



EUROPEAN CENTRAL BANK

EUROSYSTEM

Beatrice Scheubel*
Livio Stracca*
European Central Bank

What do we know about the global financial safety net?

A new database.

NBER Summer Institute
IFM data session

Boston, 10 July 2017

Agenda

1 Why we do we need data on the Global Financial Safety Net?

2 What is covered in the data set?

3 How can the data be used?

4 Concluding remarks

5 Appendix

Agenda

1 Why do we need data on the Global Financial Safety Net?

2 What is covered in the data set?

3 How can the data be used?

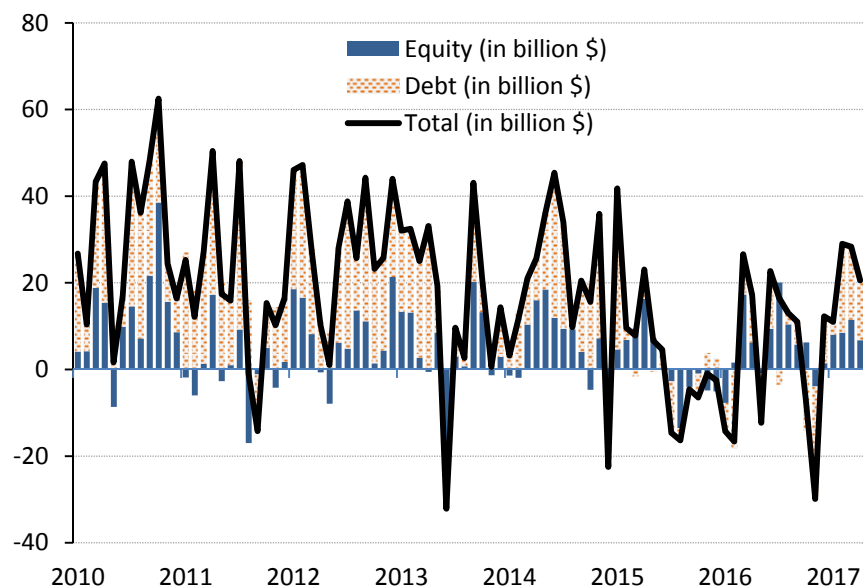
4 Concluding remarks

5 Appendix

Why do we need data on the GFSN?

Significant volatility in capital flows, particularly to and from EMES.

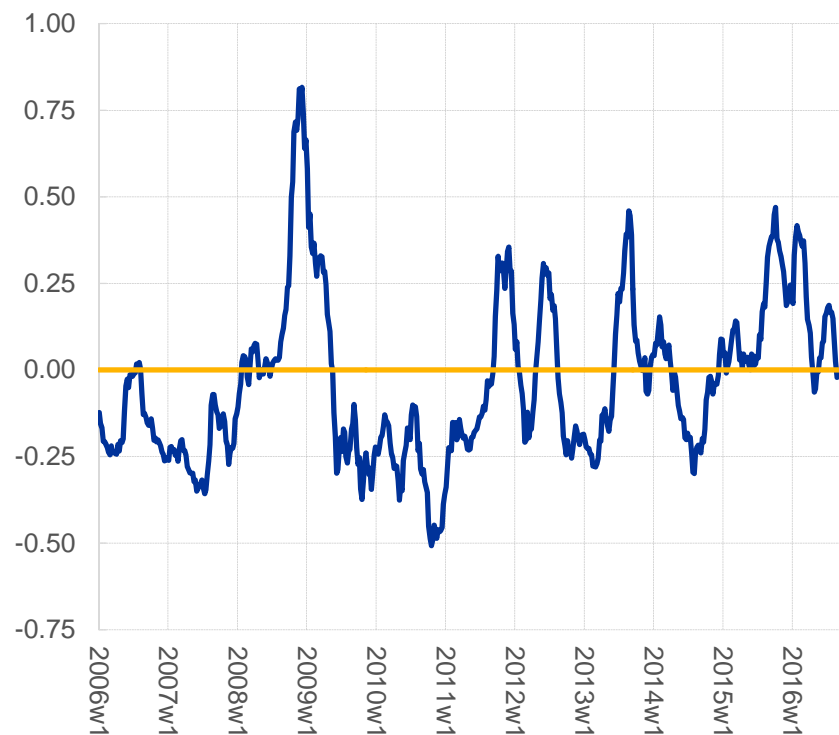
Net portfolio flows to EMEs (USD bn)



Notes: Monthly data up to 04/2017.

Sources: IIF

EME Financial Stress Index



Notes: Latest observations 02/12/2016. The indicator combines: (1) portfolio flows, (2) exchange rate against US dollar; (3) domestic bond market spreads. 12-week moving average. Country sample: Brazil, China, India, Indonesia, Mexico, South Africa, South Korea, Thailand and Turkey.

Why do we need data on the GFSN?

The GFSN is a set of institutions/mechanisms that provide financial support to countries hit by a crisis.

