

WP/15/86

IMF Working Paper

Non-FDI Capital Inflows in Low-Income Developing
Countries: Catching the Wave?

by Juliana D. Araujo, Antonio C. David,
Carlos van Hombeeck, and Chris Papageorgiou

I N T E R N A T I O N A L M O N E T A R Y F U N D

IMF Working Paper

Strategy, Policy and Review Department and Institute for Development and Capacity

Non-FDI Capital Inflows in Low-Income Developing Countries: Catching the Wave?

Prepared by **Juliana D. Araujo, Antonio C. David, Carlos van Hombecck, and Chris Papageorgiou¹**

Authorized for distribution by Catherine Pattillo and Andy Berg

April 2015

IMF Working Papers describe research in progress by the author(s) and are published to elicit comments and to encourage debate. The views expressed in IMF Working Papers are those of the author(s) and do not necessarily represent the views of the IMF, its Executive Board, or IMF management.

Abstract

Low-income countries (LIDCs) are typically characterized by intermittent and very modest access to private external funding sources. Motivated by recent developments in private flows to LIDCs this paper makes two contributions: First, it constructs a new comprehensive dataset on gross private capital flows with special focus on non-FDI flows in LIDCs. Concentrating on LIDCs and more specifically on gross non-FDI private flows is intentionally aimed at closing a gap in existing datasets where country coverage of developing economies is limited mainly to emerging markets (EMs). Second, using the new data, it identifies several shifting patterns of gross non-FDI private inflows to LIDCs. A surprising fact emerges: since the mid 2000's periods of surges in gross non-FDI private inflows in LIDCs are broadly comparable to those of EMs. Moreover, while gross non-FDI inflows to LIDCs are on average much lower than those to EMs, we show that the LIDC top quartile gross non-FDI inflow is comparable to the EM median inflow and converging to the EM top quartile inflow.

JEL Classification Numbers: F21;F30; F32; F34

Keywords: Gross Capital Flows, Surges, Low-Income Countries, Market Access

Author's E-Mail Address: jaraujo@imf.org; adavid@imf.org; hombecck@econ.umd.edu; cpapageorgiou@imf.org

¹ Special thanks go to Philip Lane for extensive discussions and detailed comments in earlier drafts of the paper. We also thank John Bluedorn, Alina Carare, Rupa Duttagupta, Raphael Espinoza, Gian Maria Milesi-Ferretti, Camelia Minoiu, Sean Nolan, Cathy Pattillo, Carlos Vegh and participants at various workshops and conferences for comments and suggestions. We are grateful to the IMF Statistics Department for invaluable technical discussions. This paper is part of a research project on macroeconomic policy in low-income countries supported by U.K.'s Department for International Development. The views expressed herein are those of the authors and should not be attributed to the IMF, its Executive Board, its management, or to DFID.

Contents		Page
I.	Introduction	4
II.	Construction of the Dataset	6
	A. Data Sources	6
	B. Treatment of Missing Data	9
	C. Gross non-FDI Private Capital Inflows	11
III.	Some Stylized Facts	14
	A. Country Heterogeneity	14
	B. Patterns and Trends in LIDCs	15
	C. Comparing Flows in LIDCs and EMs	17
IV.	Conclusion	25
 Appendices		
A.	The use of BPM6 and WEO data	30
B.	Comparison with BIS data	32
C.	Comparison with FFA Dataset	34
D.	Sample of Countries	37
E.	Net Flows to Selected LIDCs	39
 Tables		
1.	Correlation Between Non-FDI Private Inflows and Other Balance of Payments Components	22
2.	Surges in LIDCs	26
 Figures		
1.	Correlations between BOPS and WEO Inflow Series by Liability Type across Countries and Income Groups	8
2.	Composition of Non-FDI Private Inflows to LIDCs (Percent of GDP, Average) . . .	12
3.	Gross Private Inflows to LIDCs by Subgroups (Percent of GDP)	16
4.	Gross Non-FDI Private Inflows to Selected LIDCs (Percent of GDP)	18
5.	Non-FDI Private Inflows by Type to Benchmark LIDC Subgroup (Percent of GDP)	19
6.	Other Investment Inflows by Type to Benchmark LIDC Subgroup (USD Bln) . . .	19
7.	Share of non-FDI Private Inflows to Private Inflows	20
8.	Inflows to LIDCs and EMs by Percentile (Percent of GDP)	24
9.	Frequency of Non-FDI Private Capital Inflow Surges (Percent)	24
10.	Other Private Investments Inflows and BIS Loans (USD MM)	32

11. Other Private Investments Inflows and BIS Loans (USD MM)	33
12. Comparison Between Extended LIDCs Database and FFA - non-FDI Private Inflows (Percent of GDP)	34
13. Net Non-FDI Private Flows to Selected LIDCs (Percent of GDP)	39
14. Net Non-FDI Private Flows to Selected LIDCs (Percent of GDP)	40

I. INTRODUCTION

The international flow of assets has been expanding rapidly over the past decades. The development and deepening of financial markets, improvements in technology, and liberalization of current and financial accounts are all factors that have helped expand international financial activity. However, for many low-income developing countries (LIDCs) facing shallow domestic financial markets and suboptimal fiscal positions, this expansion has been limited or nonexistent. Historically, many of these economies have mostly relied on foreign aid and concessional loans to finance their international transactions.¹

Many LIDCs started to experience increases in private capital inflows only in the 1990s, primarily driven by foreign direct investment (FDI) as documented by Dorsey et al. (2008). More recently, there has been speculation accompanied with fragmented evidence that non-FDI private inflows have also started to pick up. Relatedly, sovereign bond issuance in international capital markets by some LIDCs has raised the question of the extent to which LIDCs are gaining (or regaining) market access.

In order to study the recent LIDC experience, this paper presents a newly constructed dataset of gross private flows with extended LIDC coverage. The dataset covers 58 LIDCs and 92 EMs for the period of 1990 to 2012.² The dataset is subsequently used to explore recent patterns and trends of gross private flows in LIDCs with particular focus given to non-FDI inflows.³ As Hausmann and Fernandez-Arias (2001) argue, a decline in FDI relative to non-FDI inflows could be a signal of increased financial development and an improved institutional framework. Since FDI represents a longer-term commitment between investor and country, one could expect that it would require better institutions and policies in place. However, as the authors point out, a higher share of FDI in total inflows could be the outcome of the country's lower capacity and financial development.

This paper also studies episodes of large gross capital inflows, the so-called capital inflow surges. A number of papers have analyzed periods of surges in capital flows in emerging markets (EMs) (e.g. Reinhart and Reinhart (2008), Forbes and Warnock (2012) and Ghosh et al. (2014), among others). Much less attention has been given to LIDCs, partly because of con-

¹The definition of LIDCs comprises countries that were designated eligible for the International Monetary Fund's concessional lending vehicle Poverty Reduction and Growth Trust (PRGT); and had a level of per capital Gross National Income (GNI) less than the PRGT income graduation level for non-small states (USD 2,390).

²The dataset will become publicly available and posted in the IMF external website.

³In line with the literature, *inflows* refer to changes in non-resident holdings of domestic assets and *outflows* to changes in resident holdings of foreign assets. Net flows refer to the difference between *inflows* and *outflows*.

straints on the availability and quality of data, and partly because of the predominant view that global financial flows to LIDCs are small and that official aid is the main driver of capital inflows in LIDCs.⁴ Indeed, while the level of flows to LIDCs tends to be low relative to those in higher-income economies, in relative terms (when considering the ratio of capital flows to GDP), non-FDI private flows may be quite significant. In addition, small shifts in global portfolio holdings can translate into substantial relaxation and tightening of financing constraints in these economies. As a result, capital flow surges could lead both to unique opportunities for spurring economic and financial development, but also to potential vulnerabilities due to capital reversals or sudden stops. This is especially relevant if these developments are compounded by a reduction in official aid flows.

There is a large debate on the advantages and disadvantages of focusing on gross versus net capital flows. Perhaps motivated by the availability of the data at the time, earlier papers in the literature place greater emphasis on abrupt changes in net capital flows and the macroeconomic impact on exchange rates and output, including the influential work of Calvo (1998) on sudden stops. Most recently, the literature has emphasized the importance of gross capital flows (see e.g. Milesi-Ferretti and Tille, 2011; Gourinchas and Rey, 2013; Broner et al., 2013) since the driving forces of foreign and domestic investors' decisions are often different and should be analyzed separately (Forbes and Warnock, 2012). In addition, as Obstfeld (2012) emphasizes, gross positions can better reflect the impact on national balance sheets of various economic shocks. A variety of assets (such as bank deposits and government or corporate bonds) carry default or counterpart risk and as such might have important implications for financial stability. While changes in net flows can have important macroeconomic implications, shifts in gross flows might create significant financial vulnerabilities. Since for LIDCs changes in gross inflows can better capture changes in market access, this paper concentrates on gross inflows.

The paper uncovers several interesting facts about recent patterns of gross non-FDI private capital inflows in LIDCs. Surprisingly, the top quartile of non-FDI inflows as a share of GDP

⁴Exceptions are Lane (2015) and Reinhart and Reinhart (2008) which identify various periods of capital flow bonanzas in LIDCs but with no distinction among official and non-official financing. Another exception is the recent contribution by Alfaro et al. (2014) that distinguishes between private and public net capital flows in 134 non-advanced economies for the period 1980-2007. These authors employ an innovative approach to constructing the cross-country net capital flows dataset by using World Bank *Global Development Finance* (GDF) and the OECD *Development Assistance Committee* to decompose debt into official and private borrowers and for official development assistance, respectively. The dataset includes measures of equity flows, the sum of direct investment and portfolio equity investments, and debt flows, the sum of portfolio debt flows and some components of other investments. While the paper does not explicitly focus on LIDCs, it shows that many countries in Africa exhibited net private capital outflows consistent with low productivity growth. As already mentioned, the measure of capital flows is net and usually includes direct investment.

to LIDCs are found to be comparable to the EM median inflow. In fact, after the global financial crisis, the size of top quartile inflows in LIDCs converged to EM top quartile inflows. Regarding episodes of surges, more LIDCs started to experience them from 2007 onwards, three years after the frequency of surges in EMs started to pick up during the third wave of inflows. In addition, non-FDI inflows to LIDCs are shown to be positively correlated with some other balance of payments components in a similar fashion as in EMs, although these inflows display a higher negative correlation with current account balances in LIDCs. The latter fact could suggest that inflows may have a more direct macroeconomic impact in LIDCs.

The rest of the paper is organized as follows. Section 2 describes the construction of the dataset, including data sources, definitions, and comparisons with existing datasets. Section 3 takes a first look at key patterns of gross non-FDI private capital inflows to and in subgroups of LIDCs including small states and fragile states. This section also sheds light on the distinctive behavior of capital flows in LIDCs relative to EMs, including by investigating whether LIDCs have experienced surges in gross non-FDI private capital inflows. Section 4 concludes.

II. CONSTRUCTION OF THE DATASET

The newly constructed dataset covers 58 LIDCs and 92 EMs for the period of 1990 to 2012.⁵ This section discusses key elements in the construction of the new dataset. It reports the data sources employed, the approach used to build up the dataset, and explains the measure of gross non-FDI private capital flows and the differences compared to existing datasets.

A. Data Sources

The primary data source used to build the dataset was the Balance of Payments Statistics (BOPS) dataset, following the compilation methodology described in the IMF's Balance of Payments Manual version 5 (BPM5).^{6,7} BOPS information originates from official data provided by national compilers (typically central banks and statistical agencies); the data follows

⁵With respect to the LIDC group data is not available for Somalia and South Sudan. Somalia lacked a government recognized by the IMF for most of the covered period and South Sudan became independent only in 2011.

⁶BOPS is compiled by the IMF and contains the detailed data used in compiling the Balance of Payments Yearbook. A portion of these data appears in the International Financial Statistics (IFS) dataset. For more information see: www.imf.org/external/data.htm

⁷See Appendix A for a brief discussion on BPM5 and the most recent version BPM6. For a detailed conversion matrix between the two versions see: www.imf.org/external/pubs/ft/bop/2007/pdf/matrix.pdf

a methodology that is consistent across countries; and the information is validated in agreement with national compilers by the IMF Statistics Department, which is the developer of the methodology used in balance of payments statistics (in collaboration with other international agencies).

