

# Drivers of Capital Flows and the Role of the Investor Base in Latin America

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# Capital Flows in Emerging Markets

- Questions addressed here:
  - What are the main drivers of capital flows in emerging markets?
  - Are there any factors that can help mitigate or amplify the sensitivity of capital flows to external shocks?
- IMF-WHD work on capital flows:
  - Spring 2017 *Regional Economic Outlook* (Chapter 4)
  - Caceres *et al* (2017 A; *forthcoming*): “Understanding the Cyclical and Structural Drivers of Capital Flows in Emerging Markets”
  - Caceres *et al* (2017 B; *forthcoming*): “The Role of the Investor Base in the Sensitivity of Capital Flows to External Shocks”

# OUTLINE

## Part I: Stylized Facts of Capital Flows

- Recent developments
- *Cyclical* behavior of capital flows
- *Structural* component of capital flows

## Part II: Analyzing the Drivers of Capital Flows

- Global 'push' factors
- Country-specific 'pull' factors

## Part III: Sensitivity of Capital Flows to External Shocks

- The role of the "Investor Base"

## Part IV: Conclusions

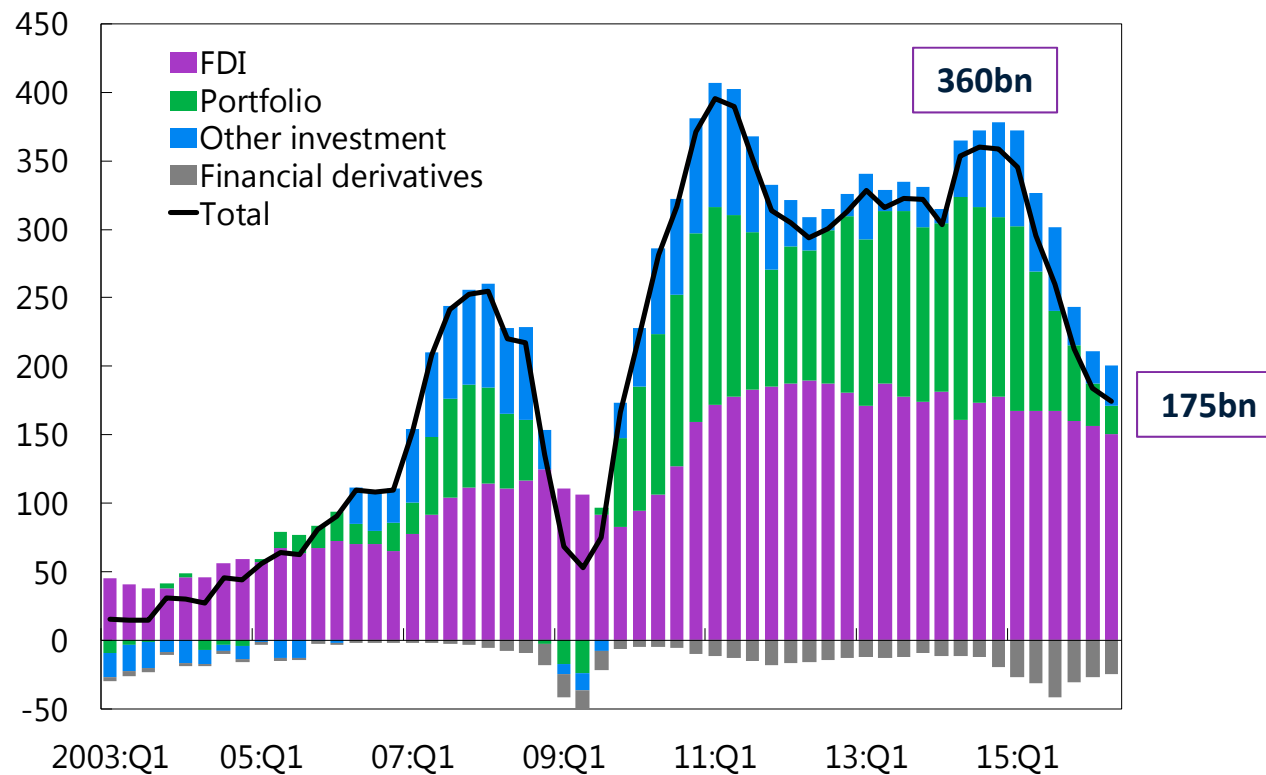
# I. Stylized Facts

# Gross Inflows to Latin America

*Capital flows to LAC have halved since the end of the “commodity super-cycle”*

## LA7: Gross Inflows

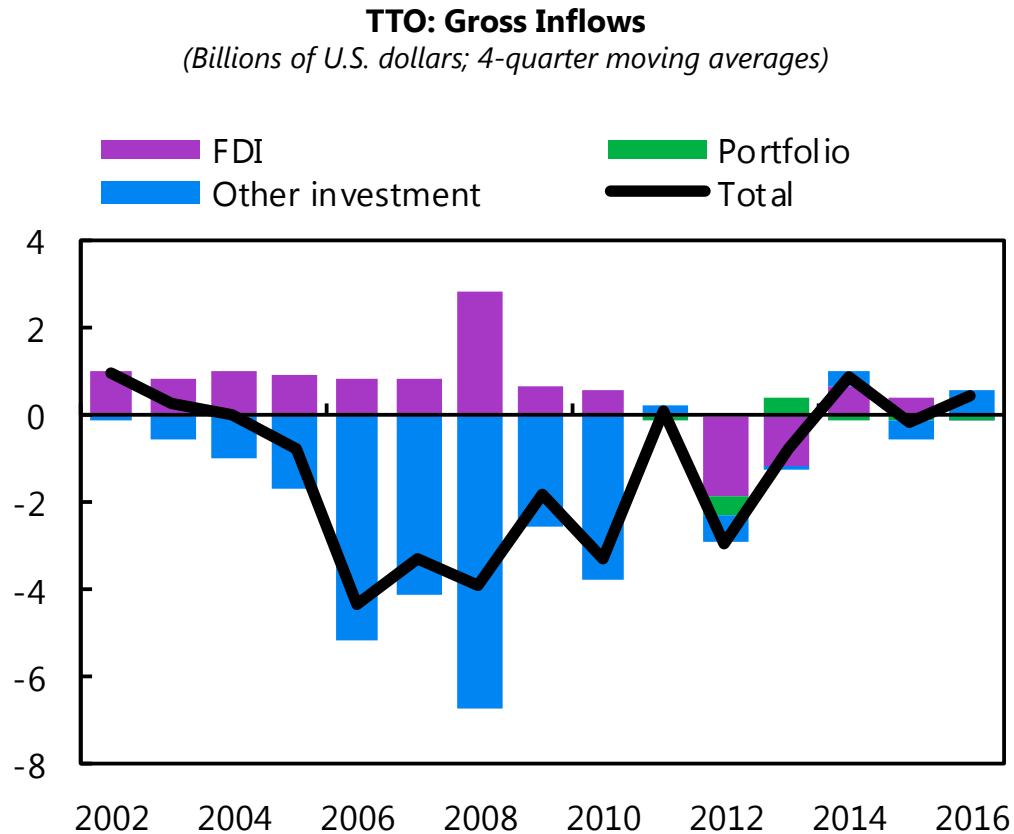
(Billions of U.S. dollars; 4-quarter moving averages)



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.  
Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

# Gross Inflows to TTO

*...though TTO's story is quite different; reflecting the country's large CA surpluses over this period*

