they also have recognised their own role in stimulating such developments. In this vein, the African Development Bank (ADB) has adopted an active policy of raising local money via bonds to support its local currency lending in a number of SSA countries. Its largest operation to date has been a USD 100m Naira dominated issue, largely bought by international investors.

In 2006 the ADB also issued local currency bonds in Ghana, Botswana and Tanzania (Africa Research Bulletin, *ibid.*). The World Bank has made a similar commitment to support local bond market development, announcing its intention in October 2007 to establish a global emerging markets local currency bond fund. This will have a mandate to channel international portfolio investment finance into local bonds at both the national and sub-national levels. Importantly the fund will also provide a transparent (cross-country) index of returns to these kinds of assets. This has been lacking to date, thereby restricting interest from international investors who wish to compare returns on specific investments in an asset class to a broader benchmark. Although these developments are relatively nascent, they suggest that SSA is likely to become a more active player in international investment markets over the medium-term.

Finally, reflecting the improvement in both economic fundamentals and the general investment profile of SSA, lending by international banks to SSA on commercial or near-commercial terms appears to be on the rise. Compared to the net outflows of bank lending from SSA evident in the period 1996-2005 (see Figure 10), data from the World Bank (2006b, 2007) indicate this situation now has reversed. They estimate that from 2004-06, SSA received around 20% of all new loan commitments (by value) made by developing country banks to

other developing countries (i.e., South-South lending). Much of this refers to lending by Chinese banks to specific (resource-rich) SSA countries including Angola, Congo and Sudan.²⁶ This has been the subject of considerable speculation, particularly because detailed information regarding the nature and conditions of these loans have not been made public. As a result, the expected impact of these loans and their cost (economic and social) relative to alternative financing instruments are not well known. As noted above, a related development is the expansion of foreign banks into SSA and, very recently, the direct entry of Chinese banks into the region.²⁷ This is consistent with a more general trend whereby instead of pursuing overseas clients, international banks have shifted their strategy towards developing a presence in local markets (for a review see Dymski, 2002). Once again, the extent and implications of these trends remain uncertain. Even so, alongside the other developments that have been noted, the issue is that financial integration of SSA with both high-income and emerging market economies is deepening rapidly.

6. Policy implications

6.1 CHALLENGES

The implications of enhanced financial integration and access to international capital markets are not trivial for SSA. There is no doubt that the broadening of financing opportunities may be positive in a number of ways. This includes facilitating higher levels of investment directed to the productive sectors, financing long-term infrastructure projects and generating a range of efficiency spillovers in domestic markets. Where these contribute to robust growth in the con-

²⁶ The exact figures are in doubt although reports suggest these may total in excess of USD 5 billion in the last two years alone (see Moss and Rose, 2006).

²⁷ In October 2007 China's largest deal in SSA was announced – the purchase of a 20% in South Africa's Standard Bank by the Industrial and Commercial Bank of China for USD 5.6 billion (*Financial Times*, October 25, 2007). In the same month, China Development Bank also announced the signing of a strategic partnership with United Bank for Africa, based in Nigeria. According to the *Financial Times*: “The two deals mark the start of a transformation in Africa's banking industry, opening fresh channels for Chinese finance in a region which has previously been largely dependent on western companies and donors. ... Chinese banks are seeking local operators to channel billions of dollars into African projects, in part to secure the oil and minerals needed to fuel China's fast-growing economy.” (30 October, 2007).

text of stable fundamentals, the realization of such benefits could mark a turning point away from chronic aid dependence. At the same time, exposure to new opportunities also brings new risks. Following the theoretical insights of Section 4.1, this subsection outlines three main risks before suggesting some relevant policy priorities for external donors.

A major concern, already voiced by the World Bank (2006c), is the potential re-emergence of unsustainable levels of external debt, putting macroeconomic balance and growth in jeopardy. The literature is replete with mechanisms that can generate excessive borrowing. The idea is that market failures at either the local or global levels lead to substantial (excessive) financing of unprofitable projects.²⁸ These problems can be exaggerated where countries retain access to concessional financing (ODA) but simultaneously gain improved access to international credit markets. The former may cross-subsidize the latter and/or provide an additional incentive for over-borrowing due to moral hazard. This has been dubbed a free-rider problem whereby commercial lenders seek to take advantage of debt forgiveness previously granted to LICs.

A second related risk arising from enhanced access to equity and debt inflows in SSA is the emergence of asset bubbles or wider macroeconomic distortions such as Dutch Disease (see Section 4.2). These risks can be acute for LICs such as those in SSA, precisely because monetary and fiscal policy interventions are constrained due to immature financial markets. The recent appreciation of the Zambian Kwacha is a case in point – inflows from international investors into the local bond market have been identified as a possible causative factor (Fynn and Haggblade 2006). As previously, the economic issue is that domestic distortions become magnified, in turn reducing overall economic efficiency and raising (real) adjustment costs.

A final risk can be described as enhanced financial extraversion whereby the benefits of access to international capital markets are highly restricted and bypass the domestic financial sector. In the extreme this may be associated with a contraction of credit to domestically-oriented firms, a crowding-out of domestic savings and an increase in financial underdevelopment. These mechanisms have been associated with both FDI and non-FDI investment inflows to developing countries and are taken to be most likely to occur where domestic markets are weak (Abbas and Christensen, 2007). In the case of foreign bank ownership, for example, it

²⁸ As Giannetti (2003) notes, excessive lending by overseas banks can occur (*inter alia*) due to sub-optimal depositor insurance policies, incomplete information regarding project (bank) solvency and/or liquidity mismatches. Even where unprofitable lending does not occur, externalities can generate contagion effects leading to liquidity crisis and bank insolvency.

has been argued that foreign banks in local markets tend to cherry-pick larger, credit-worthy firms (for discussion see Cull and Peria, 2007). Where the banking sector is highly concentrated and/or there is a very strong presence of foreign banks, as in SSA, the average effect can be a reduction in total credit to smaller and medium sized businesses. Also, assuming domestic demand for new financing is constrained (or growing only slowly) *and* foreign capital is both cheap and readily available, there may be no incentives to grow domestic savings and / or these may be crowded-out by external inflows. In addition, strong economic fundamentals at the country (or firm) level combined with weak financial sector development may motivate larger, successful firms to seek international listings (or debt issues) as direct substitutes for local sources of financing. In turn this can weaken the local financial sector as the average quality and total size of domestic bank credit declines. Again, these points are pertinent to SSA where financial sector development is low and foreign involvement in specific sectors is high. The principal risk, therefore, is that international capital flows only have distortionary effects and, at best, investment benefits are isolated to specific (export) sectors whilst potential efficiency spillovers are non-existent.

