National Bank of Romania

Disentangling the factors behind the external adjustment in the New Member States during the crisis

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Motivation

- The financial crisis has rekindled the interest in the analysis of the **external imbalances adjustment.** Both the current account balance and measures of relative prices receive much attention from policymakers …

  - … these indicators are monitored in **The Scoreboard** designed by the European Commission to detect macroeconomic imbalances

  ⬇

- **Key questions**

  - What lies behind the different patterns of external imbalance reduction in the New Member States (NMS) during the crisis? Possible policy insights: understanding the drivers of import demand is crucial when addressing large external deficits

  - Is exchange rate flexibility as a shock absorber overrated or are other factors more important to macroeconomic adjustment?

Introduction [1]

◈ This study focuses on the case of the NMS*, which confirms that **the impact of the crisis** was more severely felt in those countries with the widest pre-crisis external imbalances (Lane and Milesi-Ferretti, 2011) and led to a more painful adjustment (Medaiskyte and Klyviene, 2012)

◈ NMS is a heterogeneous group with respect to the magnitude of external imbalances and their adjustment:

    ◈ Group 1: LV, LT, EE, BG and RO underwent a sharper contraction of the current account deficit during the crisis

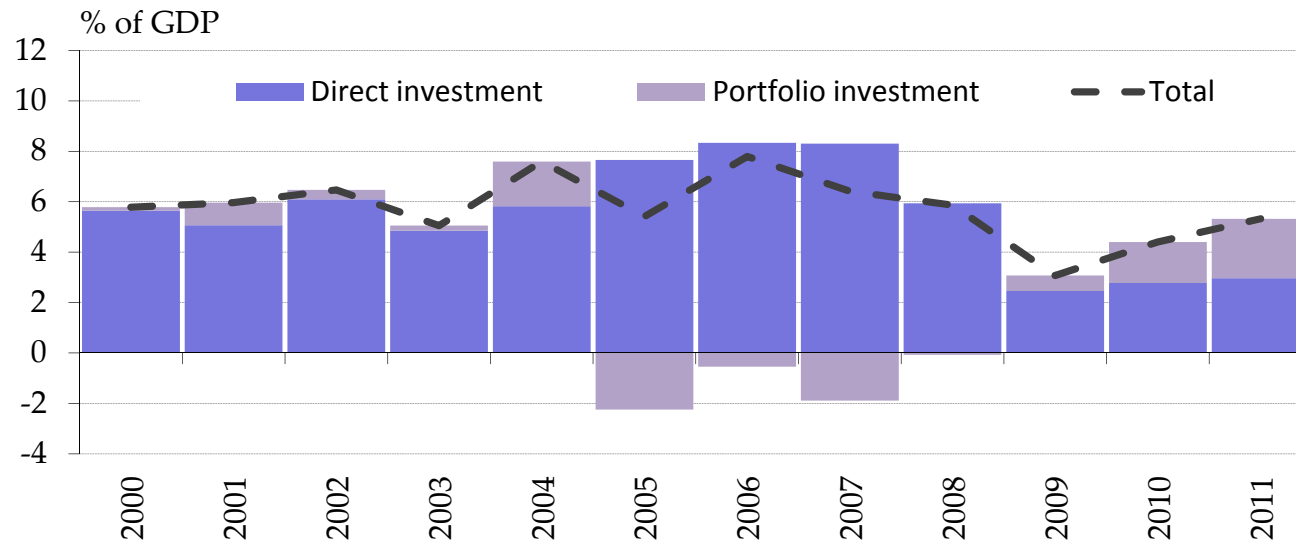   ◈ Group 2: CZ, PL, HU, SI and SK registered a smaller decline in the current account deficit

*excluding Malta and Cyprus

Introduction [2]

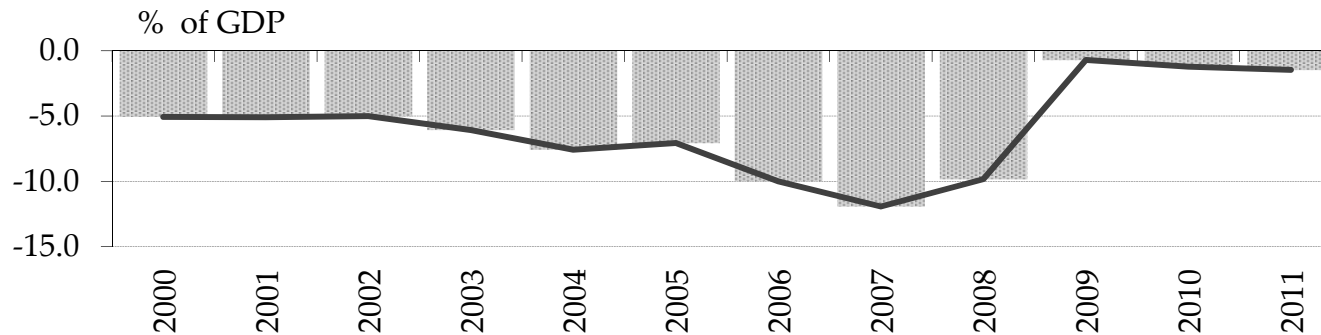- On average, the compression of the CA deficit occurred in **2008 and 2009**

- The current account was favourably influenced in all cases by the **decline in imports** (IMF WEO Oct. 2010); a comparable export contraction offset this influence for countries in Group2

- We estimate country-specific **import demand ECMs** and we conduct **counterfactual simulations** in order to disentangle the contribution stemming from each independent variable to import dynamics during 2008 – 2009

- The main results show that, on average, for Group1, depressed **domestic demand** accounted for most of the adjustment, while for Group2, **external demand** (feeding through exports) played the major role in import contraction

- **REERs** were statistically significant for floaters, but had a modest contribution to external adjustment, with the exception of RO. The **volatility of REER** seems to have played a role, albeit minor, in most cases

Capital inflow constraints can be a strong mechanism behind the current account adjustment

Average foreign investment in NMS

% of GDP

Legend: Direct investment — Portfolio investment — Total

(Bar chart showing values in % of GDP from 2000 to 2011, y-axis from -4 to 12)

Average current account deficit in NMS

% of GDP

(Chart showing values from 0.0 to -15.0, years 2000 to 2011)

Source: Eurostat

The contribution of financing sources to the current account deficit reduction in 2008-2009