While BOPS is widely used as the primary data on capital flows, there are some gaps in its coverage for some countries – especially LIDCs – and for some time periods. This paper’s dataset fills gaps in BOPS data by using dataset from the WEO database.⁸ The WEO data on gross capital flows is based on estimates and projections originated by IMF country desks. Therefore, one significant advantage of this dataset is the widespread availability of data across countries, since country desks are required to report data for the bi-annual publication of the WEO and almost all IMF member countries have some financial account information.

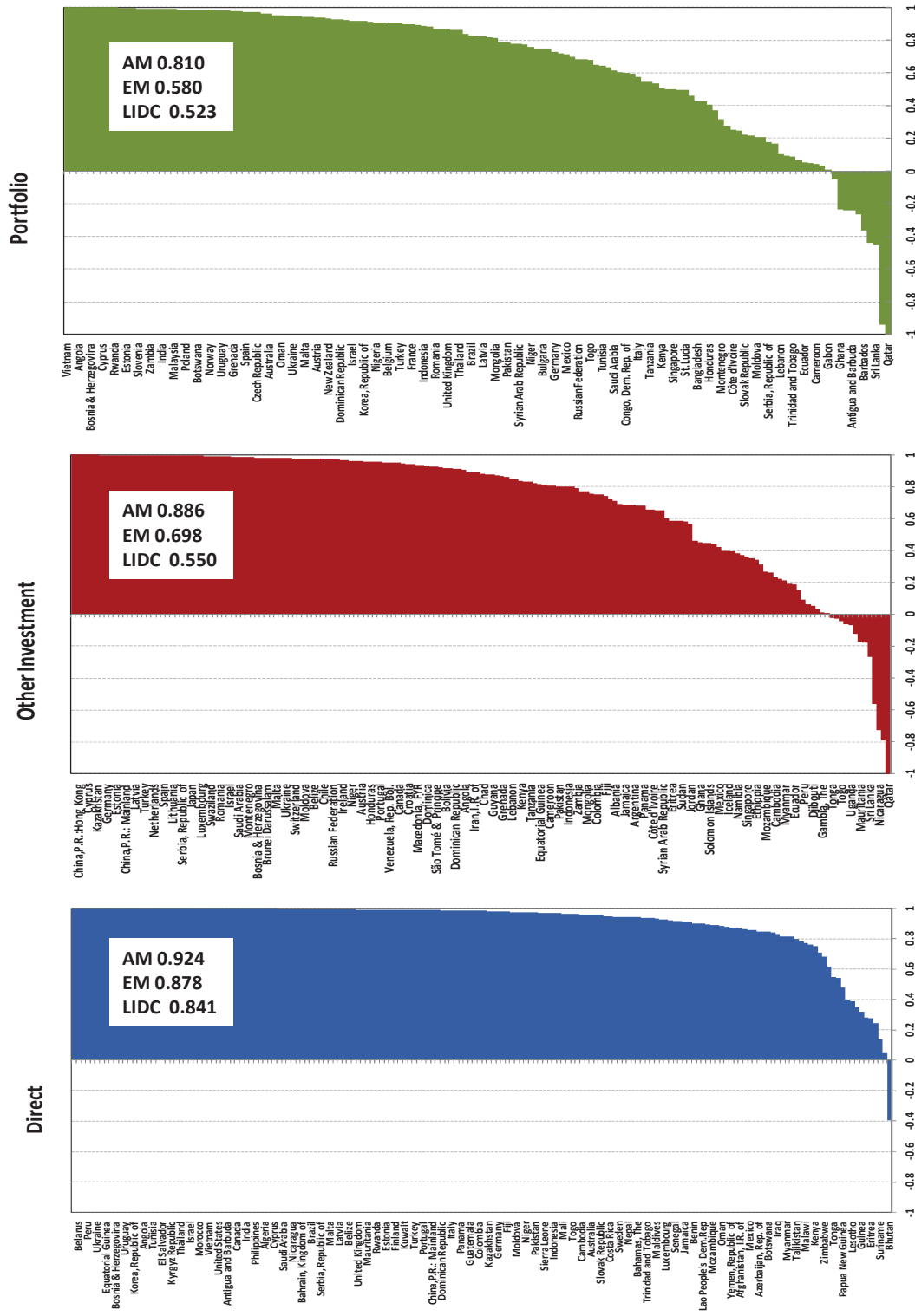
However, while in most cases the historical data included in the WEO comes from national sources, economists may adjust them to better reflect, among other things, data from various sources and the nature of financial transactions and related classification. Adjustments might also take place to ensure consistency among the different macroeconomic sectors. Such adjustments are often ad hoc in nature and tend to be hard to reconcile with the standard methodology used in balance of payments manuals. This becomes pronounced especially when historical series are not revised accordingly.

Figure 1 illustrates simple bilateral correlations between BOPS and WEO data for three types of capital inflows – *Foreign Direct Investment, Portfolio Investments and Financial Derivatives*, and *Other Investments*.⁹ The low average correlations of Portfolio (LIDC=0.523; EM=0.580) and Other Investments (LIDC=0.550; EM=0.698) series across the two datasets is quite striking, while the correlations are much higher for Foreign Direct Investment (LIDC=0.841; EM=0.878). There is also sizable heterogeneity across countries in the correlations of Portfolio and Other Investment categories.

⁸Since a number of papers on capital flows to LIDCs and EMs used the WEO as the main data source (e.g. Dorsey et al., 2008), an explanation of the use of BOPS instead of WEO as the primary source is warranted.

⁹Portfolio Investment and Financial Derivatives includes equity and debt securities in the form of bonds and notes, money market instruments and financial derivatives such as options. Other investment is a residual category for all financial transactions not covered in direct and portfolio investment, or reserve assets. It is composed by trade credits, loans, currency and deposits, and other assets and liabilities. Trade credits are the direct extension of credit by suppliers and buyers and advance payments for transactions associated with trade of goods and services. Loans comprise direct lending of funds through an arrangement with no security evidencing the transaction or a non-negotiable document or instrument. Currency consists of notes and coin that are in circulation and commonly used to make payments. Deposits consist of deposits that are exchangeable on demand at par and all claims reflecting evidence of deposit. More detailed definitions may be found at the Balance of Payments Manual webpage (<http://www.imf.org/external/pubs/ft/bop/2007/bopman6.htm>).

Figure 1. Correlations between BOPS and WEO Inflow Series by Liability Type across Countries and Income Groups



Source: WEO and BOPS.

Given the differences found in the two datasets, the next subsection describes how WEO data are cross-checked for consistency and used to fill the BOPS gaps.

B. Treatment of Missing Data

The WEO data are used as a secondary source to close gaps and identify outliers in the BOPS dataset, whenever WEO and BOPS historical data were judged to be consistent for a specific country and time period. The following procedure was followed:

1. For missing observations in the BOPS dataset, available WEO data are considered. Only in exceptional cases it was deemed necessary to replace non-missing BOPS with WEO data; such cases are discussed below.
2. The WEO data is checked for the presence of artificial patterns (such as repeated numbers or linear trends). If such patterns exist, the series for the specific country and time period are not used. The WEO data is used to fill in gaps in the BOPs series if there is a consistent overlap between the BOPS and WEO series in a given country and time period.
3. The BOPS and WEO data are cross-checked for the presence of large discrepancies. Large spikes of flows for a given year are considered events and further investigated. One possibility is that spikes are related to another proximate and offsetting flow in which case the net value would be roughly the same in the two databases. If this is not the case, the spike is checked with IMF country desks and country reports and assessed if a) a genuine event; b) the result of different methodological approaches used in the two datasets; c) reflective of apparent noise in the data.
4. Whenever possible, auxiliary databases are used to judge the overall trend and presence of outliers. This entails analyzing capital flow and stock data from different sources including bank claims from the Bank for International Settlements (BIS), equity and bond flows from the Emerging Portfolio Fund Research (EPFR) Global Database, and external bond issuance from Dealogic.¹⁰

¹⁰The concept used from BIS is locational banking statistics. It provides quarterly data on international financial claims and liabilities of bank offices resident in the BIS (44 countries report to BIS, comprising most advanced market and financial centers). Both domestic and foreign-owned banking offices in the reporting countries report their outstanding positions, including those vis-a-vis own affiliates. The locational banking statistics are compiled using principles that are consistent with balance of payments. EPFR is a database that tracks data at weekly frequency on institutional investors that use vehicles such as mutual funds to allocate resources. As such,

5. As of the time of the construction of the database, the available BOPS version available covered up to 2012, although several countries (especially LIDCs) did not report data for that year yet. When reasonable, WEO estimates were used, otherwise the data was reported as not available.
6. The process is closed with a final thorough scan of the resulting extended dataset, with flows scaled by GDP, and cross-checking with WEO data for any remaining outliers.
7. The data source used for each series and time period for every country are tracked and comments on outliers/events are incorporated in the database.

A couple of points are worth noting. While the focus is on gross flows, it is not possible to disentangle them completely from net flows. It is possible to find very different gross flows between WEO and BOPS data that produce the same net flow, since one database accounted for an inflow that was compensated by an outflow and the other just opted to input the net flow (usually on the liability side). In the case of the WEO, this is a widespread practice, and whole series of assets are populated by zeros. Also, harmonized concepts between databases are taken into account. One example is derivatives (usually not relevant for LIDCs), which are a separate category in the BOPS dataset, but are included in portfolio flows in the WEO dataset. While the BOPS dataset distinguishes between nonexistent data (flagged as not available “n.a.”) and zero flows, this is not always the case in the WEO database. Here “n.a.” are replaced by zeros when those “n.a.” observations are surrounded by strings of zeros.

There are only a few cases where WEO data are used when BOPS data are available. One notable example is Mauritius, where from 2010 onwards, a new survey on capital flows related to offshore companies was implemented. BOPS data included those flows for 2010-2012, which represented a major structural break in the series. WEO data was used instead to obtain a consistent time series. Another exception is Ghana where inflows captured in EPFR in the year 2010 are taken into account. Other examples relate to *Other Investments Assets*, where WEO data from 1999-2012 is used for Mauritania and BIS data is used for 2011-12 for Senegal.

Another example is the 2009 SDR (Special Drawing Rights) allocations, implemented to combat the effects of the global financial crisis. According to BPM6, the SDR allocation

it covers part of the flows in the liabilities side of the portfolio component (bond and equity) of the financial account of the balance of payments. Dealogic is an electronic platform used by investment banks worldwide and provides comprehensive information on global primary market equity, bond and loans.

should be recorded in the balance of payments both in the asset side as an increase in reserves, and in the liabilities side as other investment liabilities. In BPM5 it was not recorded as a liability. Although BOPS followed BPM5 at the time, the IMF Statistics Department decided that it was appropriate to adopt the new methodology for the operation and that was reflected that in this dataset.¹¹

C. Gross non-FDI Private Capital Inflows

With these preliminary steps completed, it is now possible to compute a measure of gross non-FDI private capital inflows. Consistent with the recent literature that convincingly argues for distinguishing between private and public flows to developing countries (see Alfaro et al., 2008), official flows needed to be removed from this measure. An important distinction is the definition of *creditor official flow* and *debtor official flow*. While a foreign private investor buying official domestic assets from a country is considered as a private inflow, foreign official inflows that are directed towards a private agent in the domestic market—for example, a loan from a multilateral agency to a private domestic firm—are excluded.