GFSN element	Conditionality	Availability and key factors determining access
FX Reserves	No	Past reserve accumulation, exchange rate regime
Central bank swap lines	Yes	Economic and political links with the reserve currency issuer with which the country has a bilateral swap line.
IMF financing	For most instruments	IMF forward commitment capacity, IMF quota, political factors (e.g. alliance with the US)
RFA financing	For many RFAs	RFA forward commitment capacity; sometimes limited to a multiple of paid-in capital

Research has focused largely on these elements in isolation

- 1) Reserves accumulation, use, effectiveness:** Aizenman and Lee (2008), Obstfeld et al. (2009), Aizenman and Sun (2012), Dominguez et al. (2012), Fernández-Arias and Levy-Yeyati (2012), Bussière et al. (2013), Cheng (2015), Alberola et al. (2016), Gosh et al. (2016)
- 2) Swap line use, role as LOLR:** Capie and Wood (1989), Goldberg et al. (2010), Truman (2013), Papadia (2013), Bordo et al. (2014)
- 3) IMF use and effectiveness:** Radelet and Sachs (1998), Jeanne and Zettelmeyer (2001), Bird et al. (2004), Dreher and Vaubel (2004), Barro and Lee (2005), Bird (2007), Eichengreen et al. (2008), Jeanne et al. (2008), Dreher (2009), Dreher et al. (2009), Bird and Mandilaras (2011), Chapman et al. (2015), Dreher et al. (2015), Erce and Riera-Chrichton (2015), Papi et al. (2015)
- 4) RFAs:** McKay et al. (2011), Ocampo and Titelman (2009), Sussangkarn (2011), Miyoshi et al. (2013), Eichengreen (2012)
- 5) Capital flow reversals:** Calvo et al. (2004), Calvo et al. (2006), Jeanne (2010), Agosin and Huaita (2012), Forbes and Warnock (2012), Alfaro et al. (2014), Korinek and Mendoza (2014), Cavallo et al. (2015)
- 6) GFSN:** Fernández-Arias and Levy-Yeyati (2012), Cheng (2016), Denbee et al. (2016), Scheubel and Stracca (2016)

Agenda

1 Why we do we need data on the Global Financial Safety Net?

2 **What is covered in the data set?**

3 How can the data be used?

4 Concluding remarks

5 Appendix

Existing GFSN data – harmonised

Existing data		Added value
FX reserves ✓	WB World Development Indicators (WDI) IMF International Financial Statistics (IFS)	<p>Harmonized Database</p> <p>Country level</p> <p>Large sample (198 countries)</p> <p>Annual frequency (1960-2014)</p> <p>Stata & Excel</p> <p>Publicly accessible at</p> <p>https://www.ecb.europa.eu/pub/research/occasional-papers/html/index.en.html</p>
Swap lines ✓	Central bank websites	
RFA lending ✓	RFA websites	
IMF lending ✓	IMF Monitoring of Fund Arrangements (MONA) IMF International Financial Statistics WB World Development Indicators	
MDB loans (✓)	MDB websites	
Hedging instruments	/	

Plus: crises data, private capital flow episodes, macro data

What is covered in the data set?

Measures of actual and potential GFSN access

Type	Variable	Definition
Actual GFSN use based on <u>past</u> GFSN access	GFSN_CARD GFSN_COUNT	Reserve use, drawn amount from Fed swap line, drawn amount from IMF programme, disbursed RFA loan
Potential GFSN access	GFSN_POT_COUNT GFSN_POT_CARD	Total reserves or reserves buffer, total swap line limit, maximum cumulative access to IMF facility (weighted with political alignment with US), maximum of RFA forward commitment capacity and potential financing needs