% of GDP, 2009 vs. 2007

Legend:
- ■ Direct investment
- ▨ Other investment
- ■ Capital account
- — current account balance
- ▨ Portfolio investment
- ▨ Official reserve assets
- ▨ Net errors and omissions
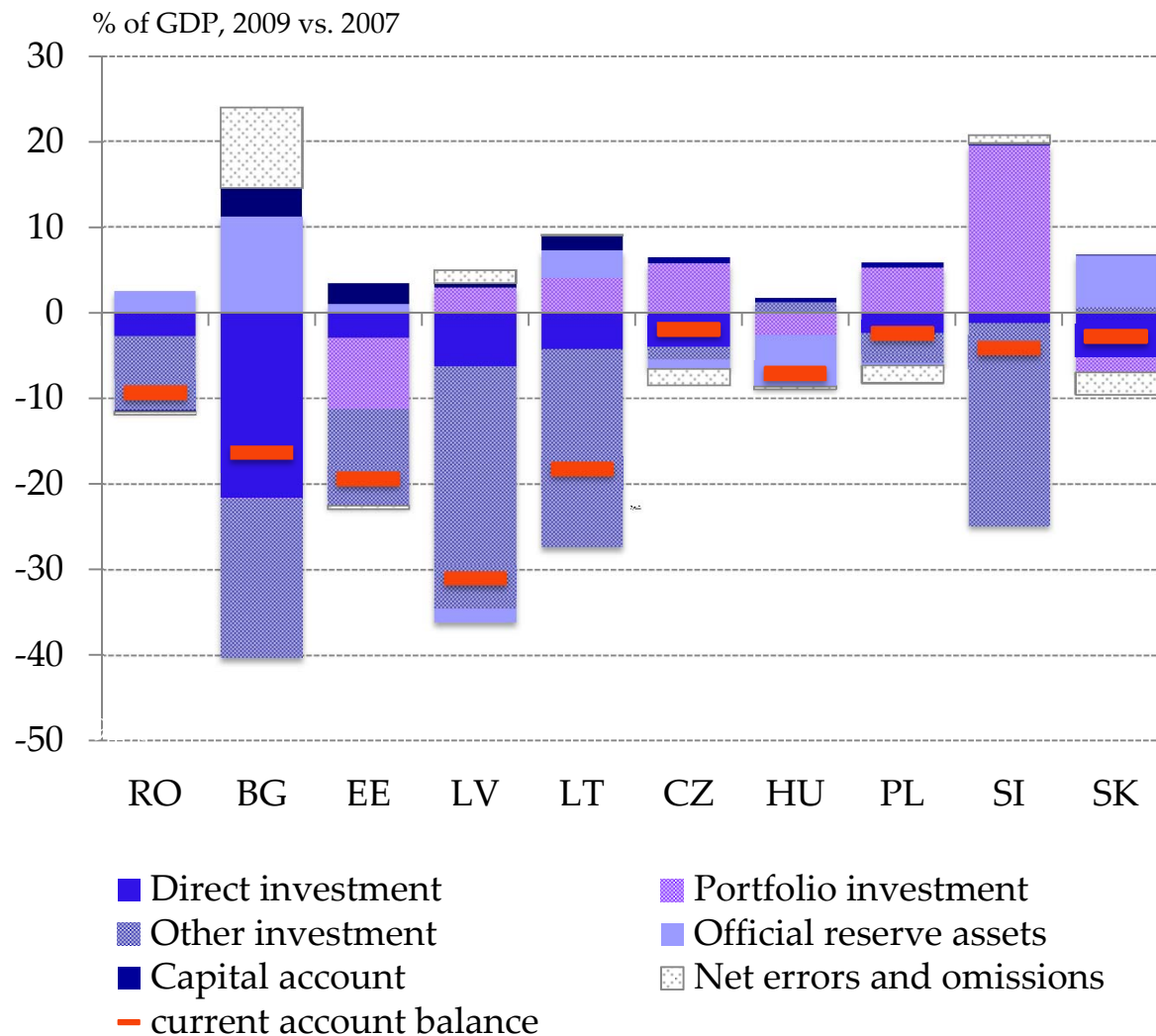
◆ Generally, the contraction of "**other investments**" played the most important role in the adjustment process

◆ In the absence of the **support from the IMF** and other IFIs, the contraction under "other investment" would have been much sharper in LV, RO and HU.

Source: Eurostat, authors' calculations

The economic context after 2007 triggered a process of external deficit adjustment [1]

◈ The more pronounced the pre-crisis external imbalance, the more severe the adjustment (note the situation in the Baltic States, Bulgaria and, to a lesser extent, Romania)
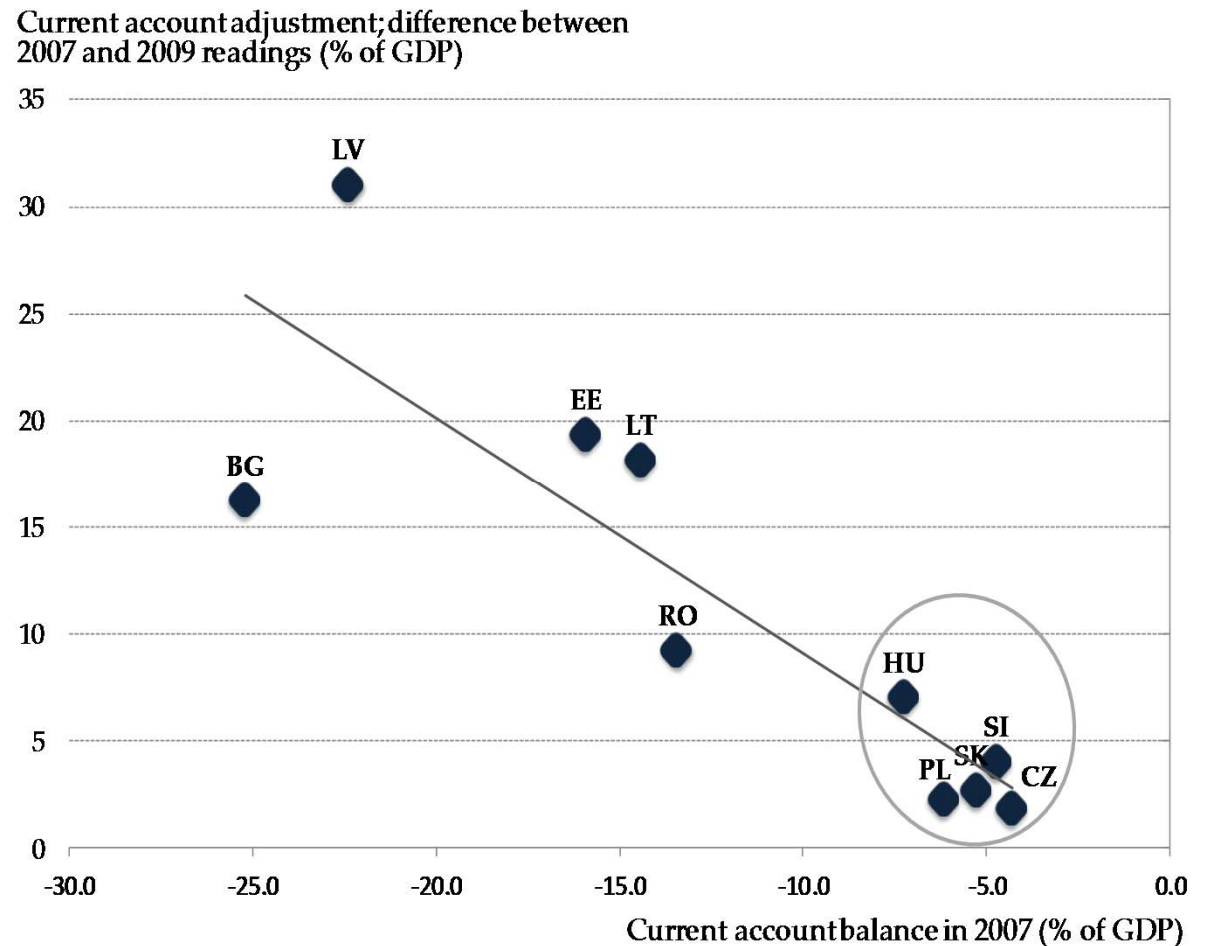
Current account adjustment; difference between 2007 and 2009 readings (% of GDP)