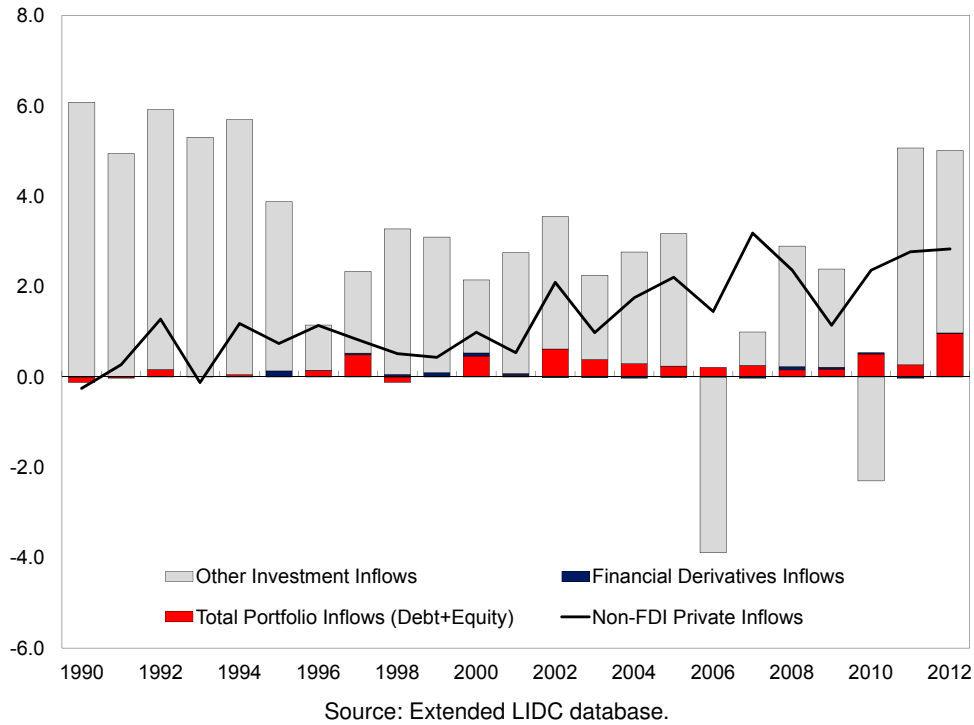
The WEO dataset distinguishes between flows according to these two concepts. In the component *Other Investments*, the first is *Official Liabilities (including use of Fund credit)* and takes into account all other liabilities of the domestic official sector (includes general government and monetary authority; excludes banks and other sectors). The second is *Liabilities to Official Creditors* which includes all other liabilities of domestic residents with respect to foreign official creditors.¹² The latter is the component of flows that one would like to exclude from a measure of private inflows, as it precisely refers to inflows originated from official institutions.

The BOPS dataset does not provide similar components since the only available breakdown is by debtor, meaning that while we are able to reproduce *Official Liabilities*, we are not able to measure *Liabilities to Official Creditors*.¹³ Nonetheless, since these components are strongly

¹¹See Appendix A for a detailed description of the cases where BOPS data was supplemented or replaced by WEO data.

¹²The official codes for these components in the WEO database are: *Official Liabilities (including use of Fund credit)* - BF0LG, *Liabilities to Official Creditors* - BF0L_G. BF0L_0 and BF0L_B refer to the complementary groups (Banks and Other Sectors).

¹³The only information available is in the item *of which: Use of Fund Credit and Loans from the Fund* that refers solely to IMF operations with the country and does not encompass other multilateral institutions. WEO also provides a similar component for portfolio investment, called BFPL_G. Information on direct investment by official creditors is rare.

Figure 2. Composition of Non-FDI Private Inflows to LIDCs (Percent of GDP, Average)

correlated, following previous studies (e.g. Dorsey et al., 2008), *Official Liabilities* is used as a proxy for *Liabilities to Official Creditors*. *Official Liabilities* is constructed from BOPS data, using *Other Investments Liabilities* for the general government and monetary authorities – in each of the following subcategories: *Trade Credit*, *Loans*, *Currency and Deposits* and *Other Liabilities*. Non-private capital flows are thus measured as:

$$\begin{aligned}
 \text{Gross non-FDI Private Inflows} = & \Delta \text{Portfolio Debt Liabilities} + \Delta \text{Portfolio Equity Liabilities} \\
 & + \Delta \text{Other Investment Liabilities} + \Delta \text{Financial Derivatives} \\
 & - \Delta \text{Proxy for Official Other Investment Liabilities} \quad (1)
 \end{aligned}$$

For each of the components of gross non-FDI private inflows (as a percent of GDP), Figure 2 shows the average value for LIDCs. The change in *Other Investment Liabilities* is the largest component, with a sizable offsetting factor from the change in *Official Other Investment Liabilities*. By the principle of double entry, any activity of debt forgiveness will be accounted in the component debt forgiveness in the capital transfer item of the capital account (usually

under general government when this breakdown is available). The counterpart of this is a reduction of the liability in the appropriate item of the financial account (usually under general government; under loans of other investments). This reflects a pattern in which the country virtually pays the debt and receives a transfer from the creditor amounting to the same value, nullifying the debt. Note that outflows from debt forgiveness are included in the *Proxy for Official Other Investments*; hence they are excluded from this dataset's measure of gross non-FDI private capital inflows.¹⁴ Finally, a proxy for official portfolio investment is not included because in most cases it is not relevant (typically zero flows).

Since the major component of non-FDI private capital is *Other Investments*, this component was compared to the BIS Locational Banking Statistics category *Loans and Deposits* which includes interbank deposits and loans and advances, as well as trade credit (See BIS Table 7A). Since the data is originally collected in stocks of assets and liabilities, flows are calculated by differences in stocks and adjusted by exchange-rate changes. The BIS uses the currency breakdown to calculate the exchange-rate value-adjusted changes. Even though the result is not identical to actual flow data – because coverage is restricted to BIS reporting banks, the actual transactions are distributed over the year during which exchange rates may fluctuate, and other valuation effects may impact stocks – there is close correspondence between the two datasets (see Appendix B for selected country examples).

In addition, to assess the reliability of this dataset's proxy, *Liabilities to Official Creditors*, *Official Liabilities* from WEO was compared to a synthetic series reproducing *Official Liabilities* from BOPS data.¹⁵ Observations in BOPS data was supplemented with WEO data if the two series were sufficiently close. This was the case for Chad, Comoros, Equatorial Guinea, Eritrea, Gabon, Madagascar, Malaysia, Mauritania, Niger, Saudi Arabia, Turkmenistan and Uzbekistan.^{16,17}

¹⁴Periods of debt reduction should be analyzed carefully. In the case of Nigeria during the period of 2004-2006, significant debt reduction are not only related to Paris Club debt relief (USD18 bln), but to the buyback element of the Paris Club debt agreement and large oil proceeds.

¹⁵Correlations at the country level across the WEO and proxy series was found to be high in most cases. This synthetic series is produced by adding the subcomponents *Monetary Authorities* and *General Government* for the appropriate categories of *Other Investments*.

¹⁶Malaysia was the only case where the series was complemented in the years of 2010-2012 by using coefficients estimated from a regressions of the relationship between BOPS and WEO series in the previous years. This was done for the sake of completeness, since this series would be the only one missing for Malaysia in the whole set.

¹⁷Major outliers are: Bahrain and Bahamas are financial centers, which means that inflows should be analyzed in conjunction with outflows (assets). In the year of 1991 Kuwait's GDP shrank dramatically due to a severe reduction in oil production during the Gulf War, resulting in a large capital flow over GDP.

Finally, another dataset based on the IMF’s BOP database is the Financial Flows Analytics (FFA) dataset by Bluedorn et al. (2013). FFA provides aggregate components of the financial account of the Balance of Payments, in gross and net terms and as a share of GDP at annual and quarterly frequency from 1970 onwards. FFA is based on BPM6 with historical BPM5 data converted data following the procedures developed by the IMF Statistics Department (briefly described in Appendix A). Nonetheless, LIDC coverage is still limited. The main contribution of this paper’s dataset is that it adds as many series and time periods as possible in a consistent and reliable manner aiming to achieve a significant improvement in coverage for LIDCs (see Appendix C for further discussion).

III. SOME STYLIZED FACTS

This section analyzes the main patterns and trends in non-FDI private capital inflows to LIDCs. The context is the recent increase in international investor’s risk appetite and search for yields, especially in the ‘frontier markets’, typically defined as economies with financial markets less developed than in EMs but with greater international market access relative to several other LIDCs. The goal is to examine to what extent LIDCs were affected by periods of ample global liquidity and more generally by increasing capital market integration.

A. Country Heterogeneity

A major challenge in analyzing capital flows to developing countries, and especially to LIDCs, stems from the significant heterogeneity of these countries’ experiences. It is important to recognize particular subgroups within developing economies that warrant special treatment – in other words groups that are distinguished by a defining characteristic. A core benchmark sample of LIDCs is identified and stylized facts of flows to this group is compared to flows to EMs.

- *Small States*: There are 29 small states (population below 1.5 million) included in the dataset which are characterized by atypical risks and economic structures, including capital flow dynamics.¹⁸ For example, since small states have significant externally financed infrastructure investments (e.g. roads, telecommunication), large capital inflows

¹⁸Using this definition, there are a total of 33 developing small states; capital flows data were not available for four of them. See Appendix D for a list of developing small states covered in our dataset and IMF (2013) for further explanation.

as a percent of GDP might not imply a relatively high degree of international investor's interest, but rather the size of the loan required to finance the implementation of a project with a large fixed cost. This may also apply to monitoring costs by international investors, which could be related to portfolio reallocations not directly linked to fundamentals (Calvo and Mendoza, 2000). Interestingly, many small states are financial centers and tax havens, with implications for capital flows (see Dharmapala and Hines, 2009; and Milesi-Ferretti and Lane, 2010).

- *Fragile States*: There are 30 fragile states included in the dataset.¹⁹ Political instability, particularly in countries with institutions that lack legitimacy and are prone to conflict, can be the sole factor driving away international investors even in face of very strong economic opportunities.

Based on these distinctions, the sample of developing countries (EMs and LIDCs) is divided into three subgroups: (i) small states, (ii) fragile economies (excluding small states) and (iii) non-small and non-fragile economies. The last group (which includes 32 LIDCs and 63 EMs) is the benchmark sample of developing economies and is used as the baseline group for the trend analysis of gross non-FDI private inflows.

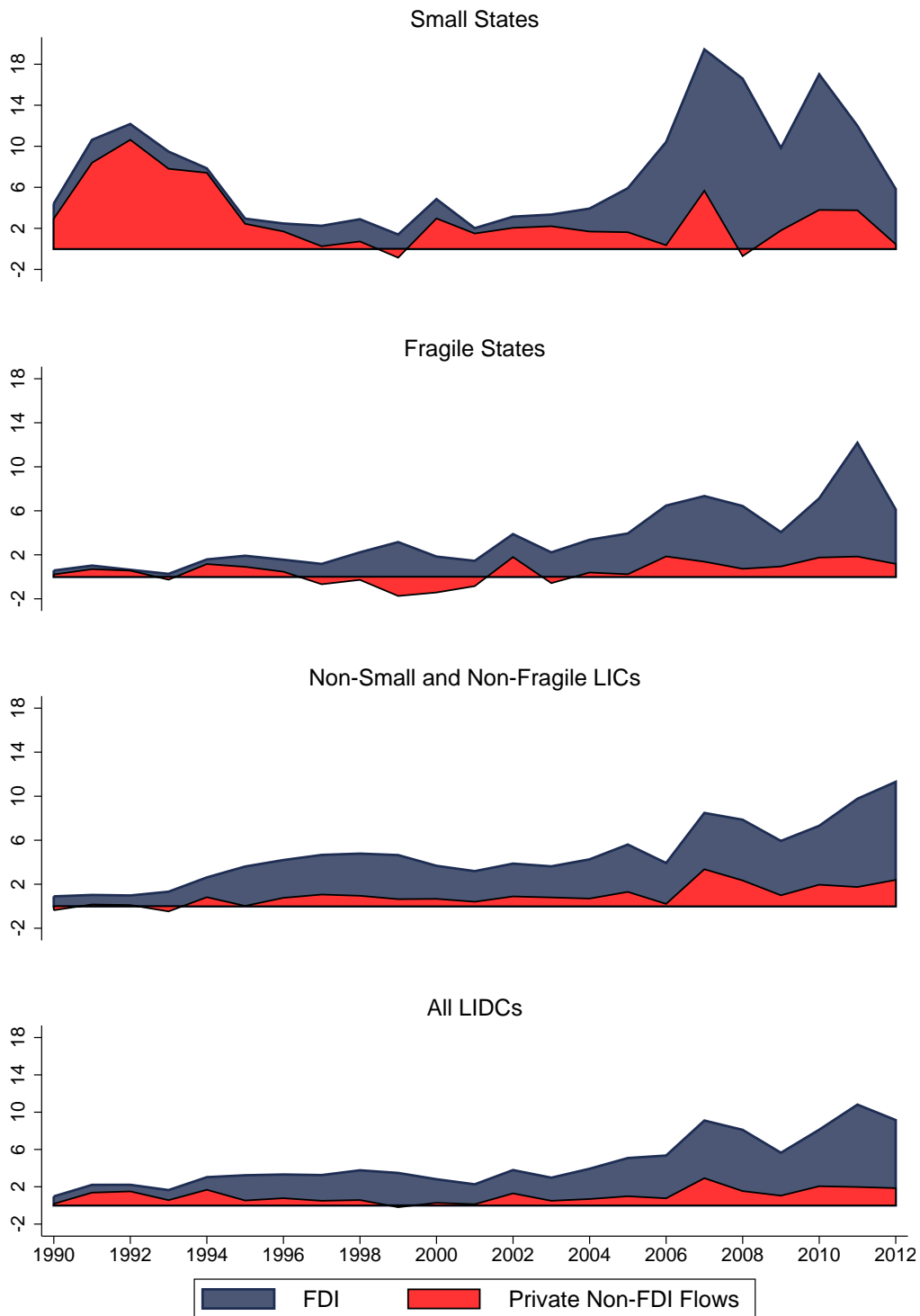
B. Patterns and Trends in LIDCs

Figure 3 displays average gross non-FDI private inflows and average FDI gross inflows to LIDCs and the three subgroups. Flows are found to be considerably larger as a share of GDP in small states than in other subgroups, and flows to fragile LIDCs more volatile than those in the benchmark LIDC sample. In the benchmark sample, FDI and non-FDI private inflows follow very distinct paths. While gross FDI inflows trend upwards since the 1990's, gross non-FDI private inflows remain on average relatively flat until 2007. Indeed, while a few LIDCs experienced non-FDI private inflows in the 1990's (e.g. Kenya, Nigeria and Zambia), flows to other LIDCs increased only more recently (Figure 4).