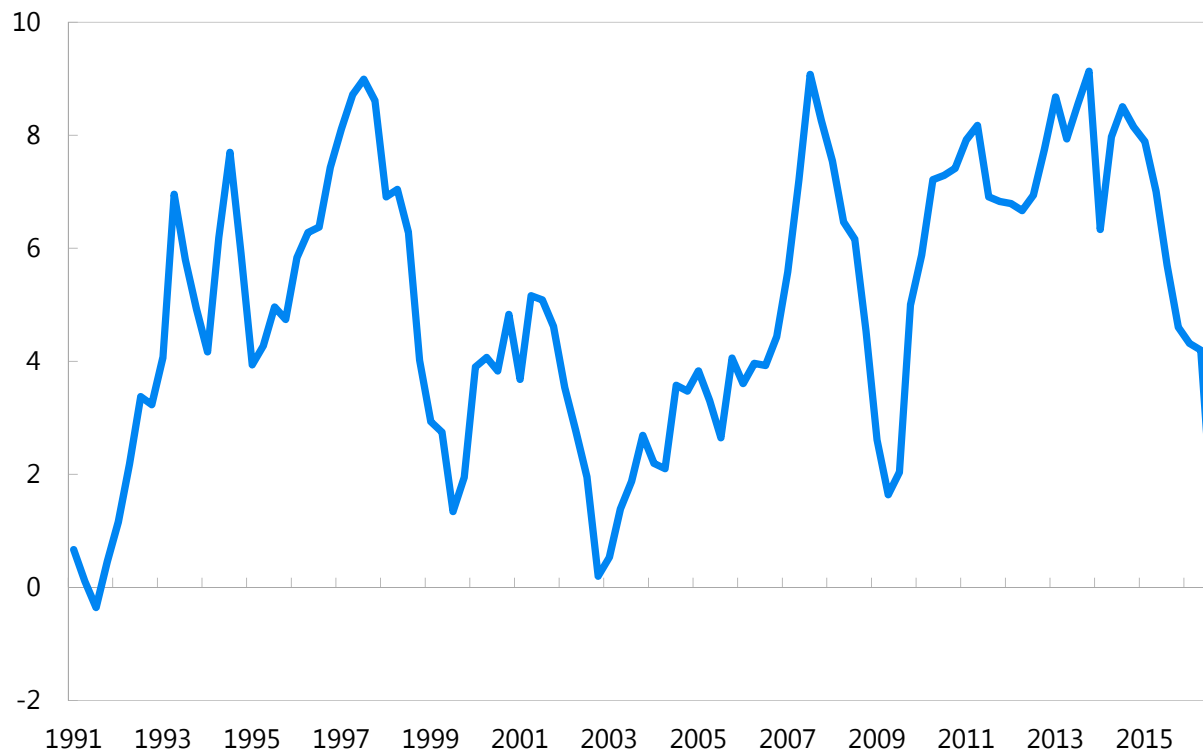


Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

# Gross Inflows to Latin America

*“Low frequency” of capital inflow cycles in LAC*

**LA7: Gross Inflows**  
(Percent of trend GDP; median)

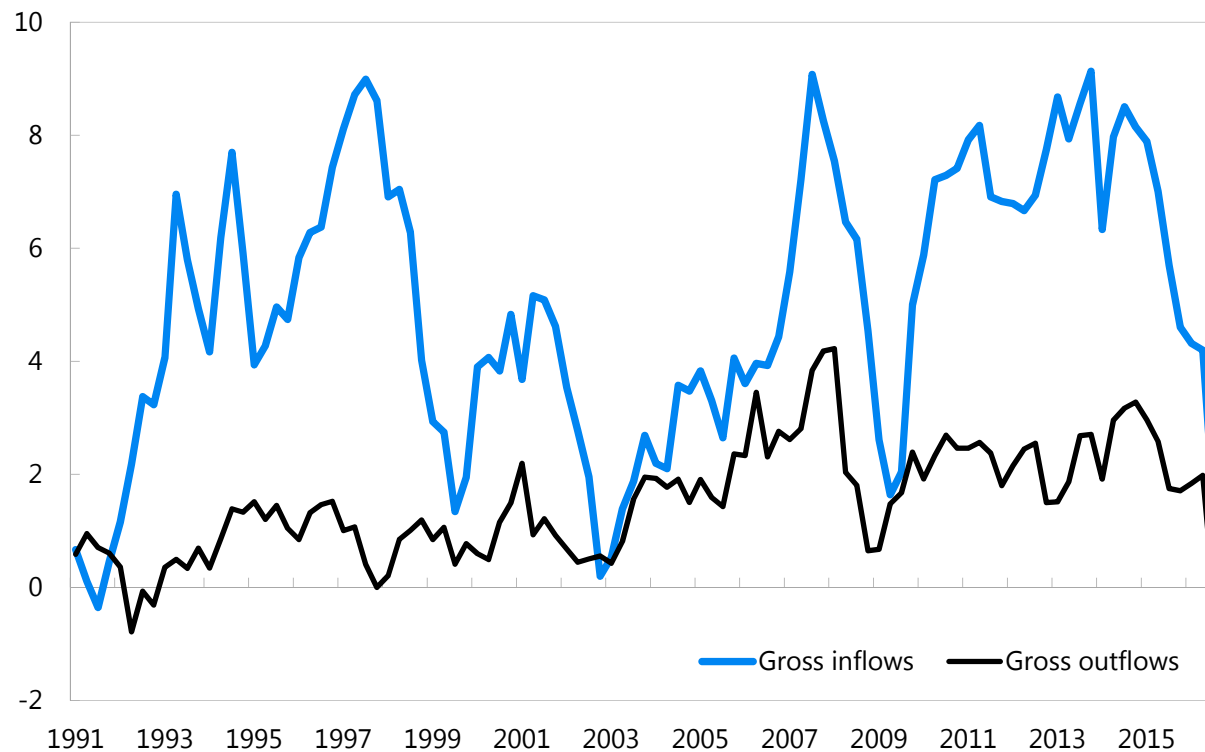


Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.  
Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

# Gross Inflows and Outflows in LAC

*Gross outflows only partially offsetting gross inflows...*

**LA7: Gross Inflows and Outflows**  
(Percent of trend GDP; median)



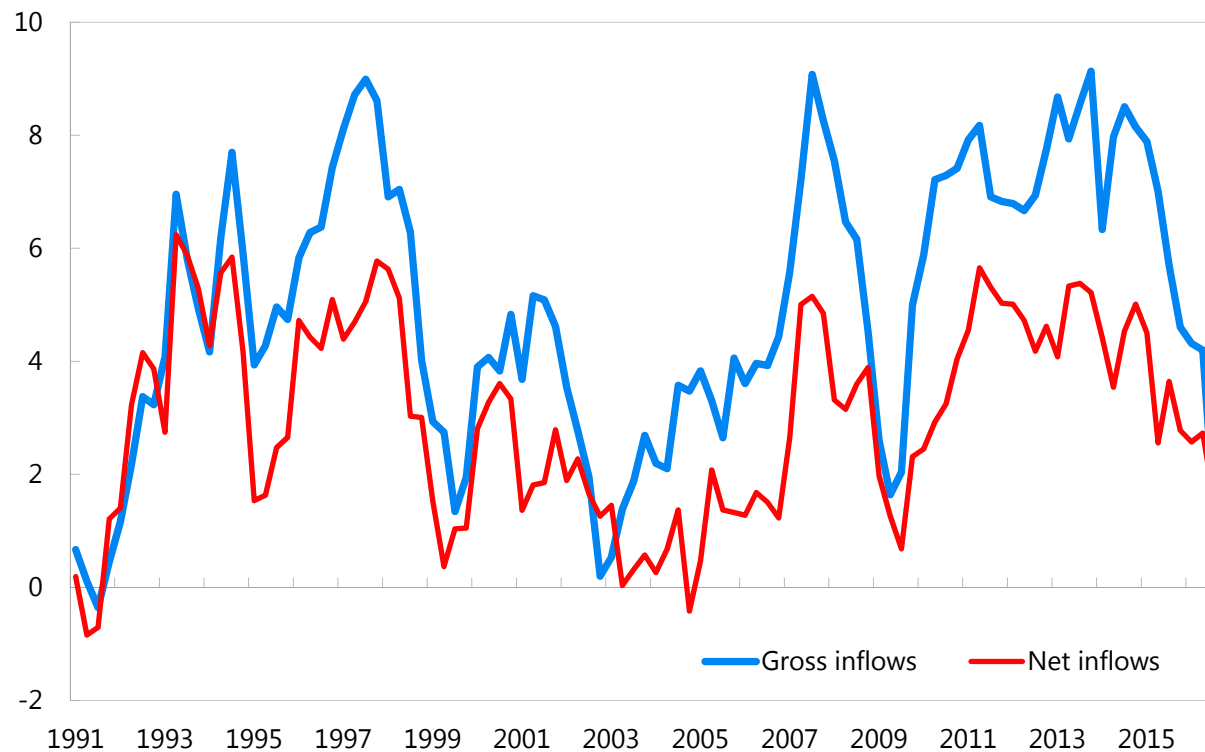
Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.  
Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.



# Gross and Net Inflows in LAC

*Overall, gross inflows tend to drive net inflows in LAC*

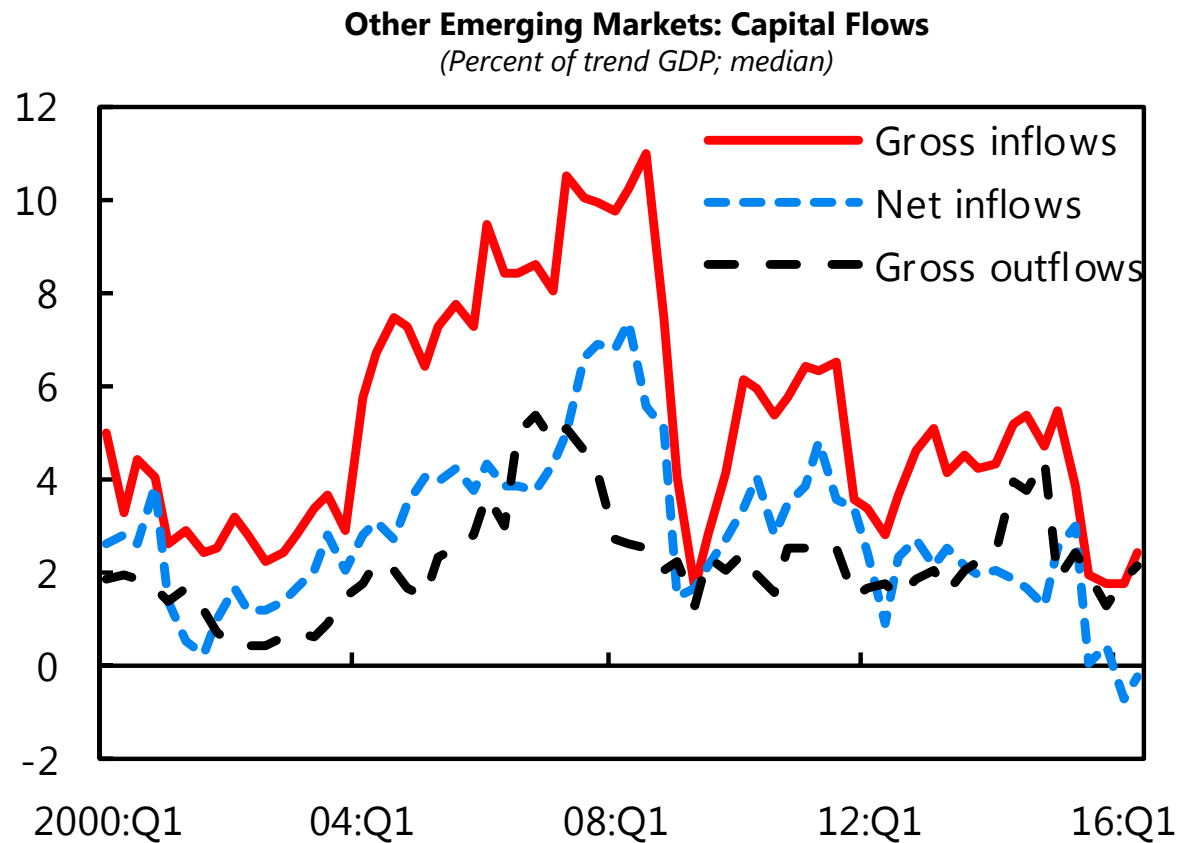
**LA7: Gross and Net Inflows**  
(Percent of trend GDP; median)



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.  
Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

# Gross and Net Inflows in Other EMs

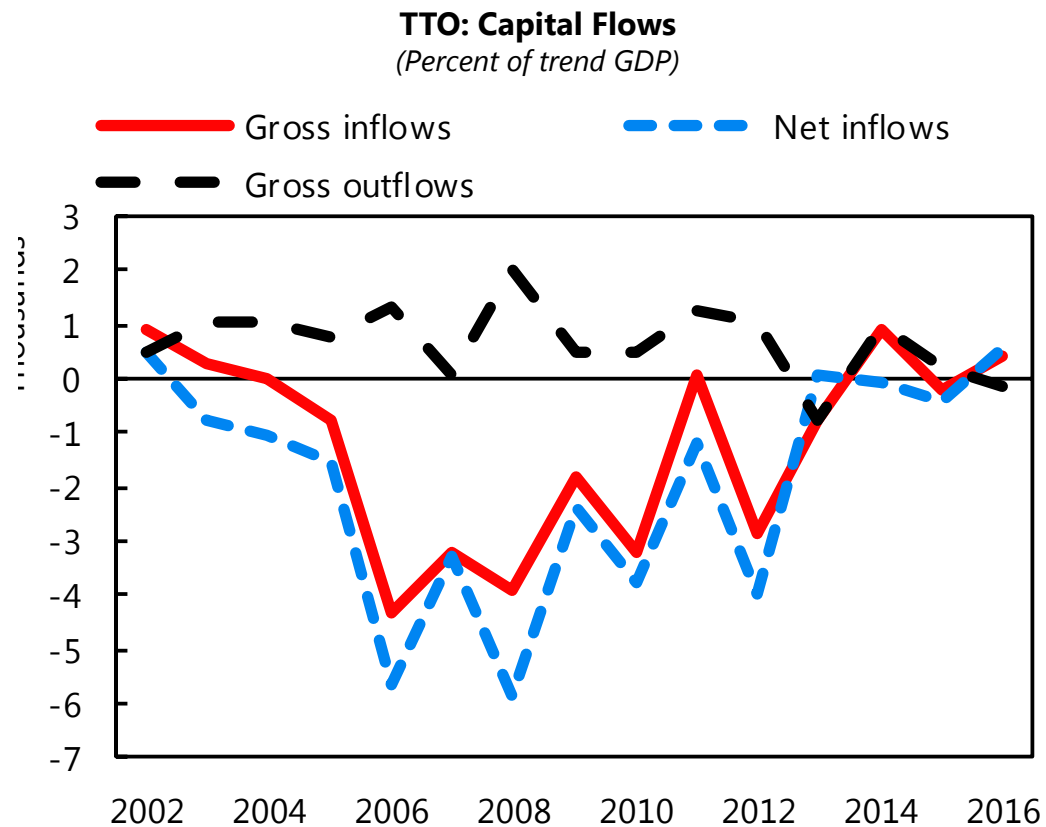
*The predominant role of gross inflows over gross outflows is also observed in other emerging markets...*



