**Table 1** *extreme episode in total net flows, total gross inflows and total gross outflows*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Country** | **True Surges** | **True Sudden Stops** | **Flight** | **Retrenchment** | **Explanation mixed episodes gross inflows** | **Explanation mixed episodes gross outflows** |
| *Brazil* | **i)1994q1 – 1994q3**  **iii)1995q4 – 1996q2**  **v)2006q3 – 2007q4** | **ii)1988q3 – 1989q1**  **iv)1995q1 – 1995q2**  **vi)1999q1 – 1999q2**  **vii)2008q2 – 2009q3** | **a)1987q3 – 1988q1**  **c)1989q3 – 1990q1**  **e)2006q4 – 2007q3**  **g)2010q3 – 2011q2** | **b)1988q3 – 1989q1**  **d)1992q1 – 1992q4**  **f)1997q4 – 1998q2**  **h)2008q2 – 2008q3** | i)Driven by all types but mostly portfolio investment  iii)Driven by FDI and portfolio investment  iv)First caused by other investment, then by portfolio  v)Driven by all three types of flows  vi) A sudden stop while there is a surge in FDI. It must be driven by other investment and a little bit by portfolio. vii) Mostly other investment and portfolio but in the last quarter FDI reaches a sudden stop as well | c)Driven by all types  d) Driven mostly strongly by other investment and in the last two quarters also by FDI.  e) First caused by FD and then by other investment and portfolio.  g) Driven by all three types of flows. First quarter it must have been a mix of FDI and other investment, second quarter mainly FDI and portfolio and the other quarters a mix of all three.  h) Mix of other investment and portfolio investment. |
| *Chile* | **i)2006q1 – 2006q3**  **iii)2007q4 – 2008q3** | **ii)2000q2 – 2001q1**  **iv)2008q4 – 2009q3** | **a)1998q2 – 1999q4**  **c)2006q1 – 2006q4**  **e)2007q2 – 2008q1** | **b)2000q2 – 2001q1**  **d)2008q3 – 2009q3** | iii) Surge mostly driven by FDI and Other investment in the first three quarters and by all three in the last quarter.  iv)Mostly caused by other investment and a bit by FDI. | a) Driven by all types  b) Driven by all types  d) A retrenchment episode driven by all three but mostly by portfolio and FDI  e) A flight episode mostly driven by FDI and other investment and a little but by portfolio investment. |
| *Colombia* | **i)2006q2 – 2006q3**  **iii)2010q4 – 2011q2** | **ii)2000q4 – 2001q2**  **iv)2015q2 – 2016q2** | **a)1999q3 – 2000q1**  **c)2005q4 – 2006q3** | **b)2000q3 – 2001q1**  **d)2012q4– 2013q1** | iii) Surge mostly driven by other investment in the first two quarters and by FDI in the last quarter. | a) Driven by all types but mostly by FDI  b) Driven by FDI and Portfolio Investment |
| *Mexico* | **i)1990q1 – 1990q4**  **iii)2001q3 – 2002q2**  **v)2007q3 – 2008q2**  **vii)2010q1 – 2011q1** | **ii)1994q4 – 1995q3**  **iv)2008q4 – 2009q3**  **vi)2015q2 – 2015q4** | **a)2004q3 – 2005q2**  **c)2007q3 – 2007q4** | **b)1992q2 – 1992q3**  **d)2008q3 – 2009q2** | i)Driven by all types by portfolio investment and other investment  iv)Driven by all three types  v)Driven by all three the types  vii)Driven by portfolio and other investment | a)Flight driven by FDI and Portfolio  d) Driven by all three  e) Driven by all three |

*Source:* CEPAL. .. = FDI, .. = Portfolio Investment, ..= Other Investment, ..= Mix of two different types, ..= Mix of all three types.. The data for Brazil is from 1985Q3 – 2017Q1, for Mexico is from 1986Q3 – 2016Q4, for Chile is from 1997Q3 – 2016Q4, for Colombia and Peru it is from 1999q3 – 2017q1.