Agenda

1 Why we do we need data on the Global Financial Safety Net?

2 What is covered in the data set?

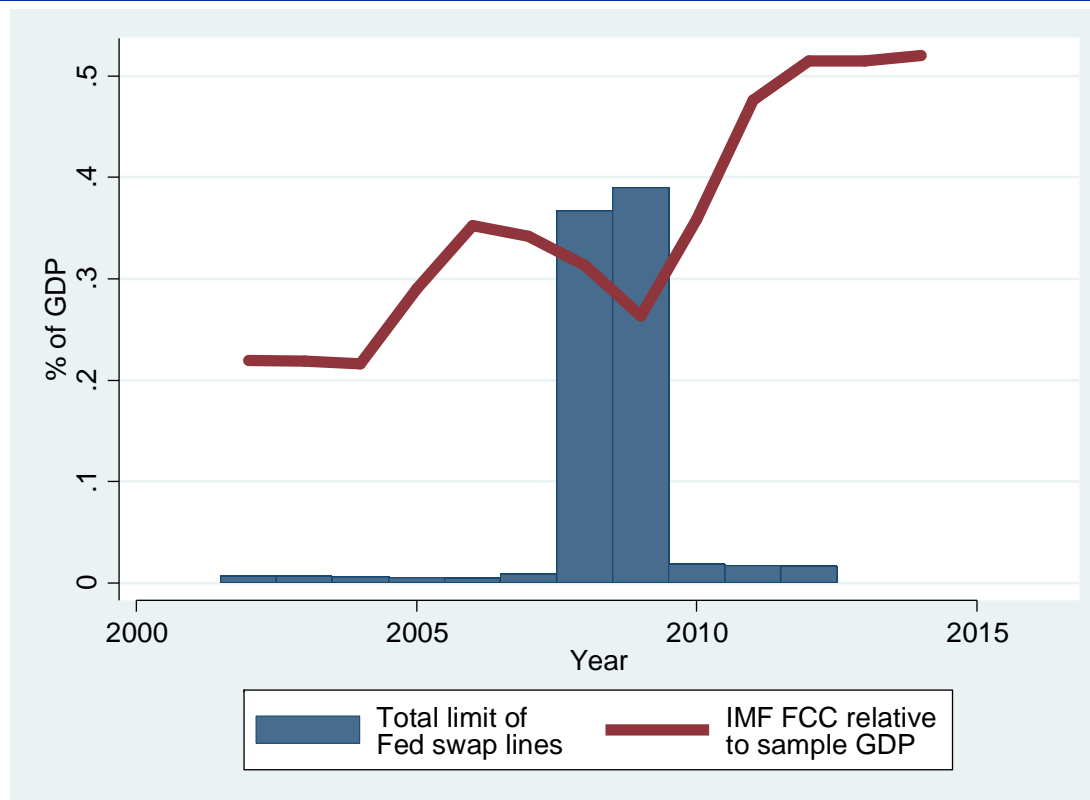
3 **How can the data be used?**

4 Concluding remarks

5 Appendix

How much GFSN support is (made) available?

Total IMF available funding and committed limited swap lines from the Federal Reserve

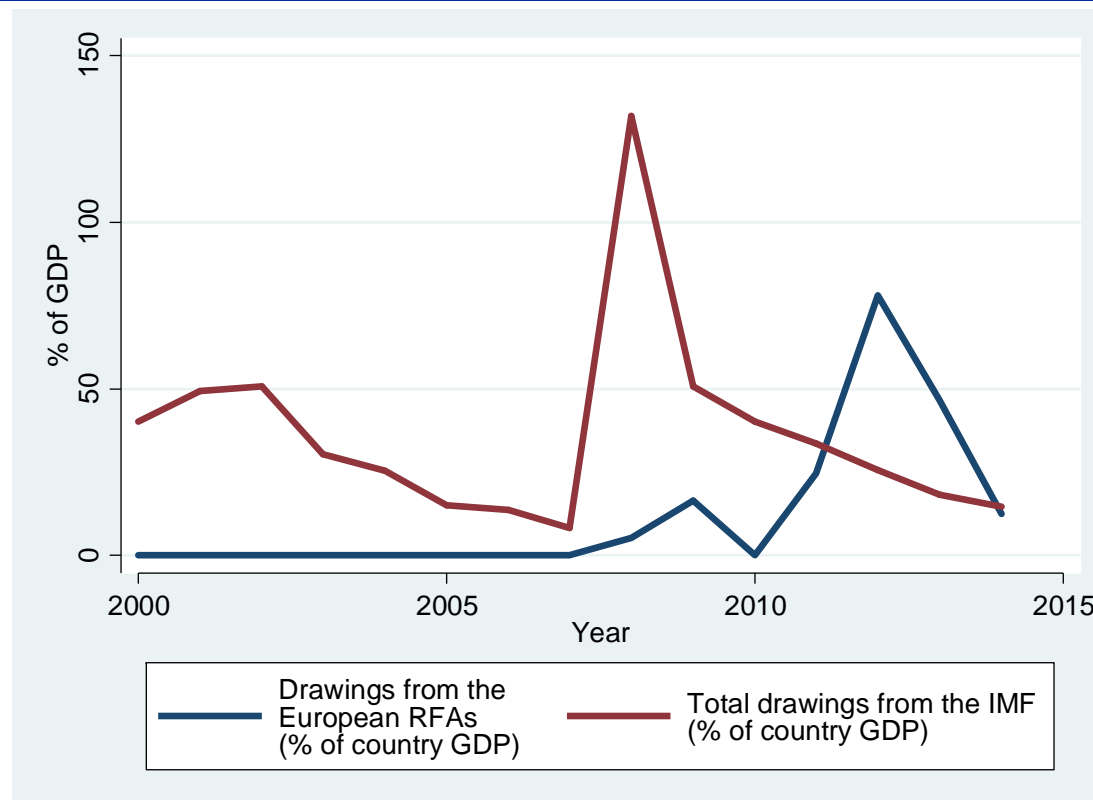


Source: GFSN data base. Own calculations.

Notes: The chart shows the IMF Forward Commitment Capacity (i.e. available funds) relative to sample (total) GDP and swap line limits from the Federal Reserve normalized to country GDP and then summed up. Unlimited swap lines from the Federal Reserve are not included.

How much GFSN support is used?