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

# Gross and Net Inflows in TTO

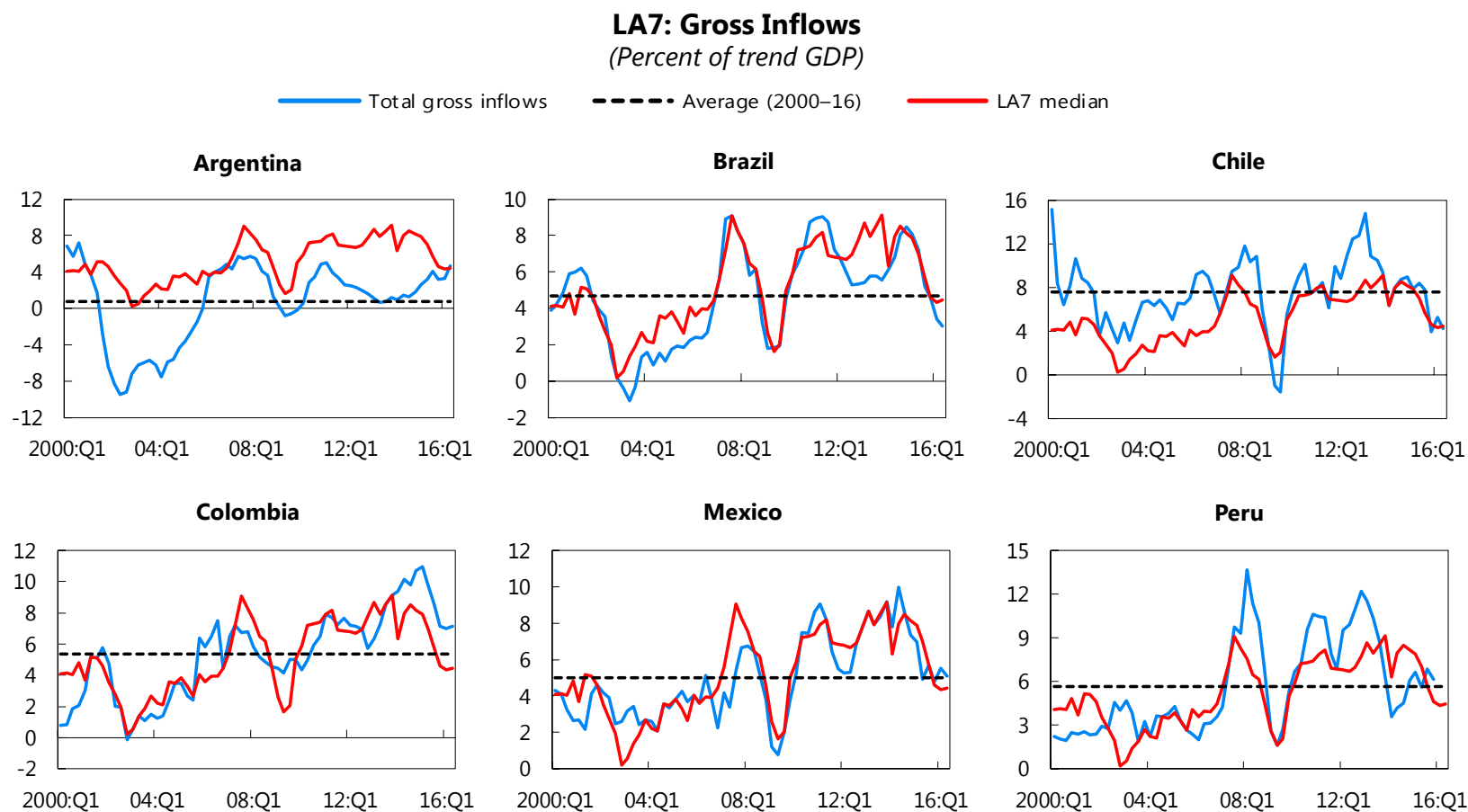
*...and this is also the case in TTO*



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

# Cyclical Behavior of Capital Flows

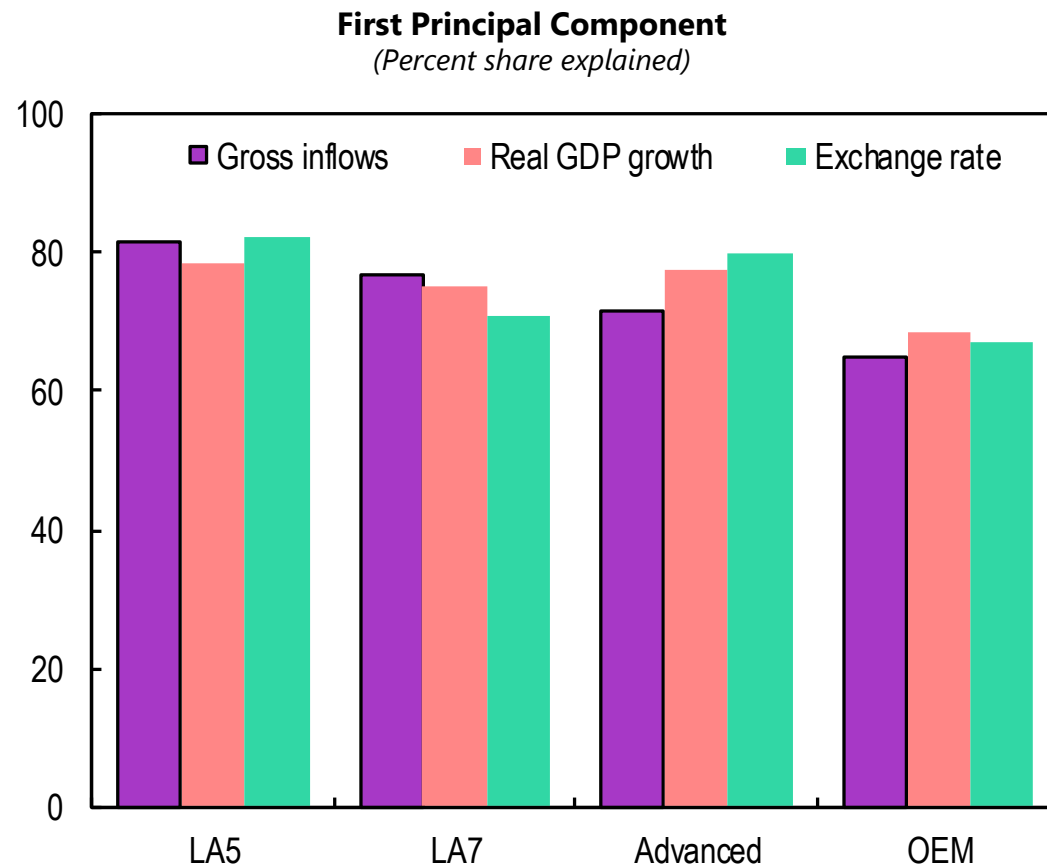
*Capital flows to LAC exhibit a common **cyclical** component*



Sources: Haver Analytics; IMF, Balance of Payment Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.

# Cyclical Behavior of Capital Flows

*...which is mirrored by the high synchronicity observed in other macroeconomic and financial variables*



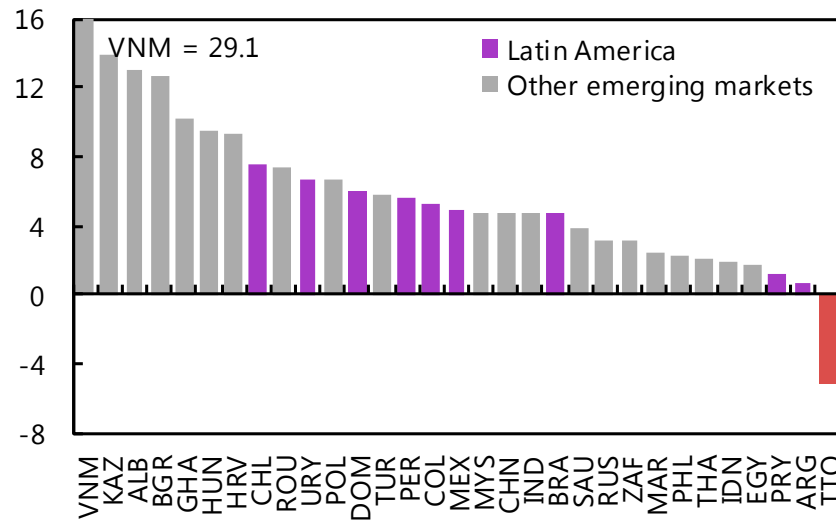
Sources: IMF, Balance of Payment Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.

Note: For the exchange rate, all euro area countries are treated as a single entity.

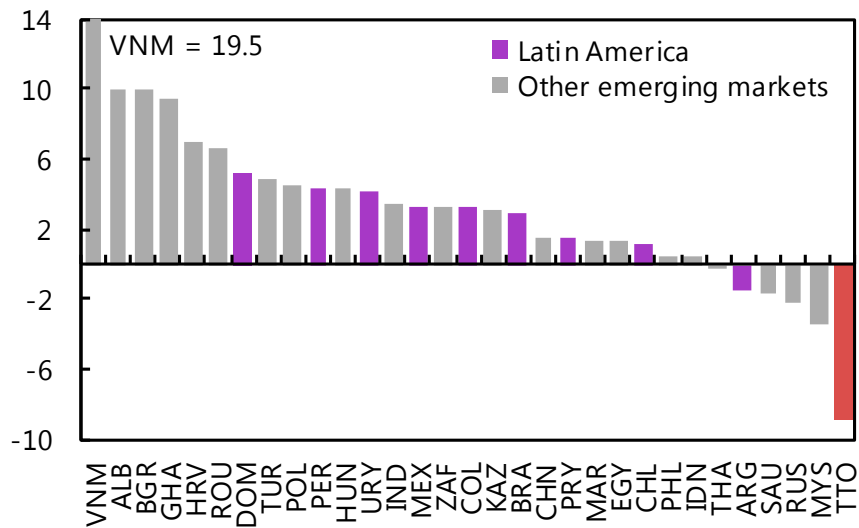
# Structural Behavior of Capital Flows

*...but average levels of capital inflows differ substantially across countries*

**Gross Inflows Average 2000-16**  
(Percent of trend GDP)



**Net Inflows Average 2000-16**  
(Percent of trend GDP)



Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.

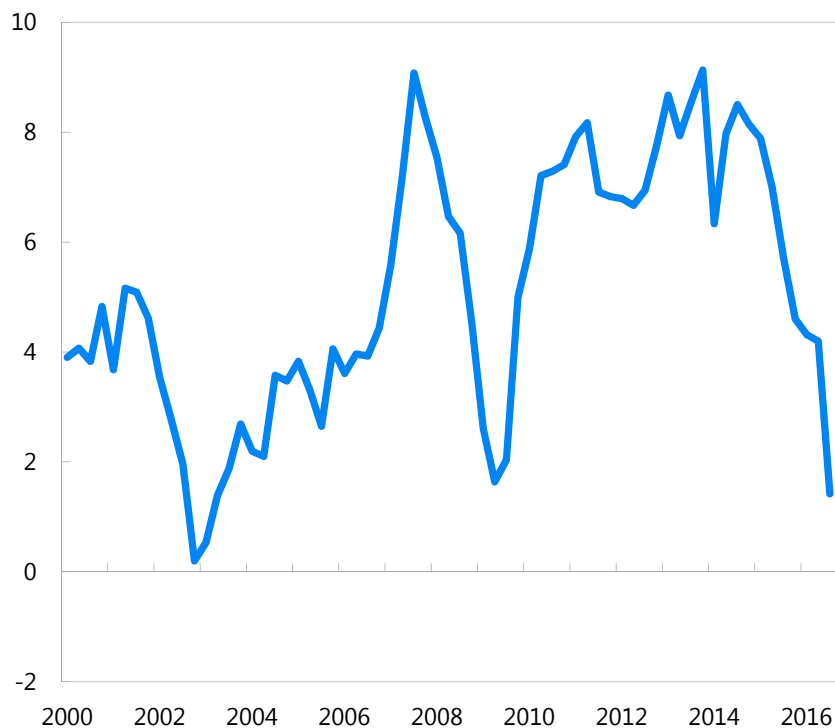
Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.

