

# **Moving towards a reserve fund with wider regional coverage**

**Daniel Titelman**

**Cecilia Vera**

**Pablo Carvallo**

**Esteban Pérez-Caldentey**

**UNCTAD/ECLAC TECHNICAL WORKSHOP ON REGIONAL  
FINANCIAL COOPERATION AND INTEGRATION**

**SANTIAGO, 12<sup>th</sup> -13<sup>th</sup> JUNE, 2014**

**ECLAC, Santiago de Chile**

There is a growing perception that *regional* financial institutions can and must play an important role in complementing international financial institutions

---

- The strengthening of regional Reserve Funds can be an important contribution to global stability.
- In addition these can also contribute to improve the workings of the international financial architecture.
- The provision of liquidity at the regional level may:
  - Provide buffer stocks to help countries confront the effects of external shocks
  - Help reduce financial contagion.

Regional reserve funds should not be conceived as a unique line of defense to confront Balance of Payments difficulties

---

- Regional reserve funds are an integral part of a wider set of financial instruments and support mechanisms.
- They contribute to fill an important gap in the international financial architecture by providing additional lines of defense within a multi-layered system of financial cooperation.

# Three experiences of regional reserve funds...

---

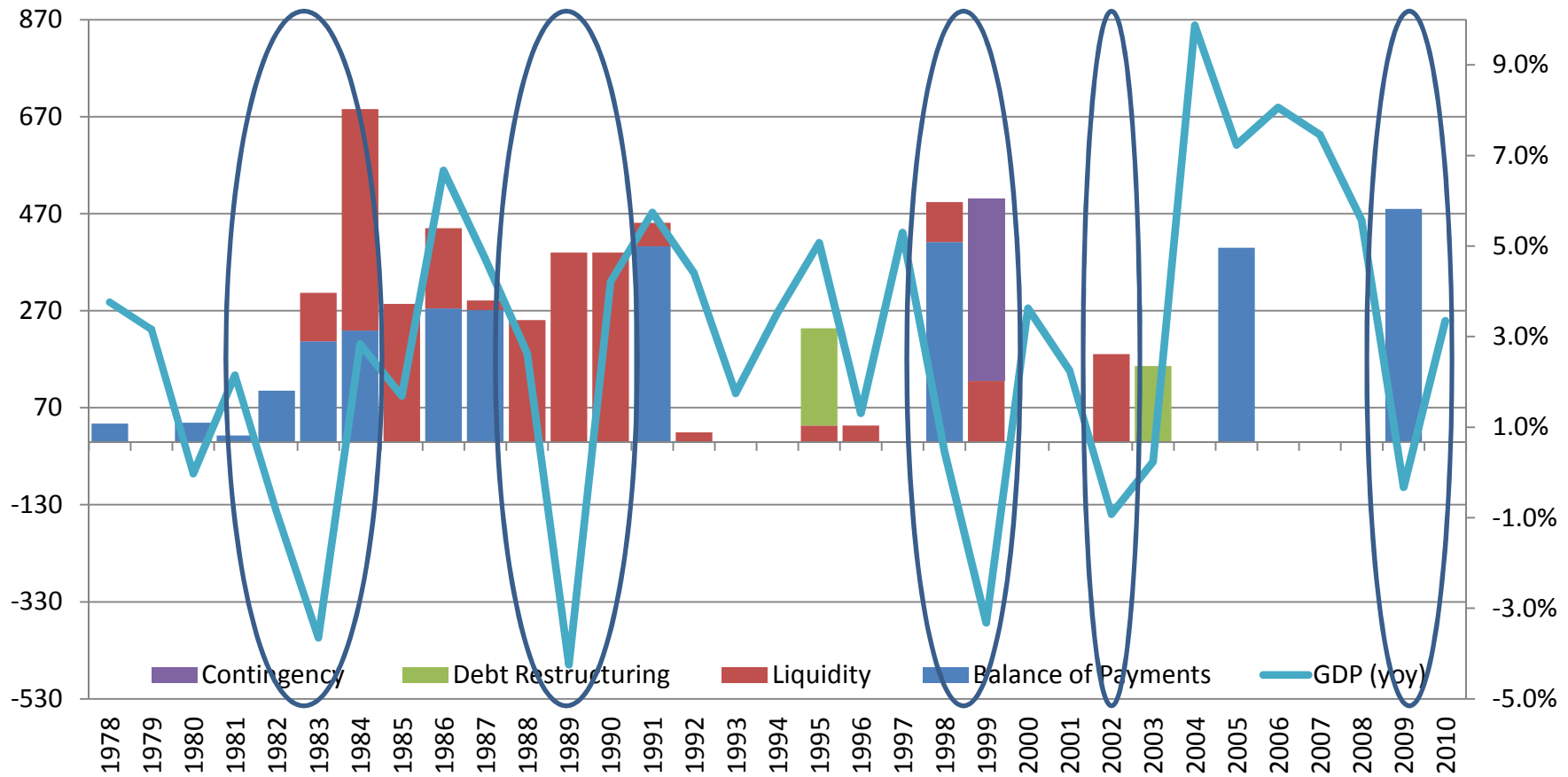
- Chiang Mai Initiative Multilateralization (CMIM); 2010
  - ASEAN+3 countries
    - ✓ Indonesia, Malaysia, Philippines, Singapore, Thailand, Brunei, Vietnam, Laos, Burma and Cambodia (ASEAN).
    - ✓ China, Japan and South Korea.
- Arab Monetary Fund (1977)
  - Twenty two countries of the Arab League
    - ✓ Jordan, United Arab Emirates, Bahrain, Tunisia, Algeria, Djibouti, Saudi Arabia, Sudan, Syria, Somalia, Iraq, Oman, Palestine, Qatar, Kuwait, Lebanon, Lybia, Egypt, Morocco, Mauritania, Yemen and Comoros.
- Andean Reserve Fund (FAR, 1978) / Latin American Reserve Fund (FLAR, 1989)
  - Currently includes eight countries (Bolivia, Colombia, Costa Rica, Ecuador, Paraguay, Peru, Uruguay and Venezuela).

