Benchmarking Portfolio Flows

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Abstract

Global portfolio flows have slowed sharply. Does this slowdown represent a 'new normal' that should persist, or is it more likely just a temporary deviation? To answer this we create benchmark portfolio flows, which can be thought of as a longer-term baseline path around which actual flows fluctuate. Our benchmark provides a framework to view portfolio flows. One example: Both equity inflows and bond inflows to Asian EMEs plummeted in 2015 and 2016. However, equity inflows fell sharply *from* benchmark levels to well below the baseline path while bond inflows dropped *to* benchmark levels from atypically high levels. From this perspective, the decline in EME Asian equity inflows (to a level far below the benchmark) is likely temporary while the recent low level of bond inflows (to the baseline path) should persist. We provide similar analysis for over 50 countries, both advanced and emerging, for the 2001 to 2016 period.

* The authors thank the IMF's Statistics Department for helping with bulk download access to the IMF's CPIS dataset; McKinsey Global Institute for data on total financial assets by country; Luis Catao and Zsoka Koczan for providing their data on IMF inflation expectations; and participants at a SARB seminar for helpful comments.

1. Introduction

International portfolio flows have slowed sharply. Globally, annual portfolio inflows averaged only US$933 billion in 2015-16, well below the average of the preceding five years and even below the amounts during the Great Retrenchment (Table 1). For EMEs, the recent slowdown has brought portfolio inflows down to levels reminiscent of the period prior to the Global Financial Crisis (Figure 1). But this slowdown in cross-border portfolio flows is confined neither to EMEs (it spans both advanced and emerging economies) nor to a particular asset class (it is evident in both bond and equity flows).

Analysis of international capital flows often relies on temporal comparisons, frequently comparing flows in a recent period to flows in some past period. For example, the entire sudden stops literature (see Calvo (1998) and Forbes and Warnock (2012) among many others) compares recent flows against historical levels. Similarly, many investigations into capital flow slowdowns assess indicators before and after the GFC. Milesi-Ferretti and Tille (2011), in documenting the Great Retrenchment, compare a pre-crisis period with the collapse and recovery periods, while IMF (2016) focuses on the slowdown in flows during the 2010-15 period and Lane and Milesi-Ferretti (2017), analyzing positions rather than flows, compare pre-crisis (2007) to their latest data point (2015). And both Bussière, Schmidt and Valla (2016) and McQuade and Schmitz (2016) compare a pre-crisis period with the more recent "new normal".

This literature is rich in insights but leaves readers wondering what level of capital flows should be characterized as "normal". Bussière et al. (2016, page 16) for example, concludes that "it is hard to gauge if the pre-crisis properties and specificities of the various types of flows…will prevail in the 'new normal'….The changes that have taken place since the global financial crisis may correspond to a simple normalization, as suggested…by Coeuré (2015), after rather 'exuberant' times in the pre-crisis period."

Temporal comparisons of capital flows would be enhanced if we could conceptualize what is "normal". On the real side of the economy, economic theory provides benchmarks for economic activity (potential GDP) and unemployment (natural rate or NAIRU). To be sure, both are estimates subject to discussion and debate, but both serve as benchmarks to which measured data can be compared. What is an appropriate benchmark for capital flows?

In this paper we create a benchmark. Specifically, we create benchmark portfolio inflows for a wide range of countries (35 AEs and 28 EMEs) for the period 2001-2017. We focus on portfolio flows—bond flows, equity flows, and the sum of the two—because it is for portfolio flows that our notion of benchmark is most appropriate.[1]

Our benchmark flows are straightforward: They are the amount of new funds available for investing, allocated according to some pre-determined rule. For portfolio investments, the amount of new funds available to commit to investments (whether domestic or foreign) is this year's new savings. The pre-determined allocation rule we use is the "reasonable guess" of Kraay and Ventura (2000): allocate according to last year's portfolio weights. Thus, what we call benchmark flows is analogous to the so-called portfolio growth component of Kraay and Ventura (2000, 2003) and Tille and van Wincoop (2010) as described in Ahmed et al (2017). The amount of new funds available to invest (whether at home or abroad) is given by the flow of new savings and benchmark flows are those new savings allocated using last period's portfolio weights.[2]

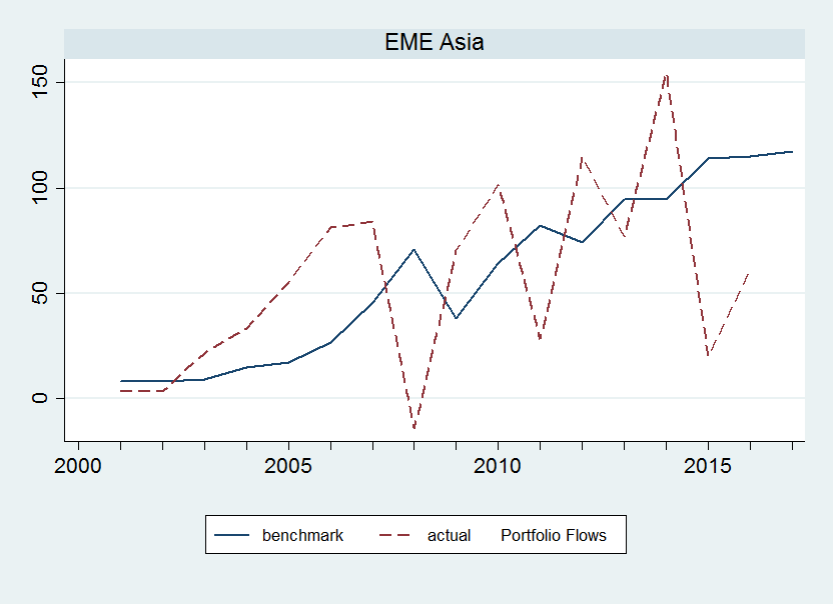
Casual inspection of our charts suggests that actual inflows oscillate around benchmark flows, as the example (to be described in greater detail in a subsequent section) in Exhibit A

[1] Future work might create benchmark flows for other components of international capital flows. For direct investment (DI), there is a natural analogy to our construction of benchmark portfolio flows; we provide some thoughts on this in the conclusion. For banking flows, it is less clear how to think about a benchmark (or even what BOP-based banking flows represent), but a step might be found in McCauley et al. (2017).

[2] While this sounds simplistic, and is, we think (but do not know for sure) that this is actually how EPFR creates their high frequency flow data.

indicates. Benchmark flows—which, importantly, are not a trend line but instead are connected to source countries' macroeconomic conditions—appear to be a long-run anchor, with actual flows temporarily fluctuating above or below the benchmark in any given period.

Exhibit A. Benchmark and Actual Portfolio Inflows for EME Asia (annual, in billions of US$)



Having a benchmark provides context when investigating sharp changes in capital flows. For example, EME Asia's portfolio inflows plummeted from US$155 billion in 2014 to US$20 billion in 2015. Was the sharp slowdown in inflows surprising? Without a benchmark, one can only state (and analyze) the extent of the slowdown compared with some previous period. But Exhibit A reveals that the slowdown has pushed EME Asia's portfolio inflows well below our benchmark, suggesting that the slowdown is likely to be reversed. Analysis of the components (bond inflows and equity inflows, both shown in Section 4) indicate that both plummeted, but that bond inflows were just reverting to benchmark levels from the extremely elevated levels of the 2010-14 period whereas equity inflows have fallen well below benchmark levels. If the benchmark is a baseline path, then the

decline in EME Asia's bond inflows is a return to a "normal" level that should be expected to persist, while the decline in its equity inflows could be temporary before flows revert to "normal" levels. Summing bond and equity inflows, as Exhibit A does, suggests that annual portfolio inflows to the region will likely increase toward their current benchmark level of US$117 billion.

The paper proceeds as follows. After some descriptive analysis in the next section, Section 3 describes our benchmark flows, Section 4 compares actual and benchmark inflows, Section 5 presents some illustrative regressions of country-level deviations (i.e., the difference between actual flows and benchmark flows) and Section 6 concludes.

2. Capital Flows Pre- and Post-Crisis: Initial Analysis

Table 1 and Figure 2 show data on portfolio inflows (bonds, equities, and the sum of the two) for the sample of 63 countries (35 AEs and 28 EMEs) listed at the bottom of Table 1.[3] The underlying dataset is annual from 2001 through 2017 (for benchmark flows) or 2016 (for actual flows).

The sharp slowdown in portfolio inflows is evident in both the table and the figures. The slowdown spans both equities and bonds and also spans income levels (affecting both AEs and EMEs) and regions. For the US and Eurozone, 2015/16 inflows are even lower than during the GFC (2008/09). Annual US portfolio inflows were US$441 billion during the crisis, but only US$261 billion in 2015/16, while Eurozone inflows were US$379 billion per year during the GFC and only US$101 billion in 2015/16. Globally, annual portfolio inflows were US$933 billion in

[3] Our sample includes all countries for which we were able to collect complete annual data for portfolio bond and portfolio equity inflows for the period from 2001 through 2016. Countries that do not report bond and equity inflows are necessarily excluded. Our main data source for flows is the IMF's IFS dataset, with data pulled in June 2017. When necessary, especially to obtain complete flow data for 2016, we consulted local sources; for example, we obtained Peruvian capital flows data for 2016 from the Banco Central de Reserva del Peru. In circumstances in which the IFS dataset had flow data through 2016Q3 and we could not locate Q4 data, we assumed zero inflows in Q4 (i.e., the 2016 annual amount was for Q1-Q3). When we revise the paper we will pull flow data again in the hope that 2016 data will be complete for all countries in our sample.

2015/16, a sharp slowing from the US$1864 per year over the period 2010-14 and in fact lower than during the GFC ($1343 per year).

For EMEs, 2015/16 inflows resemble the amounts received during the GFC and are, in general, sharply lower than the inflows of the 2010-14 period. For example, EME Asia's portfolio inflows averaged US$41 billion in 2015/16, roughly similar to the US$28 billion it received in 2008/09 and far lower than its US$95 billion in annual portfolio inflows 2010/14. The slowdown in EME Asia's inflows occurred in both equities and bonds—each averaged US$48 billion per year 2010/14, both fell to around US$20 billion the past two years—although there was substantial heterogeneity across countries, something we will discuss further in Section 4.

3. Benchmark Portfolio Flows

Portfolio flows slowed sharply in 2015/16 compared to the period from 2010-14. But was 2010-14 normal? Or are the new lower levels normal? To answer this requires a benchmark.

To create benchmark flows we implement the "reasonable guess" of Kraay and Ventura (2000, page 1137); see also Kraay and Ventura (2003), Tille and van Wincoop (2010) and Ahmed et al (2017). The idea is simple: Benchmark flows are just the amount of new funds available for capital flows allocated according to last period's portfolio weights. For portfolio flows, the new funds available can be approximated by (the flow of) rest of world (ROW) savings, and the relevant portfolio weight is the share of ROW holdings of the recipient (i.e. destination) country's securities in ROW financial assets. Other flows occur—investors can sell assets in one country and purchase assets in another country, creating additional capital flows—but what we will call benchmark flows are governed by the amount of new funds available (allocated according to some pre-determined rule) rather than cross-border reallocations within existing portfolios.

Specifically, let countries be denoted by *o* (origin) and *d* (destination). The period *t* weight of destination country *d* in origin country *o*'s portfolio is $\omega_{od,t}$. Benchmark gross capital flows from *o* to *d* in period *t*, denoted by $GCF_{od,t}^{bmark}$ are the new savings generated in *o* in the current period ($S_{o,t}$) allocated according to last period's portfolio weights ($\omega_{od,t-1}$). That is,

$$GCF_{od,t}^{bmark} = \omega_{od,t-1} S_{o,t} \qquad (1)$$

Summing across all *O* origin countries provides destination country *d*'s total benchmark inflows.

$$GCF_{d,t}^{benchbmark} = \sum_{o=1}^{o=O} \omega_{od,t-1} S_{o,t} \qquad (for\ o \neq d) \qquad (2)$$

Alternatively, country *d*'s total benchmark inflows can be calculated from aggregate ROW data:

$$GCF_{d,t}^{bmark} = \omega_{ROW,d,t-1} S_{ROW,t} \qquad (3)$$

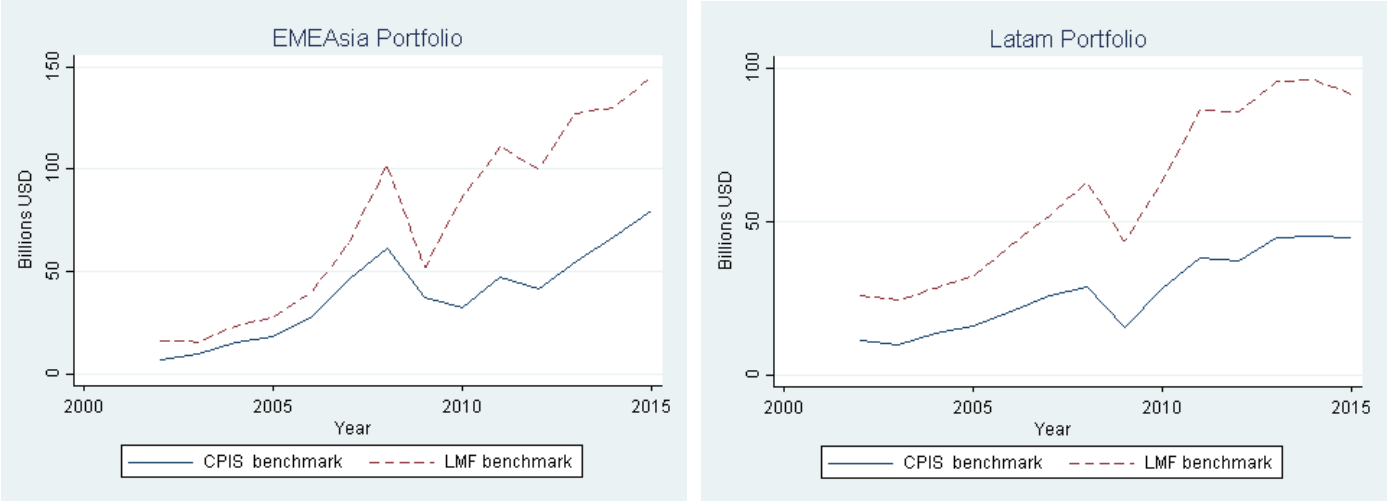
Data requirements are not overly onerous.

- For a wide range of "origin" countries and the world, the flow of savings and the stock of total financial assets (TFA) are available from the World Bank and McKinsey Global Institute (MGI), respectively, so S_o, S_{ROW} and the size of each origin country's portfolio (computed as TFA plus net foreign assets data from the IMF) are readily available.[4]
- The bilateral approach. The bilateral portfolio weights in equation (2) require bilateral data on international portfolio holdings; the IMF's CPIS dataset reports the bilateral portfolio (bond and equity) holdings of about 80 origin countries.

[4] We calculate national savings using IMF WEO data on GDP in billions of current US$ and savings rates. MGI calculates for a wide range of countries total financial assets as the sum of a country's equities, bonds and loans. To create the size of a country's portfolio, we add to TFA the country's net foreign assets, which effectively subtracts out foreigners' claims on the country's TFA and adds the country's claims on other countries' TFA.