Source: Eurostat, authors' calculations

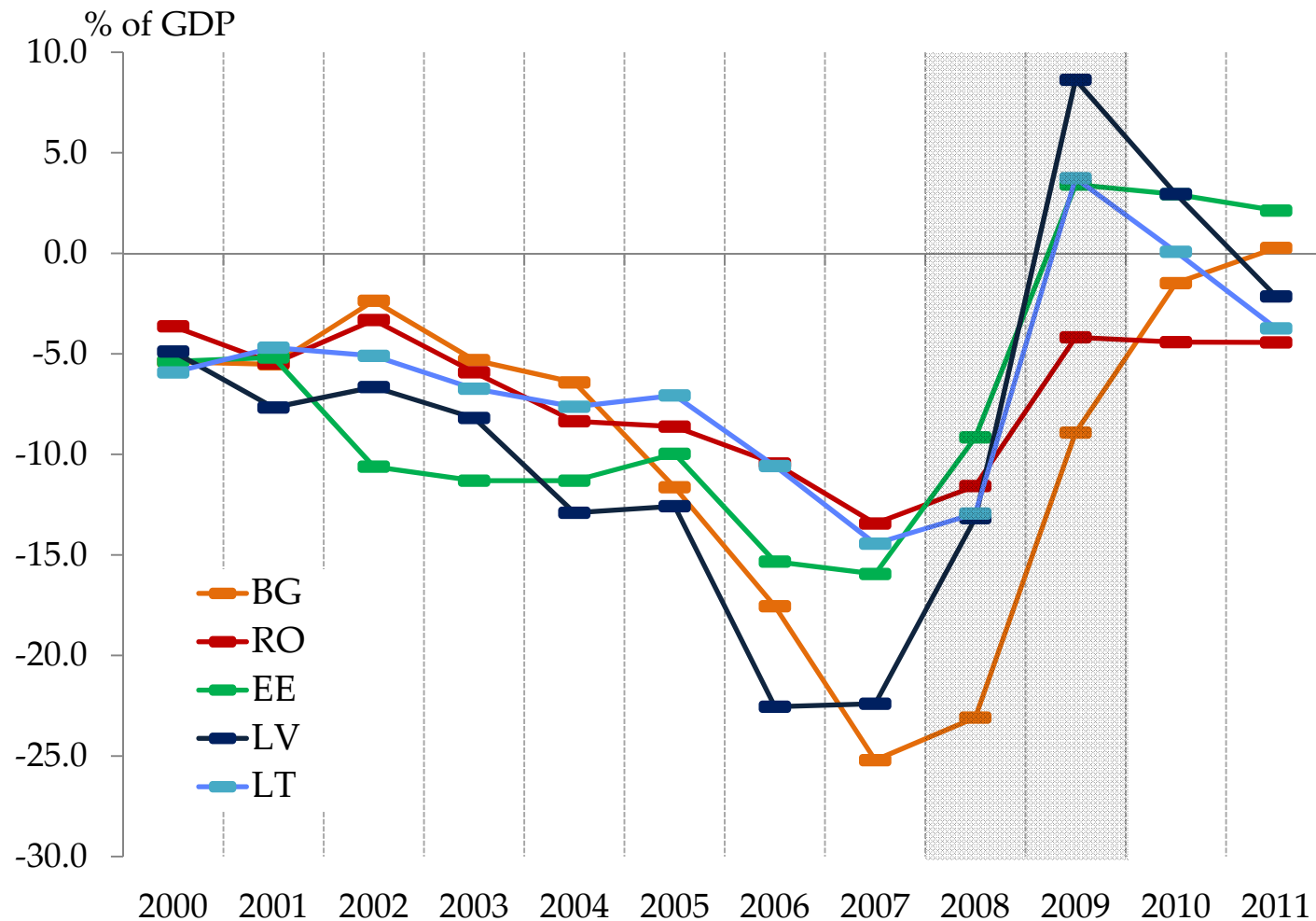# The economic context after 2007 triggered a process of external deficit adjustment [2]

◈ The credit boom was accompanied by the accumulation of current account deficits

Current account adjustment; difference between 2007 and 2009 readings (% of GDP)

Private loan stock, cumulated growth Jan.2006–Sept.2008 (%)
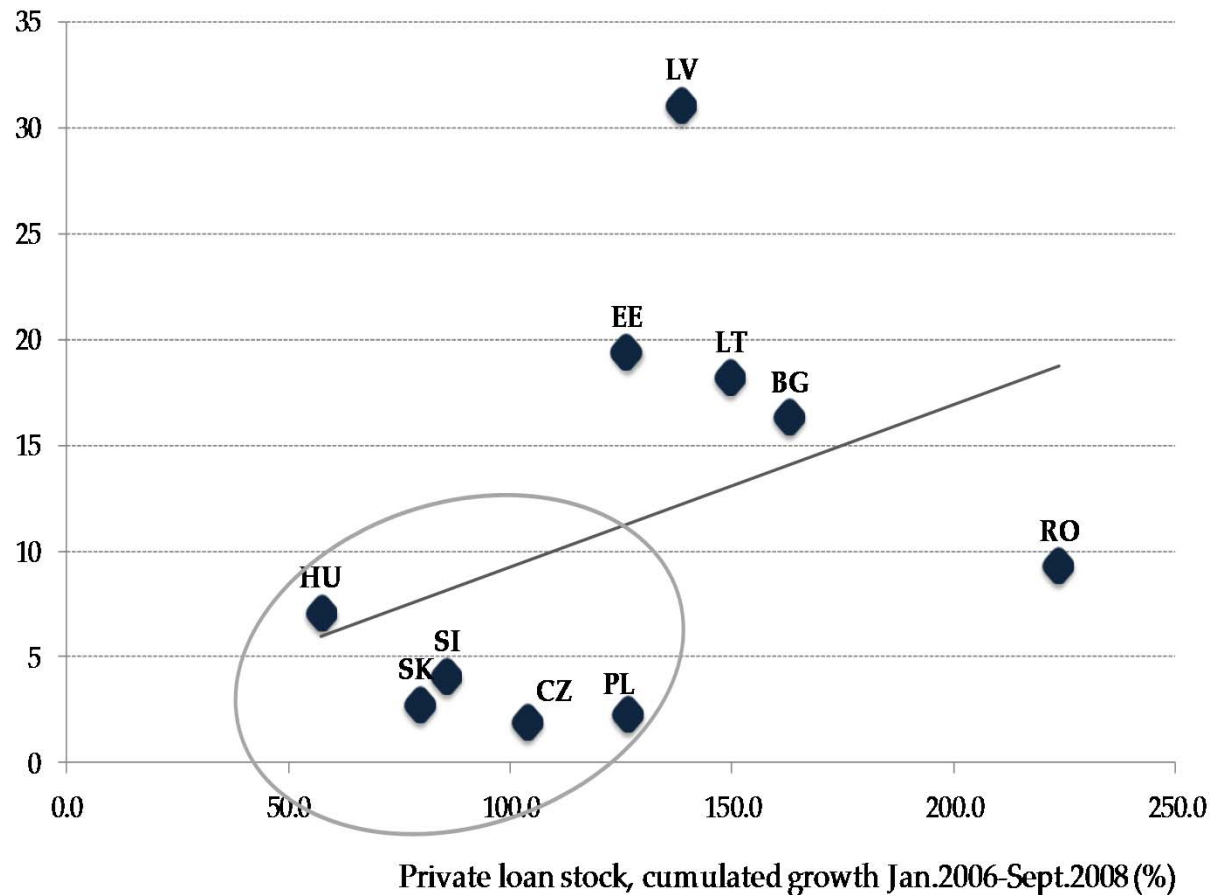
Source: Eurostat, authors' calculations