Fund	Size		Types of loans	Conditionalities
	US\$ billions	Fund/ International Reserves		
Chiang Mai Initiative Multilateralization	120 (240, May 2012)	2.4%	<ul style="list-style-type: none"> <li>• Swaps in US\$</li> <li>• CMIM Precautionary Line (May 2012)</li> </ul>	IMF-link: Access to more than 20% (30%, May 2012) of funds available to a country requires a program with the IMF
Arab Monetary Fund	2,7	0.26%	<ul style="list-style-type: none"> <li>• Balance of Payments loans</li> <li>• Credits for structural adjustment</li> <li>• Short term liquidity facility</li> </ul>	For the loans that involve higher relative amounts member countries are expected to agree with the Fund on the implementation of a reform program.
FLAR	2	1.61%	<ul style="list-style-type: none"> <li>• Balance of Payments loans</li> <li>• Central bank external debt restructuring credits</li> <li>• Liquidity credits</li> <li>• Contingent financings</li> <li>• Treasury credits</li> </ul>	Short term credits (Treasury, contingency and liquidity) are approved by the Executive President. For the rest of credits the soliciting Central Bank presents a plan to FLAR, which in general has been accepted.

Source: Own elaboration on the basis of official information.

FAR/FLAR has successfully provided counter-cyclical financing to its member countries

**Yearly GDP variation of FLAR member countries and credit by FLAR**  
*(in percentage and US\$ millions)*



FAR/ FLAR has been a significant provider of emergency financing to its member countries

---

**FLAR and IMF loans to FLAR country members**  
(Millions of US\$)

Subperiod	FLAR		IMF	FLAR/IMF
	Approved	Disbursed	Disbursed	Disbursed
1978-1982	195	190	984	0.19
1983-1988	2,263	2,263	1,089	2.08
1989-1993	1,250	847	4,279	0.20
1994-1997	267	267	1,012	0.26
1998-2002	1,174	494	403	1.22
2003-2007	556	556	244	2.28
2008-2011	480	480	0	
Total	6,186	5,098	8,011	0.64
Excluding Venezuela	5,893	4,804	4,370	1.10

Note: Cumulative loans by subperiods. In the cases of Costa Rica and Uruguay, IMF lending includes only those years for which they were FLAR members.

Source: Ocampo and Titelman (2012)

In the paper we explore the feasibility of creating a regional Fund that covers nineteen countries and its implications and challenges

---

- Argentina, Belice, **Bolivia**, Brasil, Chile, **Colombia**, **Costa Rica**, Dominican Republic, **Ecuador**, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, **Paraguay**, **Peru**, **Uruguay** and **Venezuela**

\* Current FLAR members



## Simultaneity of Balance of Payments problems among member countries is an important issue when considering a regional reserve Fund

---

- We approached the simultaneity issue using two methodologies:
  - Computation of correlation coefficients between pairs of countries for three variables:
    - ✓ Changes in Terms of Trade indices
    - ✓ Changes in International Reserves
    - ✓ Financial Flows from Balance of Payments
  - Analysis of simultaneity of '*Sudden Stops*' in capital flows
    - ✓ Detecting *Sudden Stop* episodes following the Calvo, Izquierdo and Mejía (2004, 2008) methodology.
    - ✓ Evaluating the simultaneity of such episodes

## Empirical evidence suggests that simultaneity of Balance of Payments problems is not the rule

---

- Correlation analysis shows that
  - ✓ The percentage of positive and statistically significant correlation coefficients between variations in Terms of Trade, capital flows and international reserves is low (17%, 22% and 22% of total coefficients calculated respectively).
  