- The ROW approach. ROW portfolio weights in (3) can be formed by combining Lane and Milesi-Ferretti (2017) data on portfolio equity and portfolio debt liabilities with MGI data on total financial assets. Specifically, ROW weight on Thailand's equities equals the stock of Thailand's portfolio equity liabilities (that is, ROW holdings of Thai equities) divided by ROW total financial assets (global financial assets less Thai financial assets and Thai net foreign assets).

Exhibit B. Bilateral (from CPIS) and ROW (from LMF) Benchmark Flows to EME Asia and Latin America



Benchmark inflows to EME Asia and LatAm using (2) and (3) are depicted in Exhibit B. There are pros and cons associated with each method. A strength of the bilateral approach is that it attributes savings to origin countries according to each country's exposure to the destination country, which can be important if origin countries' weights differ substantially for a particular destination country. Weaknesses of the bilateral approach are that CPIS data exclude official holdings (important for a reserve currency country like the US, but not for EMEs), have a

geographic bias due to the use of international financial centers, and do not include all of the world's origin countries. A strength of the ROW approach is that it doesn't rely on bilateral data and is consistent with BOP capital flows data (which are also ROW). In practice, the ROW approach creates larger benchmark flows (see Exhibit B for EME Asia and Latin America), perhaps because of source countries not included in the CPIS dataset. After considering the pros and cons of both approaches, we employ the ROW (LMF) approach and use equation (3) to create benchmark flows.[5]

To shed a bit more light on benchmark flows, note that they arise, by definition, from the flow of new savings. New savings is of course closely related to income—savings rates can vary year to year, but to a first approximation the level of savings is driven by the level of income—so savings is highly correlated with GDP whether in levels (both are flow concepts) or first differences (Figure 3). Thus, for any country benchmark portfolio inflows will be closely related to ROW GDP, providing a baseline path that is connected to ROW macroeconomic conditions.

4. Comparing Actual and Benchmark Portfolio Flows

Figure 4 shows benchmark (the solid line) and actual (the dashed line) inflows for total portfolio (i.e., bond and equity combined) and, separately, for equity and bond flows. Graphs are presented for EME Asia, Latin America, US, Eurozone, EME Other and AE Other (see Table 1 for the composition of groups) for a period that starts in 2001 and ends in 2016 (for actual flows) or 2017 (for benchmark flows).[6] The deviations of actual flows from benchmark flows are presented in Figure A1 in the Appendix.

[5] Also, to avoid double counting of flows within the Eurozone, we use Eurozone aggregates rather than individual Eurozone countries.

[6] We are able to create benchmark flows for 2017 because the IMF WEO forecasts GDP and savings rates (and hence savings) by country for a wide range of countries; at the time of writing, WEO forecasts for 2017 were readily available to researchers. Forming 2017 benchmark amounts also requires end-2016 data for total financial assets and international bond and equity holdings; these data tend to lag a bit—at the time of writing, the latest data for these series was for end-2015—so for this draft we have simply carried forward the end-2015 amounts for these series.

A quick glance at the various graphs in Figure 4 indicates a few regularities of benchmark inflows. One, they are positive; for benchmark flows to any country to be negative, annual ROW savings would have to be negative. Two, while benchmark portfolio inflows declined significantly during the global financial crisis (because ROW savings fell), over time they tend to increase; absent a surge in home bias, an expanding global economy and increasing global savings increase benchmark flows.

Additional insights can be gained by focusing on each region.

EME Asia

Actual portfolio flows to EME Asia were running higher than benchmark in the years prior to the GFC—the dashed (actual flows) line in Figure 4 was above the solid (benchmark flows) line through 2007—consistent with the elevated number of sudden surges (Forbes and Warnock 2012) during that period. Actual portfolio flows to EME Asia decreased sharply during the GFC, the Great Retrenchment documented by Milesi-Ferretti and Tille (2011). Following the GFC portfolio inflows trended upward, in line with benchmark flows, until falling sharply in 2015 and 2016.

A comparison of actual and benchmark portfolio flows to EME Asia suggests that after the abnormally high pre-crisis inflows and the sharp contraction of inflows during the GFC, portfolio inflows oscillated around benchmark levels from 2009 through 2014.

Turning to the components, we note that EME Asia's bond inflows have been elevated almost every year since 2003, with the only exceptions being during the GFC and in the recent slowdown. The 2015/16 slowdown in EME Asia's bond inflows is a return to benchmark following much higher than benchmark inflows during the 2010 to 2014 period. In sharp contrast are EME Asia's equity inflows which, while elevated pre-GFC, have been largely below benchmark since 2010.

In sum, the recent sharp slowdown in EME Asian portfolio inflows appears to be a temporary deviation from longer-term benchmark levels, because the largest component (equity inflows), currently far below benchmark, should rebound. In contrast, the sharp decline in inflows into EME Asian bonds is consistent with benchmark levels. Thus, from the perspective of our benchmark flows we expect equity flows into EME Asia to increase, while bond inflows should remain near recent levels.

Latin America

LatAm portfolio inflows have also fallen sharply of late, but for this region we expect inflows to remain near current levels. The reason is that, in contrast to EME Asia, recent LatAm inflows are only slightly below benchmark. The decline in LatAm inflows is solely due to a sharp drop in bond inflows from the elevated level of 2010-14 to just below benchmark, while equity inflows are at benchmark. Overall, with actual flows close to benchmark levels, we expect LatAm inflows to remain near current levels.

US and Eurozone

Inflows in both the US and Eurozone are far below benchmark levels. For the Eurozone, a large portion of the deviation is in bond flows; Eurozone bond inflows were negative US$200 billion in 2016 when the benchmark suggested US$400 billion in inflows. For the US, inflows into both bonds and equities have been below benchmark since just after the GFC. On the bond side, this could in part be due to the global slowing of reserve accumulation (and hence less foreign official demand for US Treasuries). With inflows far below benchmark levels, both the US and the Eurozone should receive larger portfolio inflows going forward.

Other EMEs and Other AEs

Both of our "other" groups, which contain a number of important countries not elsewhere classified, are experiencing below benchmark equity inflows and roughly benchmark bond inflows. As such, we expect equity inflows to both sets of countries to increase and for bond inflows to stay near current levels.

Selected Individual Countries

Country groupings can mask heterogeneity across countries, so in Appendix Figure 2 we present benchmark and actual flows for selected countries. Some countries (India, Korea, Philippines, and Poland) are currently below benchmark for total portfolio and both components, whereas others (Canada, Mexico, and Thailand) are very close to benchmark for all components. China, Turkey and South Africa all have near benchmark portfolio flows, as below normal equity inflows are almost offset by above normal bond inflows. Argentina and Brazil are interesting as they are near-mirror images. In both countries equity inflows are near benchmark, but Argentina's bond inflows are currently far above benchmark while Brazil's are just as far below benchmark.

5. The Determinants of EME Deviations

To ascertain which factors are associated with deviations in capital inflows—that is, the deviation between actual and benchmark inflows—we estimate fixed effects panel regressions in an annual panel dataset that spans 2001 to 2016 and includes as many as 20 EMEs (Table 2). The dependent variable, defined as the deviation (i.e., actual minus benchmark) divided by GDP, is for portfolio inflows, bond inflows, or equity inflows as indicated in column headings. Independent variables include a parsimonious set of local variables—economic growth, the IMF's inflation forecast, MSCI equity returns, and capital controls—and some global variables (U.S. 10-year

Treasury yield, BBB-AAA risk spread, and the VIX).[7] While we view these regressions as illustrative and not definitive, the results suggest that higher than normal portfolio flows occur when growth is strong and equity returns are high; high equity returns are also associated with stronger than normal equity inflows; and strong bond inflows occur when inflation expectations are low and risk measures (the spread or the VIX) are low.[8]

6. Conclusion

In this paper we frame portfolio flows as fluctuating around some benchmark level. The idea is straightforward—the benchmark is the amount of flows created if new ROW funds available for investments of any sort (i.e., new ROW savings) are allocated according to existing portfolio weights. Our benchmark flows, which arise from ROW macroeconomic conditions, represent the flows that recipient countries should expect regardless of what occurs in the local economy. Of course, actual inflows often deviate from benchmark flows—perhaps because of changes in local or global conditions—but benchmark flows appear to be a longer-term baseline path around which actual flows oscillate.

A comparison of actual and benchmark flows provides a way to ascertain whether the recent sharp slowdown in capital flows is likely temporary or long-lasting. For example, the pronounced slowdown in bond flows to EME Asia and Latin America was largely a return to benchmark levels and so seems natural; our analysis suggests that going forward bond inflows into both regions should be roughly in line with amounts seen in 2015/16. In contrast, the sharp slowdown in EME Asia equity inflows is to levels far below benchmark; if benchmark flows represent the longer-term

[7] Capital controls, from Fernandez et al (2016), are specific to the type of inflow (portfolio, bond or equity). Inflation forecast is a component of the IMF (2016) real policy rate variable; we thank Luis Catao and Zsoka Koczan for providing this series.

[8] We fully recognize that an important omitted variable from the bonds regressions is the currency composition of the country's bonds; see Burger, Warnock and Warnock (2017) on this point.

anchor, we would expect a rebound in EME Asia equity inflows. In general, our analysis enables the differentiation of sharp movements away *from* benchmark levels from sharp movements *toward* the benchmark. The former (movements away from the benchmark) are likely temporary, whereas the latter (movements toward the benchmark) are likely to be sustained.

There is much one can do to better understand benchmark flows. For example, one could decompose changes in the benchmark to assess what is the primary driver of changes in the benchmark: lagged change in ROW's weight on the country (which itself is a function of relative price changes and flows) or the contemporaneous change in ROW savings? Also worthwhile would be work aimed toward understanding the adjustment process: Do actual flows adjust to the benchmark, or benchmark to actual, and how long does the adjustment typically take? Finally, more is needed to understand deviations from the benchmark, in both economic and statistical senses.

We close by urging others to conduct similar analysis of other types of capital flows. For direct investment, applying our basic notion seems feasible. New funds available for DI are corporate earnings—yes, companies can borrow to fund M&A activity, but new funds come from the flow of corporate earnings—and thus to create benchmark DI flows one just needs to decide on a pre-determined allocation rule. Similarly, we urge experts on banking flows to create benchmarks.

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Table 1. Portfolio Inflows (selected periods, in billions of US$)

	Total Portfolio Inflows			
	2004-07	2008-09	2010-14	2015-16
US	996	441	619	261
Eurozone	701	379	413	101
AE Other	779	467	546	463
EME Asia	63	28	95	41
EME LatAm	26	30	122	61
EME Other	46	-1	68	6
World	2611	1343	1864	933
	Equity Inflows			
	2004-07	2008-09	2010-14	2015-16
US	143	173	127	-154
Eurozone	239	-61	256	201
AE Other	117	106	133	-11
EME Asia	48	24	48	16
EME LatAm	13	16	22	19
EME Other	20	2	10	1
World	580	260	595	72
	Bond Inflows			
	2004-07	2008-09	2010-14	2015-16
US	853	268	492	415
Eurozone	462	441	157	-100
AE Other	662	361	413	475
EME Asia	16	4	48	25
EME LatAm	13	14	100	42
EME Other	26	-4	58	4
World	2032	1084	1269	861

In all figures and tables, groupings are largely based on classifications in IMF WEO April 2017.

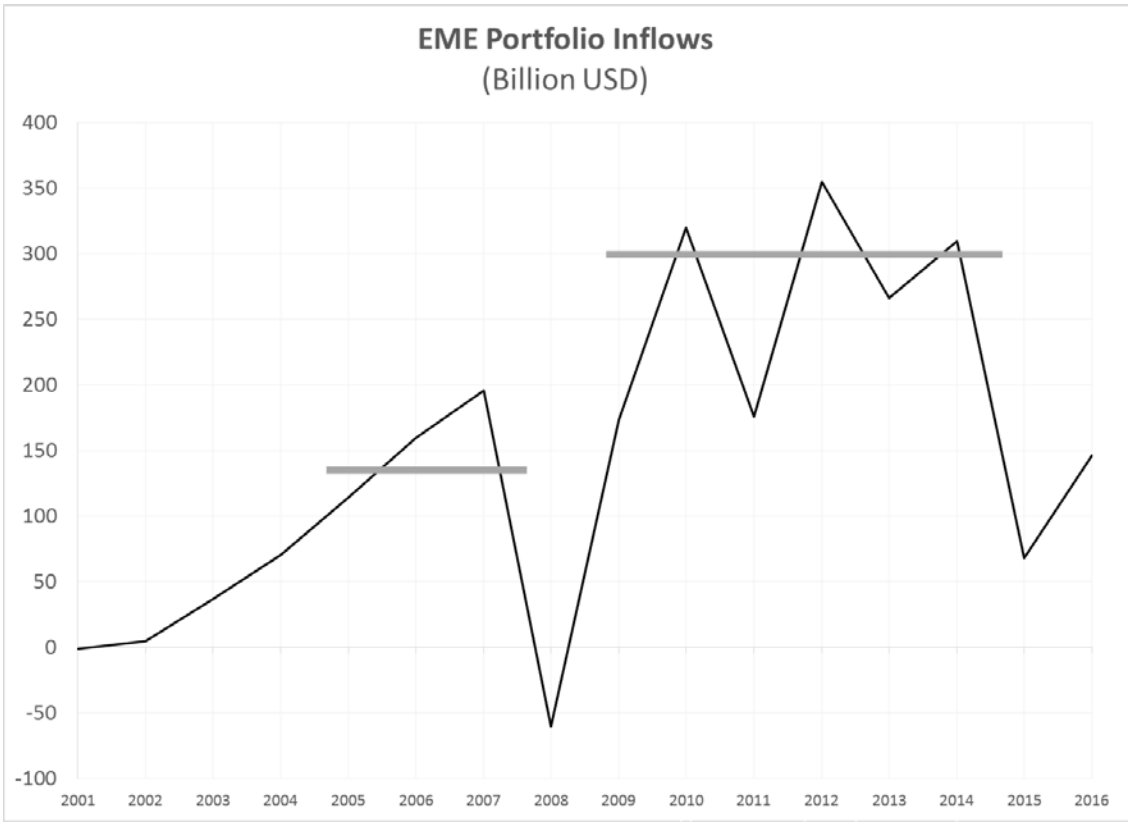
AE, Other	Australia, Canada, Czech Republic, Denmark, Hong Kong, Iceland, Israel, Japan, New Zealand, Norway, Singapore, South Korea, Sweden, Switzerland, United Kingdom
EME Asia:	Bangladesh, China, India, Indonesia, Pakistan, Philippines, Thailand
EME LatAm:	Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru, Uruguay
EME, Other	Belarus, Bulgaria, Hungary, Kuwait, Macedonia, Mauritius, Panama, Poland, Romania, Russia, South Africa, Turkey, Ukraine

Table 2. Determinants of Deviations

Fixed effects panel regressions use an annual panel dataset that spans 2001 to 2016 and includes as many as 20 EMEs. The dependent variable, defined as the deviation (i.e., actual minus benchmark) divided by GDP, is for portfolio inflows, bond inflows, or equity inflows as indicated in column headings. Independent variables include local variables (economic growth, IMF inflation forecast, MSCI equity returns, and capital controls) and global variables (U.S. 10-year Treasury yield, BBB-AAA risk spread, and the VIX). Constants are included but not reported. Robust standard errors, clustered at the country level, are reported in parentheses. ***, ** and * denote significance levels at 1%, 5% and 10%, respectively.