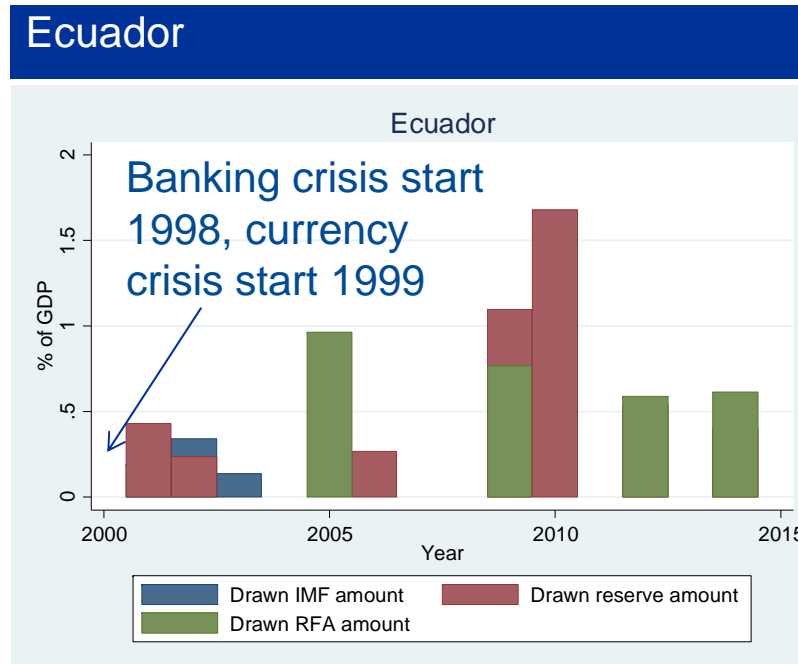
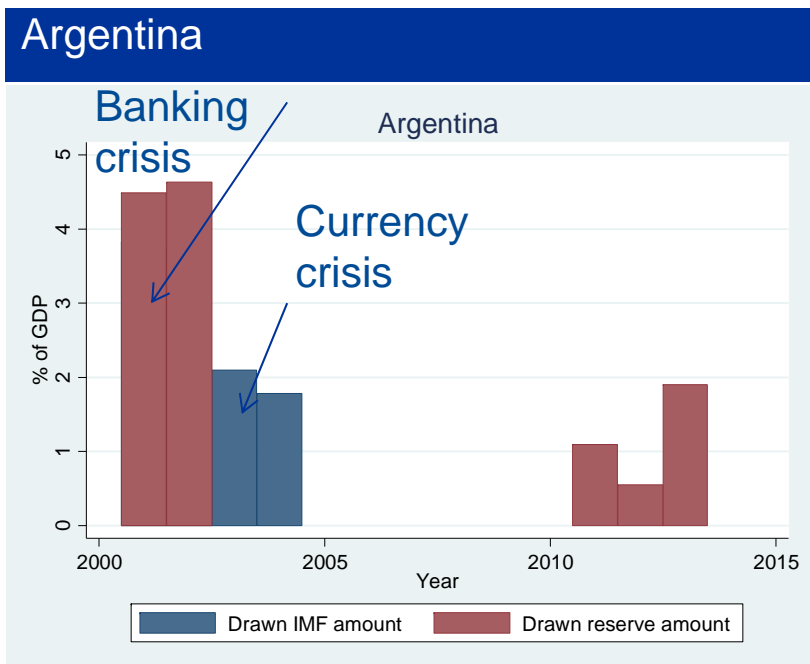
Total IMF drawings and drawings from the European RFAs



Source: GFSN data base. Own calculations.

Notes: The chart shows drawings from EU BOP facility, EFSF, EFSM and ESM, of which ESM drawings are largest. IMF drawings are summed up over the whole sample. Drawings are normalized to country GDP and then summed up.

Which layer of the GFSN will be used and when?

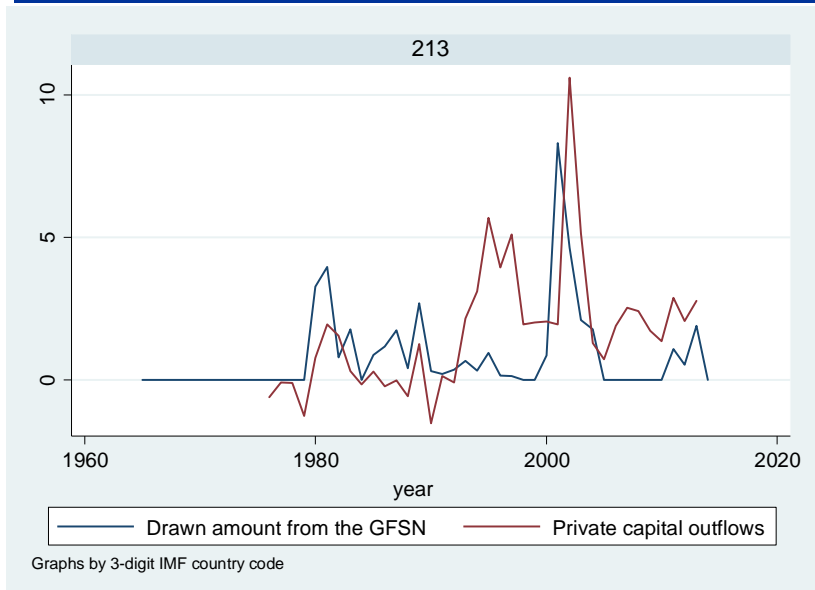


Source: GFSN data base. Own calculations.