Most of the non-FDI private inflows are composed by other investments with financial derivatives being a very small component (Figure 5). The other investment category includes:

¹⁹The World Bank definition of Fragile States was adopted and is based on the following two criteria: (a) a harmonized average Country Policy and Institutional Assessment (CPIA) score of 3.2 or less; (b) the presence of a UN and/or regional peace-keeping or peace-building mission during the previous three years. Both criteria are highly correlated with the occurrence of episodes of organized violence (World Bank, 2011). See Appendix D for a list of developing fragile states covered in our dataset.

Figure 3. Gross Private Inflows to LIDCs by Subgroups (Percent of GDP)



Source: Extended LIDC database. The subplots show the average of gross FDI private inflows and non-FDI private inflows as a percent of GDP for the LIDC sample and subgroups. The LIDC sample 58 consists of countries. The small states subgroup includes 6 countries. The fragile states subgroup excludes small states and contains 20 countries. The non-small and non-fragile states subgroup encompasses 32 countries.

trade credit, loans, currency and deposits and other liabilities by type of private debtor (i.e., banks and other sectors) (Figure 6).²⁰ The classification of the data is also an important issue. Until the mid-2000's, most of the flows were classified as *Other Liabilities of Other Sectors*. As this item might be treated as a residual line in the financial account, the economic interpretation of these flows is not fully clear.²¹ Since 2005, however, this pattern has changed, with bank loans, followed by trade credit and currency and deposits constituting the largest component of inflows. This changed pattern may partly reflect improvement in the quality of flow classification, as well as a real diversification of flows which can be linked to increased financial (loans to banks and firms) and trade integration (trade credit) to the rest of the world.

Although most of the non-FDI private inflows are composed by other investments, a significant increase in portfolio inflows is found in later years. In particular, the breakdown of portfolio flows indicates a sharp increase in portfolio debt flows in 2012.²² There were also important portfolio debt flows in the mid-1990's which were followed by a reversal. In addition, albeit small, there was a steady increase in equity flows during 2006-2012, which could signal the advancement of capital markets in some LIDCs.

C. Comparing Flows in LIDCs and EMs

As Hausmann and Fernandez-Arias (2001) show, the proportion of FDI on total private inflows is on average about 30 percent in middle income regions such as Latin America and Eastern Europe, while it can exceed 80 percent in the African region. One possible explanation behind this fact, and in line with Coase (1937) and Williamson (1985), is that firms (functioning as a market substitute) would rather keep hierarchical control in those markets where transaction costs are high instead of relying on local suppliers, franchises or other arrangements.

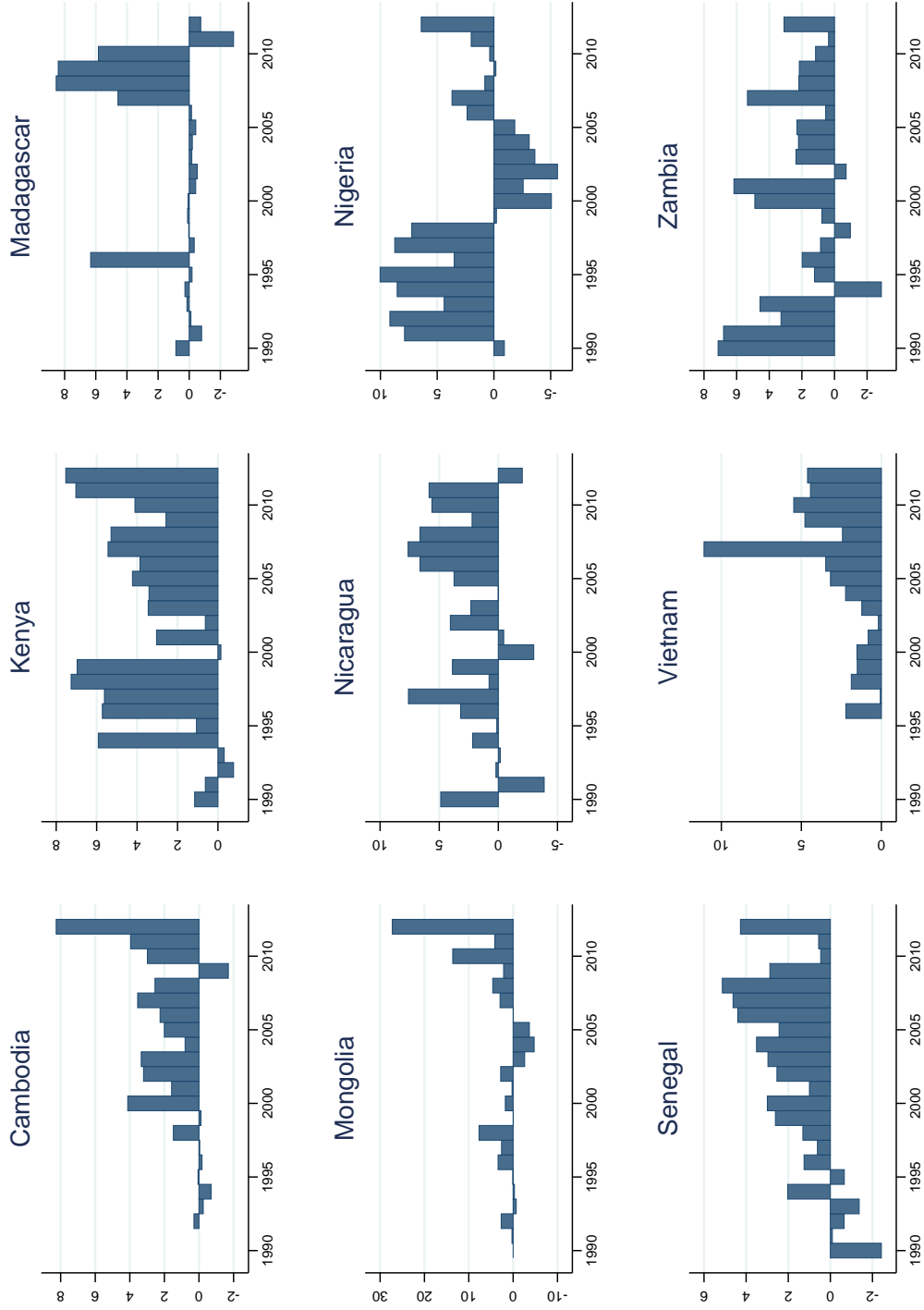
As displayed in Figure 7, the share of gross non-FDI private inflows to total gross private inflows is generally higher in EMs. The sample mean for developing countries in each year during the period 1990-2012 varies between 30 and 40 percent. The mean for LIDCs for the entire period is closer to 20 percent, but there is an increasing trend that takes the value from below average in the early 1990's to above average in the last sample years. In the case of EMs,

²⁰The breakdown of Figure 6 is consistent with the underlying BOPS database.

²¹See Gelos et al. (2004) for a discussion on sovereign bond issuances and public syndicated bank loans by developing countries during the 1980s and 1990s.

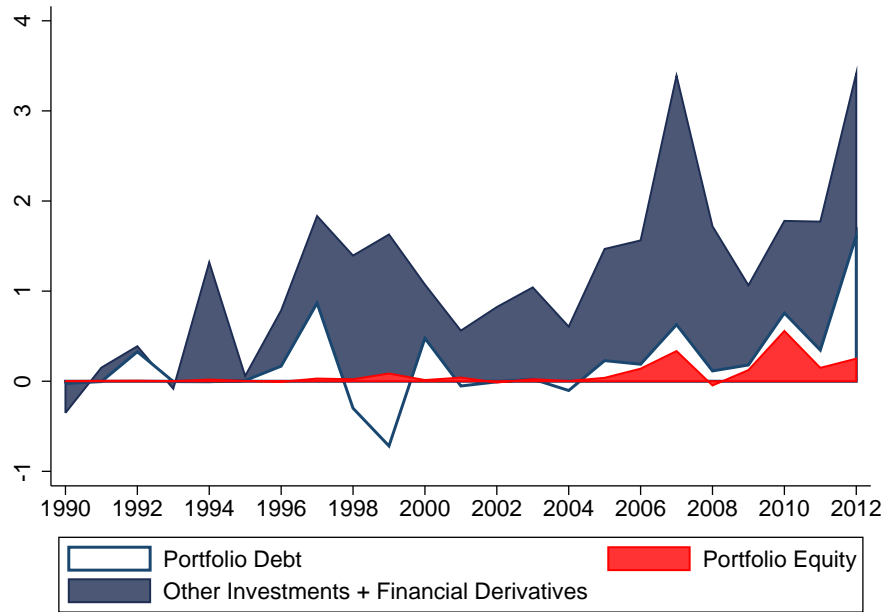
²²See Presbitero et al. (2015) for a discussion on bond issuances by LIDCs.

Figure 4. Gross Non-FDI Private Inflows to Selected LIDCs (Percent of GDP)



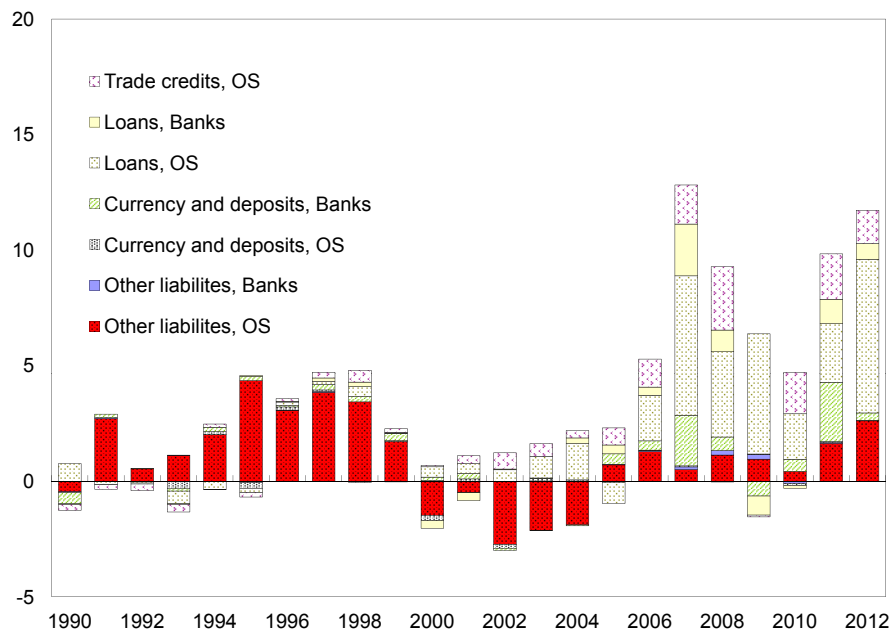
Source: Extended LIDC database.

Figure 5. Non-FDI Private Inflows by Type to Benchmark LIDC Subgroup (Percent of GDP)



Source: Extended LIDC database.