- The analysis of *Sudden Stops* shows that
  - ✓ For the period 1990-2010 generally only a fraction of the twelve countries considered experienced *Sudden Stops* simultaneously

# Changes in Terms of Trade among pairs of countries do not appear to be highly correlated

**Simple correlation coefficients between variations in Terms of Trade**  
(yearly data, 1990-2010)

	BRA	MEX	ARG	VEN	COL	PER	CHL	ECU	CRI	URY	BOL	PRY	SLV	GTM	HND	NIC	PAN	DOM	
BRA	1.00																		
MEX	<b>-0.53</b>	1.00																	
ARG	<b>0.47</b>	-0.22	1.00																
VEN	-0.30	<b>0.62</b>	-0.05	1.00															
COL	0.35	0.14	0.34	<b>0.64</b>	1.00														
PER	0.36	0.03	-0.13	0.25	0.20	1.00													
CHL	0.40	-0.15	-0.12	0.24	0.30	<b>0.84</b>	1.00												
ECU	-0.16	<b>0.53</b>	-0.07	<b>0.90</b>	<b>0.66</b>	0.34	0.22	1.00											
CRI	<b>0.54</b>	<b>-0.77</b>	0.14	<b>-0.64</b>	-0.15	-0.03	0.07	<b>-0.54</b>	1.00										
URY	0.37	<b>-0.62</b>	-0.06	<b>-0.62</b>	-0.28	-0.15	-0.04	<b>-0.49</b>	0.39	1.00									
BOL	0.30	0.00	0.13	0.38	<b>0.63</b>	<b>0.54</b>	<b>0.55</b>	<b>0.53</b>	-0.10	-0.11	1.00								
PRY	<b>0.47</b>	-0.31	0.26	-0.07	<b>0.57</b>	0.03	0.10	0.04	<b>0.43</b>	0.23	<b>0.44</b>	1.00							
SLV	<b>0.46</b>	<b>-0.47</b>	-0.18	-0.26	0.10	0.06	0.32	-0.28	<b>0.60</b>	0.34	0.23	<b>0.48</b>	1.00						
GTM	0.02	-0.16	<b>-0.74</b>	-0.19	-0.32	0.26	0.30	-0.08	0.39	0.30	-0.14	0.07	<b>0.45</b>	1.00					
HND	0.43	-0.32	-0.02	<b>-0.47</b>	-0.18	0.00	0.10	-0.39	<b>0.60</b>	0.22	-0.08	0.10	0.37	0.38					
NIC	0.12	-0.10	-0.43	-0.11	0.18	-0.01	0.25	-0.03	0.24	0.26	0.34	<b>0.50</b>	<b>0.66</b>	<b>0.52</b>	0.35	1.00			
PAN	0.23	-0.37	0.41	<b>-0.45</b>	-0.34	-0.08	-0.28	-0.44	0.44	-0.15	<b>-0.47</b>	-0.11	-0.27	-0.24	0.04	<b>-0.57</b>	1.00		
DOM	0.25	<b>-0.52</b>	0.16	-0.39	-0.03	-0.15	0.15	-0.37	0.43	0.18	0.21	0.17	<b>0.55</b>	-0.05	<b>0.45</b>	0.35	-0.03	1.00	

Note: In blue, positive and statistically significant correlation coefficients (5% level). In red, negative and statistically significant correlation coefficients (5% level).

On average for the 1990-2010 period, 17% of the cases considered show positive and statistically significant correlation coefficients.