Countries in Group1 exhibited a current account adjustment in 2008 - 2009

% of GDP

Legend: BG, RO, EE, LV, LT

X-axis: 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011

Y-axis: 10.0, 5.0, 0.0, -5.0, -10.0, -15.0, -20.0, -25.0, -30.0

Source: Eurostat

The reduction of the current account deficit was much smaller in countries in Group2

% of GDP
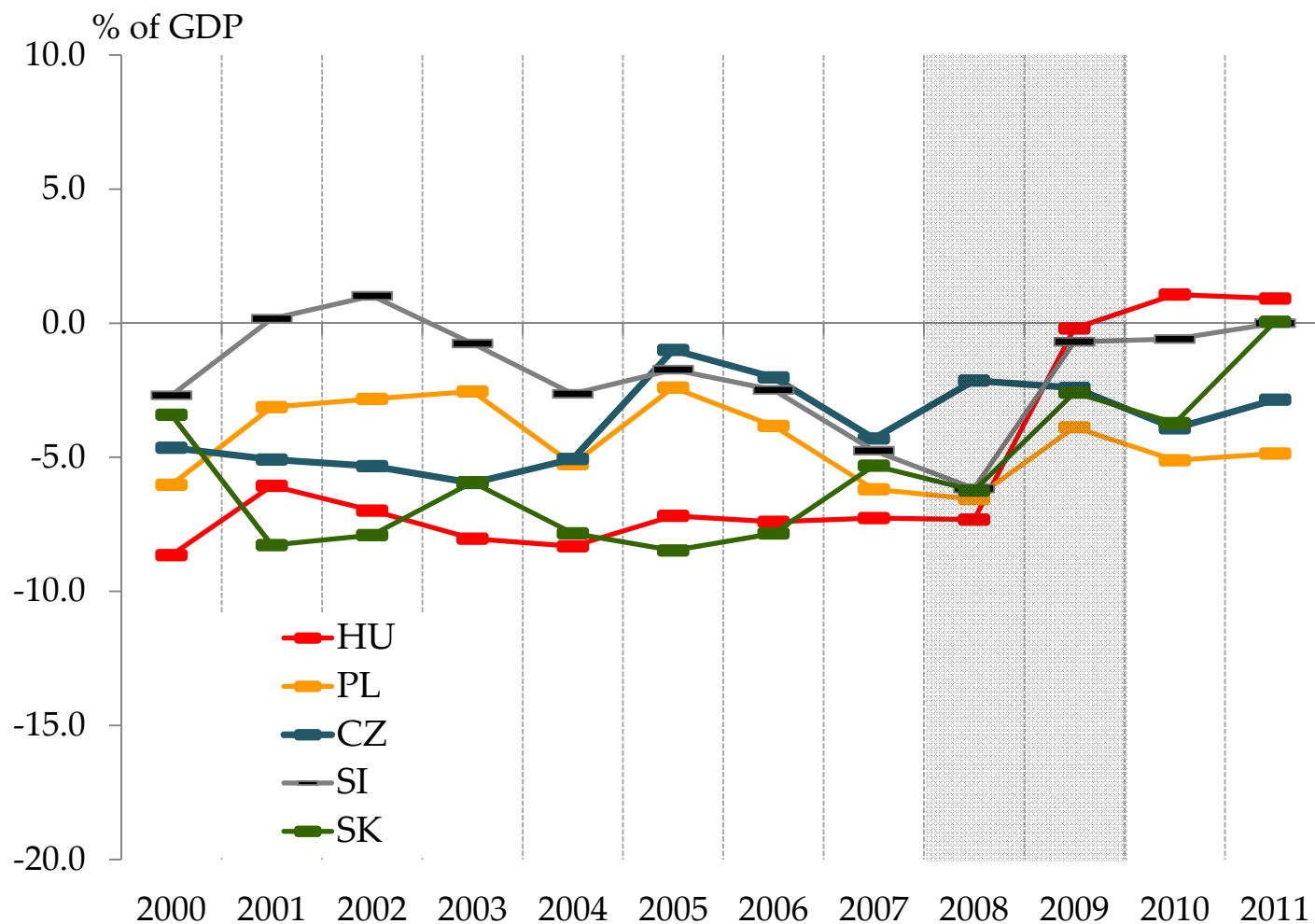
Source: Eurostat

The contribution of the current account components to deficit reduction in 2008-2009

% of GDP, 2009 vs. 2007

Legend:
- balance of goods
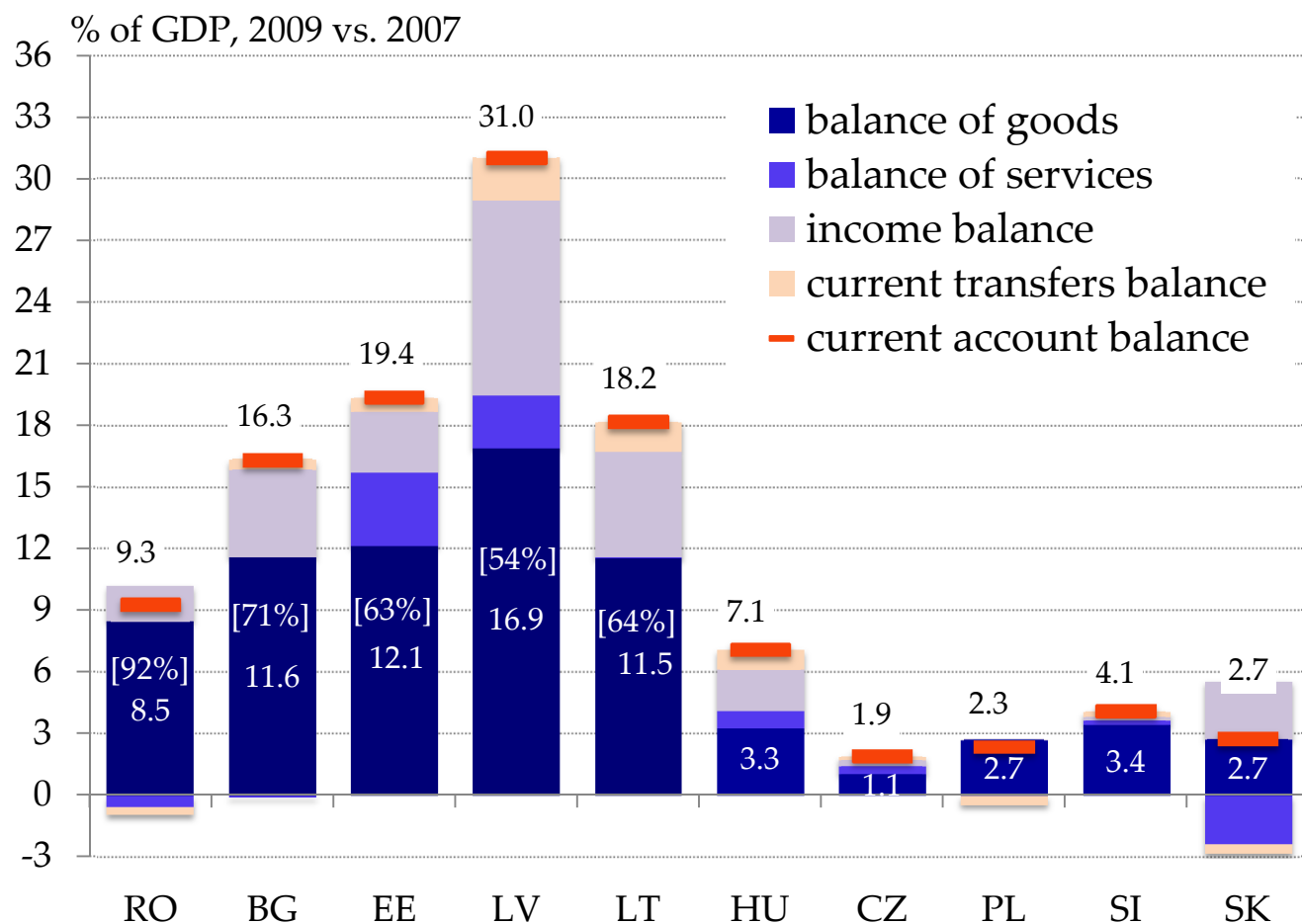- balance of services
- income balance
- current transfers balance
- current account balance