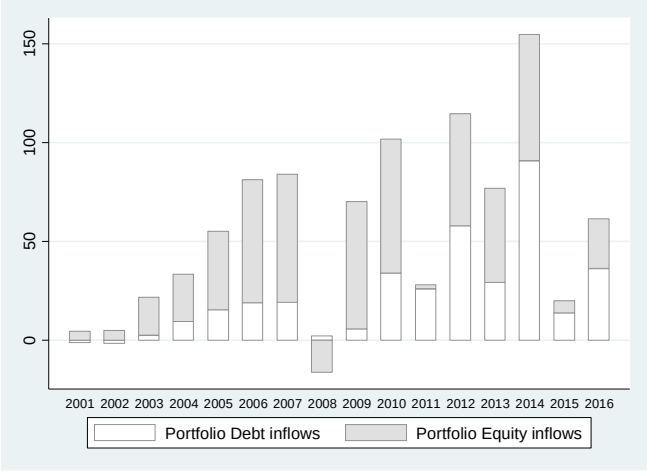
	Portfolio	Portfolio	Bonds	Bonds	Equity	Equity
Growth	0.122**	0.123**	7.231	7.479	0.347	0.725
	(0.048)	(0.050)	(4.785)	(4.830)	(1.160)	(1.200)
Inflation	-0.000	-0.000	-0.017*	-0.018*		
	(0.000)	(0.000)	(0.009)	(0.010)		
US Treasury yield	-0.001	-0.001	-0.149	-0.235	0.137	0.117
	(0.002)	(0.002)	(0.184)	(0.171)	(0.084)	(0.074)
VIX	-0.000		-0.040*		-0.010	
	(0.000)		(0.019)		(0.010)	
Equity Returns	0.014***	0.015***			0.771***	0.817***
	(0.003)	(0.003)			(0.215)	(0.227)
BBB-AAA spread		-0.002		-0.381		-0.041
		(0.002)		(0.233)		(0.087)
Capital Controls	0.027	0.027	2.128	2.140	-0.272	-0.260
	(0.020)	(0.020)	(1.449)	(1.468)	(0.277)	(0.273)
R^2	0.16	0.16	0.10	0.09	0.18	0.18
N	288	288	319	319	288	288

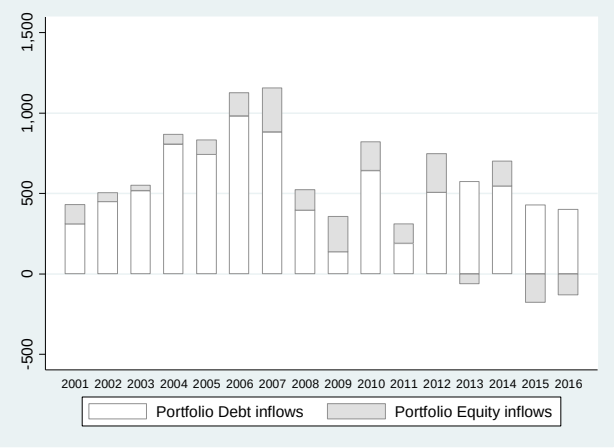
Figure 1. Portfolio Flows into Emerging Market Economies

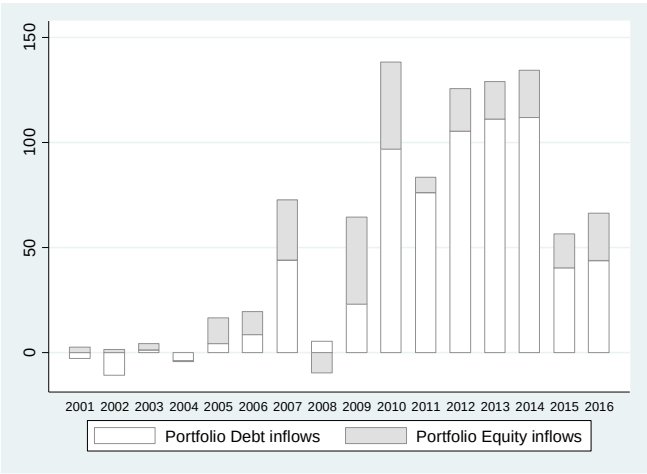


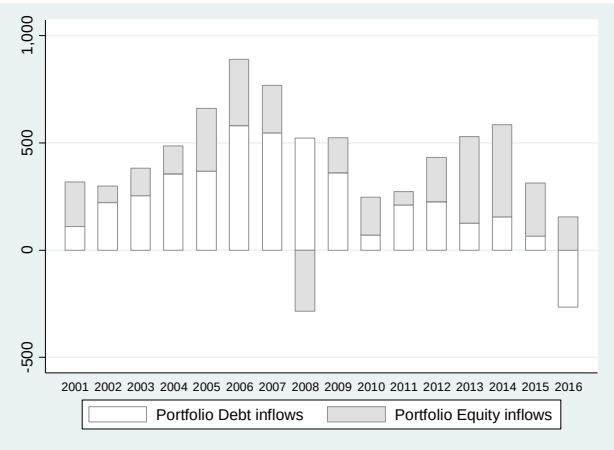
Note: Horizontal lines are averages for the 2004-2007 and 2010-2014 periods.

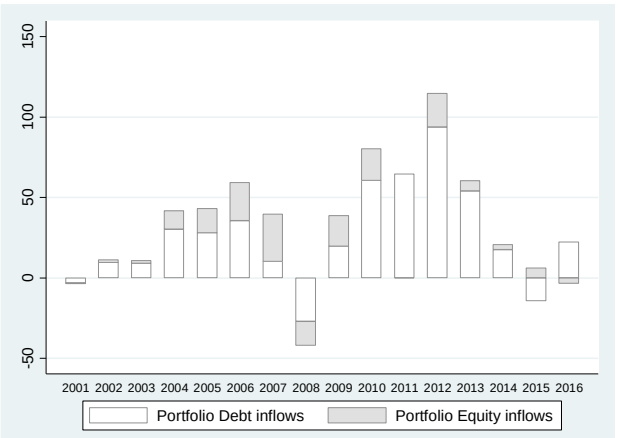
Figure 2. Portfolio Inflows (in billions of US$)











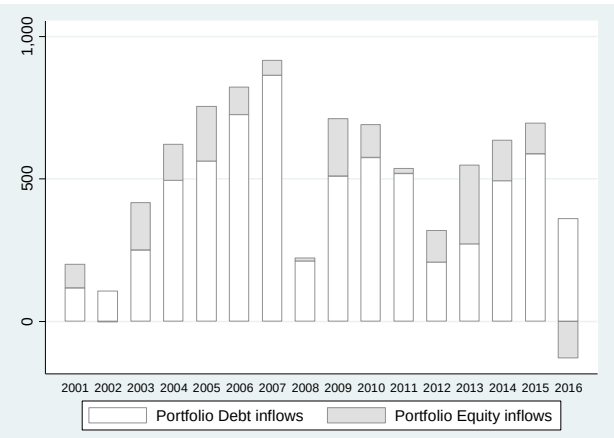
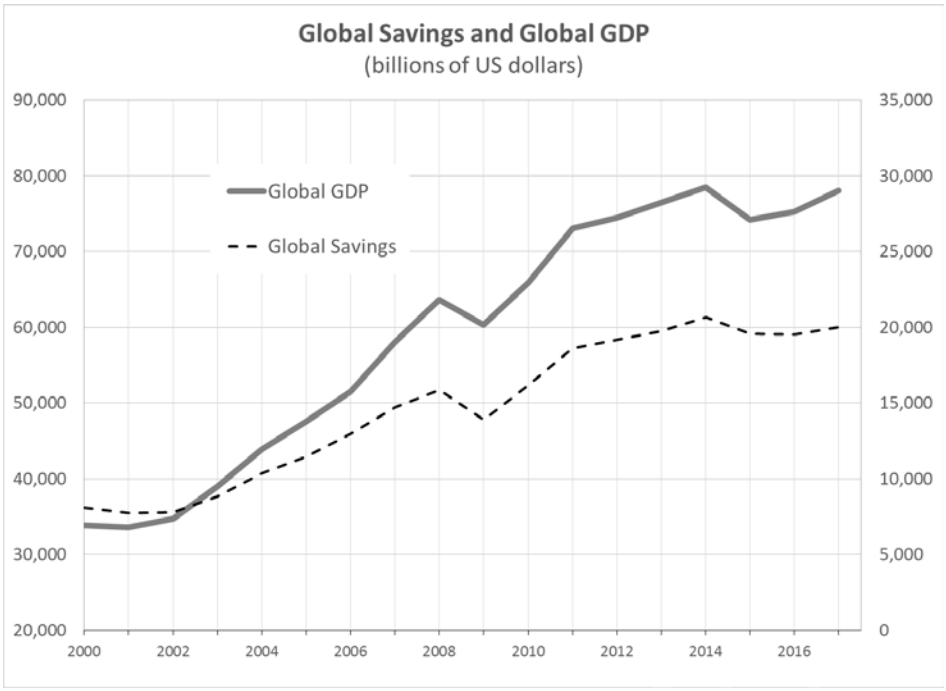
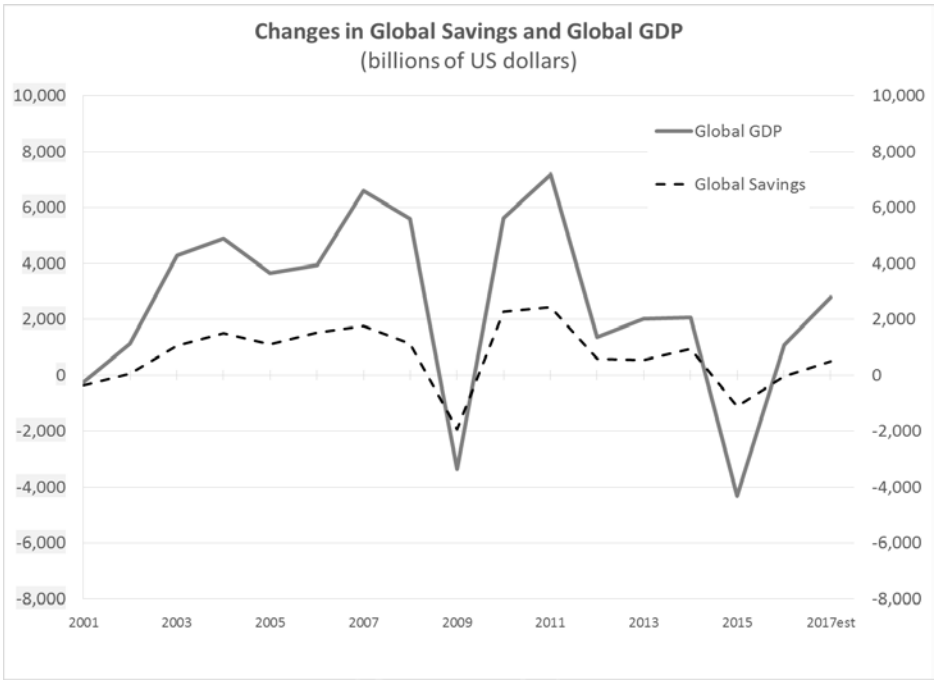


Figure 3. From GDP through Savings to Benchmark Flows





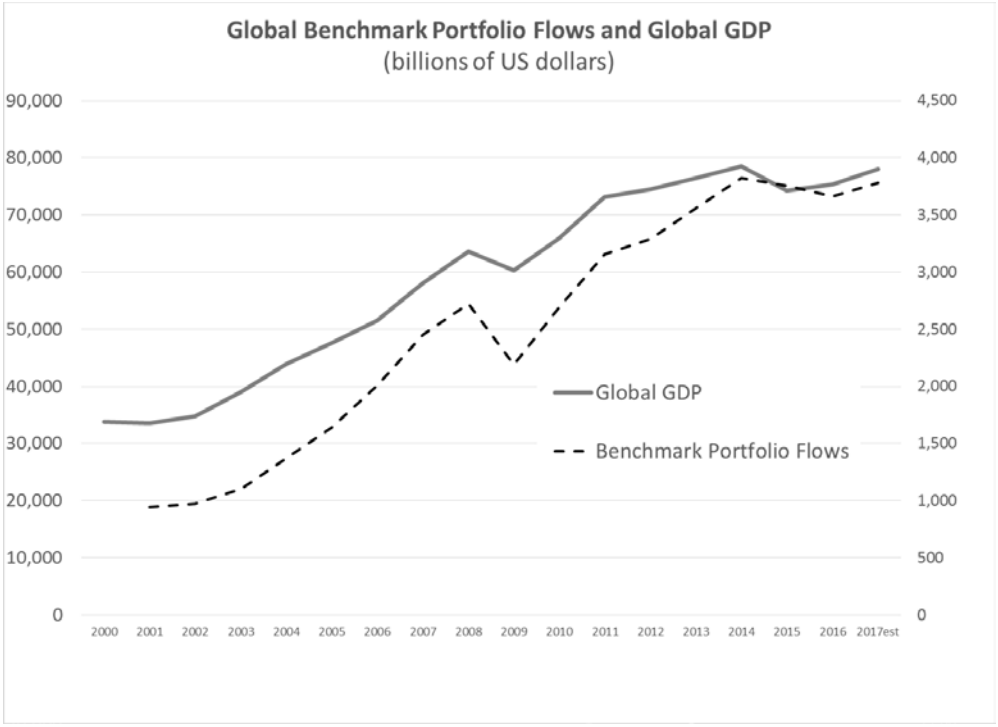
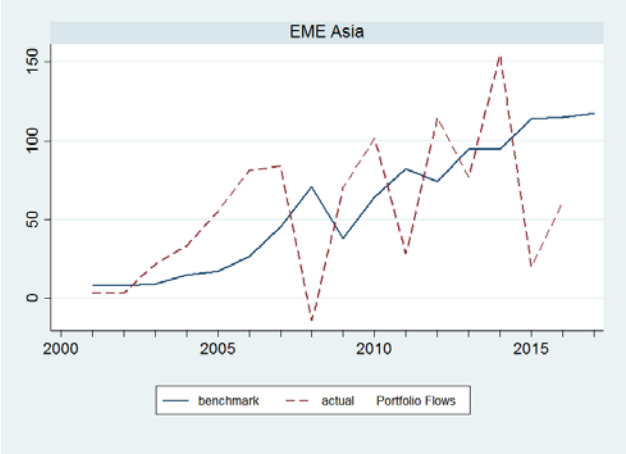
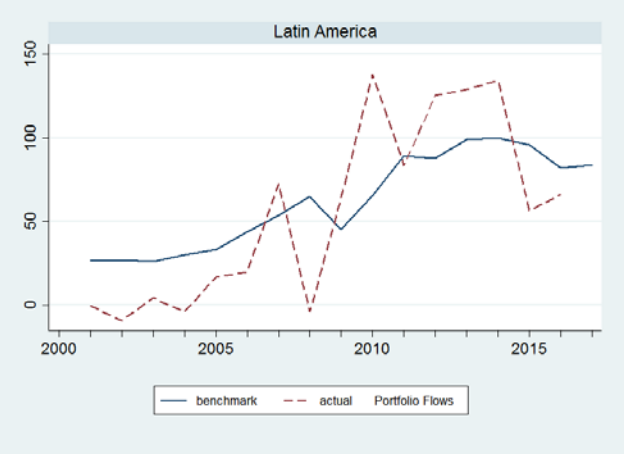
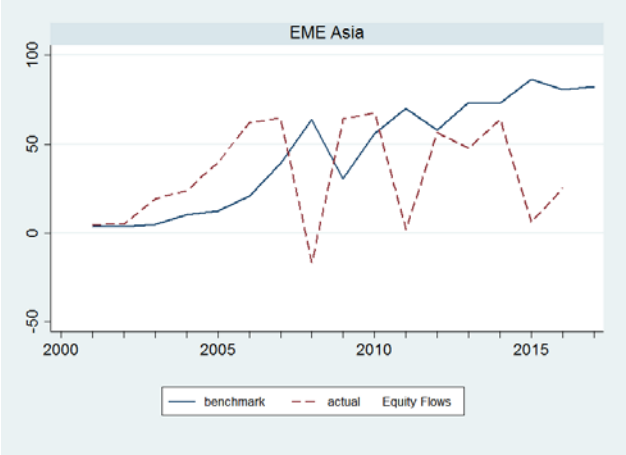
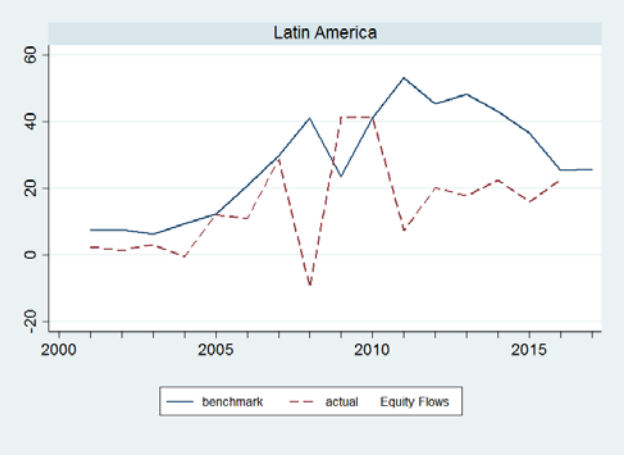