## In addition capital flows do not show significant evidence of co-movement

**Simple correlation coefficients between Net Capital Flows**  
(quarterly data, 2000-2011)

	BRA	MEX	ARG	VEN	COL	PER	CHL	ECU	CRI	URY	BOL	PRY	SLV	GTM	HND	NIC	PAN	DOM	
BRA	1.00																		
MEX	<b>0.36</b>	1.00																	
ARG	<b>0.34</b>	-0.02	1.00																
VEN	<b>-0.48</b>	0.05	-0.22	1.00															
COL	<b>0.61</b>	<b>0.36</b>	0.23	<b>-0.33</b>	1.00														
PER	<b>0.65</b>	<b>0.34</b>	0.14	<b>-0.41</b>	<b>0.44</b>	1.00													
CHL	0.05	0.10	-0.20	-0.19	0.13	-0.03	1.00												
ECU	0.11	0.10	-0.10	-0.22	0.24	0.19	0.19	1.00											
CRI	0.27	0.14	0.03	-0.09	<b>0.44</b>	<b>0.51</b>	-0.03	0.12	1.00										
URY	0.17	-0.04	0.16	-0.13	0.26	0.20	0.25	0.01	<b>0.40</b>	1.00									
BOL	0.06	<b>0.47</b>	-0.20	0.01	-0.24	0.22	<b>0.35</b>	0.05	-0.14	-0.08	1.00								
PRY	<b>0.32</b>	<b>0.41</b>	0.29	0.00	<b>0.44</b>	0.30	0.02	0.06	<b>0.37</b>	<b>0.32</b>	0.04	1.00							
SLV	-0.14	0.21	-0.13	0.17	-0.10	-0.09	-0.16	-0.19	<b>0.35</b>	-0.09	-0.07	0.06	1.00						
GTM	<b>0.33</b>	<b>0.42</b>	0.03	-0.20	0.17	<b>0.33</b>	0.11	0.11	0.17	0.21	0.26	<b>0.42</b>	0.15	1.00					
HND	0.04	<b>0.43</b>	-0.31	0.06	0.10	0.18	0.29	-0.12	0.09	0.02	<b>0.79</b>	0.00	0.05	0.06	1.00				
NIC	-0.35	-0.08	0.06	-0.32	0.14	-0.08	-0.12	0.12	-0.07	-0.17	-0.03	0.31	0.04	-0.22	-0.29	1.00			
PAN	<b>0.44</b>	<b>0.36</b>	0.04	-0.12	<b>0.44</b>	<b>0.39</b>	0.17	-0.15	<b>0.36</b>	0.14	-0.01	0.24	0.05	0.25	0.17	-0.08	1.00		
DOM	<b>0.41</b>	<b>0.37</b>	0.02	-0.11	<b>0.49</b>	0.28	0.23	-0.01	0.17	0.08	0.32	0.35	-0.10	0.21	0.32	<b>0.69</b>	0.28	1.00	

Note: In blue, positive and statistically significant correlation coefficients (5% level). In red, negative and statistically significant correlation coefficients (5% level).

Only 22% of the cases considered show positive and statistically significant correlation coefficients.