Chart values:
- RO: 9.3, [92%] 8.5
- BG: 16.3, [71%] 11.6
- EE: 19.4, [63%] 12.1
- LV: 31.0, [54%] 16.9
- LT: 18.2, [64%] 11.5
- HU: 7.1, 3.3
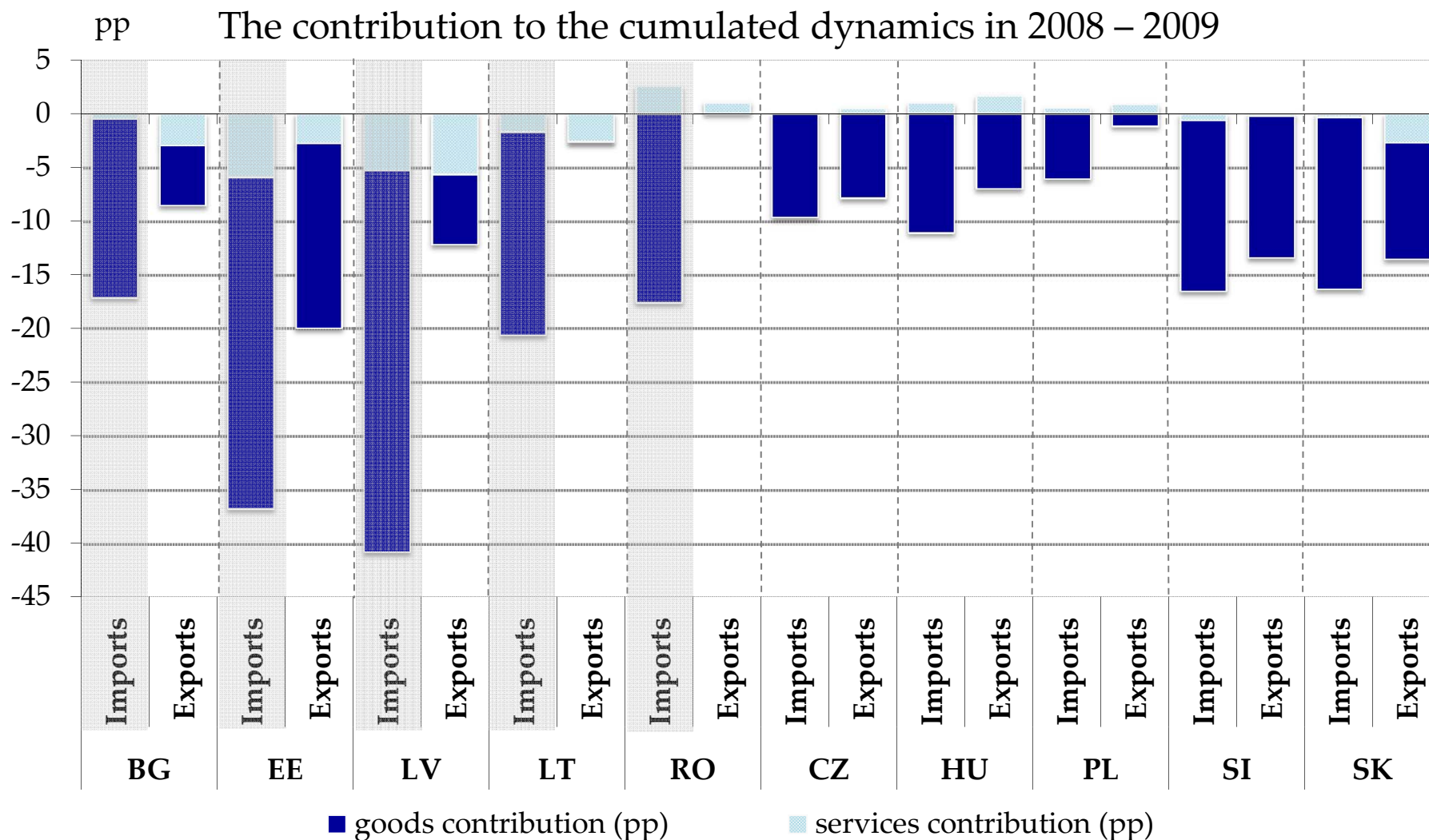- CZ: 1.9, 1.1
- PL: 2.3, 2.7
- SI: 4.1, 3.4
- SK: 2.7, 2.7

- ◆ Trade **balance of goods** had the most important contribution to the current account adjustment

- ◆ In the Baltic States, most of the contribution of the income balance can be associated with the losses incurred by foreign-owned companies

Source: Eurostat, authors' calculations

*Computed as the difference between current account balance (as share of GDP) at the end of the adjustment period and 2007
*[x%] percentage contribution of the trade balance of goods adjustment to the current account correction

The fall in imports of goods is the main factor behind large adjustments

The contribution to the cumulated dynamics in 2008 – 2009

Legend: goods contribution (pp) ■ (dark blue), services contribution (pp) ■ (light blue)

Countries: BG, EE, LV, LT, RO, CZ, HU, PL, SI, SK (Imports / Exports)

Source: Eurostat, authors' calculations

The domestic demand contraction was significantly more pronounced in the Baltic States

Domestic demand

Volume index (2007Q4=100)

