

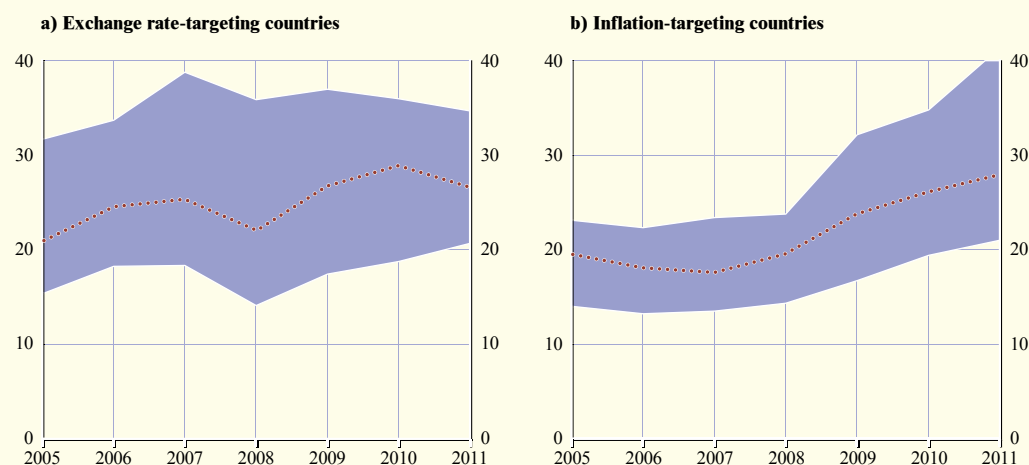
Box 2

**RECENT DEVELOPMENTS IN INTERNATIONAL RESERVE HOLDINGS OF CENTRAL AND EASTERN EUROPEAN NON-EURO AREA EU COUNTRIES**

In recent years, several central and eastern European non-euro area EU countries (hereafter: CEE countries) have stepped up their accumulation of international reserves for precautionary purposes. The experience of the 2008-09 global financial crisis demonstrated the importance of international reserve buffers as an insurance against current and capital account shocks. While international reserve holdings not only provide important benefits, they also entail

**Chart A International reserves as a share of GDP in CEE countries**

(percentages)



Sources: Eurostat, national data and ECB staff estimates.

Notes: Official reserve assets from balance of payments statistics in national currency as a ratio of GDP. A similar pattern is observed using official reserve assets in EUR over GDP in EUR. The lines represent unweighted averages, while the shaded areas indicate the range between the minimum and maximum values observed. The exchange rate-targeting countries are Bulgaria, Latvia and Lithuania; the inflation-targeting countries are the Czech Republic, Hungary, Poland and Romania.

significant opportunity costs. Against this backdrop, this box discusses the evolution, drivers and adequacy of international reserves in the CEE countries.

### Recent trends

The accumulation of international reserves in the CEE countries since the late 1990s was only briefly interrupted by the 2008-09 global financial crisis. All CEE countries experienced a decline in reserves in at least one quarter between March 2008 and June 2009, with the size of the loss from peak to trough over the same period ranging from -0.3% (in Poland) to -7.7% of GDP (in Bulgaria). In subsequent years, the CEE countries rebuilt their reserve buffers, in some cases bringing them significantly above pre-crisis levels (Chart A). Some countries also entered into multilateral financial assistance arrangements, not least with a view to strengthening the confidence of markets in their capacity to endure future shocks. One interesting feature has been the increase in the international reserves of inflation-targeting CEE countries, which has brought their average holdings closer to those of their exchange rate-targeting peers.

### Underlying factors

International reserves<sup>1</sup> can be accumulated for precautionary reasons as a buffer against external shocks, as well as in the pursuit of exchange rate or monetary policy objectives or for structural reasons (e.g. inter-generational savings from non-renewable resources). Regardless of

<sup>1</sup> According to the IMF's definition, international reserves are "...those external assets that are readily available to and controlled by monetary authorities for meeting balance of payments financing needs, for intervention in exchange markets to affect the currency exchange rate, and for other related purposes (such as maintaining confidence in the currency and the economy and serving as a basis for foreign borrowing)". See *Balance of Payments and International Investment Position Manual*, sixth edition, IMF, Washington, DC, 2009 (available on the IMF's website at <http://www.imf.org>).

the original motives for amassing reserves, there is evidence that higher international reserve holdings can help shield consumption in periods of foreign exchange market pressure<sup>2</sup> through: (1) their outright use to counteract a foreign currency liquidity squeeze and to finance imports; (2) the defence of an exchange rate peg or the prevention of a disorderly depreciation to contain the negative wealth effects on spending stemming from private sector balance sheet exposure to foreign exchange risk; and (3) the pre-emption of a deterioration in investor confidence in the creditworthiness of the economy.

In the case of the CEE countries, the temporary dip in international reserves in 2008-09 can be attributed to the severe disruptions in international trade and cross-border financial flows brought about by the global financial crisis. The subsequent build-up of international reserves is likely to reflect a reassessment by both central banks and financial markets of the capacity needed by all economies – including those which can rely on the exchange rate as a partial shock absorber – to withstand future shocks of a similar magnitude. This has led to a proportionately larger increase in the reserves of inflation-targeting countries, as their exchange rate-targeting peers have already been holding reserves to support their exchange rate pegs.<sup>3</sup> As international reserve holdings entail opportunity costs and are subject to diminishing returns with respect to the benefits they bring, the question of their appropriate level is an important one for policy-makers.