## Finally the exercises using International Reserves with quarterly data validate the previous findings

---

**Simple correlation coefficients between variations in International Reserves**  
*(quarterly data, 2000-2011)*

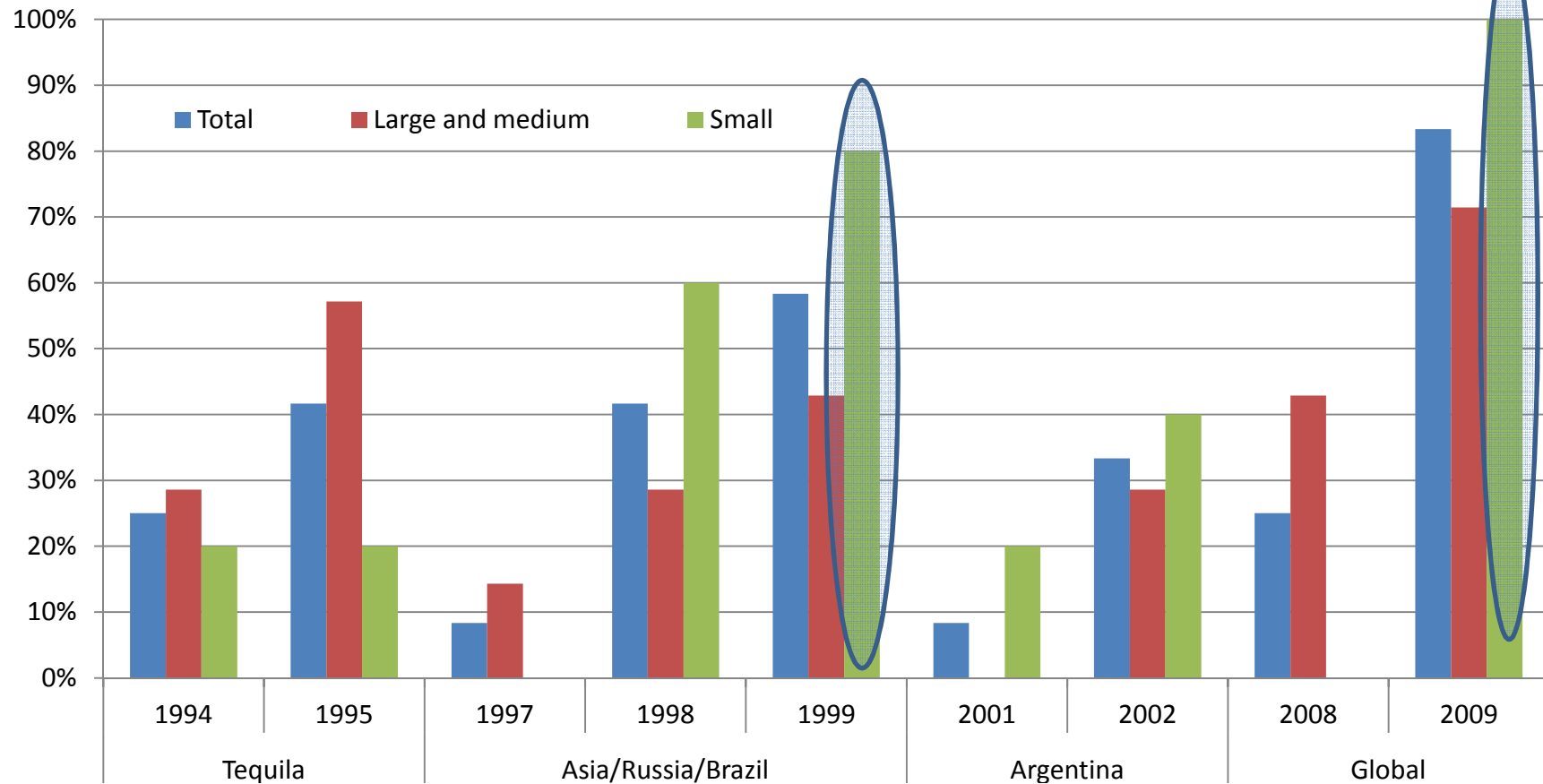
	BRA	MEX	ARG	VEN	COL	PER	CHL	ECU	CRI	URY	BOL	PRY	SLV	GTM	HND	NIC	PAN	DOM	
BRA	1.00																		
MEX	<b>0.29</b>	1.00																	
ARG	<b>0.33</b>	0.09	1.00																
VEN	-0.09	0.09	-0.08	1.00															
COL	<b>0.54</b>	0.08	0.21	-0.04	1.00														
PER	<b>0.62</b>	<b>0.30</b>	<b>0.30</b>	-0.13	<b>0.30</b>	1.00													
CHL	0.25	0.22	-0.03	0.07	0.02	0.21	1.00												
ECU	<b>0.30</b>	-0.07	0.01	0.03	<b>0.31</b>	<b>0.35</b>	0.24	1.00											
CRI	<b>0.32</b>	0.07	0.25	<b>-0.31</b>	0.21	<b>0.53</b>	-0.22	-0.09	1.00										
URY	0.19	0.14	0.09	0.02	0.25	0.20	<b>0.34</b>	0.21	0.04	1.00									
BOL	<b>0.54</b>	0.22	0.15	0.17	<b>0.43</b>	<b>0.55</b>	<b>0.46</b>	<b>0.36</b>	0.04	<b>0.35</b>	1.00								
PRY	<b>0.47</b>	0.20	0.23	0.03	0.27	<b>0.39</b>	<b>0.29</b>	<b>0.35</b>	0.04	<b>0.57</b>	<b>0.45</b>	1.00							
SLV	0.21	-0.17	0.04	-0.01	0.08	0.12	0.02	0.26	0.13	0.23	0.06	0.26	1.00						
GTM	0.10	0.08	0.04	0.05	-0.09	0.11	0.06	0.26	-0.01	0.03	-0.06	-0.15	0.05	1.00					
HND	0.13	-0.10	0.00	-0.21	0.13	0.02	0.01	<b>0.34</b>	0.02	0.03	0.00	0.00	<b>0.31</b>	<b>0.30</b>	1.00				
NIC	<b>0.35</b>	<b>0.36</b>	0.04	-0.04	0.07	0.25	-0.05	0.11	0.17	-0.16	0.15	-0.05	0.16	0.02	0.21	1.00			
PAN	-0.02	-0.24	-0.03	-0.17	0.07	-0.05	-0.26	0.15	-0.01	-0.13	0.09	-0.15	0.14	0.02	<b>0.28</b>	<b>0.29</b>	1.00		
DOM	0.17	0.11	-0.09	-0.19	-0.02	0.23	-0.07	0.19	0.15	-0.15	0.11	-0.04	0.05	-0.06	0.02	<b>0.52</b>	0.23	1.00	

Note: In blue, positive and statistically significant correlation coefficients (5% level). In red, negative and statistically significant correlation coefficients (5% level).

Again, only 22% of the cases considered show positive and statistically significant correlation coefficients.

Only in 1999 and 2009 Sudden Stops were experienced simultaneously by a majority –more than half- of the countries considered... However, in both cases simultaneity was found to exist mainly among smaller countries...

