

## WHEN DO CAPITAL INFLOW SURGES END IN TEARS?

Atish R. Ghosh, Jonathan D. Ostry, and Mahvash S. Qureshi

### ONLINE APPENDIX

This appendix provides information on data sources, variable definitions, and the identified surge episodes and financial crisis in the sample.

**Table A.1 List of countries in the sample**

Albania	Estonia	Panama
Algeria	Georgia	Peru
Argentina	Guatemala	Philippines
Armenia	Hungary	Poland
Belarus	India	Romania
Bosnia & Herzegovina	Indonesia	Russian Federation
Brazil	Jamaica	Serbia
Bulgaria	Jordan	Slovak Republic
Chile	Kazakhstan	South Africa
China	Korea, Rep.	Sri Lanka
Colombia	Latvia	Thailand
Costa Rica	Lebanon	Tunisia
Croatia	Lithuania	Turkey
Czech Republic	Macedonia, FYR	Ukraine
Dominican Republic	Malaysia	Uruguay
Ecuador	Mexico	Venezuela, RB
Egypt, Arab Rep.	Morocco	Vietnam
El Salvador	Pakistan	

Note: Countries in the sample are emerging markets as identified by the IMF's Early Warning Exercise for Emerging Markets.

**Table A.2 List of identified surge episodes and crash endings**

Country	Episode	Financial crisis	Country	Episode	Financial crisis	Country	Episode	Financial crisis
Albania	2006-14	N.a.	Estonia	1996-97	No	Panama	2010-11	No
Argentina	1993	Yes	Estonia	2003-07	No	Panama	2013-14	N.a.
Argentina	1997-98	No	Georgia	2005-08	No	Peru	1994-97	No
Armenia	1996-2001	No	Georgia	2011-12	No	Peru	2002	No
Armenia	2008	No	Guatemala	1987	No	Peru	2007-08	No
Armenia	2013	N.a.	Guatemala	1991-94	No	Peru	2010-13	N.a.
Belarus	1997	Yes	Guatemala	1997-98	No	Philippines	1991	No
Belarus	2004	No	Guatemala	2000-03	No	Philippines	1994-97	Yes
Belarus	2007	Yes	Hungary	1993-95	No	Philippines	1999	No
Belarus	2009-11	No	Hungary	1998-2000	No	Philippines	2010	No
Belarus	2013	N.a.	Hungary	2004-06	Yes	Poland	1995-96	No
Bosnia	2001	No	Hungary	2008	Yes	Poland	1998-2000	No
Bosnia	2003-05	No	India	2007	No	Poland	2005	No
Bosnia	2007-08	No	Indonesia	2014	N.a.	Poland	2007-11	No
Brazil	1980-81	Yes	Jamaica	1992	No	Romania	1980	No
Brazil	1994	Yes	Jamaica	1996	Yes	Romania	1997-98	No
Brazil	2007	No	Jamaica	2001-02	No	Romania	2001-08	No
Brazil	2014	N.a.	Jamaica	2004-08	No	Russia	2007	Yes
Bulgaria	1992-93	No	Jamaica	2011	No	Serbia	2007-08	No
Bulgaria	2000-08	No	Jamaica	2014	N.a.	Serbia	2011	No
Chile	1980-81	Yes	Jordan	1988	Yes	Slovak Rep.	1996	Yes
Chile	1989-90	No	Jordan	1991-92	No	Slovak Rep.	1998-99	No
Chile	1992-97	No	Jordan	2005-11	No	Slovak Rep.	2002	No
Chile	2011	No	Jordan	2013	N.a.	Slovak Rep.	2004-05	No
China	1994	No	Kazakhstan	1996-97	Yes	Slovak Rep.	2007	No
China	2004	No	Kazakhstan	2001	No	South Africa	2006-07	No
China	2010	No	Kazakhstan	2003-04	No	South Africa	2009	No
Colombia	1996-97	Yes	Kazakhstan	2006	Yes	South Africa	2012	No
Colombia	2007	No	Korea	1980	No	Sri Lanka	1980	No
Colombia	2013-14	N.a.	Korea	2009	No	Sri Lanka	1982	No
Costa Rica	1995	No	Latvia	1995	Yes	Sri Lanka	1993-94	No
Costa Rica	1999	No	Latvia	1999	No	Sri Lanka	2009	No
Costa Rica	2002	No	Latvia	2001	No	Sri Lanka	2011-13	N.a.
Costa Rica	2005-08	No	Latvia	2004-07	Yes	Thailand	1981	Yes
Costa Rica	2011-14	N.a.	Lebanon	2003	No	Thailand	1988-96	Yes
Croatia	1996-97	Yes	Lebanon	2008-09	No	Thailand	2010	No
Croatia	1999	No	Lebanon	2014	N.a.	Tunisia	1981-82	No
Croatia	2001	No	Lithuania	1997-98	No	Tunisia	1984	No
Croatia	2003	No	Lithuania	2003	No	Tunisia	1993	No
Croatia	2006-07	No	Lithuania	2005-07	No	Tunisia	2006	No
Czech Rep.	1995-96	Yes	Macedonia	2002	No	Tunisia	2008-09	No
Czech Rep.	2000-02	No	Macedonia	2004-08	No	Tunisia	2012-14	N.a.
Czech Rep.	2004	No	Malaysia	1980-85	No	Turkey	2004-08	No
Dominican Rep	2000-01	Yes	Malaysia	1991-93	No	Turkey	2010-14	N.a.
Dominican Rep	2008	No	Malaysia	1995-96	Yes	Ukraine	2005	No
Dominican Rep	2010-11	No	Mexico	1981	Yes	Ukraine	2007	Yes
Dominican Rep	2013-14	N.a.	Mexico	1991-93	Yes	Ukraine	2012-13	N.a.
Ecuador	1990-92	No	Mexico	1997	No	Uruguay	1980	Yes
Ecuador	2002	No	Mexico	2013	N.a.	Uruguay	1982	Yes
Egypt	2005	No	Morocco	2013-14	N.a.	Uruguay	2005-08	No
El Salvador	1998	No	Pakistan	2006-07	No	Uruguay	2011-14	N.a.
El Salvador	2003	No	Panama	1997-99	No	Venezuela	1990	No
El Salvador	2006	No	Panama	2001	No	Vietnam	1996-97	Yes
El Salvador	2008	No	Panama	2005	No	Vietnam	2003	No
El Salvador	2012	No	Panama	2007-08	No	Vietnam	2007-09	No