## II. Drivers of Capital Flows

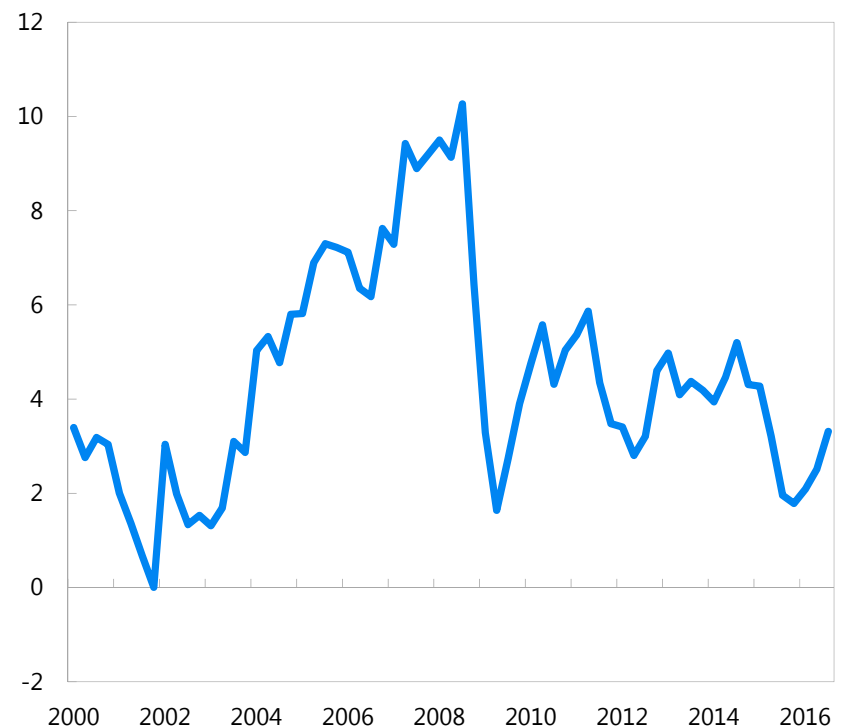
# Gross inflows in LAC and other EMs

*Quantitative analysis focused on the period 2000-2016*

**LA7: Gross Inflows**  
(Percent of trend GDP; median)



**OEM: Gross Inflows**  
(Percent of trend GDP; median)



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: OEM = Other emerging markets.

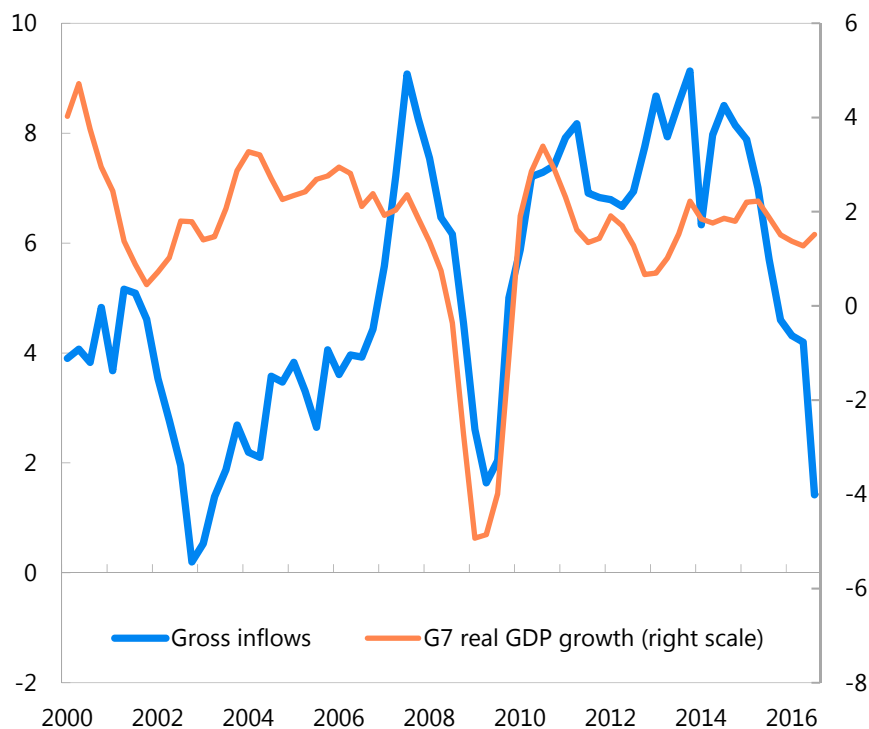


# Capital Inflows & Global Growth

*High correlation of gross inflows and global GDP growth*

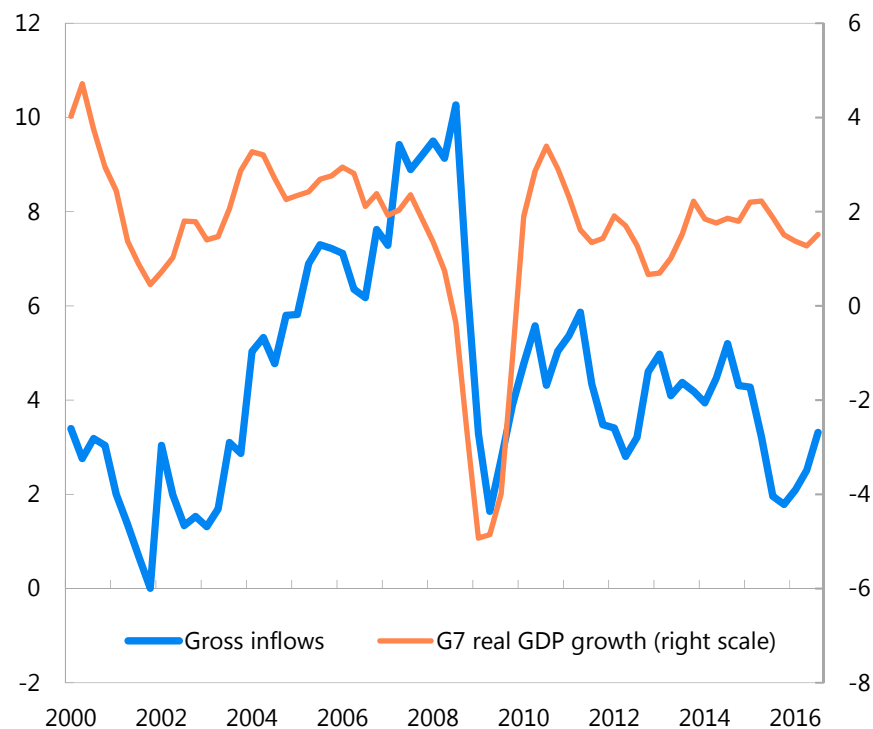
**LA7: Gross Inflows and G7 Real GDP Growth**

*(Percent of trend GDP; percent change; median)*



**OEM: Gross Inflows and G7 Real GDP Growth**

*(Percent of trend GDP; percent change; median)*



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

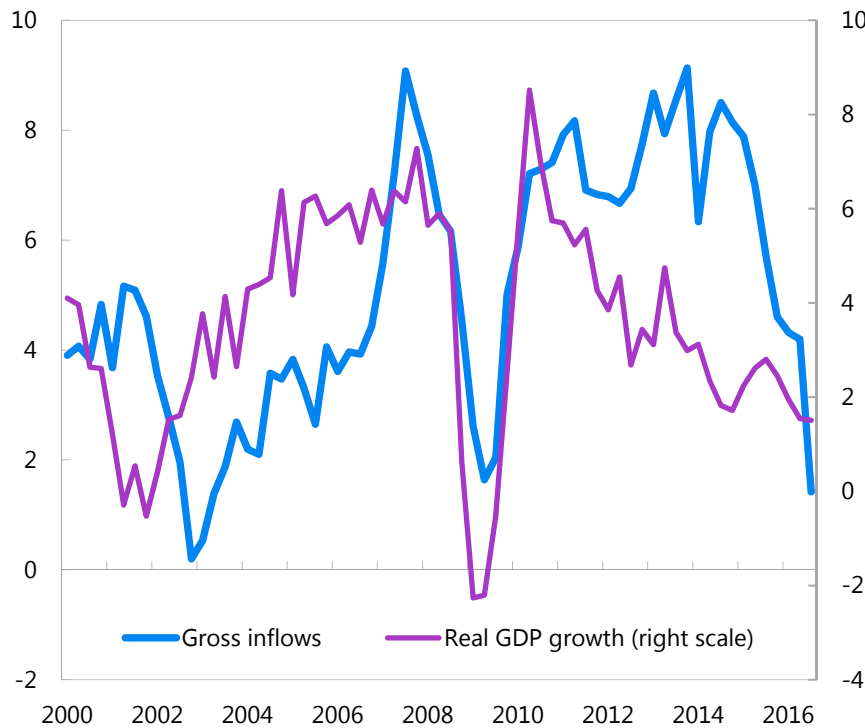
Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: OEM = Other emerging markets.