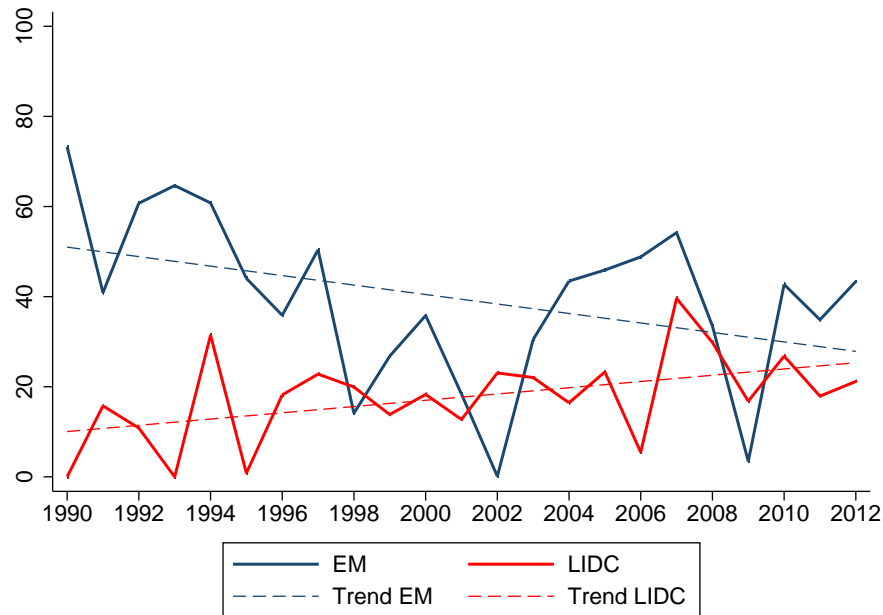
Figure 6. Other Investment Inflows by Type to Benchmark LIDC Subgroup (USD Bln)



Source: BOPS. It includes only inflows to the private sector classified as banks and other sectors (OS).

the trend is decreasing and especially influenced by the 2008 crisis. Although an increasing share of gross non-FDI private inflows to total gross private inflows could be the symptom of financial market deepening, new financial risks and policy challenges related to the modernization of the regulatory regime and supervision capacity could arise.

Figure 7. Share of non-FDI Private Inflows to Private Inflows



Source: Extended LIDC database. Shares are calculated by dividing non-FDI private inflows over GDP for the sum of non-FDI private inflows over GDP and FDI inflows over GDP, which is correspondent to a GDP weighted average. Trends are the result of a regression of the series over the year.

While movements in gross private inflows could have important implications in terms of financial stability, changes in net flows could, on the other hand, better explain exchange rate movements and have significant macroeconomic implications.²³ Related, some have questioned to what extent inflows matter whenever inflows are completely offset by outflows of similar nature and maturity, or whenever international reserves are accumulated in the presence of large inflows. Although the focus of the paper is not to address all these questions, Table 1 displays the correlation of gross non-FDI private inflows and some other balance of payment components. The results show that gross non-FDI private inflows are associated with a weaker current account balance in LIDCs while the same result does not seem to hold in EMs (for the latter group, results are not statistically significant), possibly suggesting that in-

²³See Qureshi and Sugawara (2015) for a discussion on capital flow management in frontier economies.

flows could have an important macroeconomic impact in LIDCs. Similarly, gross non-FDI private inflows are negatively related to the trade balance in LIDCs, but results for EMs are now also statistically significant.

Interestingly, Table 1 shows that gross non-FDI private inflows are correlated with gross FDI inflows in LIDCs, indicating some degree of complementarity among different types of flows. This phenomenon, as demonstrated by the negative and insignificant correlation coefficient, is not present for other developing countries. Also, the association between gross non-FDI private capital inflows and foreign reserve accumulation is positive and similar across country groups. Furthermore, the results suggest gross non-FDI private inflows to be associated with gross non-FDI outflows, especially in LIDCs though inflows are not completely offset by outflows. Related, this result is confirmed by the correlation between gross non-FDI private inflows and net non-FDI private inflows.²⁴ Finally, there is some association of the measure with errors and omissions for EMs but not for LIDCs.

Next, the paper investigates whether LIDCs are experiencing surges in gross inflows of private capital during periods of bonanzas - periods where capital inflows are relatively large. The focus is on non-FDI private inflows for three reasons. First, while as shown previously, FDI flows to LIDCs have been significant for quite some time, non-FDI private flows have received much less attention, partly due to data constraints and partly due to the common belief that they are largely nonexistent. Second, surges in non-FDI private flows could help identify new low-income frontier market economies and changes on their market accessibility. Third, these flows tend to be more volatile and hence subject to sudden reversals raising important policy questions.²⁵

Given EM average economic and financial development, the dollar amount of gross non-FDI private inflows in these economies are sizable relative to inflows in LIDCs. However, Figure 8 shows, quite surprisingly, that inflows to the top quartile of LIDCs as a share of GDP are found to be comparable to the median inflows in EMs. Moreover, after the crisis, inflows to the top quartile of LIDCs converged to the top quartile of EMs. On the other hand, for the

²⁴The increase in gross non-FDI private inflows is further investigated to check whether it has been offset by an increase in assets in the same categories. As Appendix E shows, in countries such as Cambodia, Nigeria and Zambia, non-FDI net private flows have been mostly negative, indicating a larger increase in resident's foreign assets relative to liabilities. In other countries, such as Kenya, Madagascar and Nicaragua, the opposite seems to hold. In Vietnam, while in the years prior to the financial crisis there was a larger increase in resident's liabilities towards non-residents, outflows have mostly offset inflows in following years.

²⁵At the same time potential drawbacks to this approach includes missing out on misclassified flows (e.g. FDI and inter-company loans) and missing out on interesting co-movements in FDI and other types of flows, as well as the substitutability between different types of flows.

Table 1. Correlation Between Non-FDI Private Inflows and Other Balance of Payments Components

	EMs	LIDCs
FDI Inflows	-0.0250	0.154***
Non-FDI Outflows	0.341***	0.489***
Current Account Balance	-0.0355	-0.322***
Trade Balance	-0.0939***	-0.156***
Δ Reserves	0.150***	0.142***
Errors and Omissions	0.0825***	0.000729
Net Non-FDI Flows	0.159***	0.427***
<i>N</i>	1449	736

Note: Variables are measure in percent of GDP. Country sample excludes small and fragile economies.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

top quartile of LIDCs, a more noticeable rise in inflows occurs only two years after the initial EM top quartile inflow rise. Unlike the EM top quartile inflow which has plummeted after the crisis and has picked up only modestly since, for the LIDC top quartile inflow, the trend has been generally one of rising inflows, with latest flows reaching pre-crisis highs.

Next, periods of surges in LIDCs and EMs are compared. A surge in any given country in the sample is defined as a period which satisfies the following two criteria: (i) gross non-FDI private inflows as percent of GDP are in the top quartile of its own country sample (along the time dimension); (ii) gross non-FDI private inflows as percent of GDP are in the top quartile of the cross-country sample.

The threshold value used is in line with other studies in the literature. Reinhart and Reinhart (2008) impose a threshold of the country's own 20th percentile; Ghosh et al (2014) focus on the 30th percentile of the country's own sample but also set the 30th percentile of the cross

country sample as the global criterion. The global criterion is particularly relevant to identify surges in LIDCs which are comparable to those of other developing economies.²⁶

The results are displayed in Figure 9 and depict how the number of countries with surges as a percent of the number of countries in the sample has evolved during the period from 1990 through 2012. Among 95 developing countries, sample which excludes small states and fragile economies, and 2034 observations, a total of 296 surges are detected.

Clearly, the number of surges detected is fairly sensitive to the threshold of choice. For example, a top 30th and 20th percentile cutoffs would deliver a total of 384 and 219 number of surges respectively. To give an idea of the minimum flow size associated with the 25th percentile cutoff, the global threshold associated with it is 3.7 percent of GDP. A top 30th and 20th percentile cutoffs would imply global thresholds of 3.1 and 4.4 percent respectively. It is clear that surges are less frequent in LIDCs than in other developing economies, with 77 surges being identified in LIDCs. Nonetheless, regardless of the choice of the cutoff (20th, 25th or 30th percentile), the proportion of surges in LIDCs relative to the overall number of surges is quite stable at around 26 percent.

The shaded area shows episodes of increased share of surges (share higher than 12 percent).²⁷ The first wave takes place in the first half of the 1990's (1990-1994). As Reinhart and Reinhart (2008) suggest, this episode coincides with a period of U.S. monetary policy loosening and the restructuring of emerging market debt guided by the Brady Plan. The second wave takes place in the years prior the Asian and Russian crises (1996-1997). The third wave takes place in the mid of 2000's (2004-2008), which is followed by the global financial crisis. Finally, there is fourth wave (2010-2012), which occurs in the aftermath of the global financial crisis, confirming the resurgence of flows to the developing countries. The identified waves are in general in accordance with the literature despite the fact that studies vary in what types of capital flows are included, how to measure capital flows (net/gross) and what methodology is used.

Not much variation is found in the number of surges in LIDCs during the first two waves of capital inflows during the 1990's. Interestingly, by 2000, the number of overall surges vigorously declined closing the gap between surges in LIDCs and other developing economies.

²⁶Some studies in the literature (e.g. Forbes and Warnock (2001)) have chosen to adopt an "increase factor" approach inspired by the sudden stop literature which might be more appropriate to identify the periods of acceleration in inflows (when inflows start to pick up).

²⁷This threshold captures well known periods of capital flows expansions and it is close to the median of the series of number of countries with surges.

Figure 8. Inflows to LIDCs and EMs by Percentile (Percent of GDP)

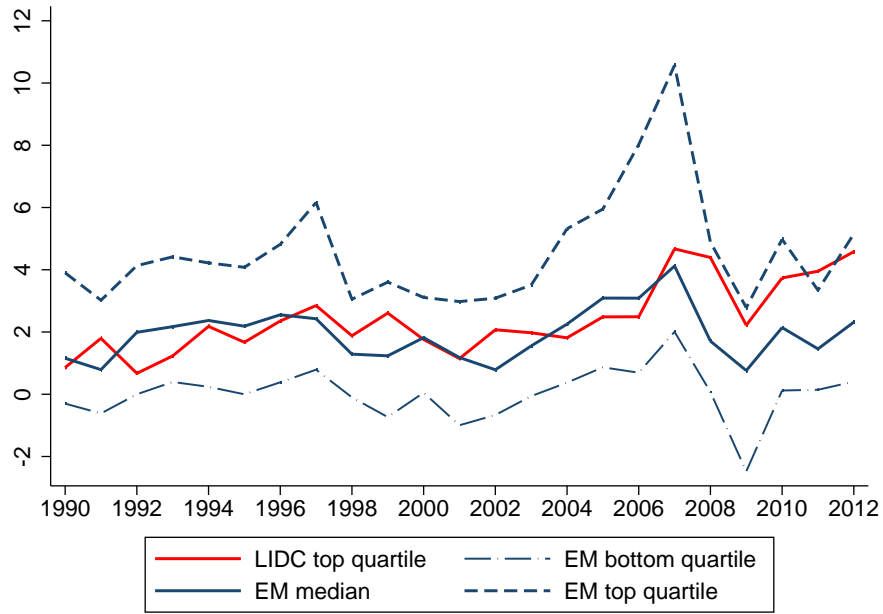
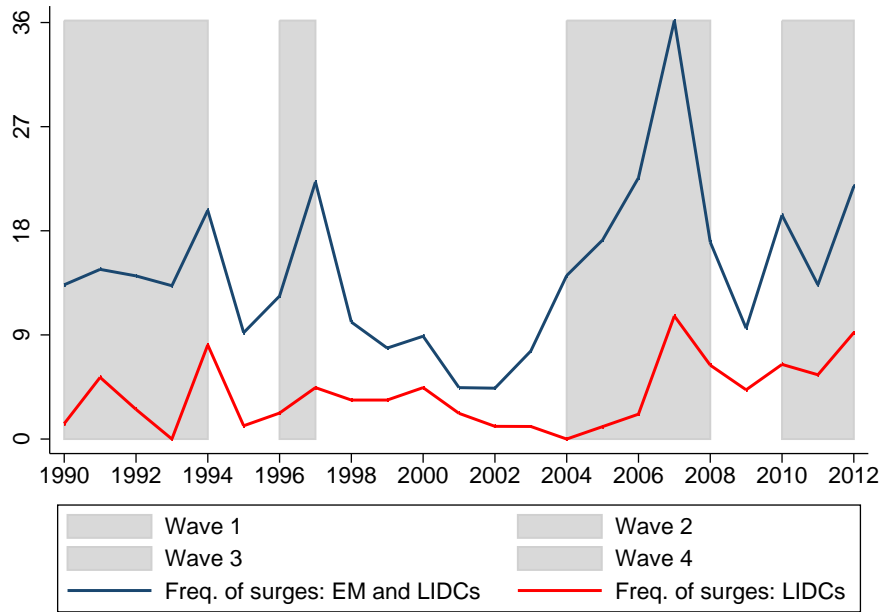


Figure 9. Frequency of Non-FDI Private Capital Inflow Surges (Percent)



Source: Extended LIDC database. Frequency of surges (LIDCs + EMs) is the total number of countries experiencing surges in a given year as a percent of the total number of countries for which data was available in that same year. Frequency of surges (LIDCs) refers to the number of LIDC countries experiencing a surge in a given year as a percent of the total number of countries for which data was available in that same year.