Legend: RO, BG, EE, LV, LT

Exports of goods

Volume index (2007Q4=100)
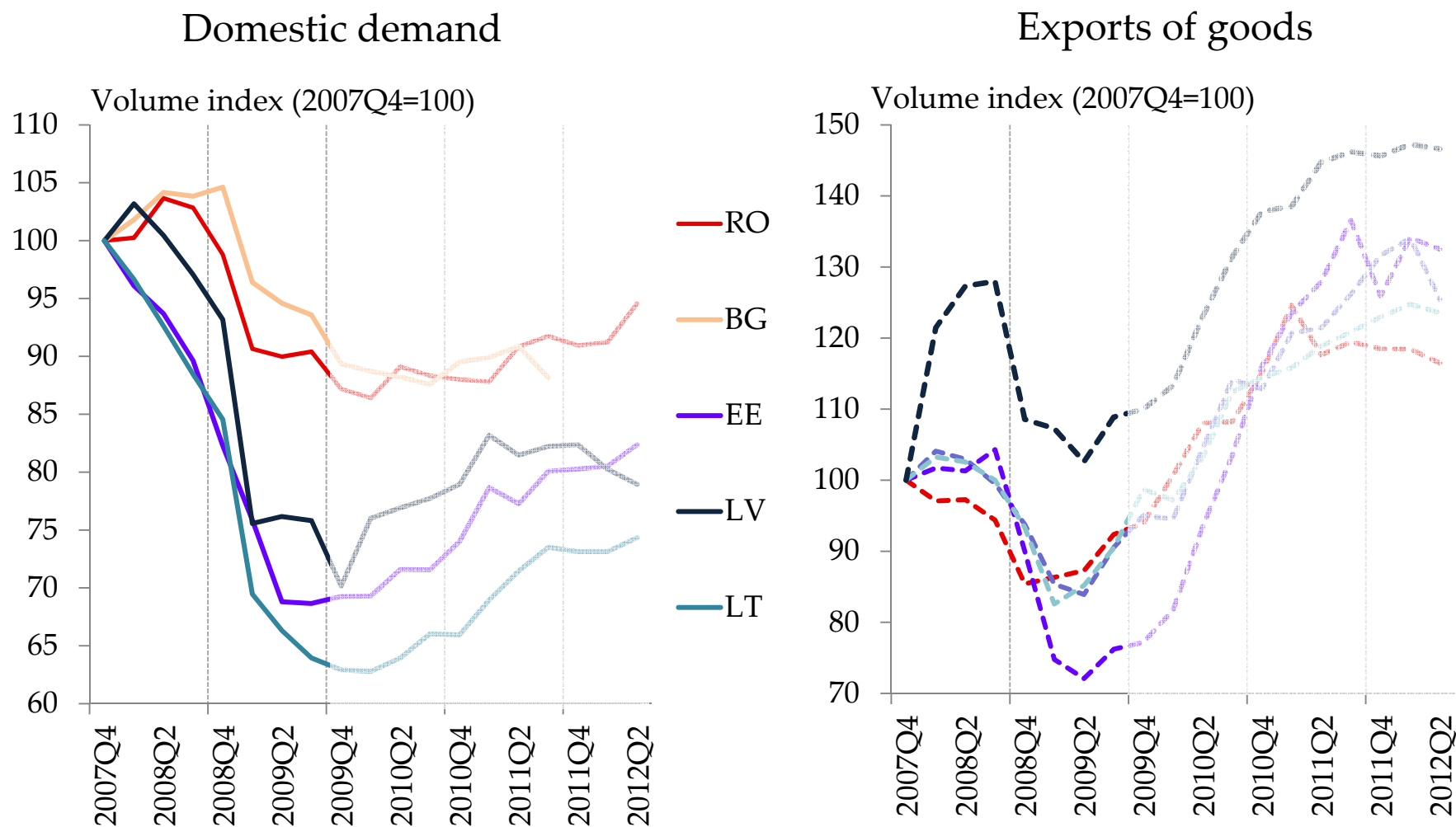
Source: Eurostat, authors' calculations

In Group2, Poland witnessed an atypical evolution of the domestic demand

Domestic demand

Volume index (2007Q4=100)

Exports of goods

Volume index (2007Q4=100)

Legend: CZ, HU, PL, SI, SK
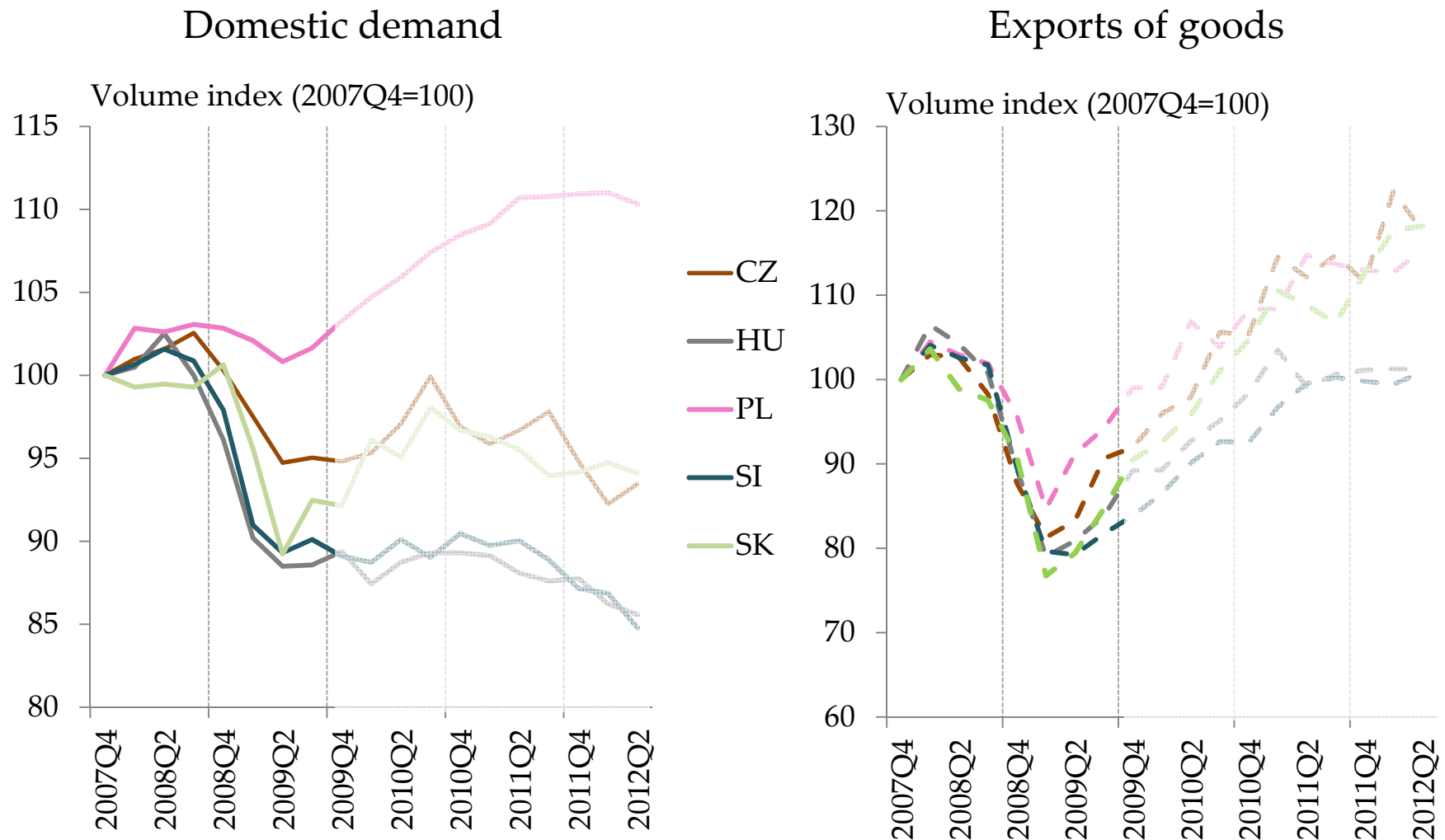
Source: Eurostat, authors' calculations