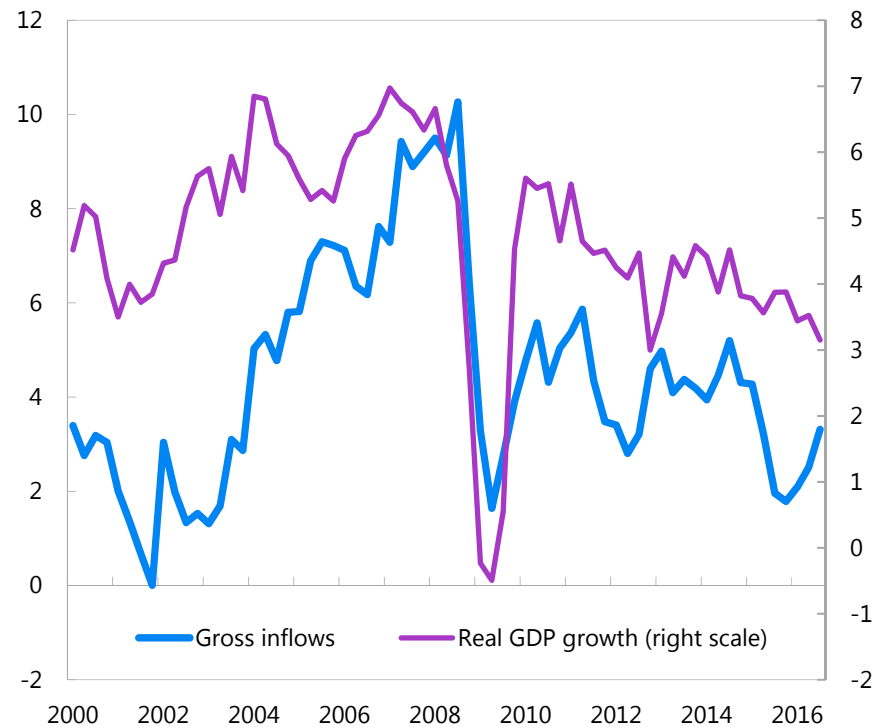
# Capital Inflows & Domestic Growth

*High correlation of gross inflows and real GDP growth*

**LA7: Gross Inflows and Real GDP Growth**  
(Percent of trend GDP; percent change; median)



**OEM: Gross Inflows and Real GDP Growth**  
(Percent of trend GDP; percent change; median)



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

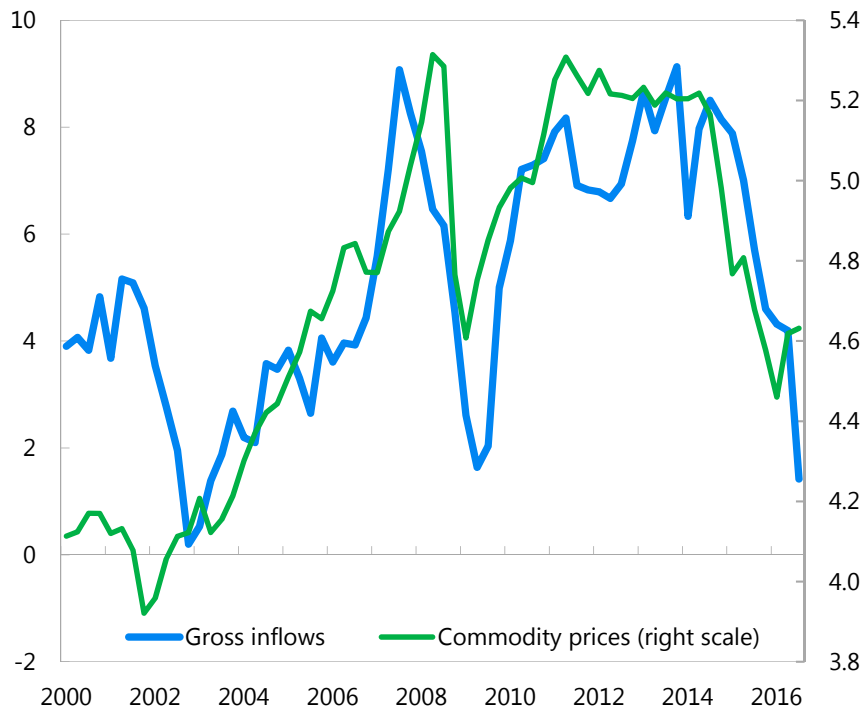
Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: OEM = Other emerging markets.

# Capital Inflows & Commodity Prices

*Gross inflows track the “commodity super cycle” well*

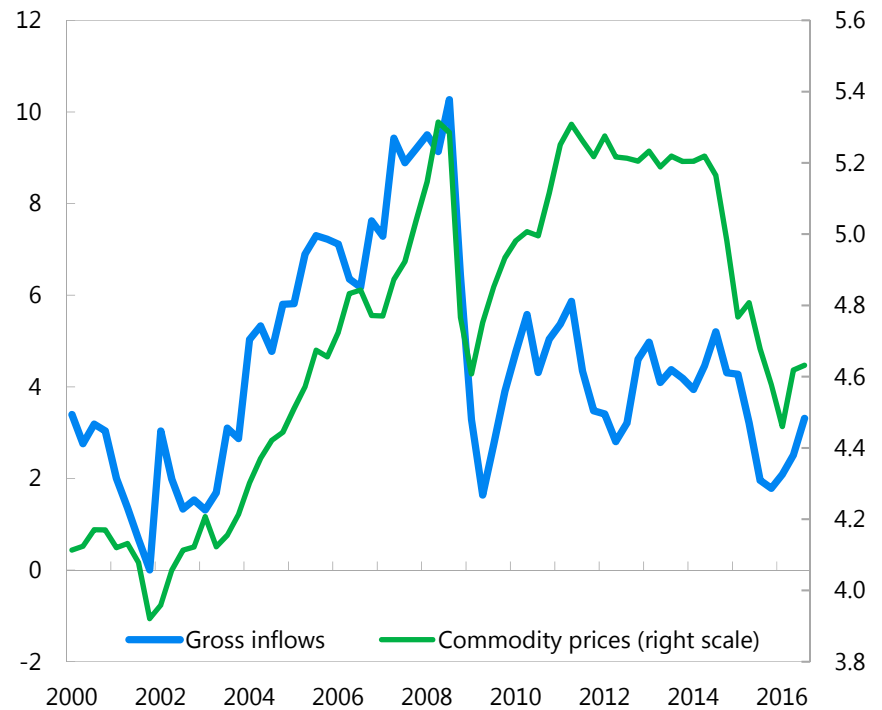
**LA7: Gross Inflows and Commodity Prices**  
(Percent of trend GDP; logs; median)



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: LA7 = Argentina, Brazil, Chile, Colombia, Mexico, Peru, Uruguay.

**OEM: Gross Inflows and Commodity Prices**  
(Percent of trend GDP; logs; median)



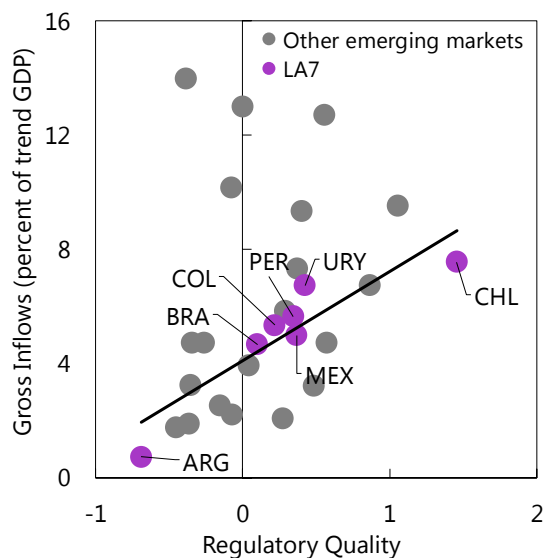
Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

Note: OEM = Other emerging markets.

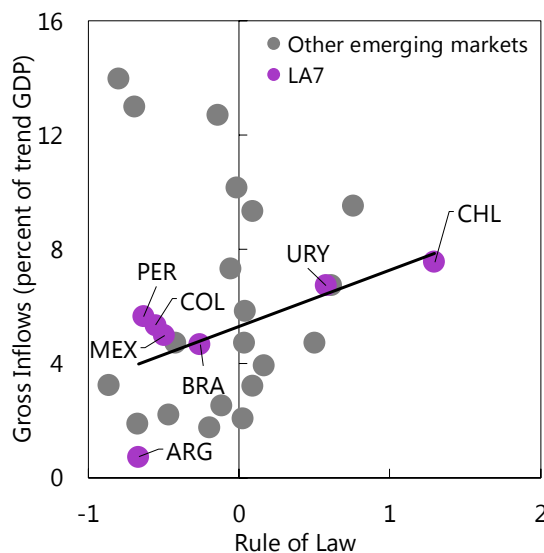
# Capital Inflows & Structural Factors

*Average level of capital inflows correlated with institutional and other structural factors*

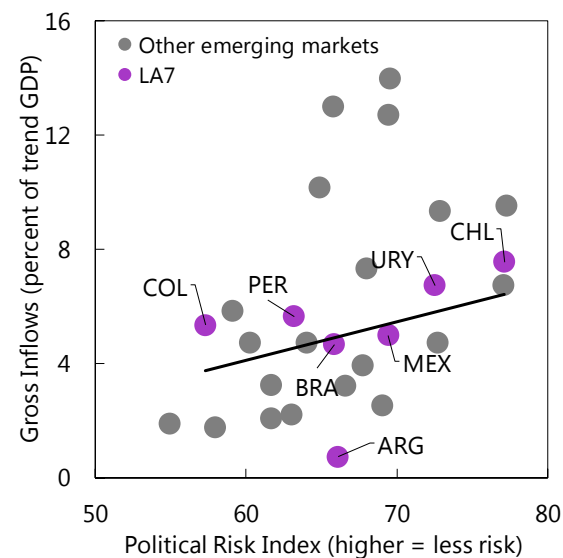
**Gross Inflows Vs Regulatory Quality**  
(Average 2000-16)



**Gross Inflows Vs Rule of Law**  
(Average 2000-16)



**Gross Inflows Vs Political Risk**  
(Average 2000-16)



Sources: Haver Analytics; IMF, Balance of Payment Statistics Yearbook database; World Governance Indicators; and IMF staff calculations.

Note: "Regulatory quality" and "rule of law" are composite indicators from the World Bank's Worldwide Governance Indicators (WGI); "political risk index" is computed within the International Country Risk Guide (ICRG) database."

# 'Pull' and 'Push' Factors

- Panel of 29 emerging markets countries (incl. LA7)
- Period: 2000Q1-2016Q3
- Dependent variable(s): gross and net capital flows
- *Cyclical* behavior of capital flows:
  - Global 'push' factors
  - Country-specific 'pull' factors
- *Structural* behavior of capital flows:
  - Country-specific 'pull' factors (low time variability; high cross-sectional variability)

# Cyclical Drivers of Capital Inflows

*Predominant role of commodity prices in driving the **cyclical** component of capital flow cycles...*

	Latin America		Other Emerging Markets		All Emerging Markets	
	Individual effect	Joint effect	Individual effect	Joint effect	Individual effect	Joint effect
<b>Global variables</b>						
VIX	**	-	-	-	-	-
Global GDP growth	**	**	-	-	-	-
U.S. interest rates	-	-	-	-	-	*
Global commodity prices	***	***	***	***	***	***
<b>Country-specific variables</b>						
GDP growth differential	**	-	***	***	***	***
Interest rate differential	***	-	*	-	***	-

Sources: IMF staff calculations; Caceres *et al* (2017; forthcoming A). Notes: green denotes a positive coefficient estimate; red denotes a negative coefficient estimate. \*, \*\*, \*\*\* denote statistical significance at the 10, 5, and 1 percent confidence level.

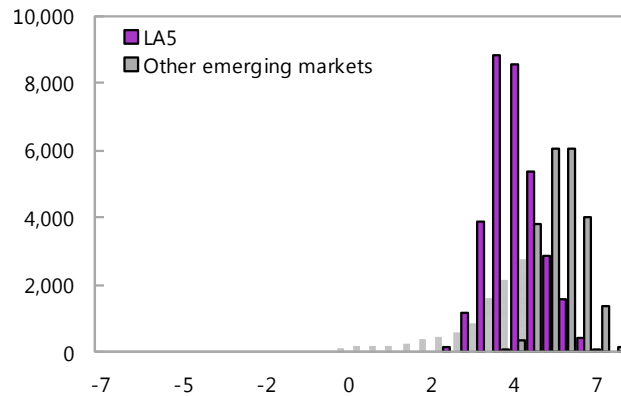
# “We Just Ran A Million Regressions”

- Objective: minimize ‘model selection’ bias
- In the spirit of Sala-i-Martin (1997, AER)
- Idea: to avoid selecting a particular (non-random) model, can consider  $N$  potential explanatory variables, then regress dependent variable on all  $(2^N - 1)$  possible combinations... This yields a histogram of estimated coefficients
- The ‘most robust’ variables would tend to have their distribution mass to the right/left of the “zero” line