6.2 PRIORITIES

The above discussion highlights the relevance of policies which reduce the downside risks from access to international capital flows and promote their upside investment and efficiency effects. Given that these outcomes crucially depend on the interaction of capital inflows with market failures at the country-level (although not exclusively so), domestic policies oriented to reducing market distortions and strengthening regulatory frameworks will be fundamental, particularly in the financial sector. These issues are covered in detail in Mishkin (2001) (also Brownbridge 2002). However, substantial debate continues especially as regards the appropriate degree of capital account liberalization (see Edison et al., 2004) and the effectiveness of domestic policy interventions vis-à-vis movements in global markets (see Rojas-Suarez, 2005; Stiglitz, 2004).

A more specific set of questions refers to how donors should confront this emerging agenda. Evidently, and as shown in Figure 3, ODA remains a primary source of external capital to LICs (on aggregate) and will remain a core source of funds over (at least) the medium-term given the scale of the development challenge in SSA. Even so, to the extent that the trends suggested in Section 5.2 lead to deeper financial integration of SSA with global markets, the financing space is likely to widen for many countries. If so, a broader range of financing choices will become available for both new and existing projects and foreign aid will be one of various realistic financing options available. A possible consequence of these trends is that

ODA comes to take on a narrower focus whilst other financial instruments, including those from domestic sources, play a wider role.

Obviously no outcome is guaranteed such that forward-looking and constructive engagement by donors will be essential. While it is not the place for this study to develop detailed proposals, the following policy priorities can be suggested for external donors in response to the prospect of SSA's deepening financial globalization:

- *Understand different financing instruments:* to date much of the debate concerning external financing to SSA has focused on ODA and comparatively little attention has been paid to other instruments, especially non-FDI flows.²⁹ This is comprehensible given past circumstances. However, an important message of this study is that financing instruments do not operate in isolation. Their final impacts are conditional and there are important potential interaction effects between financing instruments. The latter is demonstrated by the possibility that foreign aid (including debt relief) engenders excessive foreign borrowing as well as the plausible effect of FDI flows on non-FDI flows. As a result, donors need to develop a more nuanced understanding of the entire financing space, including the costs, benefits and complementarities of different instruments at the country level. Such a perspective would help donors identify areas where ODA retains a strong advantage vis-à-vis other financing sources and where it can complement other financing sources to ensure positive spillovers are realized.
- *Promote comprehensive financing strategies:* the previous point is also pertinent for recipients of external finance. For these actors a priority must be to avoid *ad hoc* financing choices based on a limited evaluation of the opportunity costs of the alternatives. This can be supported by the development of comprehensive long-term public financing strategies which, by considering the risks-reward profiles of different financing mixes, can establish targets for the volume and nature of aggregate inflows.³⁰ At the government level the scope of such a strategy could extend to policies on the capital account and the macroeconomic environment more generally, the objective being to identify a pattern of total (net) capital inflows that is consistent with wider developmental goals. The adopt-

²⁹ By way of example, a literature search on Econlit (a leading bibliography of economics journals) reveals 474 published articles in peer-reviewed journals containing the keywords "aid" and "Africa"; in contrast, only 22 articles include the keywords "private capital" and "Africa". (As at 30/12/2007).

³⁰ A number of scholars note that while many SSA countries pay explicit attention to debt sustainability, broader long-term debt or financing strategies generally are not in place.

ion of such a perspective requires a shift of thinking on the part of both donors and government actors in contrast to a purely incremental approach and/or narrow focus on aid. Donors can become strong advocates of comprehensive financing strategies and provide support for their development where requested. Importantly, such strategies may operate as vital tools to help distinguish between ‘valid’ new debt and excessive borrowing.³¹

- *Focus on domestic financial markets:* a central message of this study is that the depth and efficiency of domestic financial markets appears to be crucial to both attract and benefit from private capital inflows (FDI and non-FDI). Actions to support domestic financial sector development, therefore, should be given a high priority by donors. What might this mean in practice? On the one hand, long-term technical assistance can be valuable with respect to developing a framework that promotes competition in the context of effective regulation and supervision. On the other hand, attention needs to be paid to the relationship between the (often very large) financial flows managed by donors at the country-level and local financial sector development. For example, large deposits made by external donors in the domestic banking sector can undermine competition to attract local deposits, (thereby depressing savings rates), and can promote short-term lending. Although the multilateral institutions are starting to engage with this question (see above), bilateral donors also need to ensure that financial sector development is, in the minimum, not prejudiced by foreign aid inflows.³²
- *Consider regional financial markets:* there are a number of arguments in the literature which advocate that regional bond and equity markets are likely to be more viable than local markets in low income countries given the high liquidity requirements of foreign investors. These issues merit consideration particularly from the viewpoint of supporting enhanced regional trade integration. At the same time, however, this should not obscure the central importance of stimulating financial market development at the country level. As a result, any movements towards regional financial exchanges must be designed so as to maximize potential efficiency spillovers at the country level and to minimize any

³¹ As recognized by the World Bank, one of the problems in dealing with the free-rider problem (see above) is that there can be valid economic reasons for taking-on new debt even where this is non-concessionary in nature. This is also complicated by the fact that the definition of what counts as “concessionary” varies between international institutions (see World Bank, 2006c). As a result, a country-level consensus around long-term financing targets may be a valid ‘way forward’.