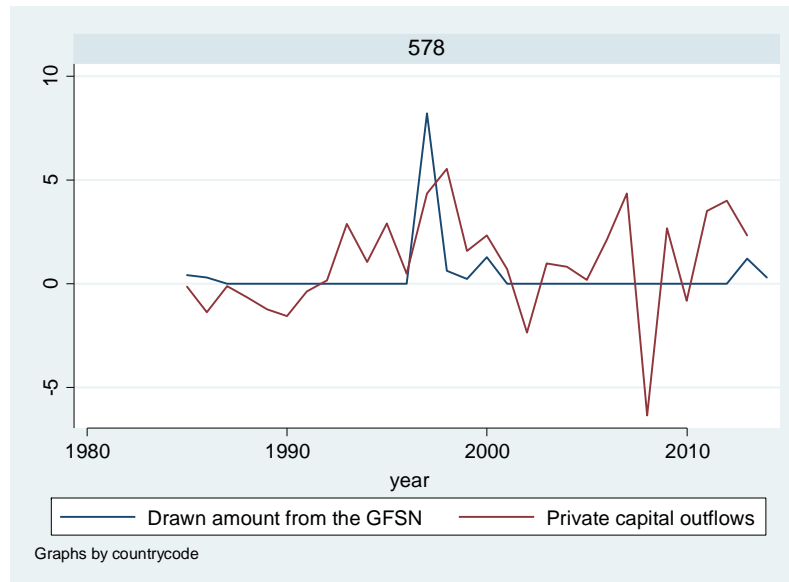
Notes: Reserve use defined as negative reserve flow whose absolute value is larger than the country-specific standard deviation; otherwise zero. Crises based on Laeven and Valencia (2012).

Does GFSN use trigger or attenuate capital outflows?

Argentina



Thailand

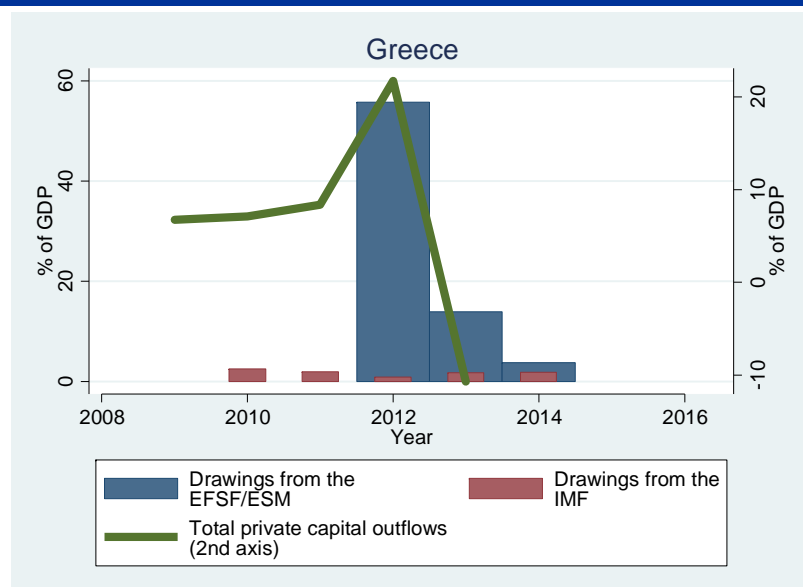


Source: GFSN data base. Own calculations.

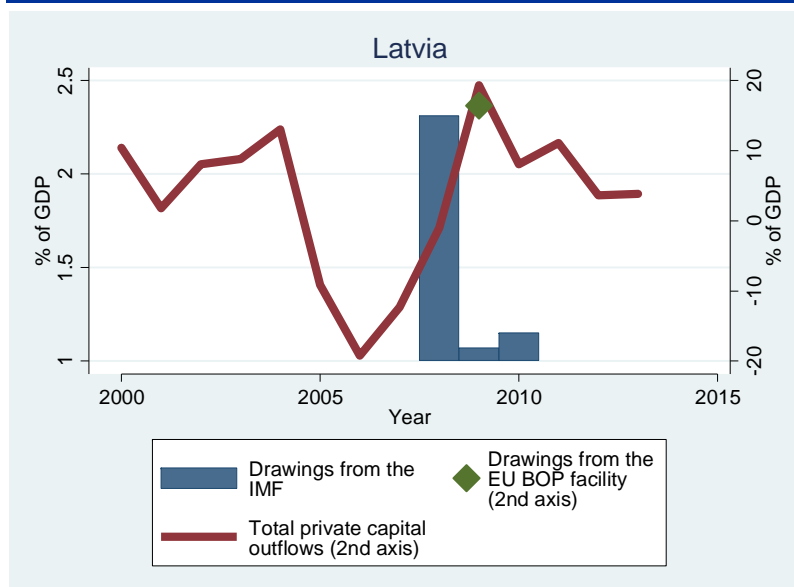
Notes: GFSN_CARD adds disbursed IMF loans, disbursed RFA loans, drawn Fed swap lines and use of reserves defined as negative flow of reserves larger than country-specific standard deviation, measured as % of GDP.

How do GFSN access and crisis outcomes compare between countries?