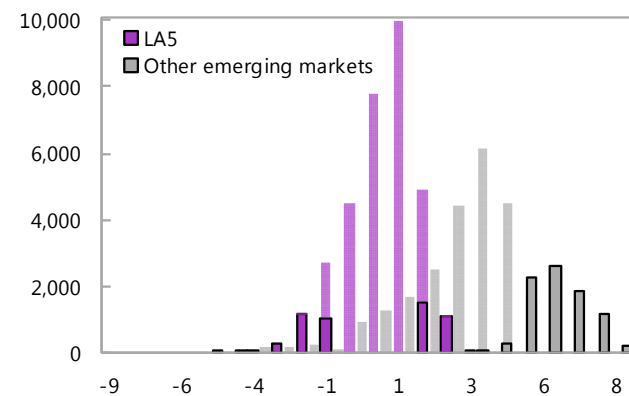
# Robustness of Global Factors

## *Commodity prices robust to alternative model specifications*

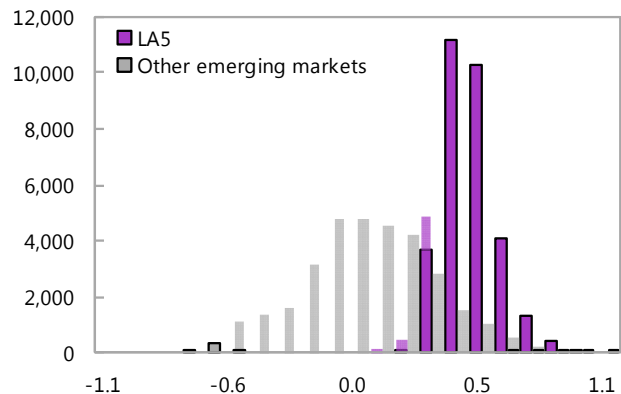
**Commodity prices, log**  
(Frequency)



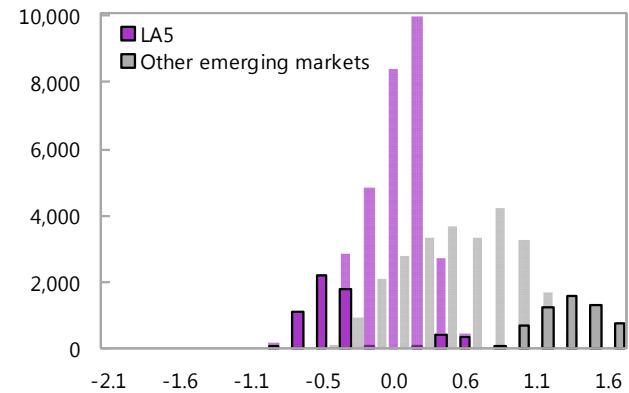
**VIX, log**  
(Frequency)



**G7 Real GDP growth**  
(Frequency)



**U.S. short-term interest rates**  
(Frequency)



Sources: IMF staff calculations; Caceres *et al* (2017; forthcoming A). Note: LA5 = Brazil, Chile, Colombia, Mexico, Peru.



# Structural Drivers of Capital Inflows

*Country-specific structural factors strongly associated with higher average levels capital flows...*

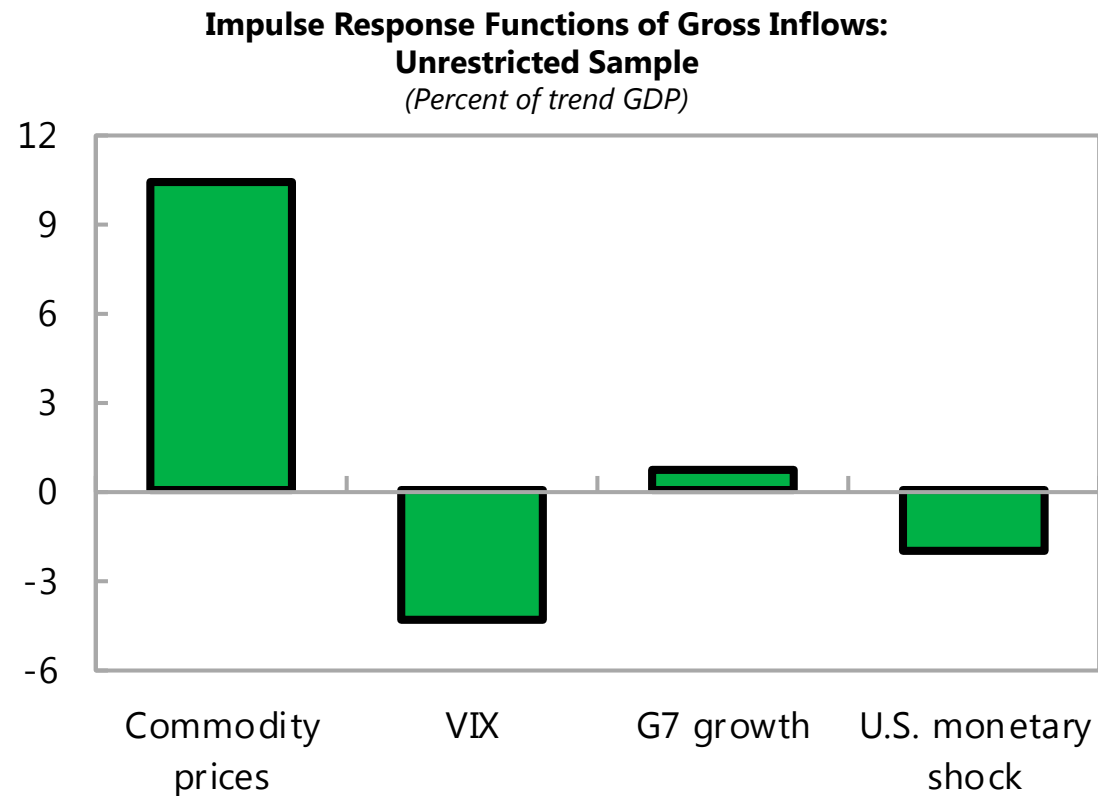
	Latin America	Other Emerging Markets	All Emerging Markets
<i>Country-specific structural factors</i>			
Government effectiveness	***	***	***
Regulatory quality	***	***	***
Control of corruption	***	***	***
Rule of law	***	***	***
Law and order	***	***	***
Voice an accountability	***	***	***
Political stability	***	***	***
Political risk	***	***	***
Institutionalized democracy	*	***	***
Corporate tax rate	***	***	***
Credit rating	***	***	***

Sources: IMF staff calculations; Caceres *et al* (2017; forthcoming A). Notes: green denotes a positive coefficient estimate; red denotes a negative coefficient estimate. \*, \*\*, \*\*\* denote statistical significance at the 10, 5, and 1 percent confidence level.

### III. Sensitivity of Capital Flows: The Role of the 'Investor Base'

# Response of Capital Flows to Shocks

*High vulnerability of capital inflows to external shocks*



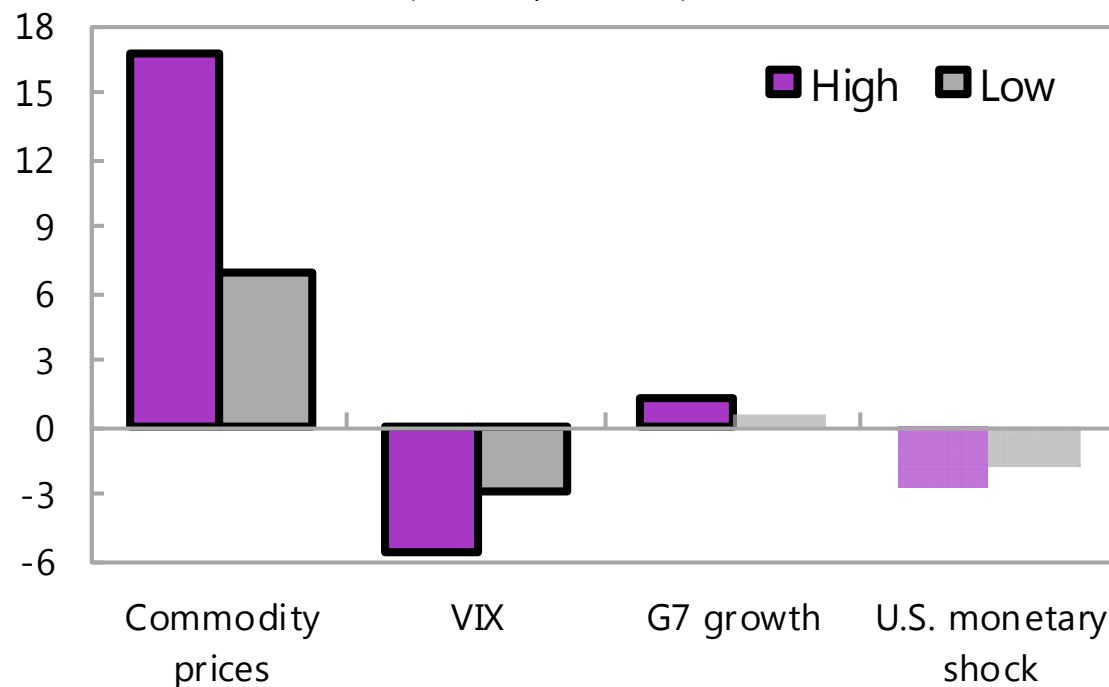
Source: IMF staff calculations; Caceres *et al* (2017; forthcoming B).

Note: Bars represent the response of gross inflows four quarters after a positive one unit shock to each of the four exogenous global variables. A unit shock for the VIX and global commodity prices correspond to a unit change in the logarithm of these two variables; a unit shock for G7 growth and the "U.S. monetary shock" corresponds to a 1 percentage point change in these variables. Solid bars with black borders denote that the response is statistically significant at the 5 percent confidence level. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; VIX = Chicago Board Options Exchange Volatility Index.

# Role of the Investor Base

*Higher participation of non-resident investors increases the **sensitivity** of capital flows to external shocks...*

**Impulse Response Functions of Gross Inflows:  
Non-Residents' Participation in Domestic Markets**  
(Percent of trend GDP)



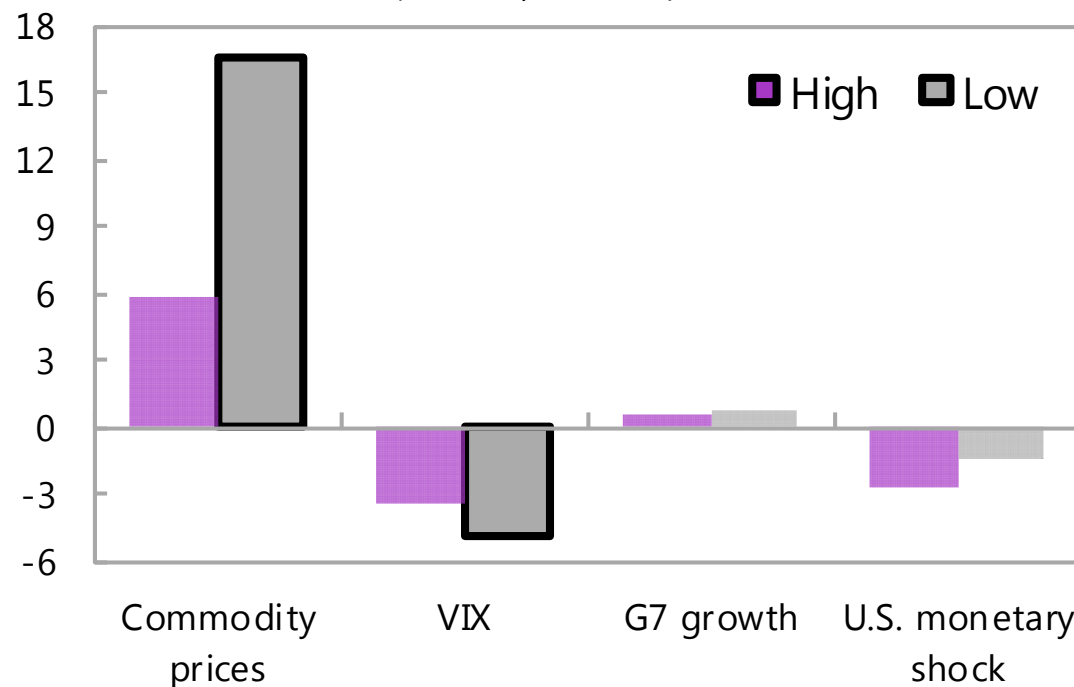
Source: IMF staff calculations.