³² Specifically, for example, donors can review the term structure of deposits made at a local level (to support longer-term lending) as well as seek to work with commercial banks that have a robust track record of growing local deposits.

direct competition with local financial sector institutions. For this to be the case, careful attention must be given to exchange rate policies at the regional level.

- *Make progress on global market failures:* to the extent that global market failures encourage herding, contagion, short-term speculation and excessive capital account volatility in low income countries, they can undermine the potential benefits from enhanced access to private capital flows. These failures and their relationship to international regulatory standards is a recognized global policy issue which continues to receive attention (e.g., Sundaram, 2003; Stiglitz, 2004). Actions in this domain must be given priority, however, particularly if advanced countries wish to support the sustainable exit of countries from aid dependence over the long-term. A principal challenge is to promote capital flows with longer-term investment objectives rather than shorter-term, speculative flows. A relevant focus for donors in this vein may be on the role of official development finance institutions, such as regional development banks, the IFC (International Financial Corporation) and sovereign wealth funds.³³ These institutions have received relatively little research attention despite substantial growth in their funding base over recent years.
- *Support better data collection and policy research:* as noted throughout this study, data on the size and characteristics of private capital flows to emerging markets is far from complete. The recent growth of certain developing countries as providers of this type of finance to other emerging markets is a further challenge to our knowledge of global flows. In addition, while there has been considerable policy research on the impact of non-FDI capital flows for both emerging markets in general and for specific regions, very little explicit attention has been given to SSA. Once again this reflects the paucity of such flows in the past. Even so, the role of foreign banks in the region and the recent rise in (resource-based) lending from other developing countries demand attention (*inter alia*). Donors can support better data collection at both the global and national levels, as well as more vigorous policy research into these issues.
- *Push for greater transparency:* an essential aspect of improved data collection is enhanced transparency of the terms and total value of external financial commitments, both on- and off-balance sheet. Evidently moves towards greater transparency needs to be comprehensive and should embrace new providers of finance to developing countries, particularly those located in the South. This will be critical in order to monitor the emergence of excessive borrowing and to comprehensively evaluate the opportunity costs of different financing choices.

³³ The latter have been the subject of much recent discussion, particularly in light of the build-up of foreign exchange reserves in China and certain resource-rich developing countries. For discussion see Truman (2007).

7. Conclusion

This study has developed four main arguments. First, despite the relatively sceptical view of non-FDI private capital flows that one regularly encounters in the literature, it has been emphasised that these instruments significantly expand the overall financing space and can generate important efficiency spillovers, especially for domestic financial markets. These beneficial effects, however, are far from guaranteed and exposure to non-FDI flows produces a variety of additional risks which may be more acute in developing countries where financial markets are less mature. Secondly, it has been shown that despite aggregate growth in net flows of non-FDI capital to developing countries as a whole, low income countries have been persistently marginalised in relative terms. The theoretical and empirical literature provides a tentative rationale for this 'allocation puzzle', focussing on domestic market imperfections as well as frictions in global financial markets. The precise determinants of financial flows to developing countries as well as their welfare effects remain unresolved however.

Thirdly, there is some support for the idea that SSA is a special case in the sense that, on average, countries from the region have been additionally marginalised from non-FDI capital flows. A provisional explanation is the heightened macroeconomic vulnerability and especially weak development of domestic financial markets in the past, even compared to other low income countries. These points, however, do not amount to an argument that global capital flows to SSA operate according to their own laws of motion. Consequently, recent changes in economic conditions in SSA demand attention. This leads to the final theme – that there are strong indications that non-FDI flows will play an expanded role in SSA over the medium-term. This derives from global trends, such as enhanced competition for access to SSA markets, as well as improved fundamentals across much of the region.

Constructive engagement with new sources of financing could be highly beneficial for SSA. Among other things it may facilitate the efficient matching of investment projects with corresponding financing instruments. In turn this could provide a mechanism for reducing aid dependence. The risks of exposure to non-FDI capital flows, however, are not trivial, making a clear case for policy strengthening in this area. Among the priorities suggested for external donors are promoting the development of comprehensive long-term public financing strategies, improved data collection and research, and initiatives to enhance the transparency of financial flows to developing countries. Financial globalization is already evident in SSA and will continue. The challenge is not to ignore its effects but, rather, to ensure that beneficial investment and efficiency effects from new sources of financing are realized while downside

risks are actively reduced. If recent trends are anything to go by, these issues will play an increasingly prominent role in SSA's future development.

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Additional figures

All figures are based on the author's calculations from World Bank (2006a); see Appendix A for country groupings.

Figure 2: Aggregate net external capital flows to developing countries (annual)