**Percentage of countries experiencing a *Sudden Stop* at the same time  
(relative to the total number of countries in each group)**

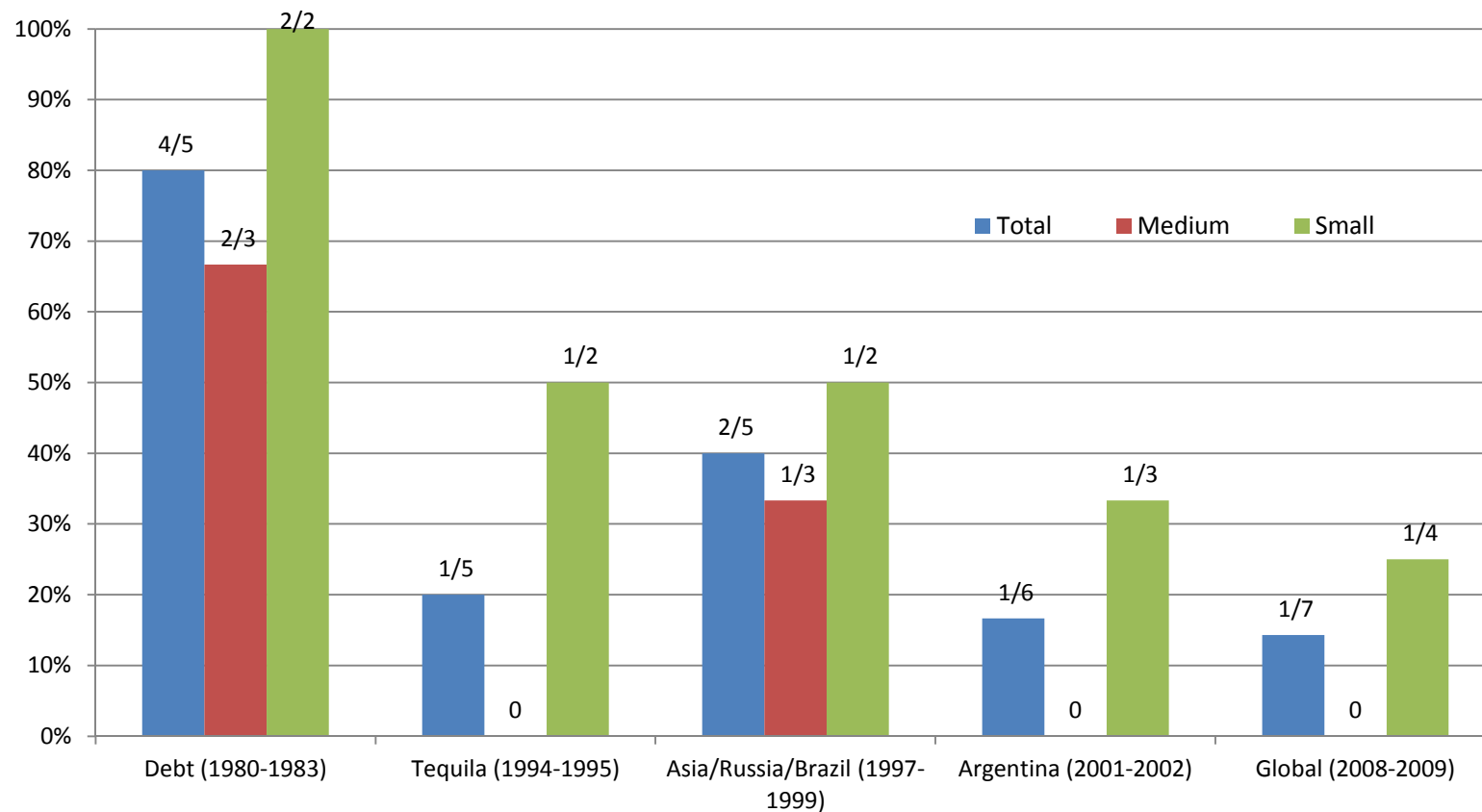


Source: Titelman, Vera, Carvallo and Pérez-Caldentey (2012)

# The experience of FLAR across time shows that members have not requested support simultaneously...

- This may reflect the fact that correlations are low and/or the fact that FLAR is one of the many lines of defense to which countries can resort when facing liquidity needs...