**Brazil:** 5 caused by mix of three, 5 caused by mix of two, 4 caused by other investment

**Chile:** 5 caused by mix of three, 1 caused by mix of two, 1 caused by FDI, 1 caused by portfolio investment and 1 caused by other investment

**Colombia:** 1 caused by mix of three, 2 caused by mix of two, 3 caused by FDI, 1 caused by portfolio investment and 1 caused by other investment

**Mexico:** 4 caused by mix of three, 3 caused by mix of two, 1 caused by FDI, 2 caused by portfolio investment and 1 caused by other investment.

**Total:** 15 caused by mix of three, 10 caused by mix of two, 5 caused by FDI, 4 caused by portfolio investment and 7 caused by other investment.

I assigned the blame in table one just by looking in the excel file: “Overview extreme movements”. Then I looked at the sheets for each country’s inflows and outflows, identified the extreme episode in the total flows and looked whether at the same time extreme episodes were happening in FDI, Portfolio Investment, and/or other investment. If there was only an extreme episode going on in, for example, FDI, I would say that the extreme episode was completely driven by FDI and attach the green color in table 1. If I would see that there was an extreme episode in FDI and Other investment I would attach the color red and say it is a mix of two different types etc etc.

Of course, the way I have attached blame to the extreme episodes is naïve and is just to give us an idea where to start. Table 1 is just based on trying to blame an extreme period by looking whether at the same time the upper or lower limit is reached in one of the other flows. However, this is not completely accurate given that an extreme period within a flow is a relative result. That is, it could well be that other investment reaches the upper limit and FDI does not but in absolute numbers the change in FDI is a lot bigger than in other investment. In such a case you would blame other investment for causing the extreme period while in fact the changes in FDI have had a bigger contribution.

Therefore, for a more ‘*precise blame*’ I have calculated the shares in the YoY change in total flows for each individual flow. If total flows is denoted by *Y* and the individual flows by *FDI, Portfolio* and *Other* then the ‘*share in the blame*’ for each individual flow can be calculated as follows:

S*hare in causing the extreme period in total flows by FDI = FDI/Y*

S*hare in causing the extreme period in total flows by Portfolio Investment = Portfolio/Y*

*Share in causing the extreme period in total flows by other investment = Other/Y*

This way of calculating is not ideal because it happens often that, within an extreme period, one type is actually contributing in a negative way so you can get weird shares like a sudden stop is for .80 explained by FDI, 0.40 by portfolio Investment and -0.20 by other investment. Anyhow, the numbers still give a clear indication which flow can be hold responsible for the extreme period. In the meantime we should think whether there is a more sophisticated way of calculating the blame.

More importantly, we have to think of how we are going to assign the blame. An extreme period is happening over several quarters, by definition at least two, so we have to decide how we are going to assign the blame. Do we calculate the average share for each flow over the period in which the extreme period is occurring or do we compare the shares in each quarter and based on that we assign the blame? **What do you think?**

Besides deciding how to calculate we also have to decide when we say the extreme period is driven by one specific flow, a mix of two or a mix of three. For example, if the shares are 0.10, 0.38 and 0.52, do we say that the extreme period is caused by all three (because they all contribute positively) or that it is caused by a mix of two or that it is only caused by the last one? **What do you think?**

I suggest you take a look at the new version of the file “Overview Extreme Movements” that I have sent to you. In each sheet of the inflows and outflows of each country you will find the share calculated for FDI, Portfolio and Other investment if you scroll to the complete right. Moreover, the numbers that are colored indicate that an extreme episode is going on at that moment in time. A red number means it is contributing negative to the episode and a green number means it is contributing positively. The shares that are in bold are the highest shares and therefore responsible for the episode.

@ Ricardo, if you could answer the questions in bold and come to my office so that we can discuss how to continue. I think that the shares are a step in right direction. We just have to think of a way how to represent it in succinct and clear manner in one table.