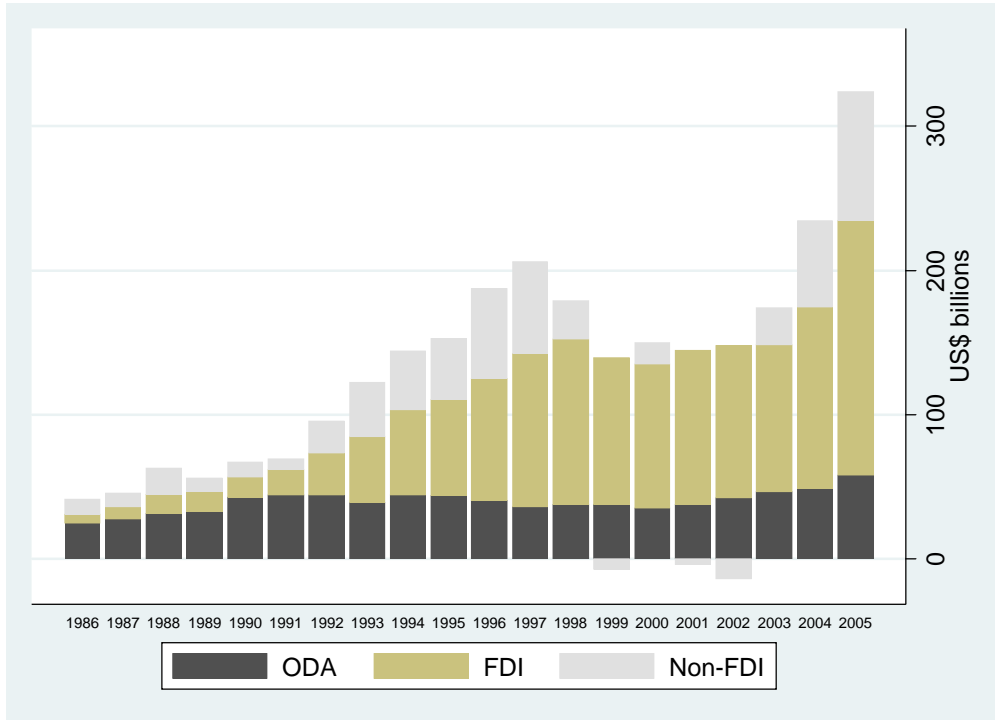


Figure 3: Relative economic size of net capital flows (by period)

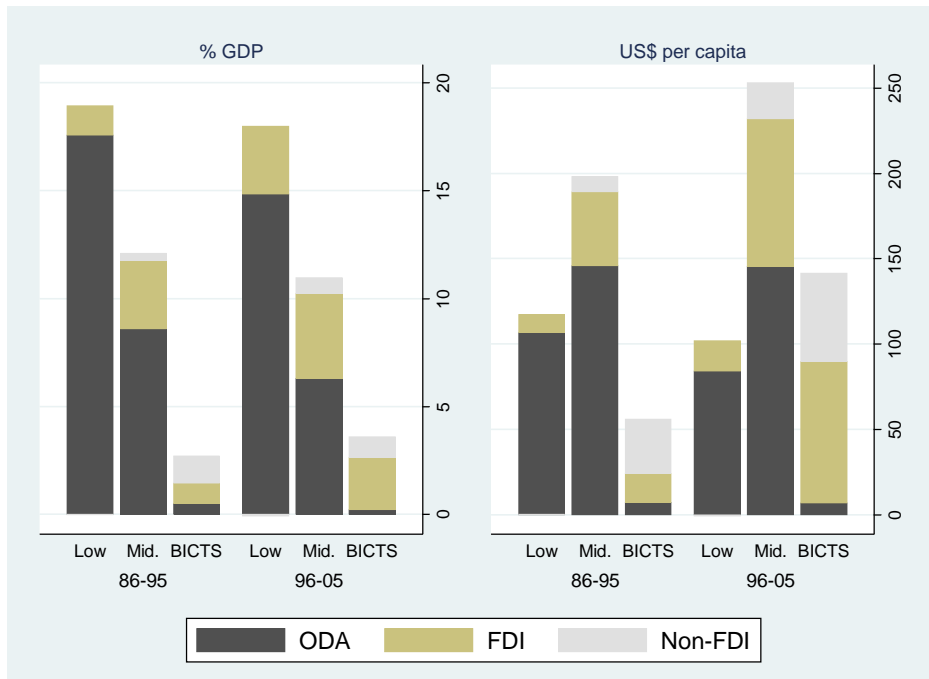


Figure 4: Aggregate net non-FDI capital flows to developing countries (annual)

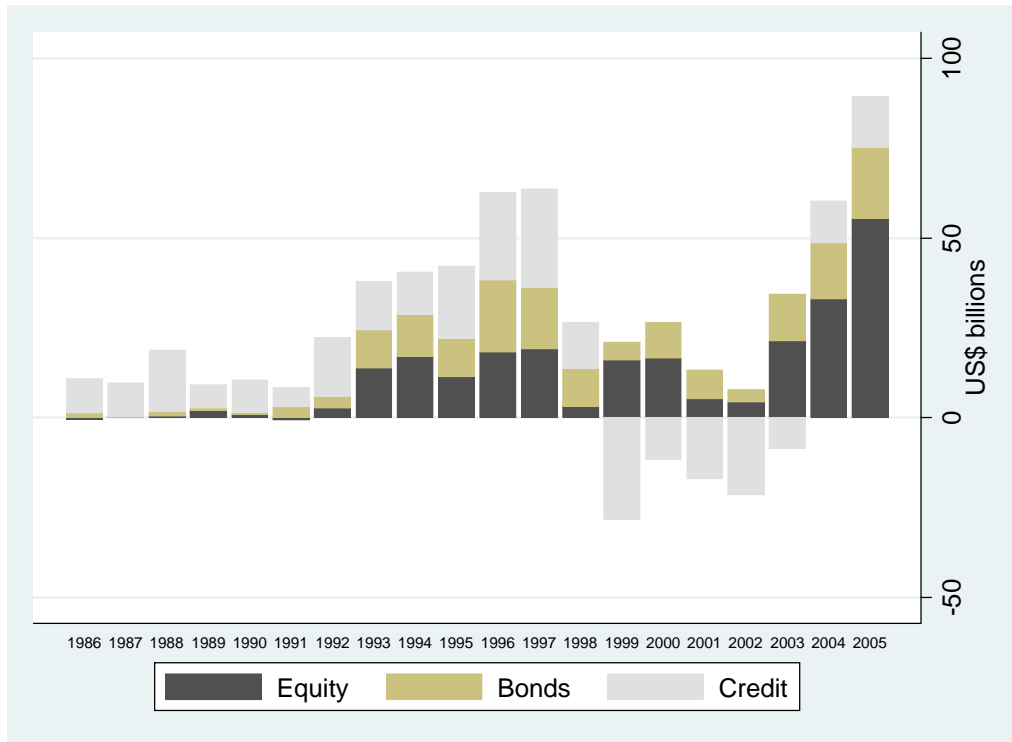


Figure 5: Relative economic size of net non-FDI capital flows (by period)