Global Benchmark Portfolio Flows and Global GDP
(billions of US dollars)
90,000
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017est
Global GDP
Benchmark Portfolio Flows

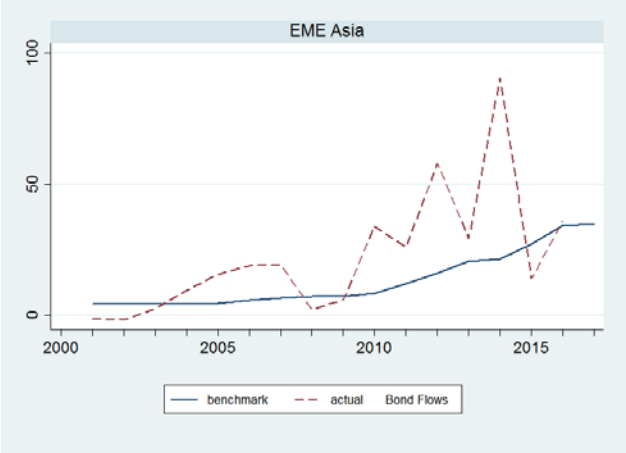
Figure 4. Actual and Benchmark Inflows: Portfolio, Equity and Bond (billions of USD)

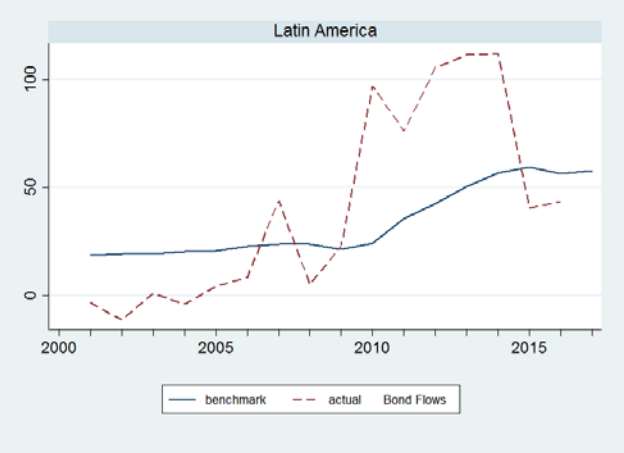


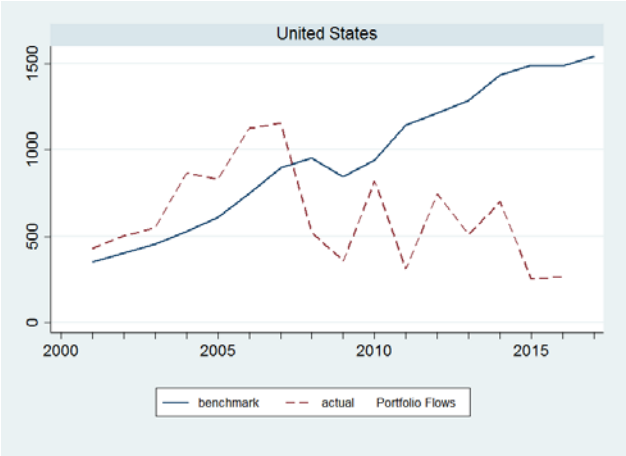


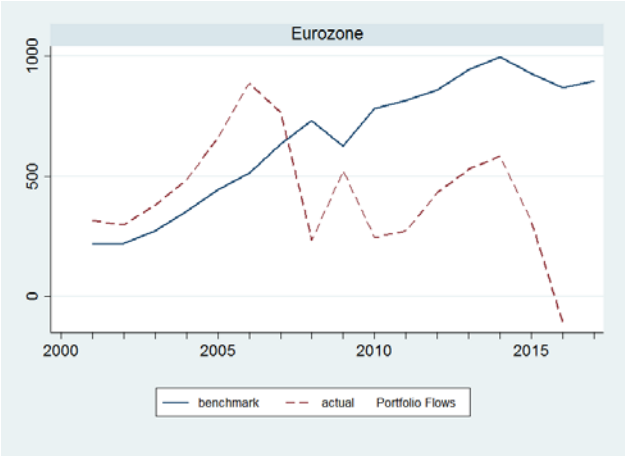


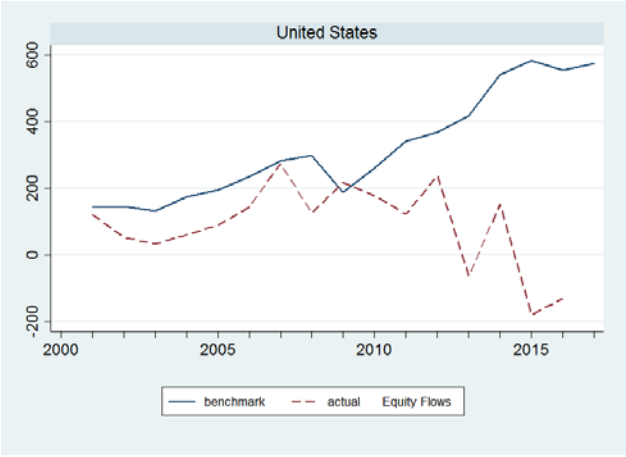


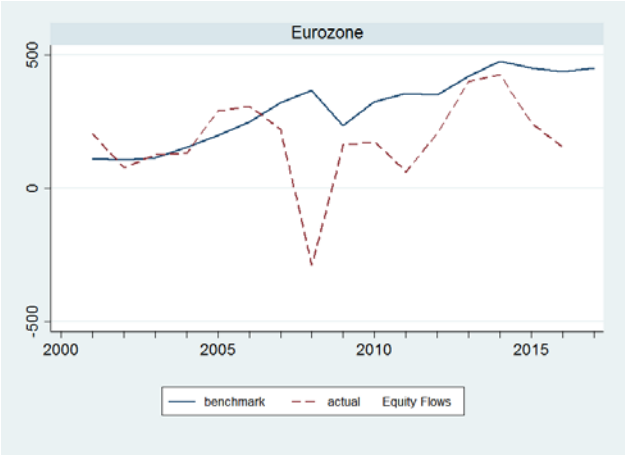


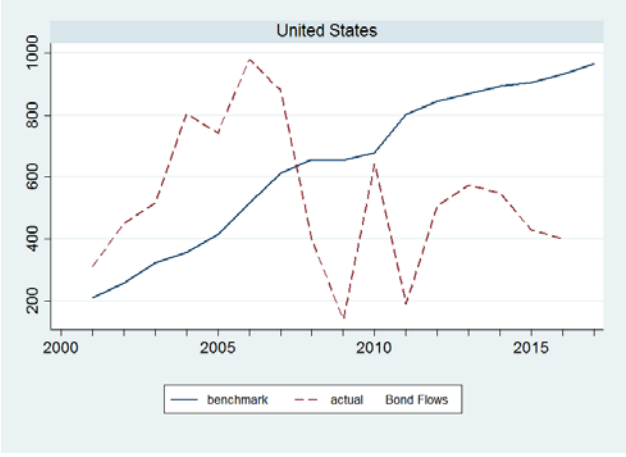


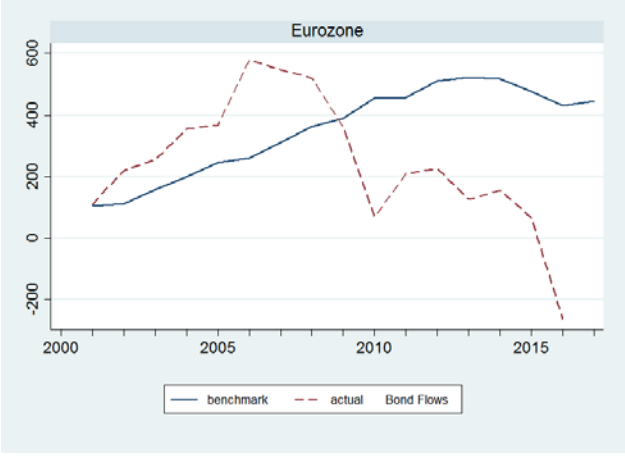

United States
1500
1000
500
0
2000
2005
2010
2015
benchmark
actual
Portfolio Flows

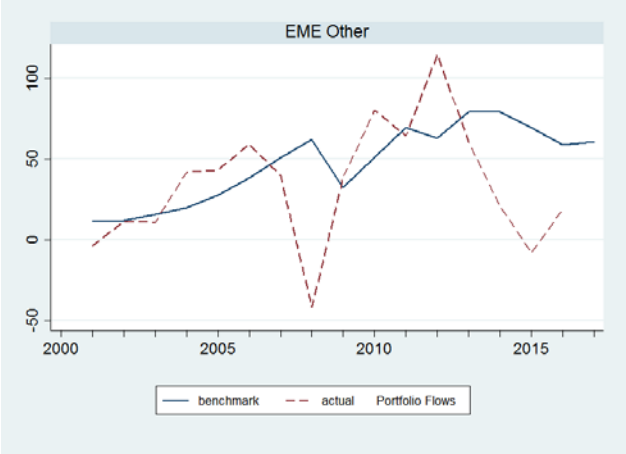

Eurozone
1000
500
0
2000
2005
2010
2015
benchmark
actual
Portfolio Flows

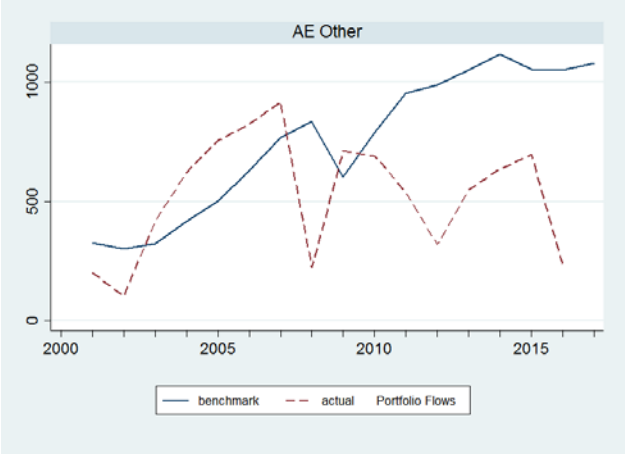

United States
600
400
200
0
-200
2000
2005
2010
2015
benchmark
actual
Equity Flows

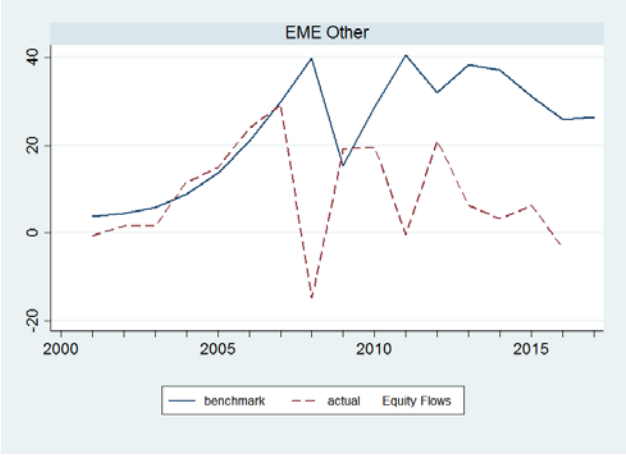

Eurozone
500
0
-500
2000
2005
2010
2015
benchmark
actual
Equity Flows

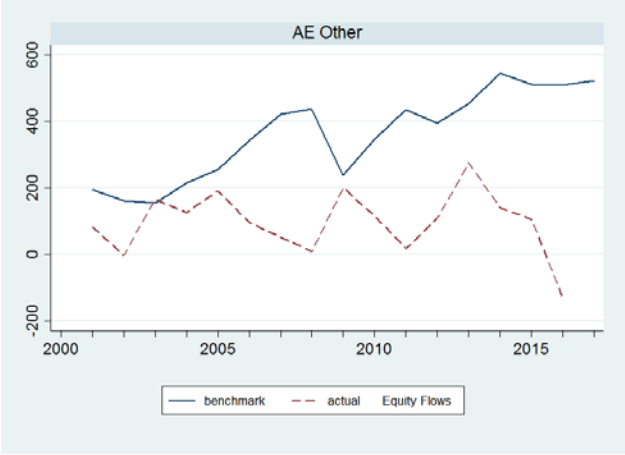

United States
1000
800
600
400
200
2000
2005
2010
2015
benchmark
actual
Bond Flows