Source: Authors' calculations.

Note: N.a.= if no information is available on whether the country had a crisis or not. Financial crisis are identified as a banking or currency crisis (as defined in Laeven and Valencia (2013)) within two years of the end of a surge episode.

**Table A.3 Variable definitions and data sources**

<b>Variables</b>	<b>Description</b>	<b>Source</b>
Bank foreign liabilities	In billions of USD	IMF's IFS database
Capital account openness	Index (high=liberalized; low=closed)	Chinn- Ito (2008) <sup>1</sup>
Commodity prices	Index	IMF's WEO database
Current account balance	In billions of USD	IMF's WEO database
Exchange rate regime	De facto (1=Fixed; 2=Intermediate; 3=Flexible)	Ghosh et al. (2015) <sup>2</sup>
External debt	In billions of USD	IMF's WEO database
Financial crisis	Binary variable equal to 1 for banking or currency crisis, zero otherwise	Laeven and Valencia (2013) <sup>3</sup>
Foreign exchange reserves	Stock (In billions of USD)	IMF's IFS database
GDP current/constant prices	In billions of USD (or LC)	IMF's WEO database
Institutional quality	Index (average of ICRG's 12 political risk components)	Political Risk Group
Net capital flows	Net financial flows excluding financing items and other investment liabilities of general government (In USD bln.), i.e., the difference between IFS series codes “.4995W.9” and “.4753ZB9” (in terms of BPM5 presentation)	IMF's IFS database
Money market rate	In percent	IMF's IFS database
Private sector credit	In billions of LC	IMF's IFS database
Real Effective Exchange Rate	Index	INS database
Output gap	Log difference between real GDP and real GDP trend (obtained from HP filter)	Authors' calculations
Overvaluation	Log difference between REER and REER trend (obtained from HP filter)	Authors' calculations
Real GDP per capita	In USD	IMF's WEO database
Real interest rate	$[(1+\text{nominal interest rate})/(1+\text{expected inflation})]-1$ , where expected inflation is one- period ahead inflation	Authors' calculations
S&P 500 index returns volatility	Annual average of twelve- month rolling standard deviation of S&P 500 index annual returns	Authors' calculations based on data from Bloomberg.
Surge	Net capital flow/GDP (as defined above) for a country lies in the top 30th percentile of the country- specific and full sample's distribution of net capital flows/GDP	Authors' calculations based on data from IMF's IFS database
U.S. 3- month Treasury Bill rate	In percent	IMF's WEO and Bloomberg

<sup>1</sup> Chinn, M., and H. Ito, 2008, "A New Measure of Financial Openness," *Journal of Comparative Policy Analysis* 10 (3): 309-322.

<sup>2</sup> Ghosh, A., J. Ostry, and M. Qureshi, 2015, "Exchange Rate Management and Crisis Susceptibility: A Reassessment," *IMF Economic Review* 63 (1): 238-276.

<sup>3</sup> Laeven, L., and F. Valencia, 2013, "Systemic Banking Crises Database," *IMF Economic Review* 61(2): 225–270.