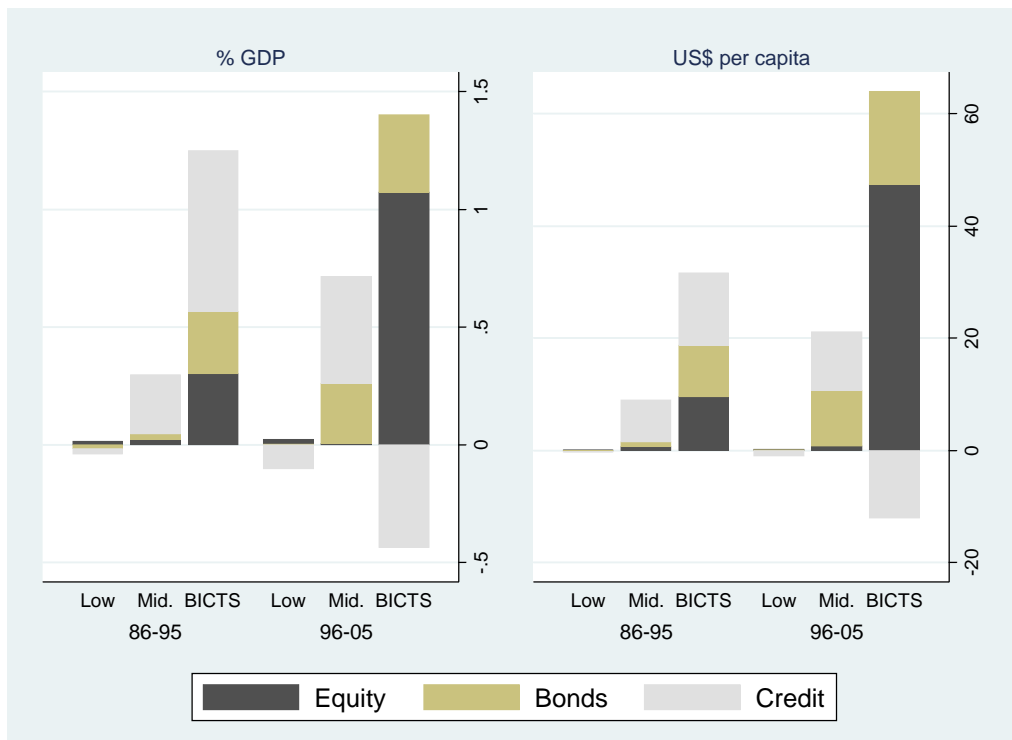


Figure 6: Distribution of private capital flows among developing countries (average % share, by period)

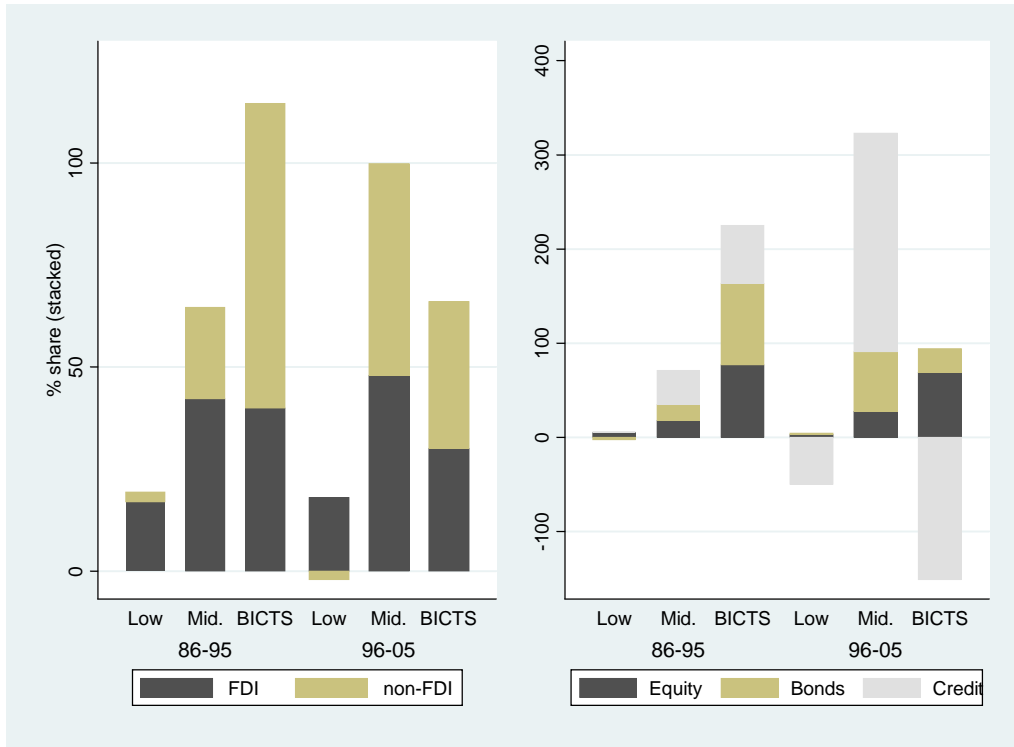


Figure 7: Volatility of private capital flows to developing countries (adjusted and unadjusted measures, by period)