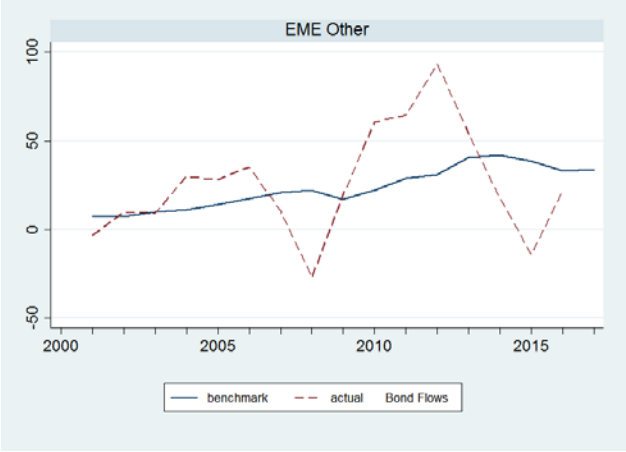

Eurozone
600
400
200
0
-200
2000
2005
2010
2015
benchmark
actual
Bond Flows

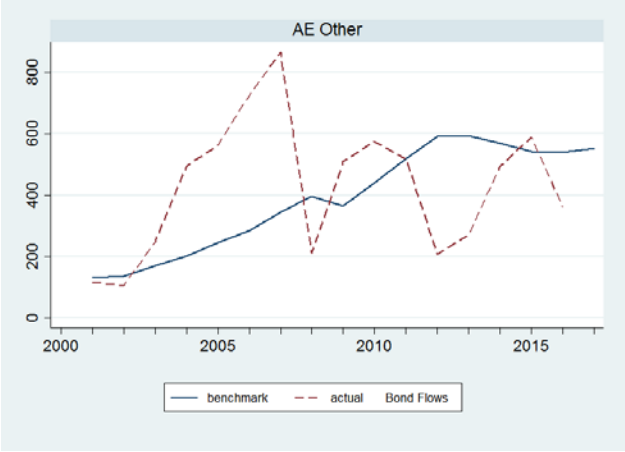

EME Other
100
50
0
-50
2000
2005
2010
2015
benchmark
actual
Portfolio Flows


AE Other
1000
500
0
2000
2005
2010
2015
benchmark
actual
Portfolio Flows


EME Other
40
20
0
-20
2000
2005
2010
2015
benchmark
actual
Equity Flows

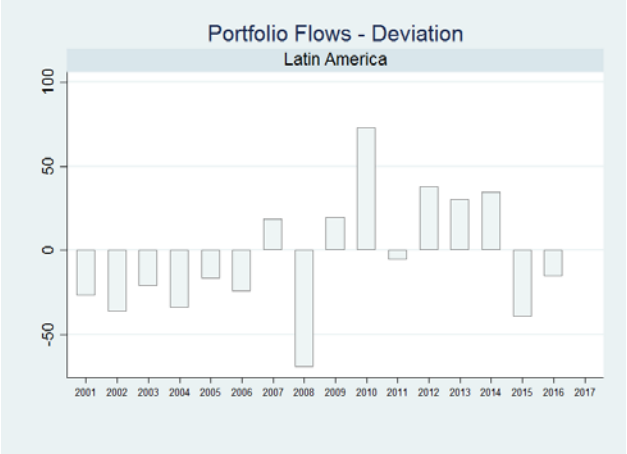

AE Other
600
400
200
0
-200
2000
2005
2010
2015
benchmark
actual
Equity Flows

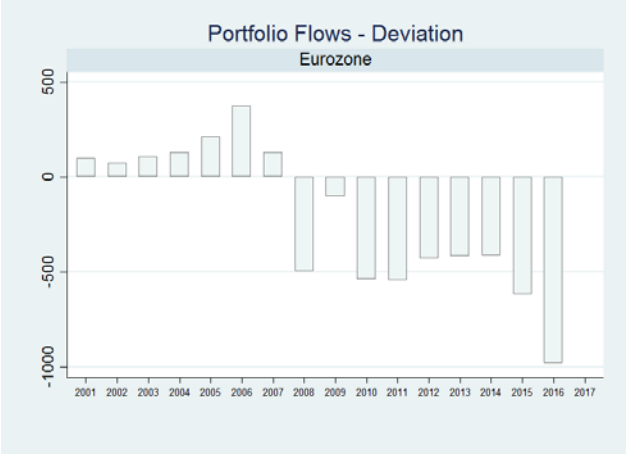

EME Other
100
50
0
-50
2000
2005
2010
2015
benchmark
actual
Bond Flows

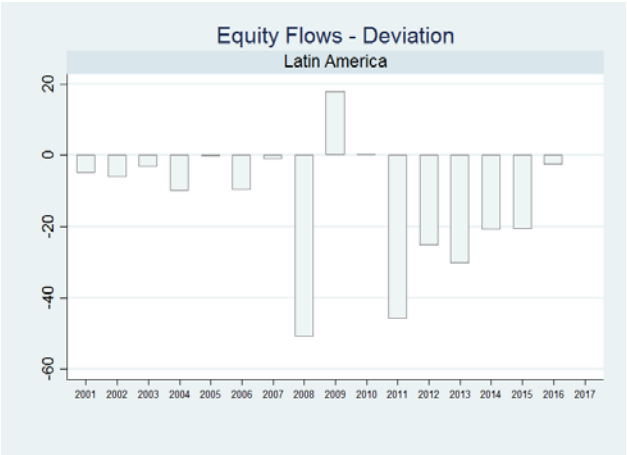

AE Other
800
600
400
200
0
2000
2005
2010
2015
benchmark
actual
Bond Flows

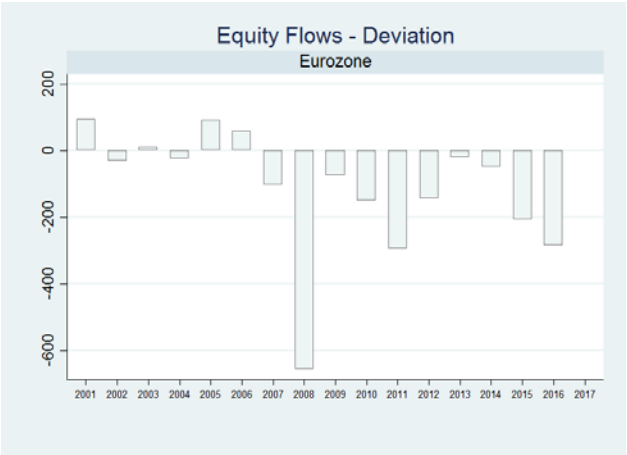
Appendix

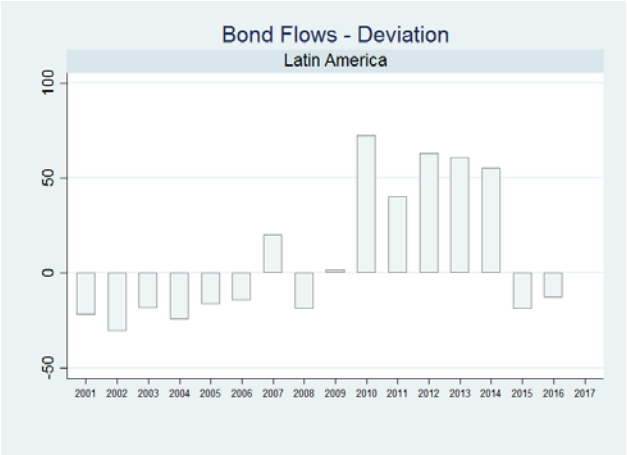
Figure A1. Deviations (actual – benchmark) by Country Grouping, billions of USD

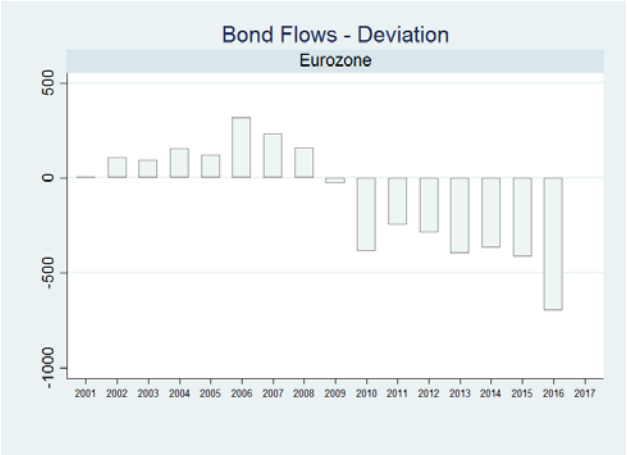

Portfolio Flows - Deviation
Latin America
100
50
0
-50
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

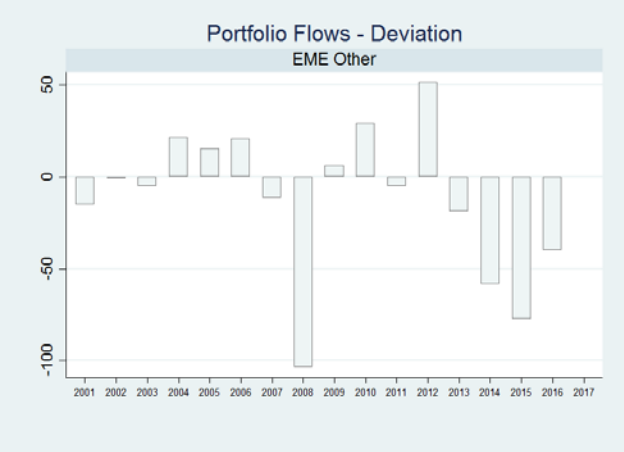

Portfolio Flows - Deviation
Eurozone
500
0
-500
-1000
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

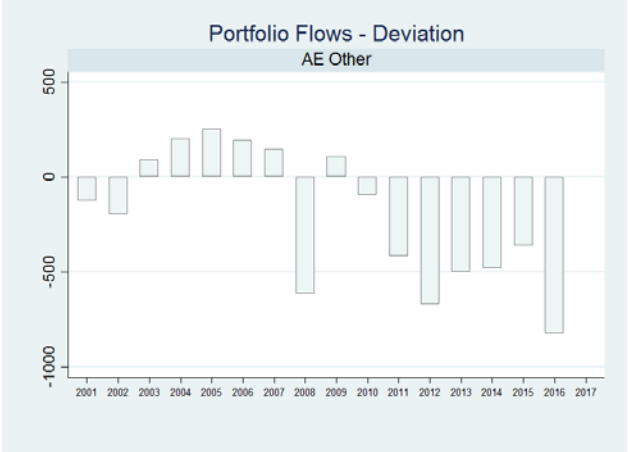

Equity Flows - Deviation
Latin America
20
0
-20
-40
-60
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

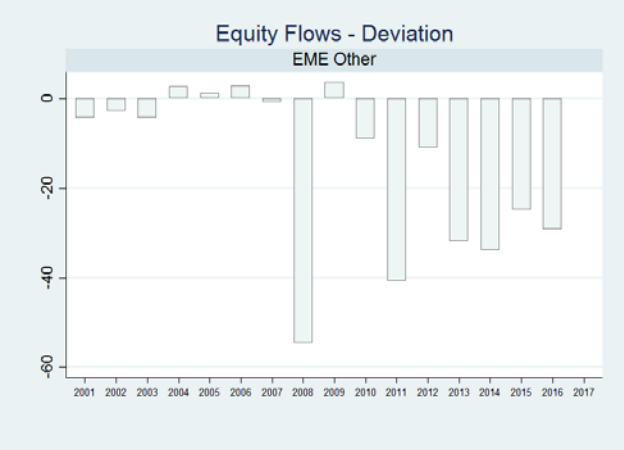

Equity Flows - Deviation
Eurozone
200
0
-200
-400
-600
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

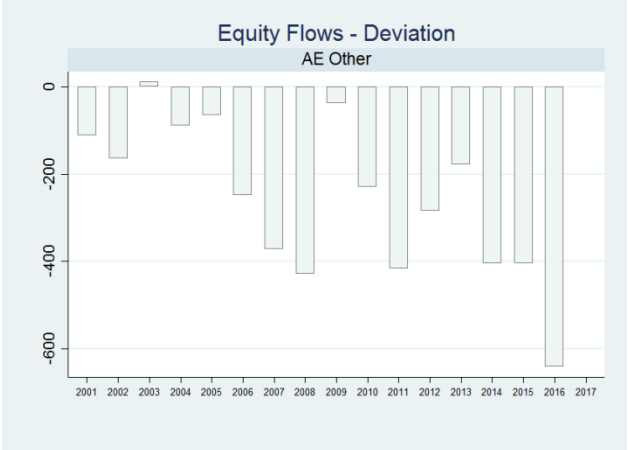

Bond Flows - Deviation
Latin America
100
50
0
-50
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

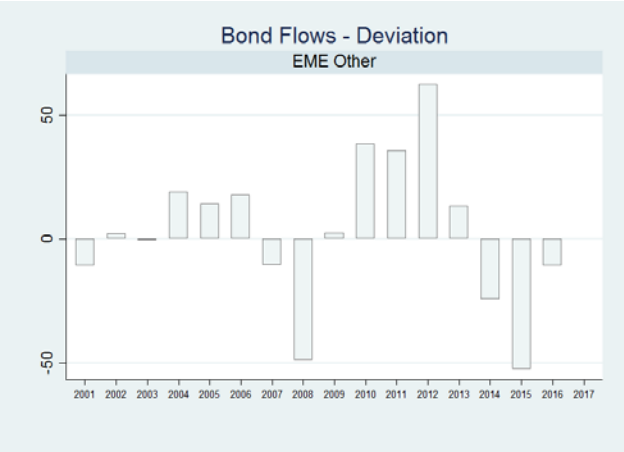

Bond Flows - Deviation
Eurozone
500
0
-500
-1000
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017


Portfolio Flows - Deviation
EME Other
50
0
-50
-100
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017


Portfolio Flows - Deviation
AE Other
500
0
-500
-1000
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017


Equity Flows - Deviation
EME Other
0
-20
-40
-60
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017


Equity Flows - Deviation
AE Other
0
-200
-400
-600
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017


Bond Flows - Deviation
EME Other
50
0
-50
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