It is not until the third wave of capital inflows that the number of surges in LIDCs started to pick up again. However, while the number of surges in other developing countries started to increase in 2004, it was not until 2007, when surges spread out and reached close to 40 percent of the developing country sample, that LIDCs seem to have caught the wave. Moreover, the number of surges in these countries continued in non-zero territory in the years that followed the global financial crisis, rebounding in 2012.^{28,29}

As Table 2 shows surges are relatively well spread over 25 countries out of the 32 non-small and non-fragile LIDCs, including the cases of Cambodia, Kenya, Kyrgyz Republic, Lesotho, Mongolia, Mozambique, Senegal and Vietnam. About half of the surges occurred in Sub-Saharan African economies, while the remaining surges are distributed across different regions including Southeast Asia, Latin America and Europe. It is interesting to notice that the wave prior to the global financial crisis coincides with the period in which many economies have gone through large debt reduction programs. These programs, which started in the 1990s with bilateral creditor debt reduction negotiations, culminated with the creation of the Heavily Indebted Poor Countries (HIPC) Initiative and later the Multilateral Debt Relief Initiative (MDRI). About half of the surges occurred in HIPCs.

As shown above, the years of 2007, 2010 and 2012 displayed the highest frequency of surges during the last two waves of inflows. A widespread occurrence of surges tends to indicate that global factors could be an important component behind this phenomenon as it has been discussed in the capital flow literature. Domestic factors, however, could also be playing a role in LIDCs, with several of these countries experiencing high growth in the last decade or so.

IV. CONCLUSION

Motivated by recent developments in private flows to low-income developing countries (LIDCs) this paper aims at assessing cross country patterns by constructing a new capital flows dataset with enhanced coverage of developing economies including 58 LIDCs. Concentrating on LIDCs, and more specifically on gross non-FDI private flows is intentionally aimed at clos-

²⁸This is in line with the findings of Lane (2015) for net financial flows and debt inflows during the crisis.

²⁹Araujo et al. (2015) analyzes the relationship between capital inflows and the economic cycle of the receiver country. One of the main findings is that capital flows to LIDCs are more persistent than to EMs and less related to the cycle, which is in line with the pattern observed here.

Table 2. Surges in LIDCs

Country	Per capita GDP PPP Adjusted	Period
Mongolia	5297.71	1998, 2008, 2010-2012
Bolivia	5041.31	1992, 1994
Honduras	4743.52	1997
Nicaragua	4351.67	1997, 2006-2008, 2011
Vietnam	3787.82	2007, 2009-2010, 2012
Moldova	3381.16	1994, 1997, 2007-2008
Ghana	3315.99	2007
Lao People's Dem.Rep	2846.44	2010
Papua New Guinea	2736.07	1991, 2003, 2005
Nigeria	2697.08	1991-1992, 1994-1995, 1997
Cambodia	2395.21	2000, 2011-2012
Kyrgyz Republic	2349.93	1996, 1998, 2007, 2009, 2012
Cameroon	2337.73	2001
Lesotho	2105.51	2012
Mauritania	2097.90	2008, 2010-2011
Senegal	1908.44	2006-2008, 2012
Kenya	1736.93	1994, 1998-1999, 2011-2012
Zambia	1683.12	1990-1991, 2000-2001, 2007
Benin	1553.80	1991, 1994, 1999, 2007, 2009
Burkina Faso	1488.77	1994, 2007
Mali	1101.74	2000
Mozambique	1027.04	1999-2000, 2002, 2012
Madagascar	956.99	1996, 2007-2010
Malawi	848.44	1994
Niger	813.05	2010

Note: GDP data from WEO database

ing a gap in existing datasets for which country coverage of developing economies is limited mainly to emerging markets (EMs).

Using the newly constructed data, several interesting facts are unraveled. First, the perceived elevated activity in gross non-FDI private capital inflows is born in the data for many “frontier” LIDCs. This indicates increased access to financial markets since the early 2000’s. Sec-

ond, despite the fact that gross non-FDI private inflows (in terms of GDP) to LIDCs are on average much lower than those to EMs, the LIDC top quartile inflow as a share of GDP is comparable to the EM median inflow. Even more surprising is that, after the global financial crisis, the LIDC top quartile inflow converged to the EM top quartile inflow. Third, turning to episodes of increased share of capital flow surges, while LIDCs did not participate vigorously in the first two waves (1990-1994 and 1996-1997, respectively), they were significantly influenced by the third wave (2004-2008), albeit with a lag, and fourth wave (2010-2012).

It is our hope that by exploiting further the dataset, interested researchers and policy makers will incorporate LIDCs in the broader analysis and debate of capital flow dynamics in developing economies.

REFERENCES

- Alfaro, L., Kalemli-Ozcan, S., and Volosovych, V. (2008). "Why Doesn't Capital Flow from Rich to Poor Countries? An Empirical Investigation." *The Review of Economics and Statistics*, 90(2), 347-368.
- Alfaro, L., Kalemli-Ozcan, S., and Volosovych, V. (2014). "Sovereigns, Upstream Capital Flows and Global Imbalances." *Journal of European Economic Association*, 12(5), 1240-1284.
- Araujo, J., David, A., van Hombecck, C., and Papageorgiou, C. (2015). "Joining the Club? Procyclicality of Private Capital Inflows in Low Income Developing Countries." IMF Working Paper (forthcoming).
- Bluedorn, J., Duttagupta, R., Guajardo, J. and Topalova, P. (2013). "Capital Flows are Fickle: Anytime, Anywhere". IMF Working Paper 13/183.
- Broner, F., Didier, T., Erce, A., and Schmukler, S. (2013). "Gross Capital Flows: Dynamics and Crises." *Journal of Monetary Economics*, 60(1), 113-133.
- Calvo, G.A. (1998). "Capital Flows and Capital-Market Crises: The Simple Economics of Sudden Stops." *Journal of Applied Economics*, 1(1), 35-54.
- Calvo, G., and Mendoza, E. (2000). "Rational Contagion and the Globalization of Securities Markets." *Journal of International Economics*, 51(1), 79-113.
- Coase, R.H. (1937). "The Nature of the Firm." *Economica*, 4(16), 386-405.
- Dharmapala, D., and Hines Jr, J.R. (2009). "Which Countries Become Tax Havens?" *Journal of Public Economics*, 93(9), 1058-1068.
- Dorsey, T., Tadesse, H., Singh, S., and Brixiova, Z. (2008). "The Landscape of Capital Flows to Low-Income Countries." IMF Working Paper 08/51.
- Forbes, K.J. and Warnock, F.E. (2012). "Capital Flow Waves: Surges, Stops, Flight, and Retrenchmen." *Journal of International Economics*, 88, 235-251.
- Gelos, G., Sahay, R. and Sandleris, G. (2004). "Sovereign Borrowing by Developing Countries: What Determines Market Access?" IMF Working Paper 04/221.
- Ghosh, R.A., Qureshi, M., Zalduendo, J., and Kim, J. (2014). "Surges." *Journal of International Economics*, 92(2), 266-285.
- Gourinchas, P.O., and Rey, H. (2013). "External Adjustment, Global Imbalances and Valuation Effects, NBER Working Paper w19240.
- Hausmann, R., and Fernández-Arias, E. (2001). "Foreign Direct Investment: Good Cholesterol?" In *Foreign Direct Investment Versus Other Flows to Latin America*, edited by Jorge

Braga de Macedo and Enrique V. Iglesias. Paris: Inter-American Development Bank and OECD.

International Monetary Fund (2013). *Macroeconomic Issues in Small States and Implications for Fund Engagement*. Washington, DC: Author.

Lane, P.R. (2015). "International Financial Flows in Low-Income Countries." *Pacific Economic Review*, 20: 1, 49-72.

Milesi-Ferretti, G.M., and Lane, P.R. (2010). "Cross-Border Investment in Small International Financial Centers." IMF Working Paper 10/38.

Milesi-Ferretti, G.M., and Tille, C. (2011). "The Great Retrenchment: International Capital Flows During the Global Financial Crisis." *Economic Policy*, 26(66), 289-346.

Obstfeld, M. (2012). "Financial Flows, Financial Crises, and Global Imbalances." *Journal of International Money and Finance*, 31(3), 469-480.

Presbitero, A. F., Ghura, D., Adedeji, O. and Njie, L., (2015). "Sovereign Bond Issuances by Developing Countries: Determinants of Market Access and Bond Spreads." IMF Working Paper (forthcoming).

Qureshi, M. and Sugawara, N., (2015), "Managing Capital Flows: Lessons from Emerging Markets for Frontier Economies." Unpublished.

Reinhart, C.M., and Reinhart, V.R. (2008). "Capital Flow Bonanzas: An Encompassing View of the Past and Present." NBER Working Paper w14321.

Williamson, O.E. (1985). *The Economic Institutions of Capitalism*. New York, NY: Simon and Schuster.

World Bank (2011). *World Development Report 2011 on Conflict, Security and Development*. Washington, DC: Author.

APPENDIX A. THE USE OF BPM6 AND WEO DATA

The IMF Statistics Department started publishing data according to the methodology presented in the Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual (BPM6) in the IMF's International Financial Statistics (IFS) and the online Balance of Payments Statistics (BOPS) database since August 2012. It is not the scope of this annex to explain the new methodology and the differences between the versions; hence we refer the interested reader to the manual. With respect to the financial account, the main differences refer to gross flows in Direct Investment (although net flows should not suffer major modifications) and changes in the sign of liabilities (in BPM6 increases of assets and liabilities are shown with positive signs and decreases with negative signs).

We opted for BPM5 for two main reasons:

- (i) The series published according to the new methodology usually are shorter than the ones in BPM5 and, hence, a conversion methodology would be necessary to obtain longer series.
- (ii) At the time of construction of this database, the World Economic Outlook (WEO) database was presented according to BPM5 methodology and thus comparison with BPM5 BOPS, a resource heavily used in this project, was direct.

One caveat of this approach is the fact that countries that already made the transition to BPM6 stopped publishing data according to BPM5 resulting in some missing observations especially for the years of 2011 and 2012.³⁰

We compared the BPM5 and BPM6 databases to assess the compatibility between the versions after some conversion with the aim of filling missing observations in our original database. Although the main beneficiaries would be the years of 2011 and 2012, the effort may be valuable in the sense of obtaining the maximum number of available observations after the 2008 crisis.

We separated the observations according to the following classification:

c: Series are compatible with minor modifications. The differences may extend to more years than 2011 and 2012 but the general dynamics of the flows are not compromised. Those series can be used to fill missing values in the original database.

M: Major differences between versions. This means that we are not able to use BPM6 to fill gaps in the original database for those countries and series and hence those gaps are maintained.

³⁰35 countries already made the transition: Angola, Armenia, Australia, Azerbaijan, Bangladesh, Belarus, Belize, Benin, Bermuda, Bosnia and Herzegovina, Burundi, Canada, Chile, China, P.R.: Hong Kong, Fiji, Finland, Georgia, India, Jamaica, Kosovo, Kuwait, Malawi, Malaysia, Nicaragua, Philippines, Russian Federation, Samoa, Saudi Arabia, Seychelles, Singapore, Solomon Islands, Thailand, Ukraine, United States, Vanuatu.