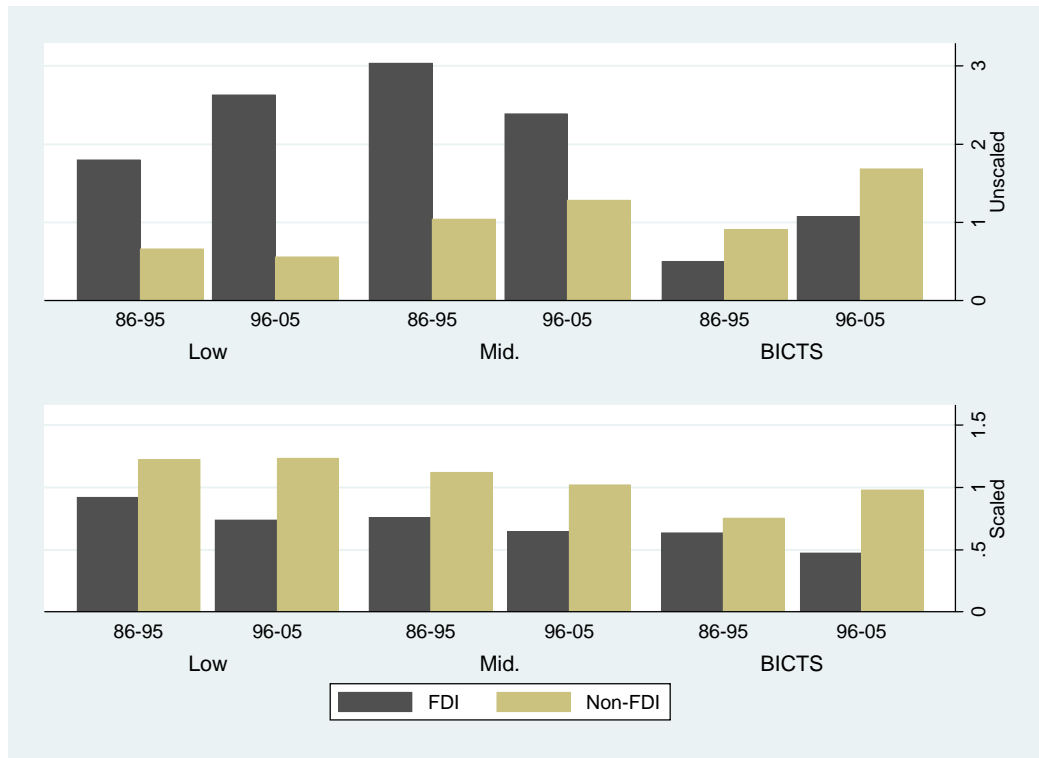


Figure 8: Volatility of non-FDI private capital flows to developing countries (adjusted and unadjusted measures, by period)

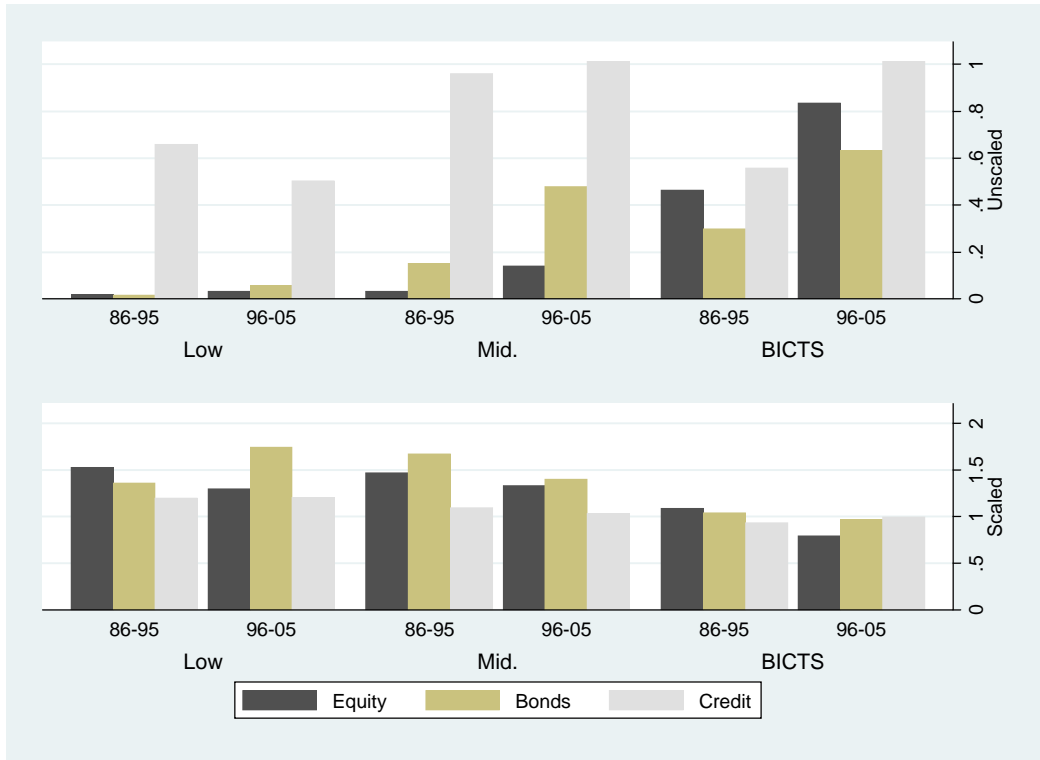


Figure 9: Aggregate private capital flows to SSA and non-SSA groups (annual)