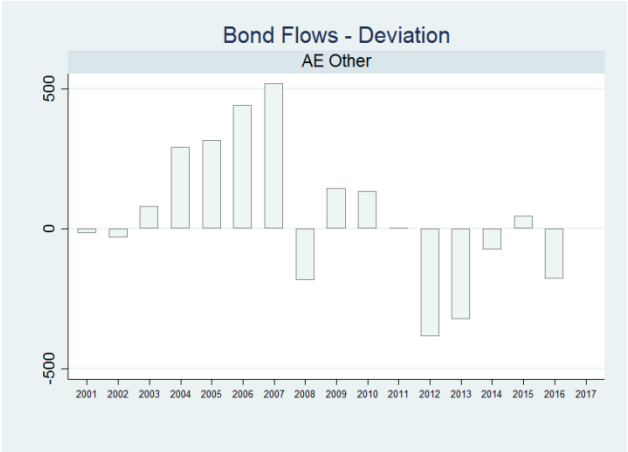
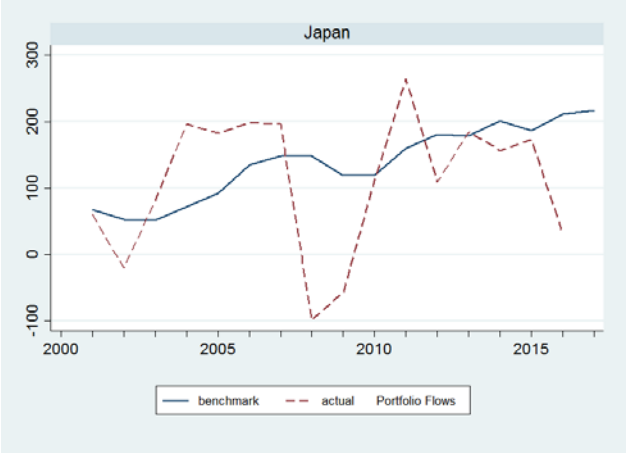
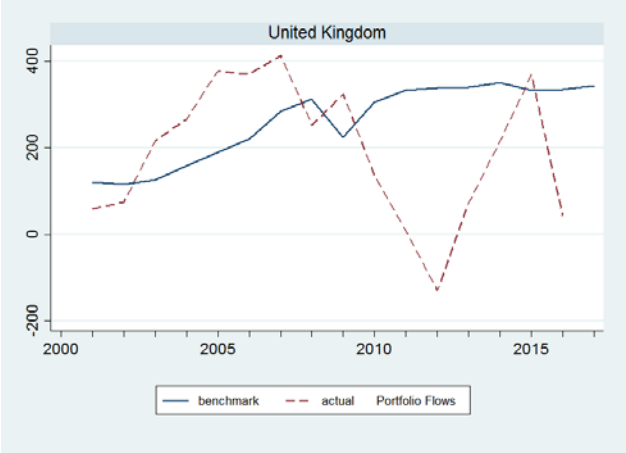
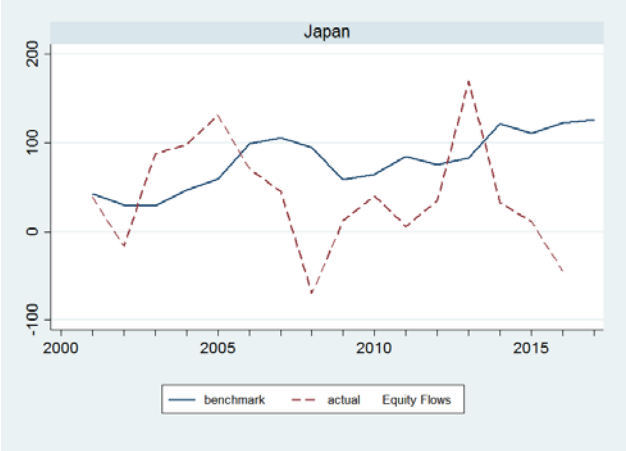
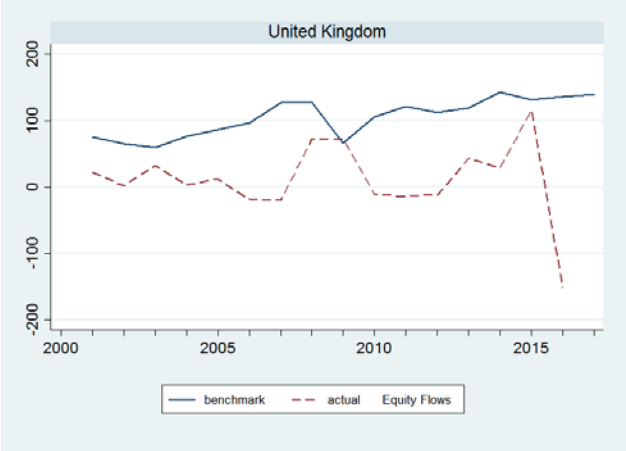

Bond Flows - Deviation
AE Other
500
0
-500
2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

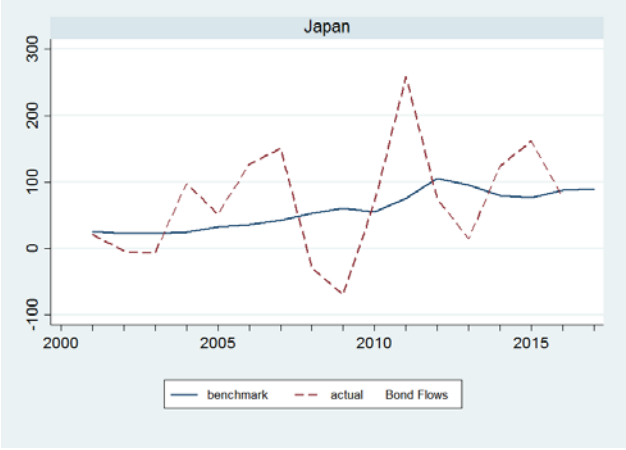
Figure A2. Actual and Benchmark Inflows for Selected Countries (billions of USD)