Greece



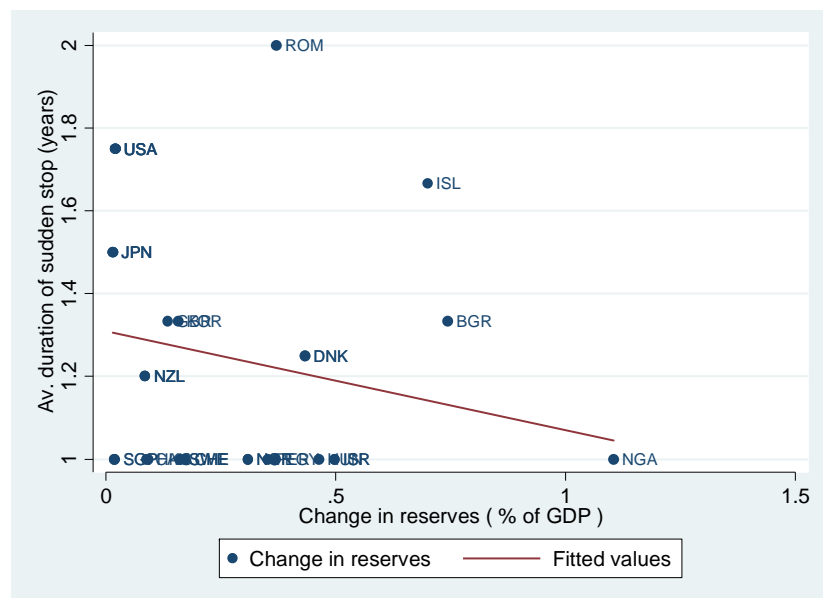
Latvia



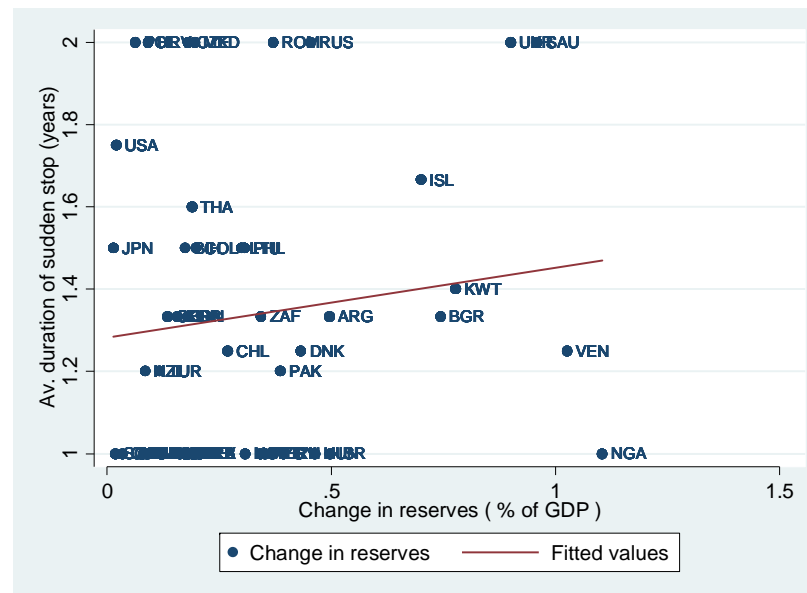
Source: GFSN data base. Own calculations.

Does GFSN use affect the duration of a sudden stop?

Below-average cap. account restrictions



Above-average cap. account restrictions

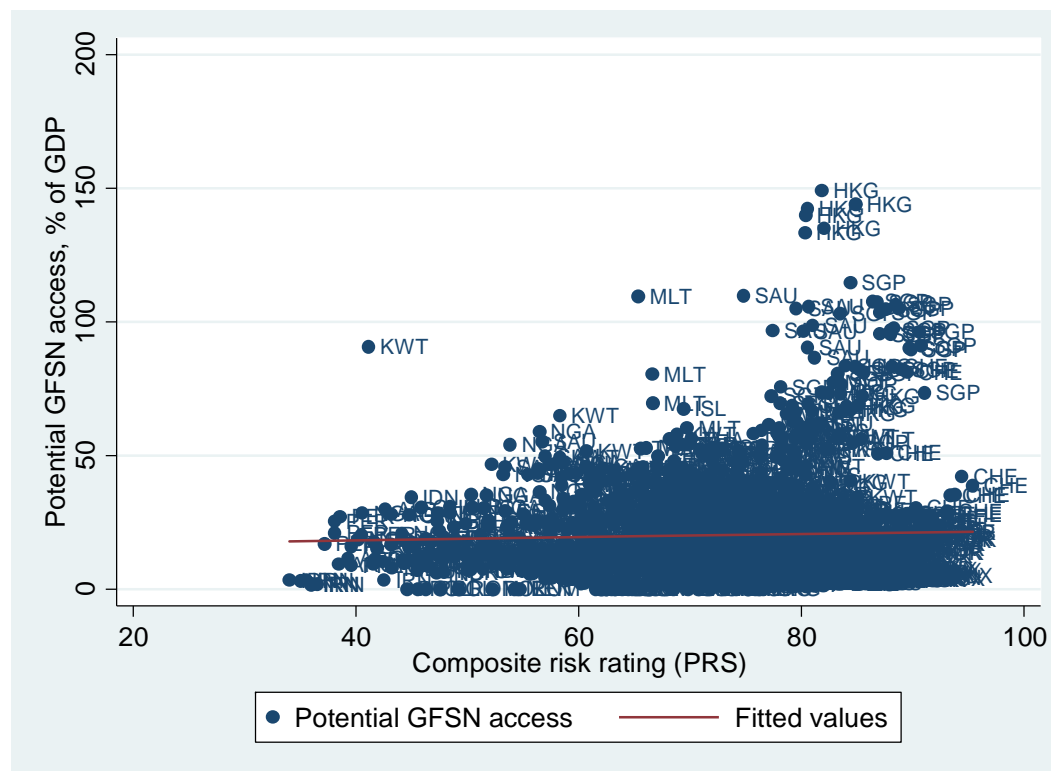


Source: GFSN data base. Own calculations.