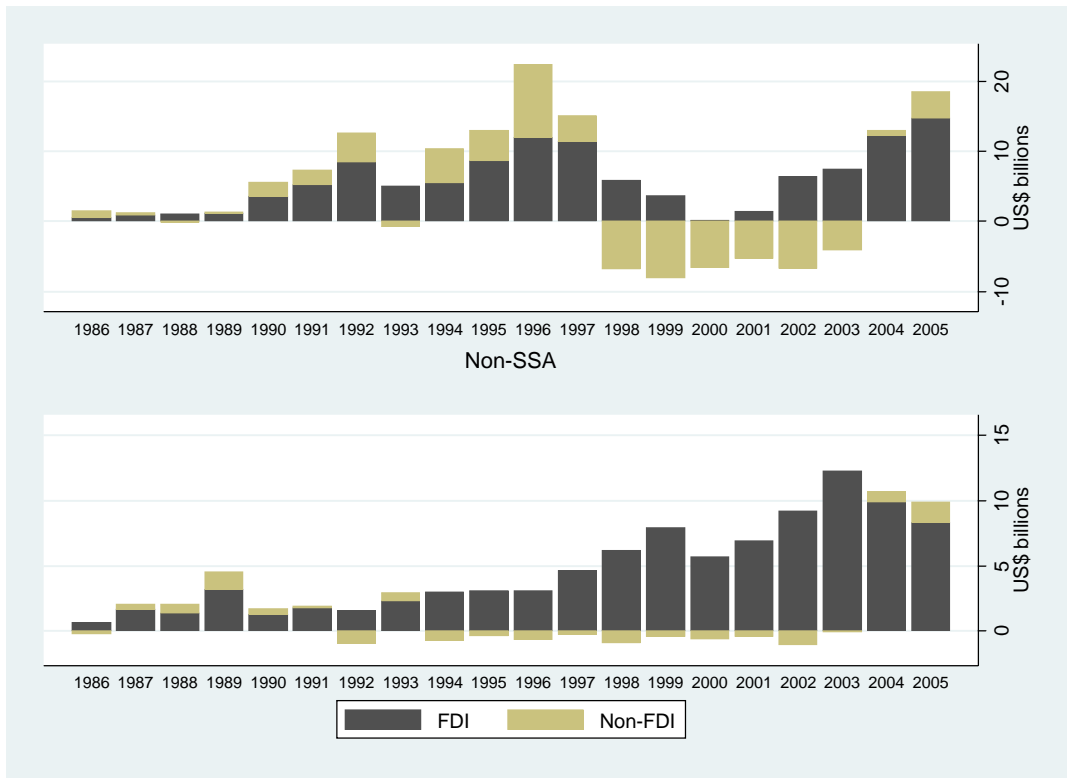


Figure 10: Relative economic size of non-FDI flows to SSA and non-SSA (by period)

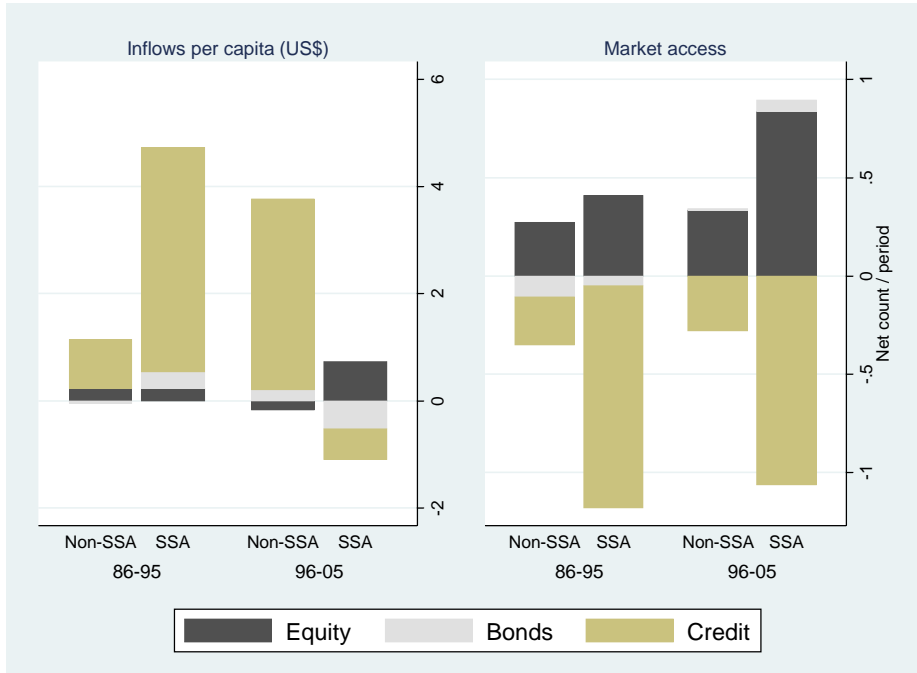
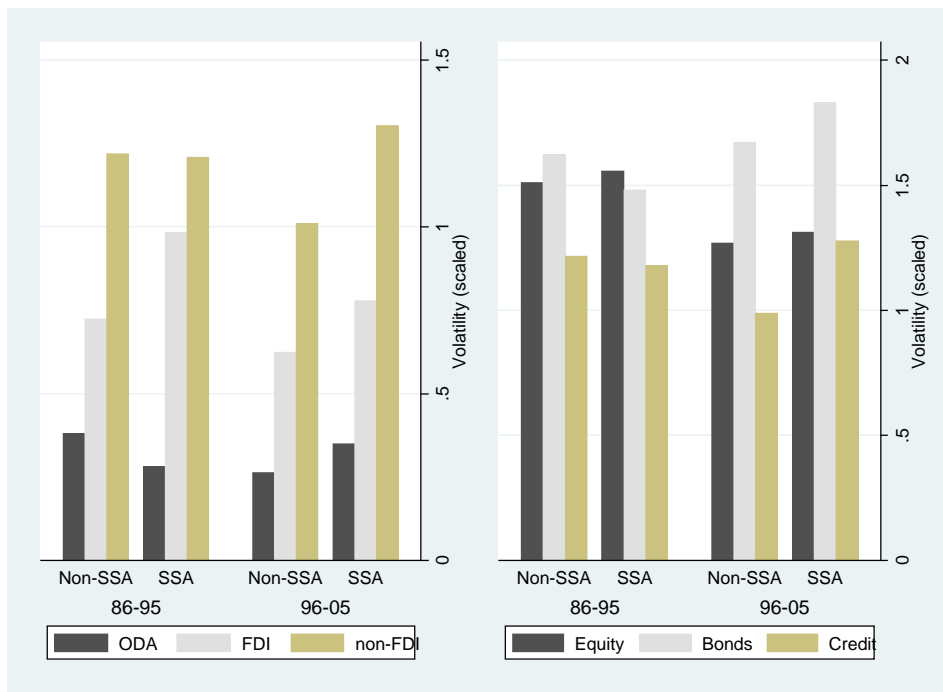


Figure 11: Volatility of capital flows to SSA and non-SSA (scaled measures, by period)