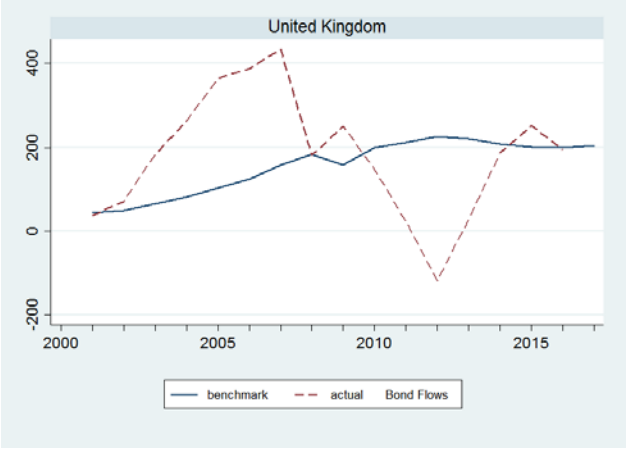


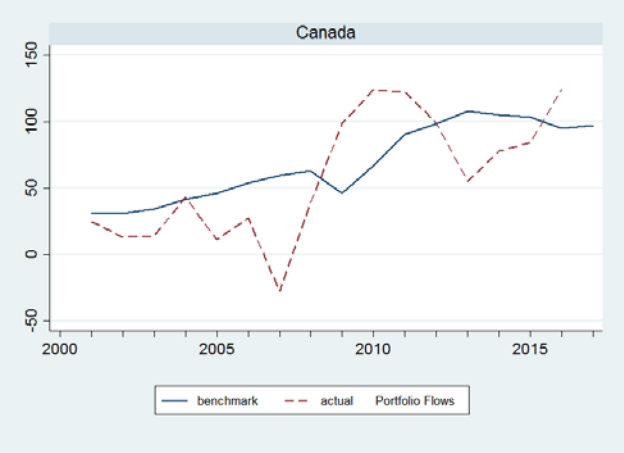


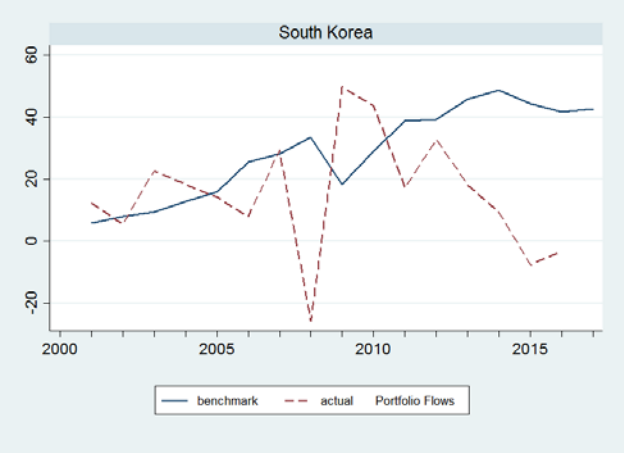


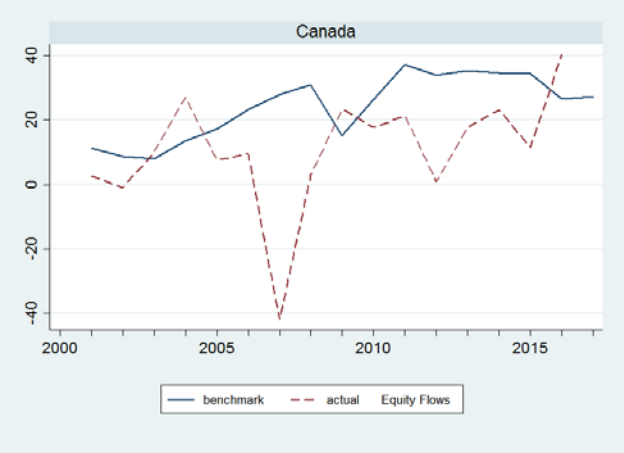


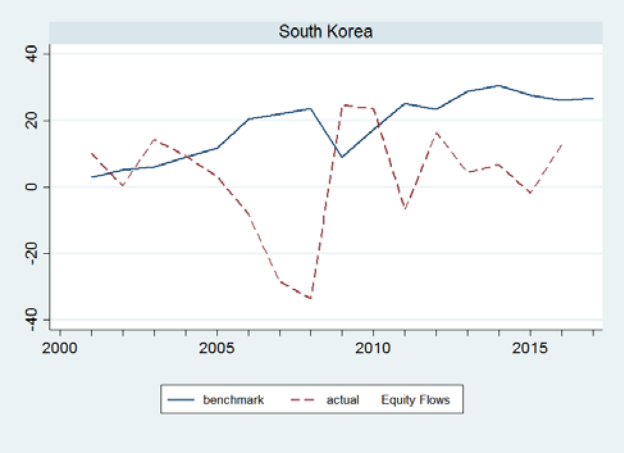


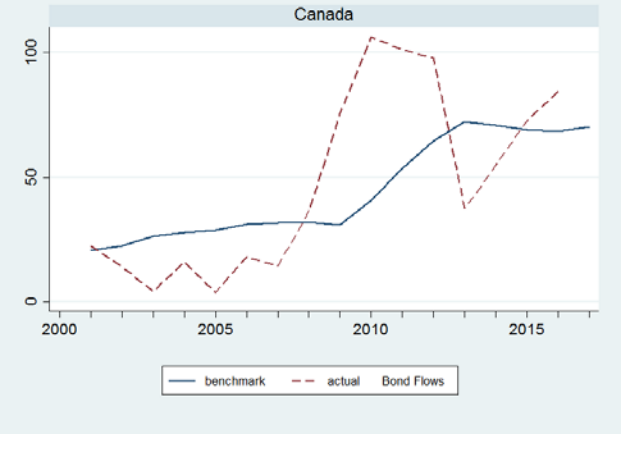


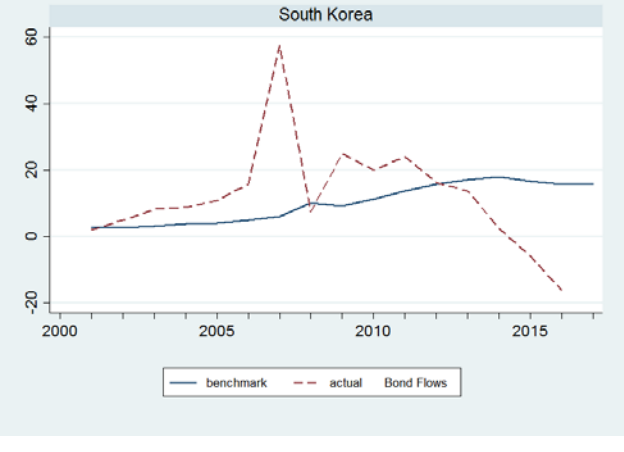

Canada
150
100
50
0
-50
2000
2005
2010
2015
benchmark
actual
Portfolio Flows


South Korea
60
40
20
0
-20
2000
2005
2010
2015
benchmark
actual
Portfolio Flows


Canada
40
20
0
-20
-40
2000
2005
2010
2015
benchmark
actual
Equity Flows


South Korea
40
20
0
-20
-40
2000
2005
2010
2015
benchmark
actual
Equity Flows


Canada
100
50
0
2000
2005
2010
2015
benchmark
actual
Bond Flows


South Korea
60
40
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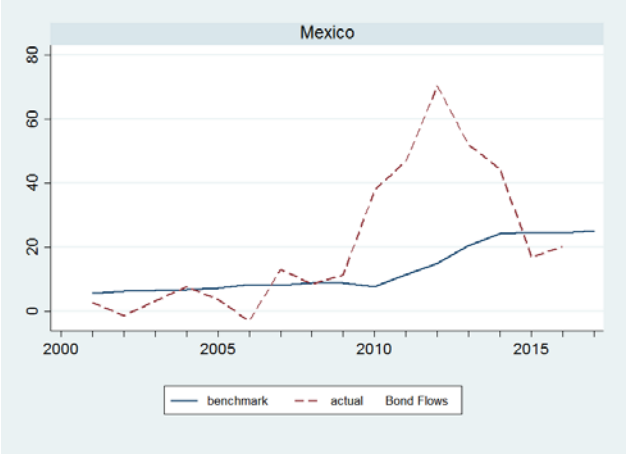
Bond Flows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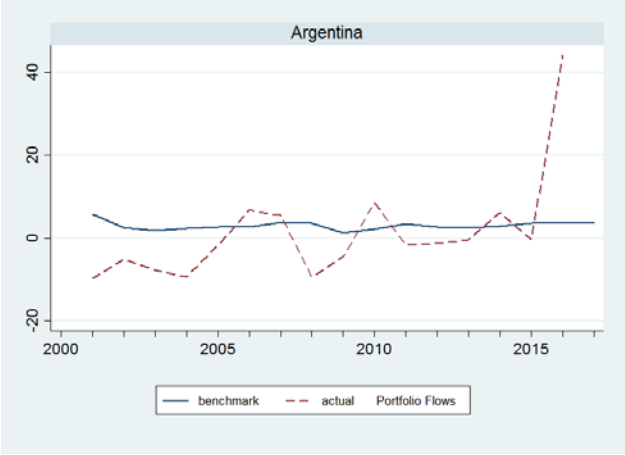
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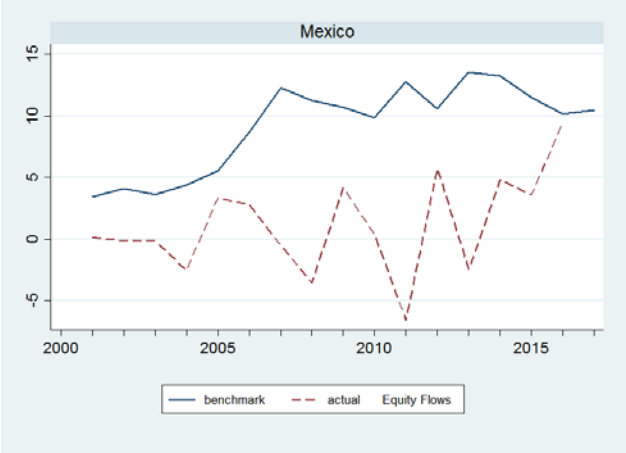
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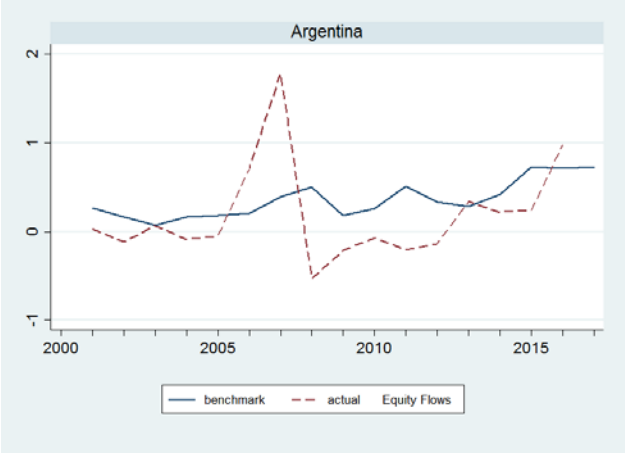
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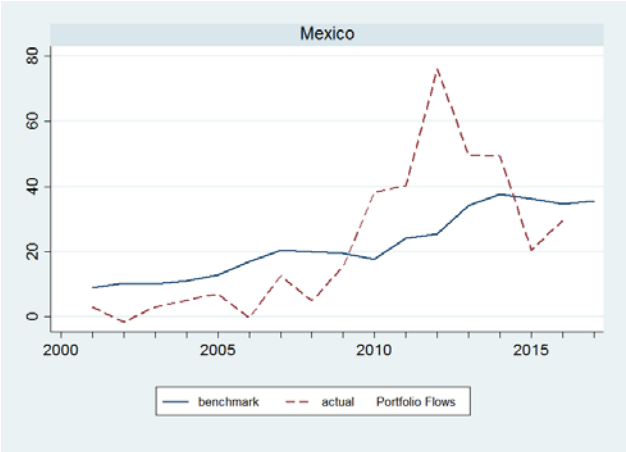
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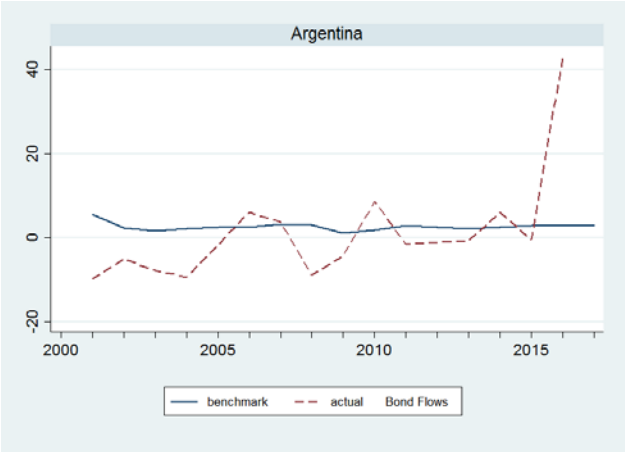
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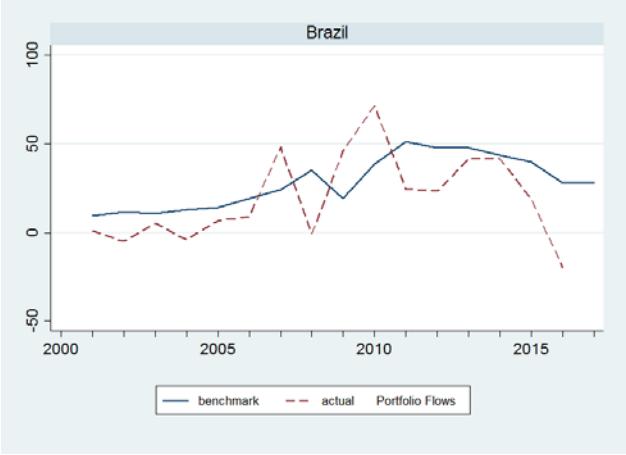
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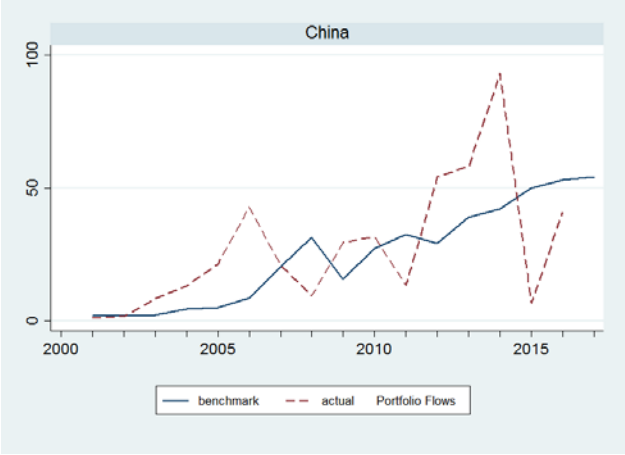
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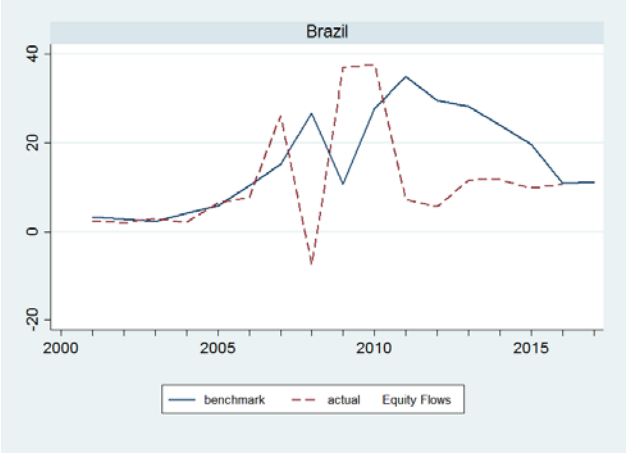
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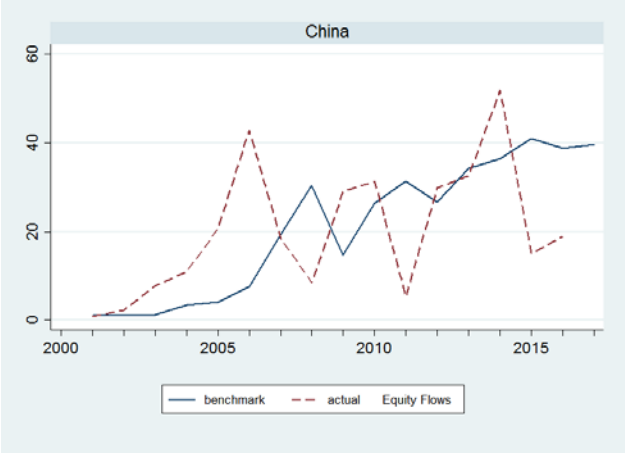
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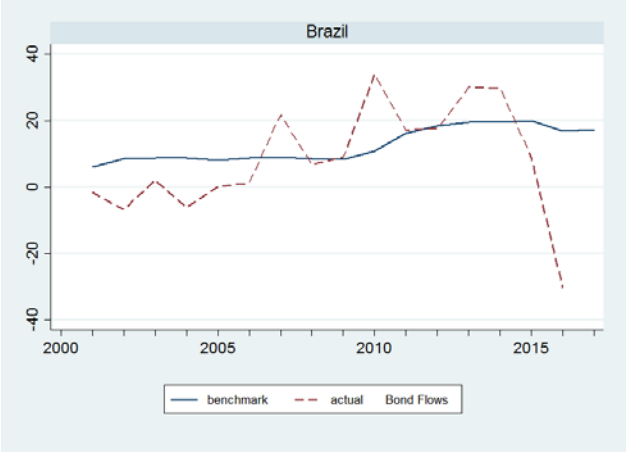
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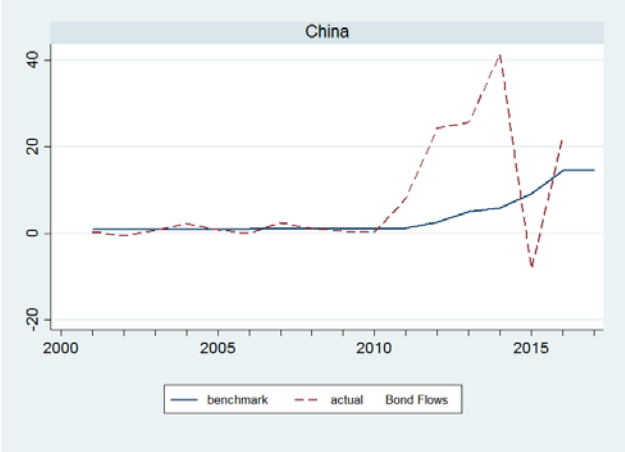
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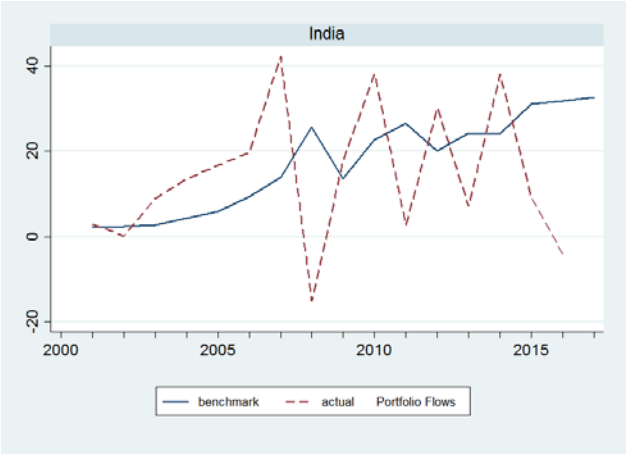
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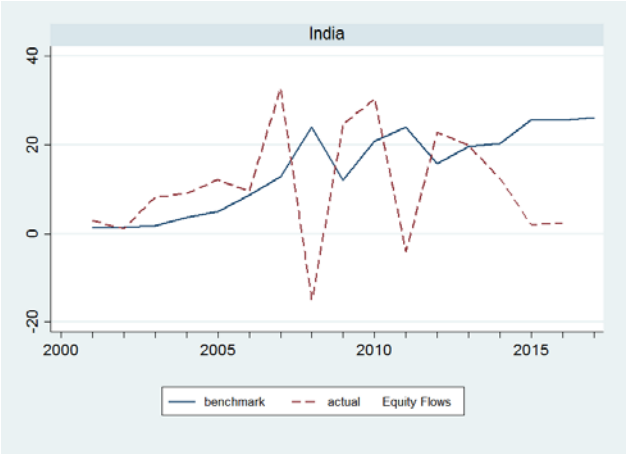