Notes: Change of reserves defined as negative reserves flow larger than country-specific standard deviation, measured as % of GDP. Sudden stop defined as in Forbes and Warnock (2012), applied to measure of private capital flows provided in the data base. Capital account restrictions as measured by Fernández et al. (2015). Below average restrictions defined as overall restrictions index below sample median.

Is potential GFSN access correlated with a country's risk rating?

Correlation between the country composite risk rating and potential GFSN access



Source: PRS Group and GFSN data base. Own calculations.

Notes: The chart shows a measure of potential access which adds the stock of reserves, maximum cumulative access under a standard IMF facility and the maximum of a country's financing needs and an RFA's forward commitment capacity.

Agenda

1 Why we do we need data on the Global Financial Safety Net?

2 What is covered in the data set?

3 How can the data set be used?

4 **Concluding remarks**

5 Appendix

Concluding remarks

- **Global insurance against (financial) crises becomes more important.**
- **There is no clear single international lender of last resort.**
- **To answer the question which institution would be in the best position to provide lending for a particular crisis, we need to understand the interaction between the different layers of the GFSN.**
- **Our data base provides comprehensive data on both GFSN coverage and key macro variables.**
- **Correlation analysis suggests a relation between sudden stops and use of the GFSN (also confirmed by a local projections exercise)**
- **Follow-up work: Taming the global financial cycle. What role for global safety nets?**

Contact

Beatrice Scheubel:

[beatrice.scheubel\(at\)ecb.europa.eu](mailto:beatrice.scheubel(at)ecb.europa.eu)

Livio Stracca:

[livio.stracca\(at\)ecb.europa.eu](mailto:livio.stracca(at)ecb.europa.eu)

References

- Manuel R. Agosin and Franklin Huaita. Overreaction in capital flows to emerging markets: Booms and sudden stops. *Journal of International Money and Finance*, 31:1140 – 1155, 2012.
- Enrique Alberola, Aitor Erce, and Jose Maria Serena. International reserves and gross capital flows dynamics. *Journal of International Money and Finance*, 60:151 – 171, 2016.
- Joshua Aizenman and Jaewoo Lee. Financial versus monetary mercantilism: Long-run view of large international reserves hoarding. *The World Economy*, 31(5): 539 – 611, 2008.
- Joshua Aizenman and Yi Sun. The financial crisis and sizable international reserves depletion: From 'fear of floating' to the 'fear of losing international reserves'? *International Review of Economics and Finance*, 24:250 – 269, 2012.
- Laura Alfaro, Sebnem Kalemli-Ozcan, and Vadym Volosovych. Sovereigns, upstream capital flows, and global imbalances. *Journal of the European Economic Association*, 12:1240 – 1284, 2014.
- Robert J. Barro and Jong-Wha Lee. IMF programs: Who is chosen and what are the effects? *Journal of Monetary Economics*, 52:1245 – 1269, 2005.
- Graham Bird. The IMF: A bird's eye view of its role and operations. *Journal of Economic Surveys*, 21:683 – 745, 2007.

References

- Graham Bird and Alex Mandilaras. Once bitten: The effect of IMF programs on subsequent reserve behaviour. *Review of Development Economics*, 15:264 – 278, 2011.
- Graham Bird, Mumtaz Hussein, and Joseph P. Joyce. Many happy returns? Recidivism and the IMF. *Journal of International Money and Finance*, 23(2): 231 – 251, 2004.
- Michael D. Bordo, Owen Humpage, and Anna J. Schwarz. The evolution of the federal reserve swap lines since 1962. Working Paper 1414, Federal Reserve Bank of Cleveland, 2014.
- Matthieu Bussière, Gong Cheng, Menwie D. Chinn, and Noémie Lisack. For a few dollars more: Reserves and growth in times of crises. *Journal of International Money and Finance*, 52:127 – 145, 2013.
- Guillermo A. Calvo, Alejandro Izquierdo, and Luis-Fernando Mejía. On the empirics of sudden stops: The relevance of balance-sheet effects. IDB Publications (Working Papers) 6516, Inter-American Development Bank, 2004.
- Guillermo A. Calvo, Alejandro Izquierdo, and Ernesto Talvi. Sudden stops and phoenix miracles in emerging markets. *American Economic Review*, 96:405 – 410, 2006.
- Forrest Capie and Geoffrey E. Wood. *Monetary Economics in the 1980s*. Macmillan, London, 1989.