Appendix A: Country groupings

Low income	Bangladesh, Benin, Burkina Faso, Burundi, Cambodia, Central African Republic, Chad, Comoros, Congo (Dem. Rep.), Cote d'Ivoire, Eritrea, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Haiti, Kenya, Kyrgyz Republic, Lao PDR, Liberia, Madagascar, Malawi, Mali, Mauritania, Mongolia, Mozambique, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Solomon Islands, Somalia, Sudan, Tajikistan, Tanzania, Timor-Leste, Togo, Uganda, Uzbekistan, Vietnam, Yemen Rep., Zambia, Zimbabwe.
Middle income (lower and upper)	Albania, Algeria, Angola, Armenia, Azerbaijan, Belarus, Bhutan, Bolivia, Bosnia and Herzegovina, Botswana, Bulgaria, Cameroon, Cape Verde, Colombia, Congo (Rep.), Djibouti, Dominican Republic, Ecuador, Egypt (Arab Rep.), El Salvador, Fiji, Gabon, Georgia, Guatemala, Guyana, Honduras, Indonesia, Iran (Islamic Rep.), Iraq, Jamaica, Jordan, Kazakhstan, Lesotho, Macedonia, FYR, Maldives, Mauritius, Micronesia (Fed. Sts.), Moldova, Morocco, Namibia, Nicaragua, Paraguay, Peru, Philippines, Samoa, Sri Lanka, Suriname, Swaziland, Syrian Arab Republic.
BICTS	Brazil, India, China, Thailand, South Africa
SSA (excl. South Africa)	Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Congo (Dem. Rep.), Congo (Rep.), Cote d'Ivoire, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Namibia, Niger, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, Somalia, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe.
Non-SSA (IDA recipients)	Albania, Armenia, Azerbaijan, Bangladesh, Bhutan, Bolivia, Bosnia and Herzegovina, Cambodia, Djibouti, Georgia, Guyana, Haiti, Honduras, Indonesia, Kyrgyz Republic, Lao PDR, Maldives, Moldova, Mongolia, Nepal, Nicaragua, Pakistan, Papua New Guinea, Samoa, Solomon Islands, Sri Lanka, Tajikistan, Timor-Leste, Tonga, Uzbekistan, Vanuatu, Vietnam, Yemen (Rep.)

Note: the definition of low, lower middle and upper middle income countries follows World Bank (2006a)

Appendix B: Capital flow volatility measures

Where economic time series are not stationary the application of orthodox variance measures, such as the standard deviation, can be misleading. With respect to the capital flow series analysed in this study, both net flows and their corresponding relative measures (e.g., flows per capita) frequently do not behave in a stationary fashion; this is confirmed by unit root tests. Despite this observation, one notes that previous studies frequently employ orthodox variance measures to capital flow series of this type (e.g., Gabriele et al., 2000). It is also the case that there is no 'standard' technique available to measure the volatility of capital flows which deals with the above problem of non-stationarity and ensures comparability between different capital flow instruments. Osei et al. (2002) review a number of alternative measures applied by scholars; more sophisticated GARCH-type measures can be used for high-frequency financial data but are not appropriate in this case.

The measurement approach adopted here is to restrict attention to consecutive windows of 5 years rather than the full period. As such the volatility becomes conditional on the time period chosen. In each 5 year period and for each country, the standard deviation of a given capital flow relative to GDP is estimated (given by the square root of the average squared deviation from the period mean). Simple averages of these 5-yearly estimates are calculated to indicate volatility conditions over longer time periods. It is important to note, however, that standard deviation measures reflect the underlying size of the variables analysed and, thus, are not directly comparable where variables differ in scale. As a result, and where comparability is desired, it is appropriate to normalize the standard deviation measure in a consistent fashion to render scale differences immaterial. For this study the normalization is to divide the 5-yearly standard deviation by the absolute mean of the underlying variable (i.e., a given capital flow as a percentage of GDP) for the same period, thus yielding a type of coefficient of variation. These two estimates – the 5-yearly standard deviation and its scaled counterpart – are referred to as the *unadjusted* and *adjusted volatility* measures respectively.

The results from this exercise are highly comparable to alternative volatility measures such as the average first difference of the given capital flow as a percentage of GDP.

Appendix C: A measure of the relative distribution of global capital flows

The measure developed to evaluate the extent to which the distribution of global capital flows to developing countries systematically varies between countries, controlling for differences in average income, is defined as follows:

$$\theta_{ir} = \varphi_{ir} \sqrt{\frac{\left\{ \frac{|\sum_{t=r}^{r+5} f_{it}|}{\sum_{t=r}^{r+5} \sum_{j=1}^n f_{jt}} \right\}}{\left\{ \frac{\sum_{t=r}^{r+5} y_{it}}{\sum_{t=r}^{r+5} \sum_{j=1}^n y_{jt}} \right\}}} = \varphi_{ir} \sqrt{\left(\frac{|\sum_{t=r}^{r+5} f_{it}|}{\sum_{t=r}^{r+5} y_{it}} \right) \left(\frac{\sum_{t=r}^{r+5} \sum_{j=1}^n y_{jt}}{\sum_{t=r}^{r+5} \sum_{j=1}^n f_{jt}} \right)}$$

$$\text{where, } \varphi_{ir} = \text{sign} \left\{ \sum_{t=r}^{r+5} f_{it} \right\}$$

where f denotes the capital flow of interest and y refers to gross domestic product while subscripts i and j refer to countries and t refers to time in years. The resulting measure for country i thus gives the ratio of: (1) its share of capital flows to all countries, denoted by $j = \{1, 2, \dots, i, \dots, n\}$, to (2) its share of total gross domestic product of these countries. In each case the calculation refers to a 5 year period, denoted by subscript r . Note that the final representation in the equation above shows that the measure is equivalent to an adjusted measure of capital flows relative to GDP, the adjustment being for the aggregate size of capital flows at the global level. To facilitate comparability over time between countries the measure attempts to compensate for changing patterns in capital flows at the global level. Or to put it another way, imagine if total capital flows to developing countries increase sharply in a given period and each country receives a share of this increase that corresponds to its GDP share. As a result, capital flows as a percentage of GDP will rise for all countries holding GDP fixed; however, the above distributional measure will remain unchanged. Finally, note that the measure is scaled to the power of $\frac{1}{2}$ in order to reduce the effect of extreme values (although the statistical test used in Section 5 is robust to non-normality and scale effects in the underlying data).