### Reserve adequacy

From a precautionary standpoint, the adequacy of international reserves can be judged against a set of benchmarks calibrated by the collective experience of countries in past crises or modelled on the basis of a cost-benefit analysis. The most well-known reserve adequacy metrics call for coverage by international reserves of at least: (1) three months of imports; (2) 100% of short-term debt at remaining maturity (known as the Greenspan-Guidotti rule<sup>4</sup>); (3) the expanded Greenspan-Guidotti rule, which also includes the current account balance; and (4) 20% of broad money (M2). The IMF has recently proposed a fifth metric, which would involve benchmarking international reserves against a “risk-weighted liability stock” that should capture all potential drains on reserves, weighted by the likelihood of their occurrence, derived from a tail-event analysis of past periods of foreign exchange market pressure.<sup>5</sup> In the IMF approach, potential drains are proxied by short-term debt at remaining maturity, M2, exports and “other external liabilities”, which are defined as portfolio external liability stock plus other external investment liability stock minus short-term debt at remaining maturity. Different weights are used for floating and fixed exchange rate regimes, reflecting the heightened vulnerability to speculative attacks of the latter. The proposed coverage of the risk-weighted metric by international reserves is between 100% and 150%, with appropriate adjustments to reflect country circumstances. Finally, it should be noted that one of the most widely used models of optimal reserve holdings<sup>6</sup>, when applied to

2 See *Assessing Reserve Adequacy*, staff paper, IMF, Washington, DC, February 2011, p.10 (available on the IMF’s website at <http://www.imf.org>).

3 The reserve accumulation in inflation-targeting CEE countries does not appear to have been driven by policies aimed at keeping their currencies undervalued to gain a competitive advantage (see the latest IMF Article IV country reports, available on the IMF’s website at [www.imf.org](http://www.imf.org)).

4 See Guidotti, P., remarks at G33 seminar in Bonn, Germany, 11 March 1999; Greenspan, A., *Currency reserves and debt*, remarks before the World Bank Conference on Recent Trends in Reserves Management, Washington, DC, 29 April 1999 (available at <http://www.federalreserve.gov>).

5 See *Assessing Reserve Adequacy*, staff paper, IMF, Washington, DC, February 2011, pp. 24-27 (available on the IMF’s website at <http://www.imf.org>).

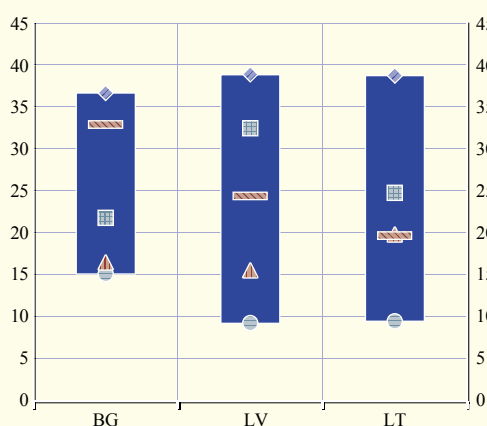
6 See Jeanne, O. and Rancière, R., “The Optimal Level of International Reserves For Emerging Market Countries: A New Formula and Some Applications”, *CEPR Discussion Papers*, No 6723, February 2008.

## Chart B Reserve adequacy indicators for CEE countries

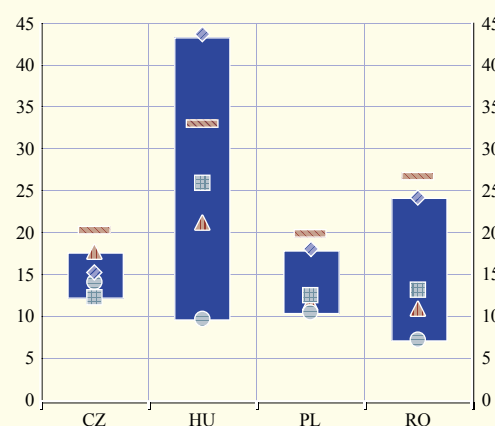
(as a percentage of GDP in 2011)



a) Exchange rate-targeting countries



b) Inflation-targeting countries



Sources: IMF country reports, IMF Special Data Dissemination Standard, Eurostat, national data and ECB staff estimates.

Notes: Data on international reserves are as at end-April 2012 and are taken from data on official reserve assets, as reported in the data template on international reserves and foreign currency liquidity under the Special Data Dissemination Standard. All other variables are for 2011 or the latest available year. Data on short-term debt at residual maturity are sourced from IMF country reports, available on the IMF's website at <http://www.imf.org>.

the CEE countries with baseline calibration assumptions, produces results that are very close to the traditional metric of 100% of short-term debt.

Chart B presents the relative standings of the international reserve holdings of the CEE countries against a set of reserve adequacy metrics. All CEE countries meet or exceed at least two of the considered benchmarks. Moreover, all inflation-targeting CEE countries and Bulgaria satisfy the lower bound of the IMF's risk-weighted reserve adequacy metric. The ability of the Baltic CEE countries to maintain lower international reserves relative to their peers, as captured by the IMF's risk-weighted adequacy metric, could be due to country-specific factors or could imply that the analysis of central banks and financial markets of the vulnerabilities of these economies, based on an assessment of their internal and external imbalances and the strength of corrective policies, results in different estimates of the likelihood of tail events from those implied by the IMF's risk-weighted adequacy metric.

Thus, overall, all CEE countries currently display levels of international reserves which are in line with several standard reserve adequacy measures. At the same time, while adequate international reserve holdings and contingent safety nets can help reduce external pressures, they are by no means a substitute for sound macroeconomic and prudential policies.