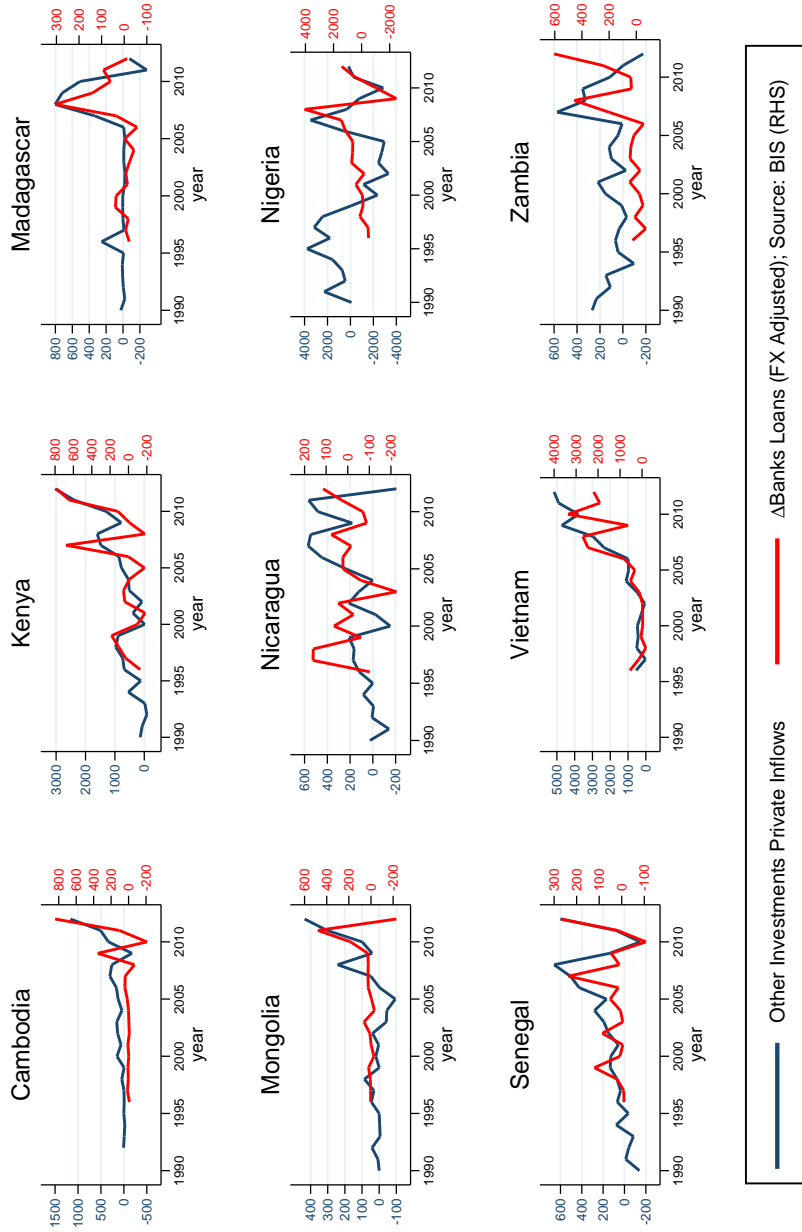
d: For the sake of completeness, we also classified series that have minor differences but that were not necessary, since the original database is complete for that country and category.

A table showing the complete classification by country and major categories of the capital and financial accounts is available upon request.

As discussed previously, in certain circumstances, WEO data are used to supplement or replace IFS data. These cases are (not including substitution of “n.a” for zeros): *Foreign Direct Investment Abroad*: Bhutan, Central African Republic, Chad, Kuwait, Madagascar, Mauritania, Nepal, Nigeria, Qatar, Serbia, Suriname, UAE, Uzbekistan, Zimbabwe. *Direct Investment In the Country*: Bhutan, Central African Republic, Chad, Comoros, Equatorial Guinea, Ecuador, Eritrea, Guyana, Mauritania, Qatar, Serbia, Suriname, Turkmenistan, UAE, Uzbekistan and Vietnam. *Portfolio Assets*: Dem. Rep. of Congo, Cape Verde, Central African Republic, Chad, The Gambia, Qatar, Thailand. *Portfolio Liabilities*: Chad, Ghana, Malaysia, Niger, Qatar, Thailand, Turkmenistan, Uzbekistan, Zimbabwe. *Other Investments Assets*: Central African Republic, Chad, Equatorial Guinea, Gabon, Madagascar, Malaysia, Mauritania, Qatar, Senegal, Turkmenistan, UAE, Zambia. *Other Investments Liabilities*: Burkina Faso, Chad, Comoros, Democratic Republic of Congo, Equatorial Guinea, Eritrea, Gabon, Georgia, Madagascar, Malaysia, Mauritania, Qatar, São Tomé e Príncipe, Seychelles, Turkmenistan, UAE, Zambia.

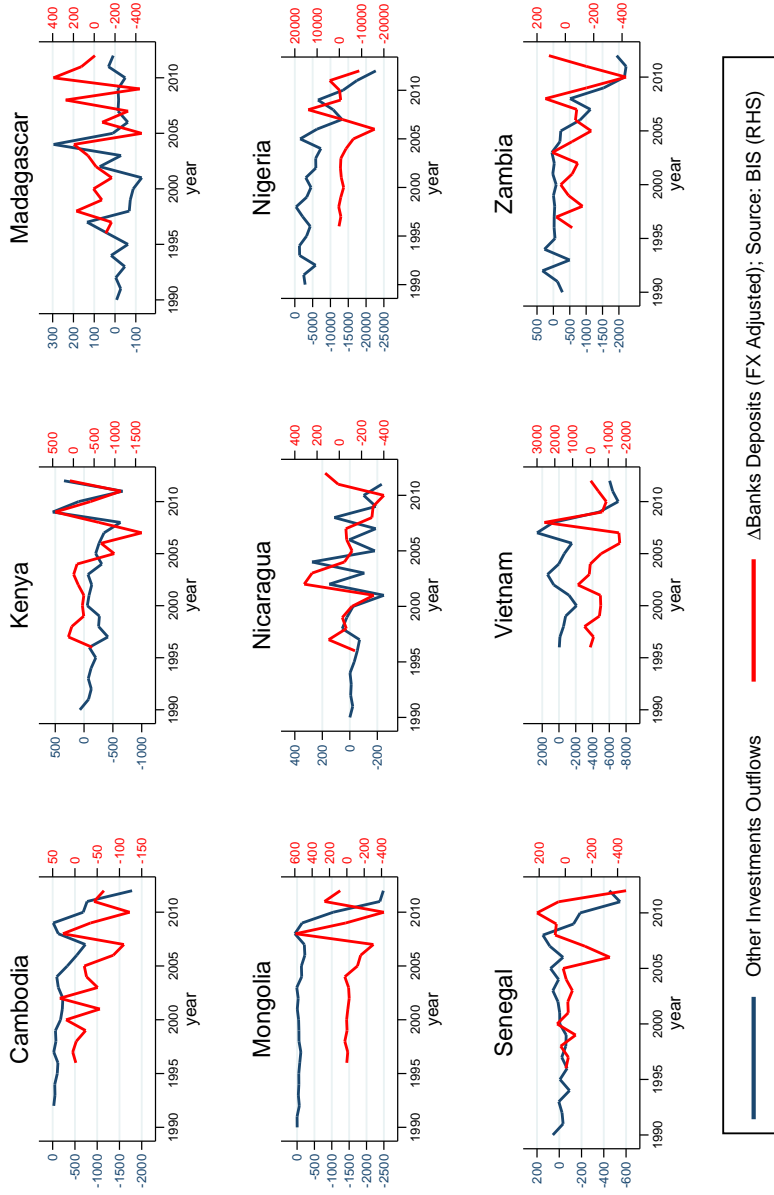
APPENDIX B. COMPARISON WITH BIS DATA

Figure 10. Other Private Investments Inflows and BIS Loans (USD MM)



es. From the extended LIC database, other investments private inflows are other investments subtracted of the proxy for other investments official flows. In the case of outflows, we use other investments assets, official outflows are expected to be minimal. From BIS database, we use table F74 of the Locational Banking Statistics, consistent with the balance of payments statistics. This table refers to Loans and deposits, in the non-financial sectors. Flows of assets and liabilities are calculated by difference in stocks and adjusted by exchange-rate change. BIS uses the currency breakdown to calculate the exchange-rate re-adjusted changes. The result is not identical to actual flow data (because the actual transactions are distributed over the whole year during which exchange rates may fluctuate, and because other valuation acts may impact stocks).

Figure 11. Other Private Investments Inflows and BIS Loans (USD MM)

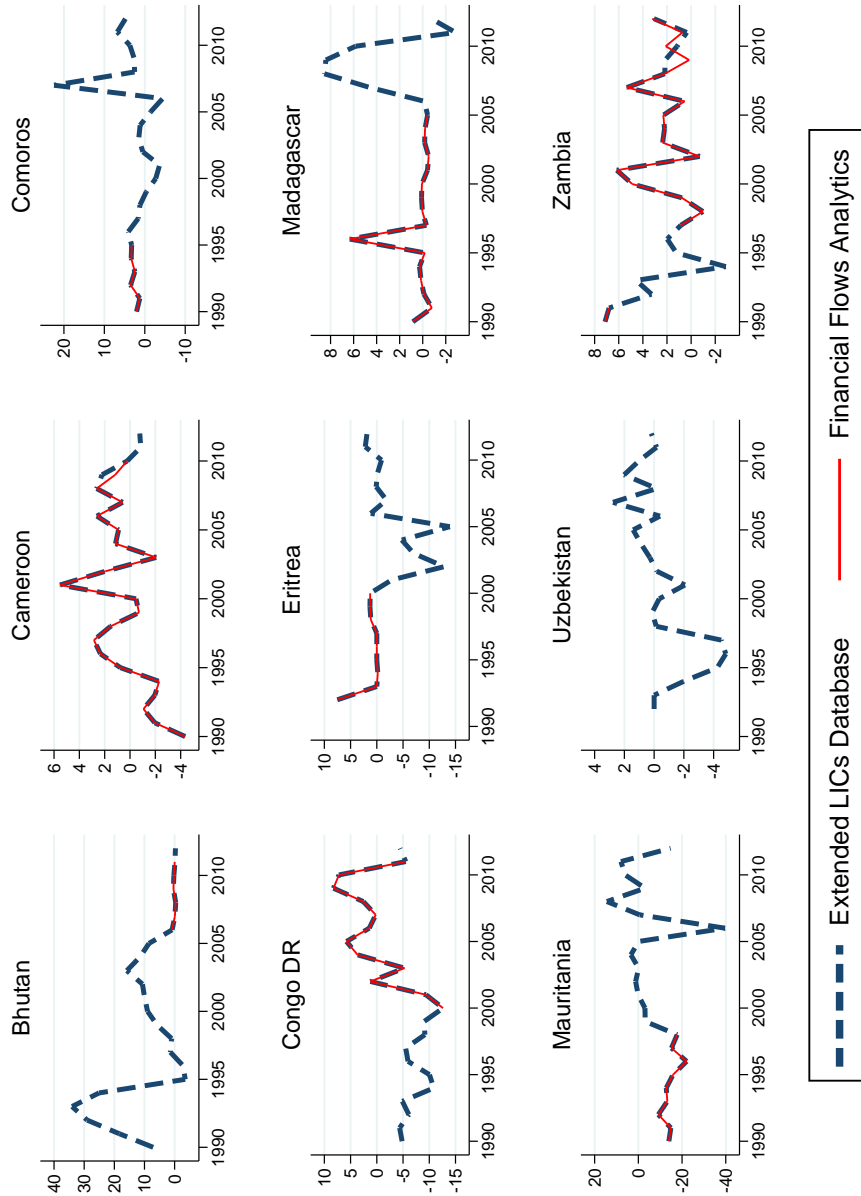


es: From the extended LIC database, other investments private inflows are other investments subtracted of the proxy for other investments official flows. In the case of outflows, we use other investments assets, as official outflows are expected to be minimal. From BIS database, we use table 7A of the Local Banking Statistics, consistent with the balance of payments statistics. This table refers to Loans and deposits, which comprise interbank deposits and advances, besides trade credit. This is closely related to other investments of the BoP. The counterpart to all sectors, which includes banks, non-bank financial institutions, and other financial institutions, is the 'Other investments' category. The result is not identical to actual flow data (because the actual transactions are distributed over the whole year during which exchange rates may fluctuate, and because other valuation objects may impact stocks).

APPENDIX C. COMPARISON WITH FFA DATASET

We compare our dataset with the Financial Flows Analytics (FFA) dataset by Bluedorn et al. (2013). In general, data point coverage of our database is higher in almost every category of the financial account of the balance of payments for LIDCs. In terms of the aggregate measure of non-FDI private inflows, the increased coverage is 19 percent for the LIDC group. We provide some country examples in Figure 12 for the aggregate measure of non-FDI private inflows.

Figure 12. Comparison Between Extended LIDCs Database and FFA - non-FDI Private Inflows (Percent of GDP)



Source: Extended LIDC database and Financial Flows Analytics.