References

- Eduardo Cavallo, Andrew Powell, Mathieu Pedemonte, and Pilar Tavella. A new taxonomy of sudden stops: Which sudden stops should countries be most concerned about? *Journal of International Money and Finance*, 51:47 – 70, 2015.
- Terrence Chapman, Songying Fang, Xin Li, and Randall W. Stone. Mixed signals: IMF lending and capital markets. *British Journal of Political Science*, 1 – 21, 2015.
- Gong Cheng. A growth perspective on foreign reserve accumulation. *Macroeconomic Dynamics*, 19(06):1358 – 1379, 2015.
- Gong Cheng. The global financial safety net through the prism of g20 summits. Working Paper 13, ESM, 2016.
- Edd Denbee, Carsten Jung, and Francesco Paternò. Stitching together the global financial safety net. Bank of England Financial Stability Papers 36, 2016.
- Kathryn M. E. Dominguez, Yuko Hashimoto, and Takatoshi Ito. International reserves and the global financial crisis. *Journal of International Economics*, 88:388 – 406, 2012.
- Axel Dreher. IMF conditionality: theory and evidence. *Public Choice*, 141:233 – 267, 2009.
- Axel Dreher and Roland Vaubel. The causes and consequences of IMF conditionality. *Emerging Markets Finance and Trade*, 40:26 – 54, 2004.

References

- Axel Dreher, Jan-Egbert Sturm, and James Vreeland. Global horse trading: IMF loans for votes in the united nations security council. *European Economic Review*, 53(7):742 – 757, 2009.
- Axel Dreher, Jan-Egbert Sturm, and James R. Vreeland. Politics and IMF conditionality. *Journal of Conflict Resolution*, 59(1):120 – 148, 2015.
- Barry Eichengreen. Regional financial arrangements and the international monetary fund. Working Paper 394, ABDI, 2012.
- Barry Eichengreen, Poonam Gupta, and Ashoka Mody. Sudden stops and IMF supported programs. In *Financial Markets Volatility and Performance in Emerging Markets*, pages 219 – 266. National Bureau of Economic Research, Inc, 2008.
- Altor Erce and Daniel Riera-Crichton. Catalytic IMF? A gross flows approach. ESM Working Paper, 2015.
- Andrés Fernández-Arias and Eduardo Levy-Yeyati. Global financial safety nets: Where do we go from here? *International Finance*, 15(1):37 – 68, 2012.
- Kristin J. Forbes and Francis Warnock. Capital flow waves: Surges, stops, flight, and retrenchment. *Journal of International Economics*, 88:235 – 251, 2012.
- Atish R. Gosh, Jonathan D. Ostry, and Charalambos G. Tsangarides. Shifting motives: Explaining the buildup in official reserves in emerging markets since the 1980s. *IMF Economic Review*, pages 1 – 57, 2016.

References

- Linda S. Goldberg, Craig Kennedy, and Jason Miu. Central bank dollar swap lines and overseas dollar funding costs. NBER Working Papers 15763, National Bureau of Economic Research, Inc, 2010.
- Olivier Jeanne. Dealing with volatile capital flows. Policy Briefs PB10-18, Peterson Institute for International Economics, 2010.
- Olivier Jeanne and Jeromin Zettelmeyer. International bailouts, moral hazard and conditionality. *Economic Policy*, 16(33):407 – 432, 2001.
- Olivier Jeanne, Jonathan D. Ostry, and Jeromin Zettelmeyer. A theory of international crisis lending and IMF conditionality, 2008.
- Anton Korinek and Enrique G. Mendoza. From sudden stops to Fisherian deflation: Quantitative theory and policy implications. *Annual Review of Economics*, 6:299 – 332, 2014.
- Julie McKay, Ulrich Volz, and Regine Wölfinger. Regional financial arrangements and the stability of the international monetary system. *Journal of Globalization and Development*, 2:1948 – 1837, 2011.
- Toshiyuki Miyoshi, Stephanie Segal, Preya Sharma, and Anish Tailor. Stocktaking the Fund's engagement with regional financing arrangements. IMF, 2013.

References

- Maurice Obstfeld, J. C. Shambaugh, and A. M. Taylor. Financial instability, reserves, and central bank swap lines in the panic of 2008. *American Economic Review*, 99:480 – 486, 2009.
- Jose Antonio Ocampo and Daniel Titelman. Subregional financial cooperation: the south American experience. *Journal of Post Keynesian Economics*, 32: 249 – 268, 2009.
- Francesco Papadia. Central bank cooperation during the great recession. Policy contribution, Bruegel, 2013.
- Luca Papi, Andrea F. Presbitero, and Alberto Zazzaro. IMF lending and banking crises. *IMF Economic Review*, 63(3):644 – 691, 2015.
- Steven Radelet and Jeffrey D. Sachs. The east Asian financial crisis: diagnosis, remedies, prospects. *Brookings Papers on Economic Activity*, 29:1 – 90, 1998.
- Beatrice D. Scheubel and Livio Stracca. What do we know about the global financial safety net? Rationale, data and possible evolution, 2016.
- Chalongphob Sussangkarn. Chiang Mai Initiative Multilateralization: Origin, development, and outlook. *Asian Economic Policy Review*, 6:203 – 220, 2011.
- Edwin Truman. Enhancing the global financial safety net through central bank cooperation. 2013.