Methodology

- Country-specific import demand ECMs to account for different patterns of adjustment

- Estimation method for the cointegrating vector: DOLS (Stock and Watson, 1993), as in Reininger (2008)

- Explanatory variables for the volume of imports of goods (IMP):

    - Domestic demand (DD)

    - Relative prices (REER)

        - various proxies : *REER* based on CPI, HICP, ULC, ULCM and GDP deflator, Imports deflator/Domestic demand deflator, Import value index/Domestic demand deflator*

    - Exports of goods (EXP)

    - Stock of FDI *(was not found statistically significant, but proxied by a trend variable in the long term equation)*

- Sample: 2000Q1:2012Q2 (sample ending in 2011Q3 for BG)

*REER deflated by CPI: computed by the Bank of International Settlements, broad indices
REER deflated by HICP, ULC, ULCM, GDP deflator: computed by the European Commission (IC36)
The estimation results are reported only for equations including REER_CPI computed by BIS

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Cointegration tests validate the existence of a long-term relationship between variables

Country	Specification	Engle-Granger		Philips-Ouliaris	
		tau-statistic	z-statistic	tau-statistic	z-statistic
BG	LOG(IMP_B) LOG(DD) LOG(EXP_B) VOL3Y_REER_CPI C @TREND @TREND^2	-8.16***	-51.49***	-8.20***	-50.74***
EE	LOG(IMP_B) LOG(DD) LOG(EXP_B) VOL1Y_REER_CPI C @TREND	-4.56*	-37.32***	-7.82***	-55.06***
LV	LOG(IMP_B) LOG(DD) LOG(EXP_B) VOL1YREER_CPI C @TREND @TREND^2	-5.40**	-38.05**	-5.43**	-38.80**
LT	LOG(IMP_B) LOG(DD) LOG(EXP_B) VOL3Y_REER_CPI C	-4.97**	-33.42***	-4.93**	-32.08**
RO	LOG(IMP_B) LOG(DD) LOG(EXP_B) LOG(REER_CPI) VOL1YREER_CPI C @TREND @TREND^2	-5.23*	-33.47	-5.16*	-30.18
CZ	LOG(IMP) LOG(DD) LOG(EXP) LOG(REER_CPI) VOL1Y_REER_CPI C @TREND @TREND^2	-6.01**	-37.96**	-6.01**	-37.20**
HU	LOG(IMP) LOG(DD) LOG(EXP) LOG (REER_CPI) VOL1YREER_CPI C @TREND @TREND^2	-6.42***	-41.35**	-6.43***	-40.42**
PL	LOG(IMP) LOG(DD) LOG(EXP) LOG(REER_CPI) C @TREND	-6.84***	-47.94***	-6.86***	44.24***
SI	LOG(IMP_B) LOG(DD) LOG(EXP_B) VOL1YREER_ULC C @TREND @TREND^2	-5.68**	-38.57**	-5.66**	-37.40**
SK	LOG(IMP_B) LOG(DD) LOG(EXP_B) VOL1YREER_CPI C @TREND	-4.94**	-33.15**	-4.92**	-32.67**

* indicates rejection of the null hypothesis at a 10% significance level

** indicates rejection of the null hypothesis at a 5% significance level

*** indicates rejection of the null hypothesis at a 1% significance level

The sensitivity of imports to REER is much lower than that to demand factors [1]

Long-term elasticities

	BG	EE	LV	LT	RO
Domestic demand	1.22	0.69	1.16	0.75	1.23
Exports of goods	0.34	0.72	0.21	0.53	0.89
REER	-	-	-	-	0.62
Volatility of REER	-0.02	-0.02	-0.02	-0.01	-0.02

Short-term elasticities

	BG	EE	LV	LT	RO
Domestic demand	1.47	0.52	1.06	0.91	0.80
Domestic demand (-1)	-	-		-	-
Exports of goods	0.43	0.37	0.20	0.44	0.72
Exports of goods (-1)	-	0.22	0.19	0.16	-
REER	-	-	-	-	0.44
REER(-1)			-		-
Volatility of REER	-0.03	-	-	-	-
Speed of adjustment	-1.35	-0.58	-0.75	-0.75	-0.69
Half-time back to equilibrium (months)	2.1	4.8	3.7	3.7	4.0
Adjusted R^2	0.86	0.90	0.89	0.83	0.76

The sensitivity of imports to REER is much lower than that to demand factors [2]

Long-term elasticities

	CZ	HU	PL	SI	SK
Domestic demand	0.65	0.77	1.60	0.84	0.57
Exports of goods	0.49	0.72	0.55	0.71	0.88
REER	0.34	0.15	0.10	-	-
Volatility of REER	-0.02	-0.007	-	-0.03	-0.02

Short-term elasticities

	CZ	HU	PL	SI	SK
Domestic demand	0.98	0.54	2.04	1.16	0.61
Domestic demand (-1)	-	-	-	-	-
Exports of goods	0.86	0.71	0.20	0.57	0.59
Exports of goods (-1)	-	-	-	-	0.19
REER	-	0.16	0.19	-	-
REER(-1)	-	-	0.12	-	-
Volatility of REER	-	-	-	-	-0.01
Speed of adjustment	-0.70	-1.11	-0.95	-0.55	-0.81
Half-time back to equilibrium (months)	4.0	2.5	2.9	5.0	3.4
Adjusted R^2	0.90	0.85	0.71	0.93	0.84

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Contributions to import contraction based on counterfactual simulations of the ECMs [1]

BULGARIA

%, 2007Q4=100

ESTONIA

%, 2007Q4=100

Legend: DD — EXP — VOL — OTHER — IMP

Contributions to import contraction based on counterfactual simulations of the ECMs [2]

LATVIA

LITHUANIA

%, 2007Q4=100

Legend: DD, EXP, OTHER, VOL1Y, IMP

Contributions to import contraction based on counterfactual simulations of the ECMs [3]

ROMANIA — %, 2007Q4=100

HUNGARY — %, 2007Q4=100

Legend: DD, EXP, REER, VOL1Y, OTHER, IMP

Contributions to import contraction based on counterfactual simulations of the ECMs [4]

CZECH REPUBLIC

%, 2007Q4=100

POLAND

%, 2007Q4=100

Legend: DD, EXP, OTHER, REER, VOL1Y, IMP

Contributions to import contraction based on counterfactual simulations of the ECMs [5]