## Percentage of FLAR members requesting FLAR support during a crisis episode *(relative to the total number of countries in each group)*



Note: These calculations consider only Balance of Payments or Liquidity Facilities of FLAR

Source: Titelman, Vera, Carvallo and Pérez-Caldentey (2012)

# Determining the size of a regional Fund for nineteen countries

---

- In order to estimate the possible size of a Fund for the nineteen countries we started with the premise that regional reserve funds are *one* of the various mechanisms that conform the international financial architecture
  - There exist other support mechanisms to which members –in particular countries of a larger size- may resort
    - Therefore the Fund can be smaller than one built on the idea of a lender of last resort to all its members
  - The Fund should not necessarily cover extreme scenarios such as systemic crises or generalized contagion
    - It should be calibrated to cover the most likely scenarios (according to our results those in which only a fraction of members present simultaneous Balance of Payments problems).
    - To deal with extreme scenarios (and even with intermediate scenarios for which capital is not enough) the Fund should have the capacity to enlarge its pool of resources through other instances of the financial architecture



## In a second step we estimate potential Financing Requirements by the nineteen countries

---

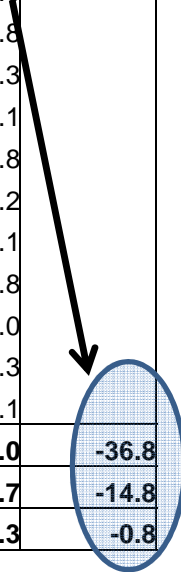
- We calculated yearly variations in net capital inflows into each of the countries under analysis.
  - ✓ We used the Capital and Financial account of the Balance of Payments statistics, excluding exceptional financing (only net FDI *into* the reporting economy was included)
  - ✓ We obtained total requirements by adding up only those variations with a negative sign (Agosin and Heresi, 2011).

# Potential financing requirements for the 19 countries vary considerably across crises...

Members of expanded Fund: variation in the net inflows of capital  
(in US\$ billions)

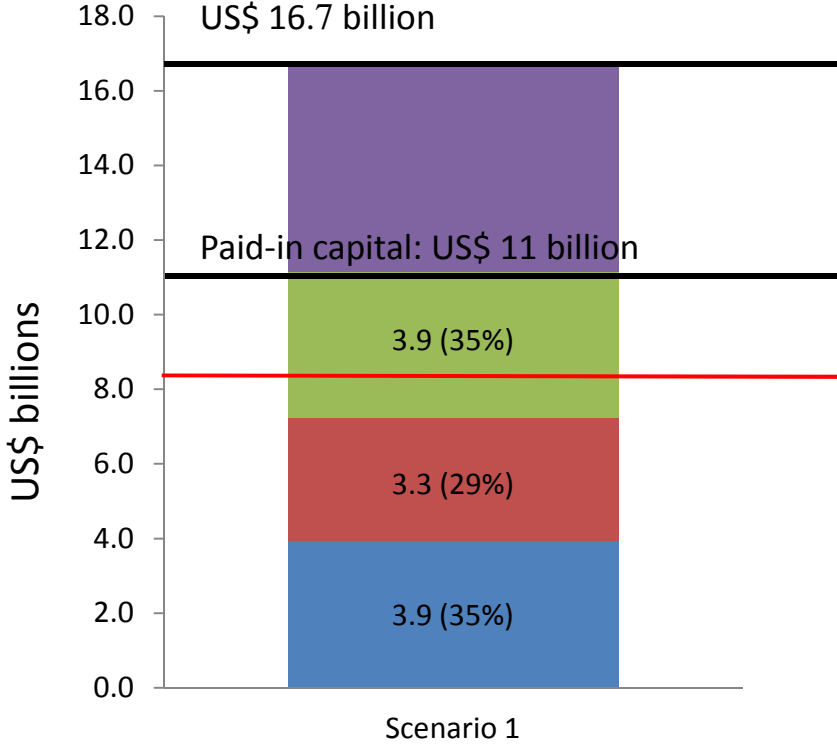
	Crisis Tequila		Crisis Asiático-Ruso-Brasileña			Crisis Argentina		Crisis Global		Mediana
	1994	1995	1997	1998	1999	2001	2002	2008	2009	
Brasil	1.0	21.6	-7.0	-3.2	-13.0	-13.6	-19.5	-46.6	11.3	
Mexico	-18.0	-26.3	11.1	-5.4	-4.5	12.8	-8.3	-3.7	1.0	
Argentina	-8.3	-6.4	8.1	-0.1	-5.1	-23.6	-6.5	-15.5	2.1	
Venezuela, RB	-6.4	0.0	2.7	2.3	-3.4	2.4	-8.2	-1.1	11.4	
Colombia	0.6	1.3								
Perú	3.0	-0.2								
Chile	2.8	-3.1								
Ecuador	0.4	-0.4								
Costa Rica	-0.2	0.6								
Uruguay	0.3	-0.1	0.4	-0.1	-0.4	-0.3	-2.4	1.2	-1.8	
Bolivia	0.0	0.2	0.2	0.3	-0.3	0.0	0.2	1.2	-0.3	
Paraguay	0.2	0.0	0.3	-0.1	-0.2	0.1	-0.1	-0.1	-0.1	
El Salvador	0.0	0.3	0.3	0.4	-0.4	-0.1	0.4	1.0	-1.8	
Guatemala	-0.2	-0.2	0.1	0.4	-0.5	0.3	-1.3	-0.1	-1.2	
Honduras	0.0	0.0	0.0	-0.1	0.2	0.0	-0.1	1.3	-1.1	
Nicaragua	-0.4	0.3	0.4	0.2	0.3	-0.2	0.6	0.5	-0.8	
Panamá	0.2	0.4	0.4	0.3	0.6	1.0	-1.1	0.3	-2.0	
Rep. Dominicana	0.6	-0.1	0.4	0.2	0.4	0.1	-1.3	1.9	-1.3	
Belice	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	-0.1	
<b>TOTAL</b>	<b>-33.5</b>	<b>-36.8</b>	<b>-7.1</b>	<b>-20.8</b>	<b>-37.0</b>	<b>-39.5</b>	<b>-50.2</b>	<b>-67.6</b>	<b>-33.0</b>	<b>-36.8</b>
TOTAL medianos	<b>-14.7</b>	<b>-9.7</b>	<b>0.0</b>	<b>-12.1</b>	<b>-14.8</b>	<b>-25.4</b>	<b>-16.0</b>	<b>-16.6</b>	<b>-18.7</b>	<b>-14.8</b>
Total pequeños	<b>-0.8</b>	<b>-0.8</b>	<b>-0.1</b>	<b>-0.2</b>	<b>-4.6</b>	<b>-0.6</b>	<b>-6.3</b>	<b>-0.6</b>	<b>-14.3</b>	<b>-0.8</b>