Note: Bars represent the response of gross inflows four quarters after a positive one unit shock to each of the four exogenous global variables. A unit shock for the VIX and global commodity prices correspond to a unit change in the logarithm of these two variables; a unit shock for G7 growth and the "U.S. monetary shock" corresponds to a 1 percentage point change in these variables. Solid bars with black borders denote that the response is statistically significant at the 5 percent confidence level. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; VIX = Chicago Board Options Exchange Volatility Index.

# Role of the Investor Base

*Deeper and more liquid domestic markets lower the **sensitivity** of capital flows to external shocks...*

**Impulse Response Functions of Gross Inflows:  
Domestic Market Capitalization**  
(Percent of trend GDP)

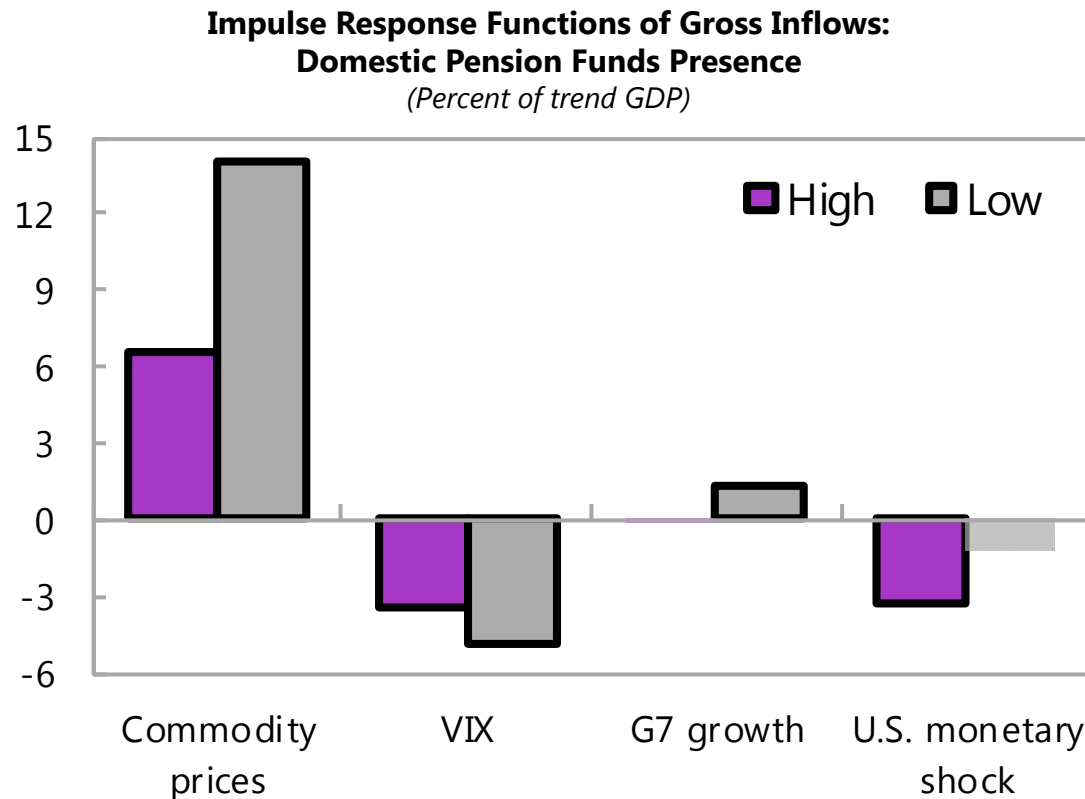


Source: IMF staff calculations; Caceres *et al* (2017; forthcoming B).

Note: Bars represent the response of gross inflows four quarters after a positive one unit shock to each of the four exogenous global variables. A unit shock for the VIX and global commodity prices correspond to a unit change in the logarithm of these two variables; a unit shock for G7 growth and the "U.S. monetary shock" corresponds to a 1 percentage point change in these variables. Solid bars with black borders denote that the response is statistically significant at the 5 percent confidence level. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; VIX = Chicago Board Options Exchange Volatility Index.

# Role of the Investor Base

*A large stable domestic investor base can also help reduce the **sensitivity** of capital flows to external shocks...*

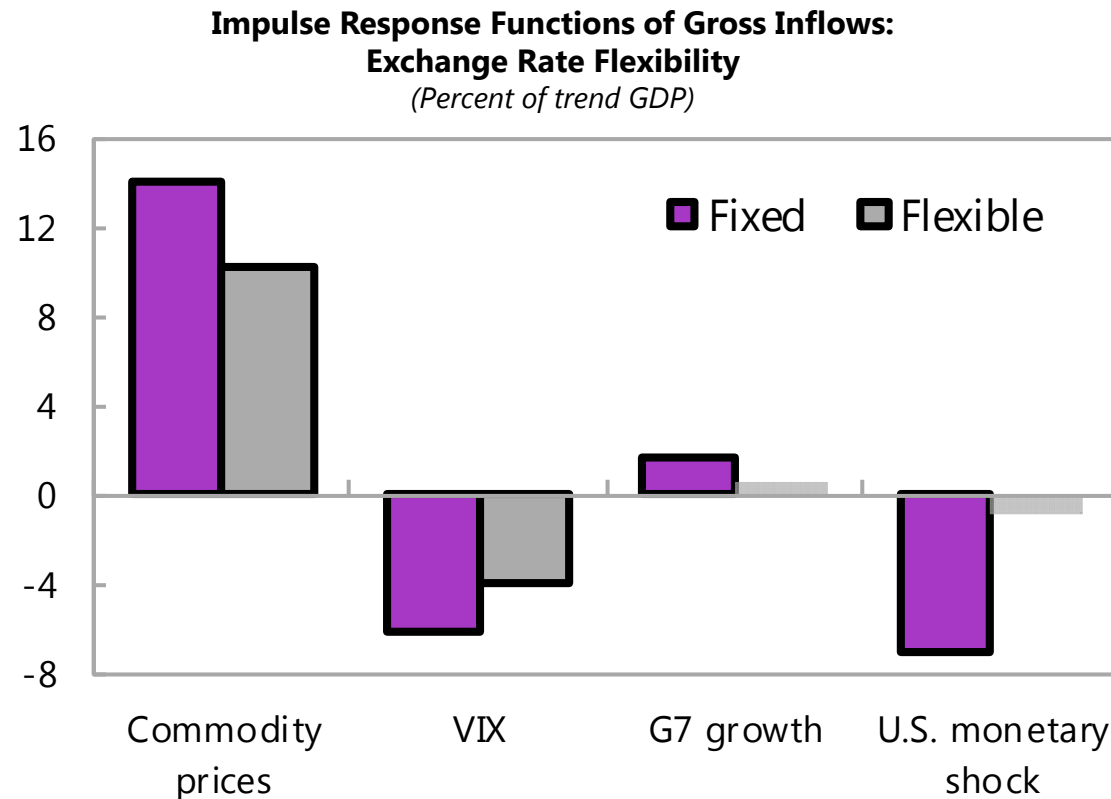


Source: IMF staff calculations; Caceres *et al* (2017; forthcoming B).

Note: Bars represent the response of gross inflows four quarters after a positive one unit shock to each of the four exogenous global variables. A unit shock for the VIX and global commodity prices correspond to a unit change in the logarithm of these two variables; a unit shock for G7 growth and the "U.S. monetary shock" corresponds to a 1 percentage point change in these variables. Solid bars with black borders denote that the response is statistically significant at the 5 percent confidence level. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; VIX = Chicago Board Options Exchange Volatility Index.

# Role of Policy Choices

*Exchange rate flexibility can also contribute to lower the **sensitivity** of capital flows to external shocks*



Source: IMF staff calculations; Caceres *et al* (2017; forthcoming B).

Note: Bars represent the response of gross inflows four quarters after a positive one unit shock to each of the four exogenous global variables. A unit shock for the VIX and global commodity prices correspond to a unit change in the logarithm of these two variables; a unit shock for G7 growth and the "U.S. monetary shock" corresponds to a 1 percentage point change in these variables. Solid bars with black borders denote that the response is statistically significant at the 5 percent confidence level. G7 = Canada, France, Germany, Italy, Japan, United Kingdom, United States; VIX = Chicago Board Options Exchange Volatility Index.

## IV. Conclusions



# Conclusions:

- Capital flows in emerging markets exhibit a largely common ***cyclical*** behavior, but a relatively differentiated ***structural*** component
- Predominant role of global factors - particularly commodity prices - in driving the ***cyclical*** behavior of capital flows in emerging markets
- Country-specific ***structural*** factors, such as good governance and strong institutional and regulatory frameworks, play a key role in attracting inflows over longer time horizons

# Conclusions:

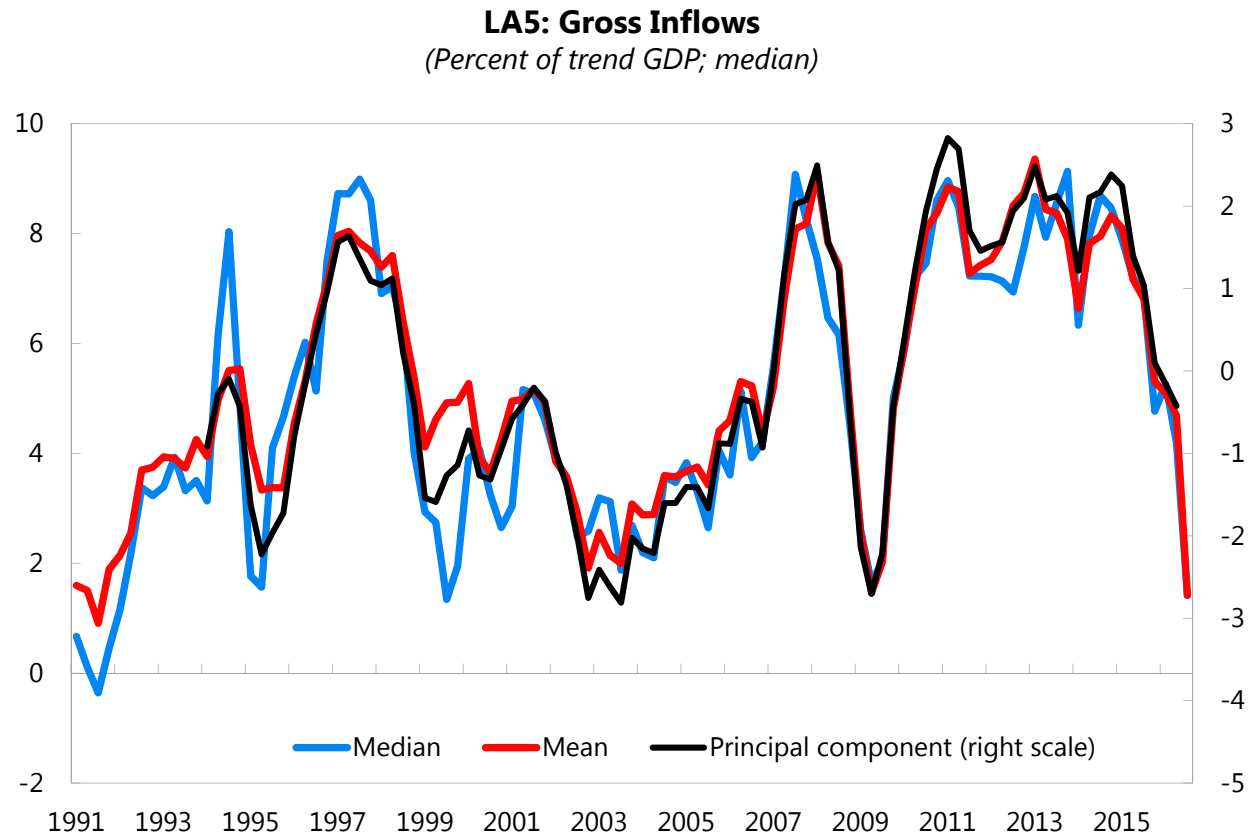
- Countries with high '*foreign participation*' tend to exhibit *higher sensitivity* of capital flows to external shocks...
- ...whereas countries with deeper and more liquid financial markets, with a large stable domestic *investor base*, appear to be *less sensitive* to shocks
- Exchange rate flexibility is another line of defense to lower the *sensitivity* of capital flows to external shocks