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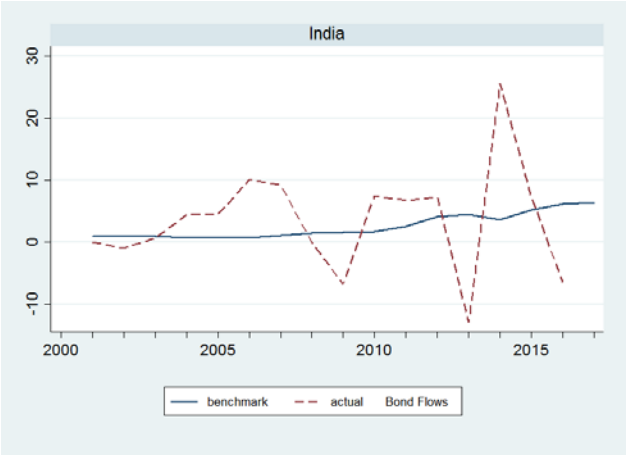
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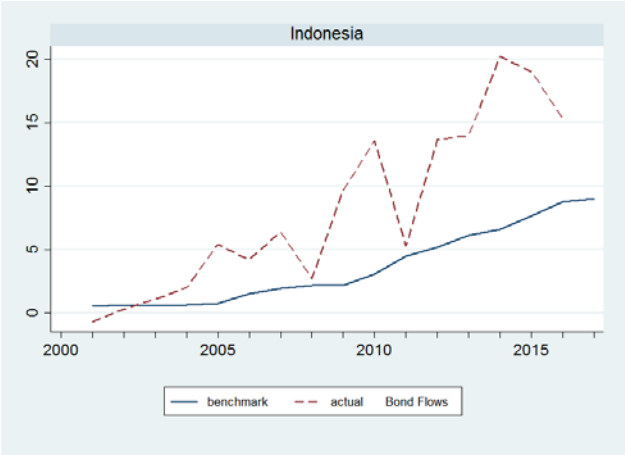
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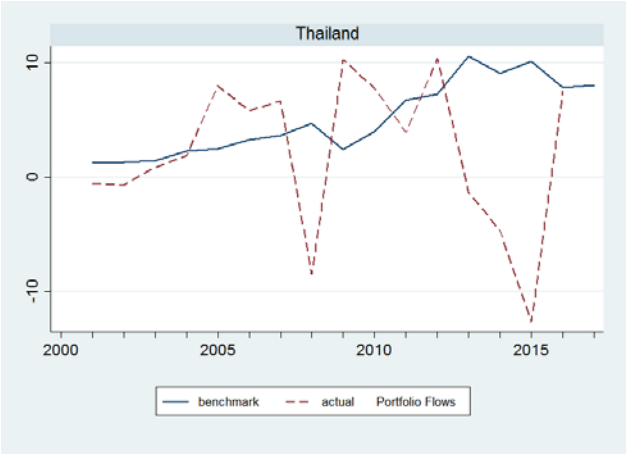
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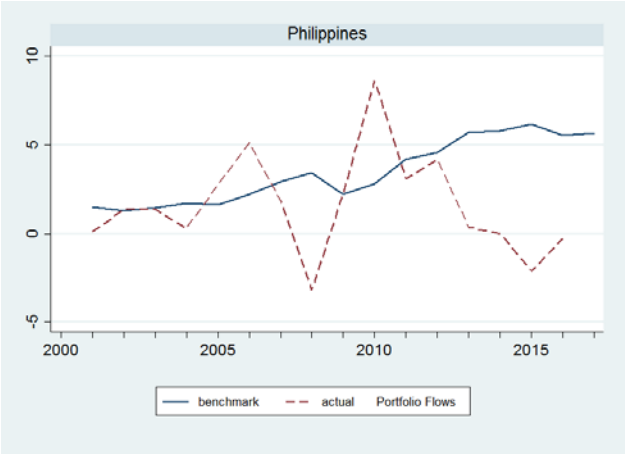
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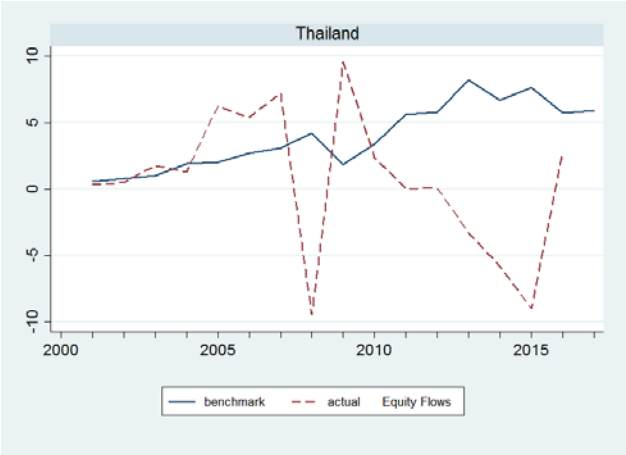
Portfolio Flows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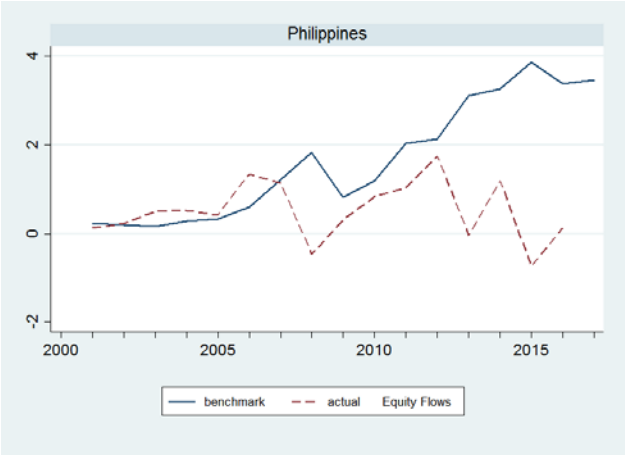
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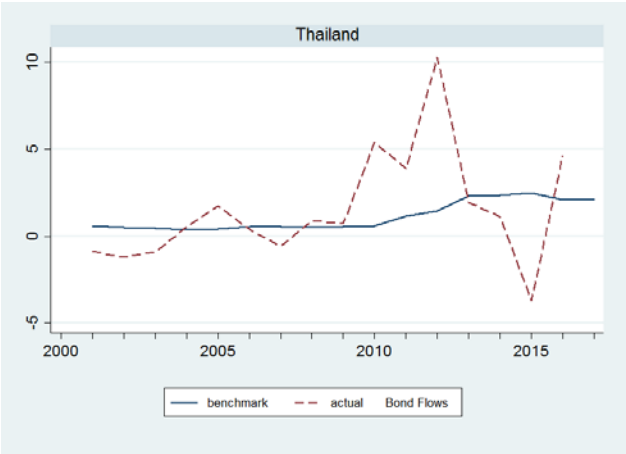
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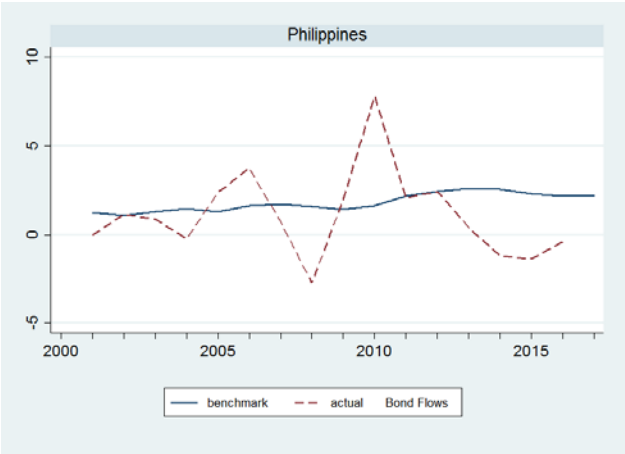
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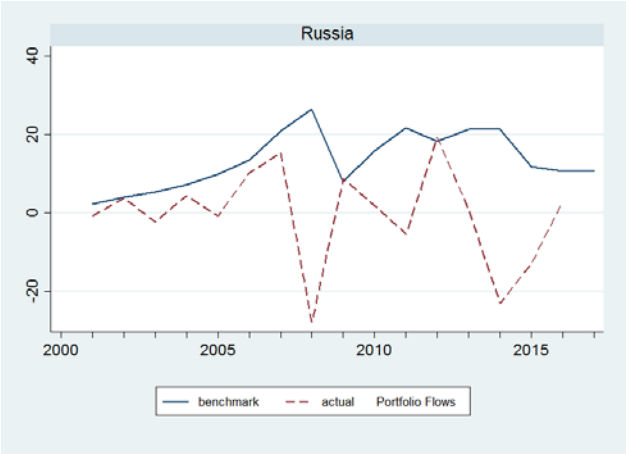
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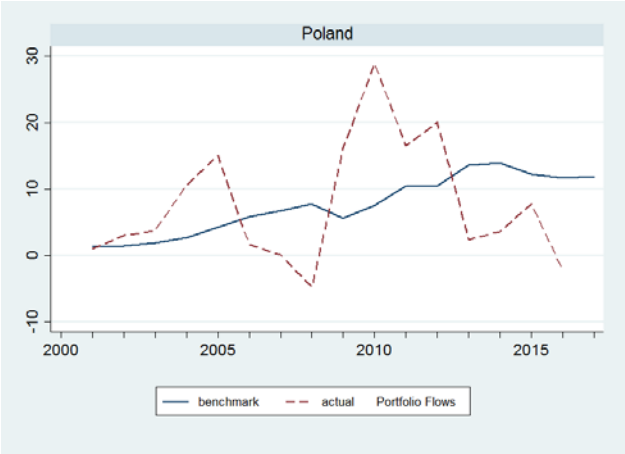
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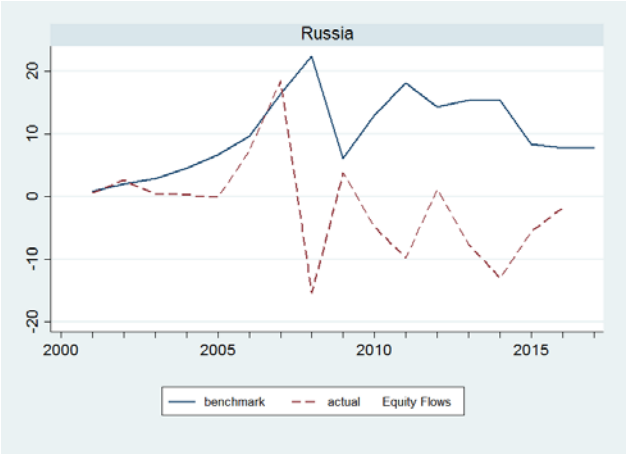
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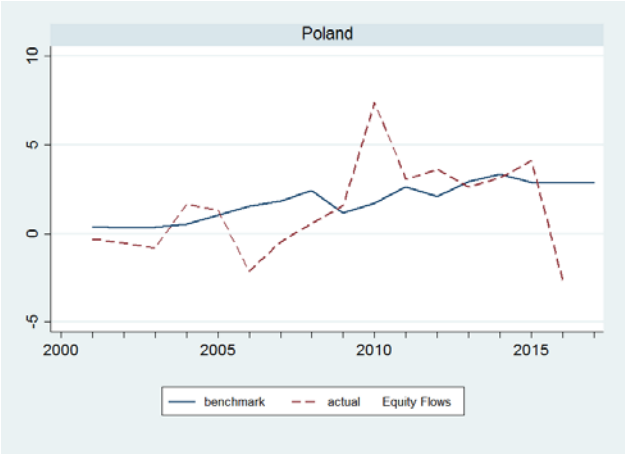
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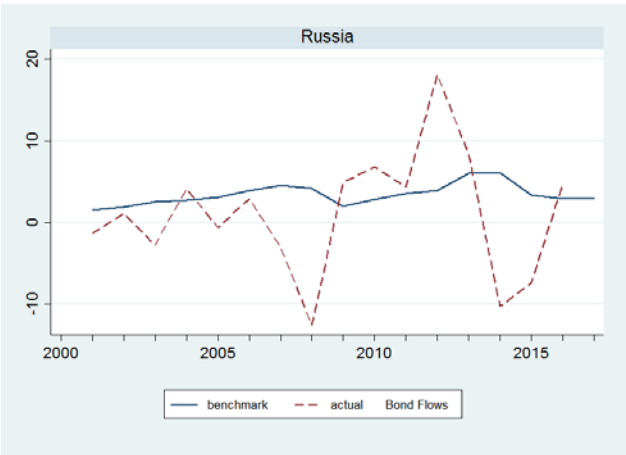
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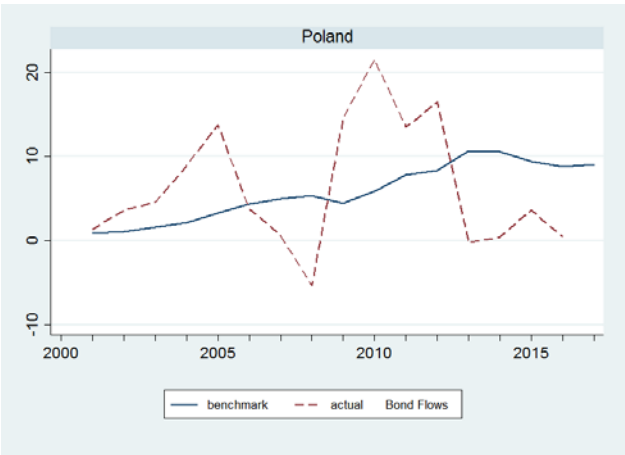
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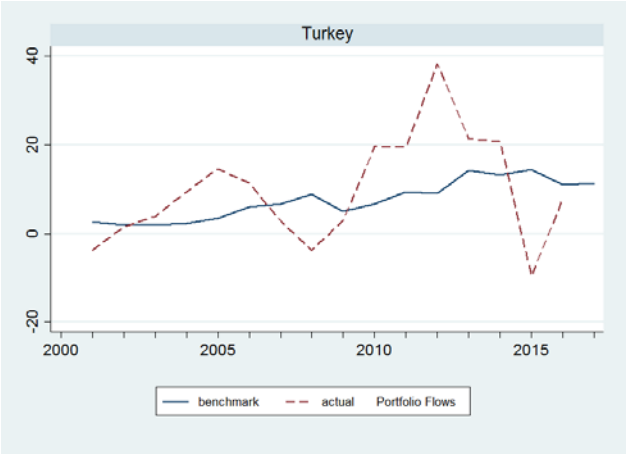
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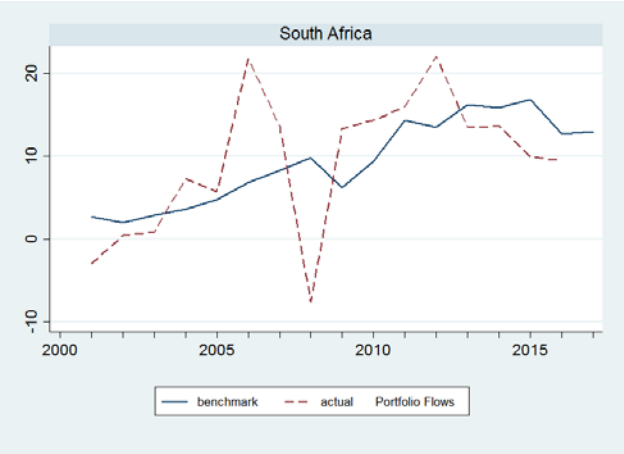
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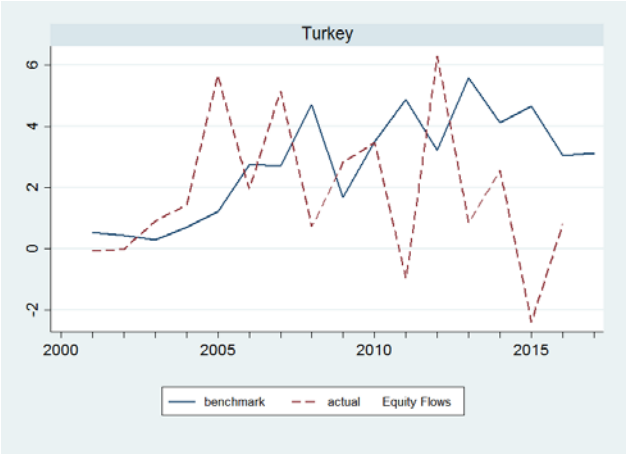
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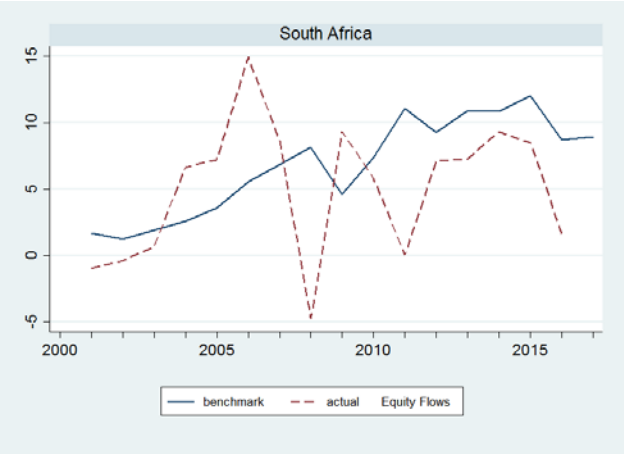
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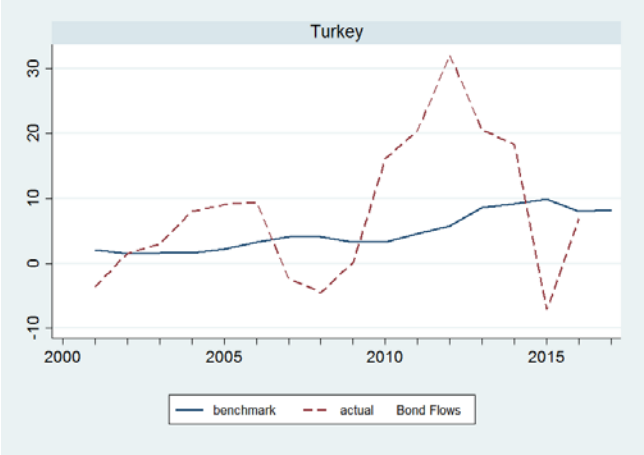
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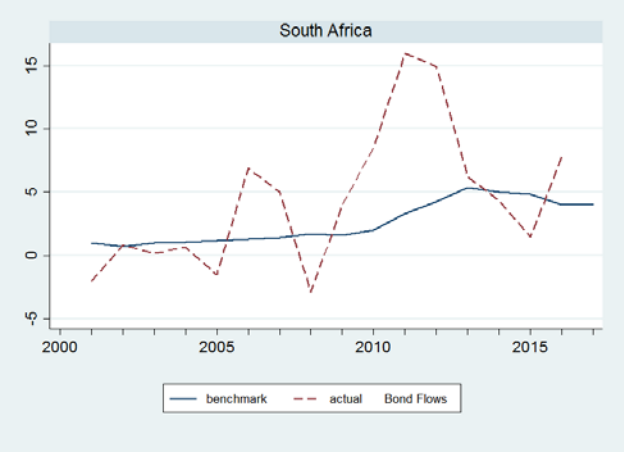
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Bond Flows