For the 19 countries the median is US\$ 36.8 billion.  
For medium sized countries the median is US\$14.8 billion  
For small countries the median is US\$ 800 million



A Fund constituted with capital contributions using the current FLAR criteria would reach US\$ 11 billion and could mobilize loanable funds up to a total of US\$ 16.7 billion.

Total loanable funds with maximum indebtedness allowed in FLAR today:  
US\$ 16.7 billion



With paid in capital Simultaneous potential requirements of the whole group of small countries together with half the potential demands of medium sized countries for a total of almost US\$ 8.2 billion (statistical median) are covered.

**Scenario 1 : Capital contributions according to current FLAR criteria**

- New members contribute the same as current members of FLAR according to their size.
- Medium sized countries contribute twice the amount of capital than smaller countries
- The two larger countries (Brazil and Mexico) contribute 3 times the amount of medium size countries (i.e. 6 times the amount of small countries).

Source: On the basis of Titelman, Vera, Carvallo and Pérez-Caldentey (2012)

# Ways to set up the Fund and to enhance its financial capacity

---

- Setting up of the Fund
  - Through capital contributions (as in FLAR)
  - As a network of swaps (à la CMIM)
  - A combination of both.
- Enhancing its financial capacity
  - Mechanisms equivalent to IMF *New Arrangements to Borrow* (NAB) with countries from the region or with institutions or countries outside the region
  - Contingent credit lines with extra regional financial institutions

# Governance issues pose significant challenges

---

- The Fund has to combine:
  - Division of voting power and voice promoting a sense of ownership by its members states
  - Low conditionality and flexible access to resources
  - Strong and effective surveillance

# But this can be a difficult task ...

---

## Access to resources

- In the CMIM access to resources is subject to the so called *IMF-link*
  - It is argued that this is one reason explaining that CMIM (or CMI its predecessor) were never used...
- In FLAR there has been basically no formal conditionality
  - Short term credits are approved by the Executive President. For the rest of credits the soliciting Central Bank presents a plan to FLAR, which in general has been accepted.

## Surveillance

- For CMIM surveillance the *Asean+3 Macroeconomic Research Office (AMRO)* was established in May 2011
  - discussions are now focused on how to strengthen it and how to improve coordination with other pre-existing surveillance instances (MFSO, ERPD)
- In FLAR there is no formal surveillance office

# In summary

---

- A regional reserve fund for the nineteen countries should not be conceived as a unique line of defense but rather as part of a wider set of support mechanisms to which countries may resort to confront Balance of Payments difficulties.
- A fund calibrated to cover the most likely scenarios would reach around 11 billion dollars, representing on average around 1.7% of countries' international reserves.
- A Fund of this size could cover a significant share of potential financing requirements of members but, in case of necessity, it should have the capacity to enlarge its pool of resources through other mechanisms of the international financial architecture.
- One of the most difficult tasks ahead is to conciliate the sense of ownership by members states and flexible/timely liquidity allocation with sound surveillance and participative decision making.