Regarding extended data, the range of cases goes from non available data from FFA (Uzbekistan) to only one observation missing for the last year (Cameroon). In some of the cases, there are large gaps in the middle of the series and mild discrepancies (Zambia). In the case of Madagascar and Mauritania, the data missing from FFA contains interesting patterns. The same is true for Bhutan, Comoros and Eritrea. For the components of this measure, the range of additional data for LIDCs varies from 8.4 percent (Official Other Investment Flows) to 13.4 percent (Other Investments Liabilities).

In terms of the other investments and portfolio assets, the additional coverage is 9.1 and 8.1 percent, respectively, for the entire sample of LIDCs. In terms of direct investment into the country and direct investment abroad, coverage of our database is 16.1 percent and 1.7 percent greater for the group of LIDCs. It is important to note here that in assessing coverage between the two datasets, we took a conservative approach and compared only non-zero values in each individual series. This approach was taken with the objective of avoiding accounting for missing variables that are mistakenly replaced by zeros. In contrast, for aggregate measures, we compute aggregate flows whenever there is at least one subcomponent available.

APPENDIX D. SAMPLE OF COUNTRIES

Country	LIC	Small ^a	Fragile ^b	Country	LIC	Small ^a	Fragile ^b
Afghanistan, I.R. of	x		x	Dominican Republic			
Albania				Ecuador			
Algeria				Egypt			
Angola			x	El Salvador			
Antigua and Barbuda		x		Equatorial Guinea			
Argentina				Eritrea	x		x
Armenia				Estonia			
Azerbaijan, Rep. of				Ethiopia	x		
Bahamas, The		x		Fiji		x	
Bahrain, Kingdom of				Gabon			
Bangladesh	x			Gambia, The	x		
Barbados		x		Georgia			x
Belarus				Ghana	x		
Belize		x		Grenada		x	
Benin	x			Guatemala			
Bhutan	x	x		Guinea	x		x
Bolivia	x			Guinea-Bissau	x		x
Bosnia & Herzegovina			x	Guyana		x	
Botswana				Haiti	x		x
Brazil				Honduras	x		
Brunei Darussalam				Hungary			
Bulgaria				India			
Burkina Faso	x			Indonesia			
Burundi	x		x	Iran, I.R. of			
Cambodia	x			Iraq			x
Cameroon	x			Jamaica			
Cape Verde		x		Jordan			
Central African Rep.	x		x	Kazakhstan			
Chad	x		x	Kenya	x		
Chile				Kiribati	x	x	x
China,P.R.: Mainland				Kosovo, Republic of			x
Colombia				Kuwait			
Comoros	x	x	x	Kyrgyz Republic	x		
Congo, Dem. Rep. of	x		x	Lao People's Dem.Rep	x		
Congo, Republic of	x		x	Latvia			
Costa Rica				Lebanon			
Côte d'Ivoire	x		x	Lesotho	x		
Croatia				Liberia	x		x
Djibouti	x	x		Libya			
Dominica		x		Lithuania			

a: Data were not available for Marshall Islands, Micronesia, Palau and Tuvalu.

b: Marshall Islands, Micronesia, Somalia, Tuvalu are not included in the database. West Bank and Gaza and Western Sahara are not part of the Fund.

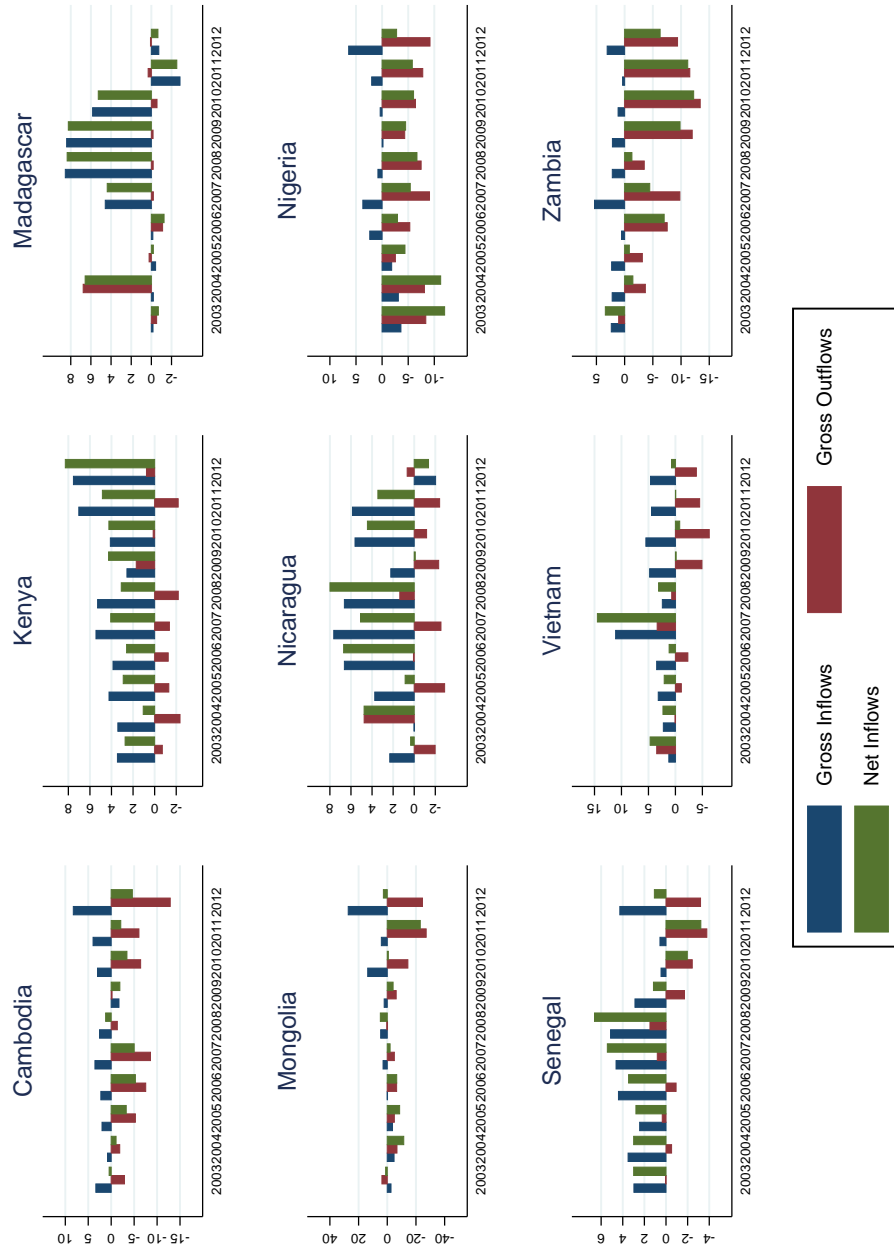
Country	LIC	Small ^a	Fragile ^b	Country	LIC	Small ^a	Fragile ^b
Macedonia, FYR				Senegal	x		
Madagascar	x			Serbia, Republic of			
Malawi	x			Seychelles		x	
Malaysia				Sierra Leone	x		x
Maldives		x		Solomon Islands	x	x	x
Mali	x			South Africa			
Mauritania	x			Sri Lanka			
Mauritius		x		St. Kitts and Nevis		x	
Mexico				St. Lucia		x	
Moldova	x			St. Vincent & Grens.		x	
Mongolia	x			Sudan	x		x
Montenegro		x		Suriname		x	
Morocco				Swaziland		x	
Mozambique	x			Syrian Arab Republic			
Myanmar	x		x	Tajikistan	x		x
Namibia				Tanzania	x		
Nepal	x		x	Thailand			
Nicaragua	x			Timor-Leste		x	x
Niger	x			Togo	x		x
Nigeria	x			Tonga		x	
Oman				Trinidad and Tobago		x	
Pakistan				Tunisia			
Panama				Turkey			
Papua New Guinea	x			Turkmenistan			
Paraguay				Uganda	x		
Peru				Ukraine			
Philippines				United Arab Emirates			
Poland				Uruguay			
Qatar				Uzbekistan	x		
Romania				Vanuatu		x	
Russian Federation				Venezuela, Rep. Bol.			
Rwanda	x			Vietnam	x		
Samoa		x		Yemen, Republic of	x		x
São Tomé & Príncipe	x	x	x	Zambia	x		
Saudi Arabia				Zimbabwe	x		x

a: Data were not available for Marshall Islands, Micronesia, Palau and Tuvalu.

b: Marshall Islands, Micronesia, Somalia, Tuvalu are not included in the database. West Bank and Gaza and Western Sahara are not part of the Fund.

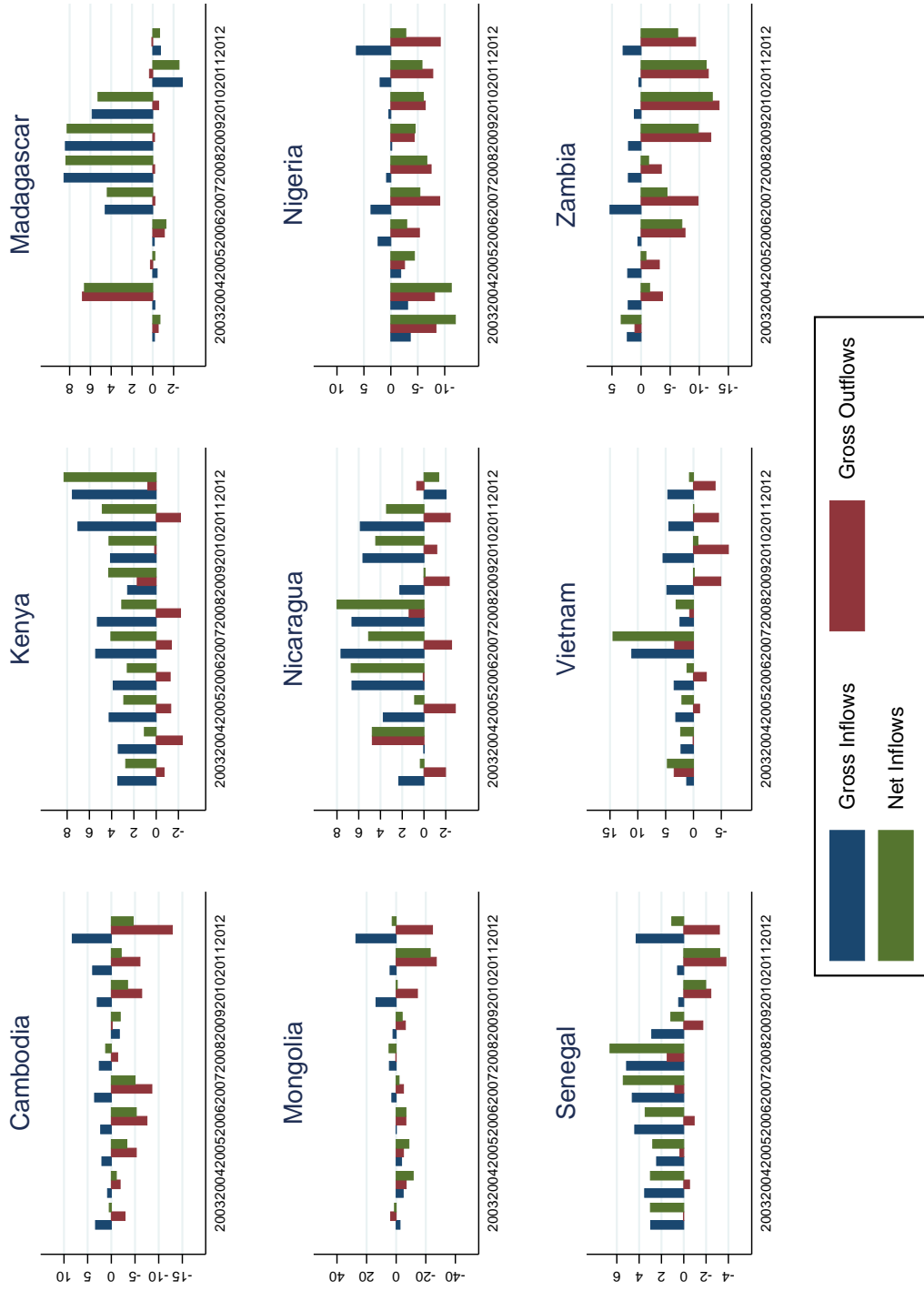
APPENDIX E. NET FLOWS TO SELECTED LIDCS

Figure 13. Net Non-FDI Private Flows to Selected LIDCs (Percent of GDP)



Source: Extended LIDC database.

Figure 14. Net Non-FDI Private Flows to Selected LIDCs (Percent of GDP)



Source: Extended LIDC database.