**Thank You!**

**Auxiliary Slides:**

# Gross Inflows to Latin America

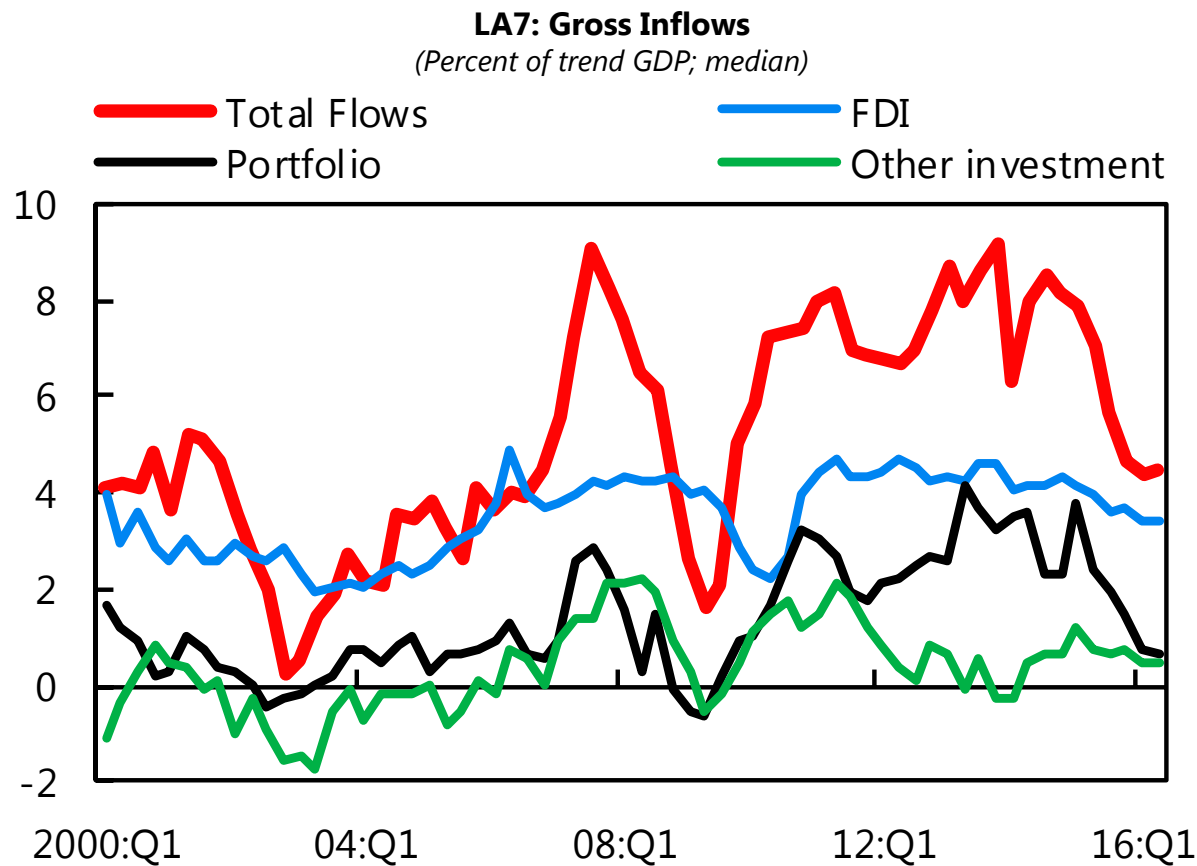
*Similar behavior of capital inflows across LA5 countries*



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.  
Note: LA5 = Brazil, Chile, Colombia, Mexico, Peru.

# Subcomponents of Capital Flows

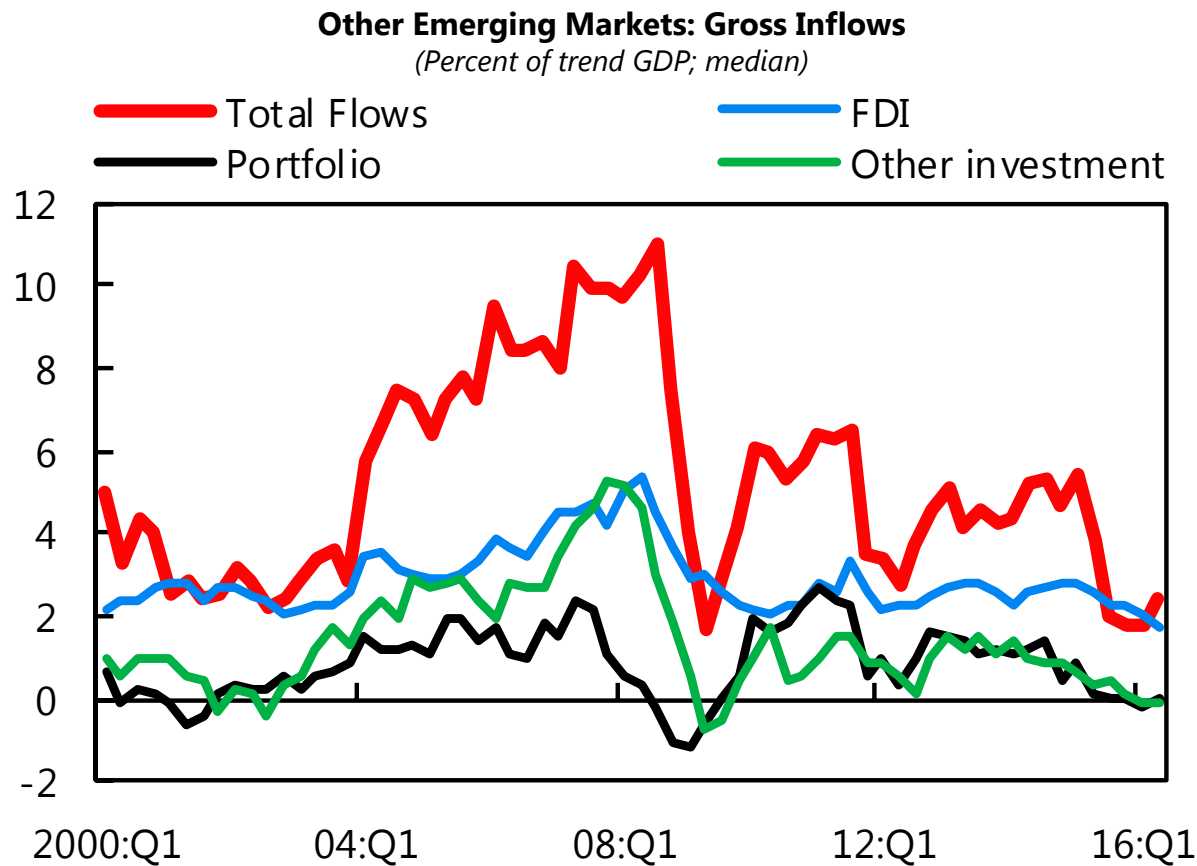
*Sub-components of capital flows are positively correlated with one another and with total flows...*



Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

# Subcomponents of Capital Flows

*...and FDI tends to be larger in magnitude, whereas portfolio (and other) flows tend to be more volatile*

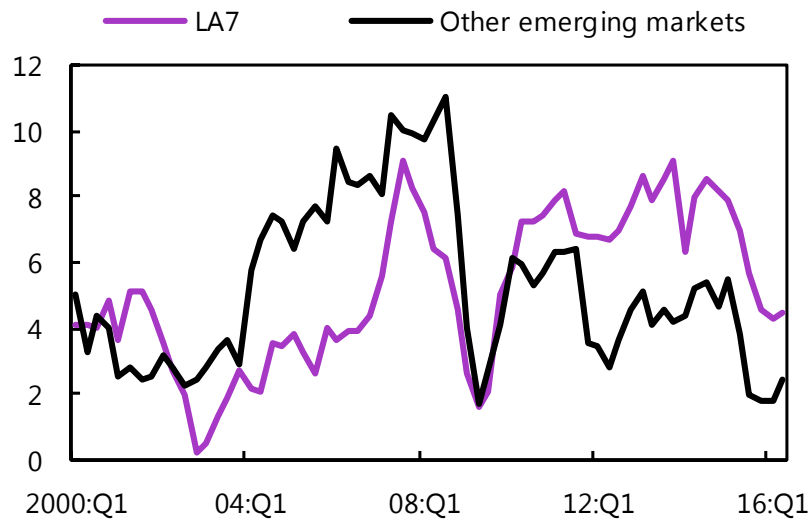


Sources: IMF, Balance of Payments Statistics Yearbook database; Haver Analytics; and IMF staff calculations.

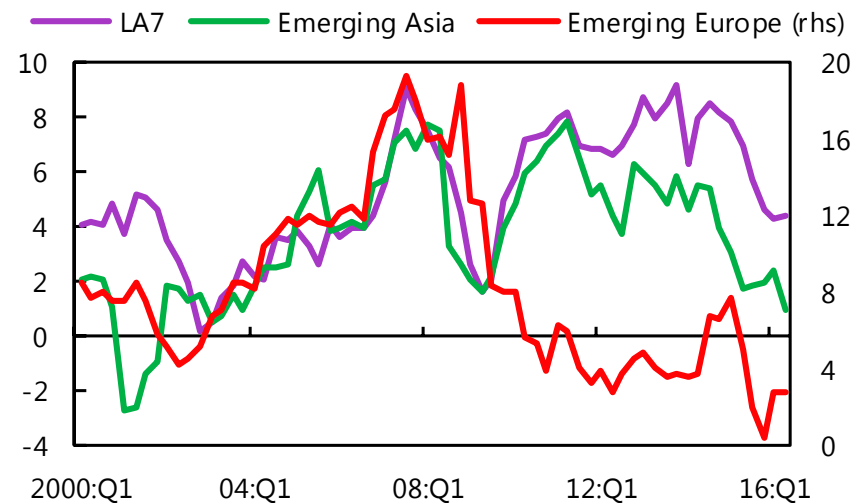
# Cyclical Behavior of Capital Flows

*Broadly similar behavior observed across regions*

**Gross Inflows**  
(Percent of trend GDP; median)



Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.



Haver Analytics; IMF, Balance of Payments Statistics Yearbook database; IMF, World Economic Outlook database; and IMF staff calculations.