SLOVENIA

%, 2007Q4=100

SLOVAKIA

%, 2007Q4=100

Legend: DD, EXP, VOL1Y, OTHER, IMP
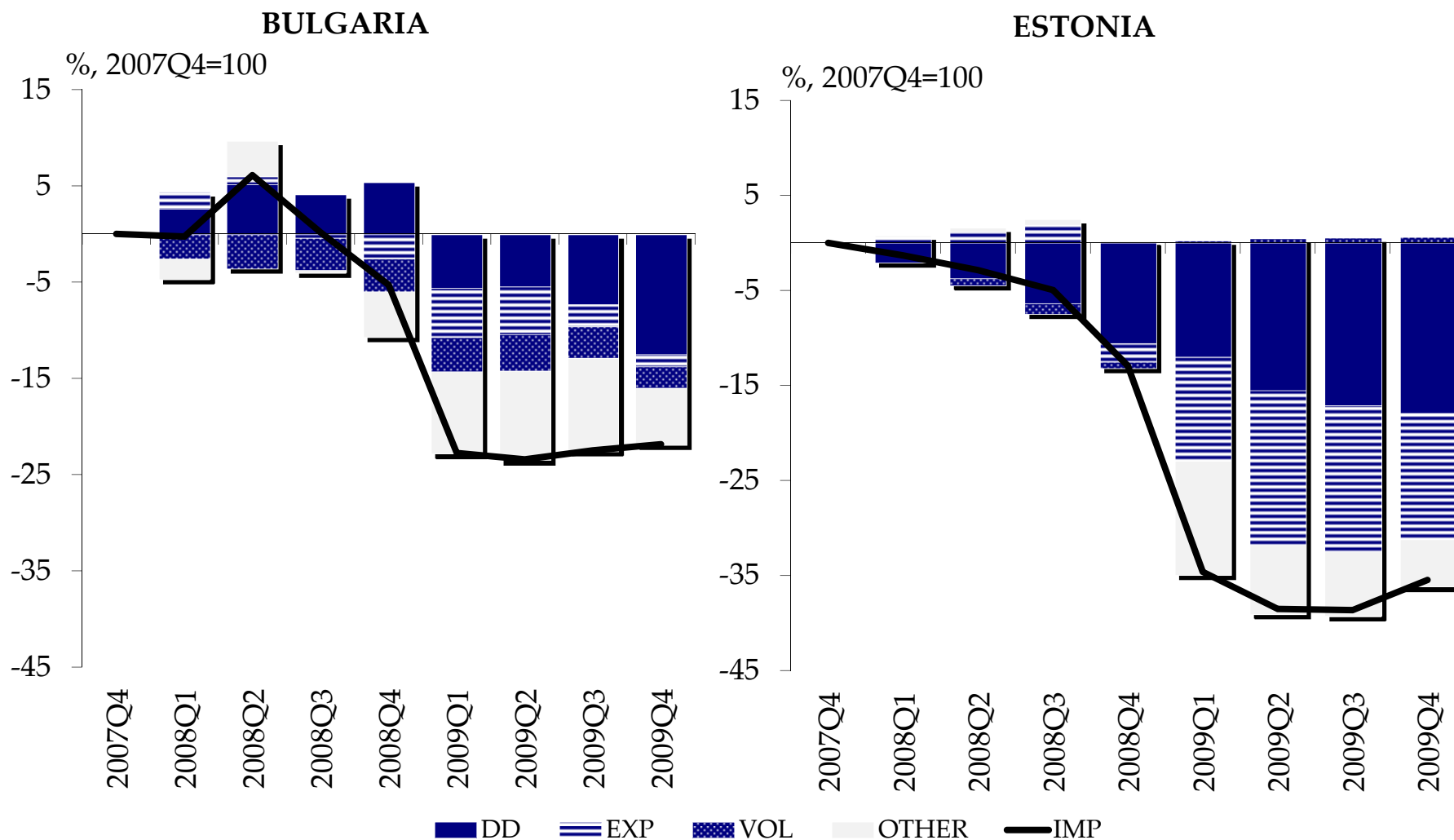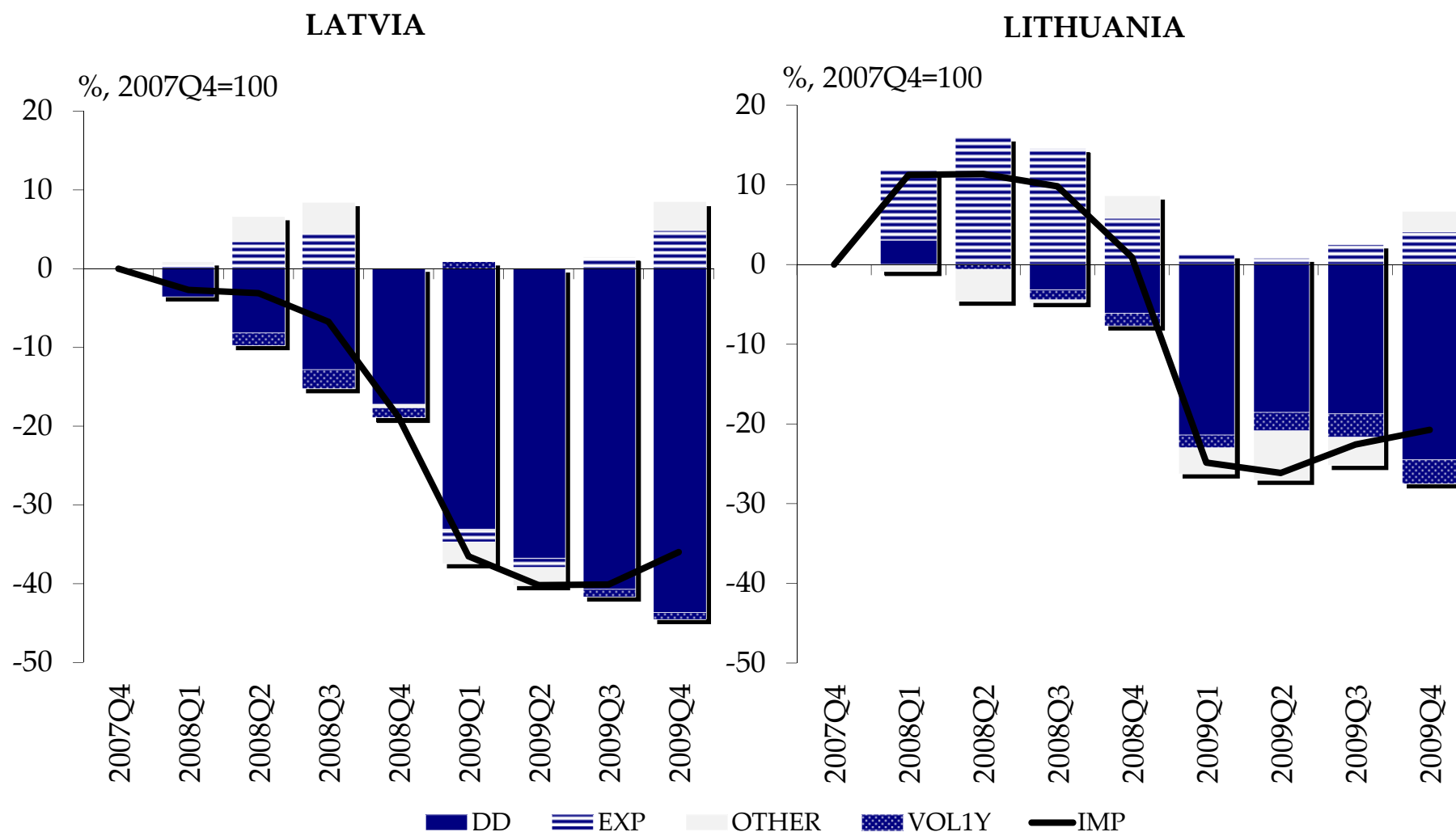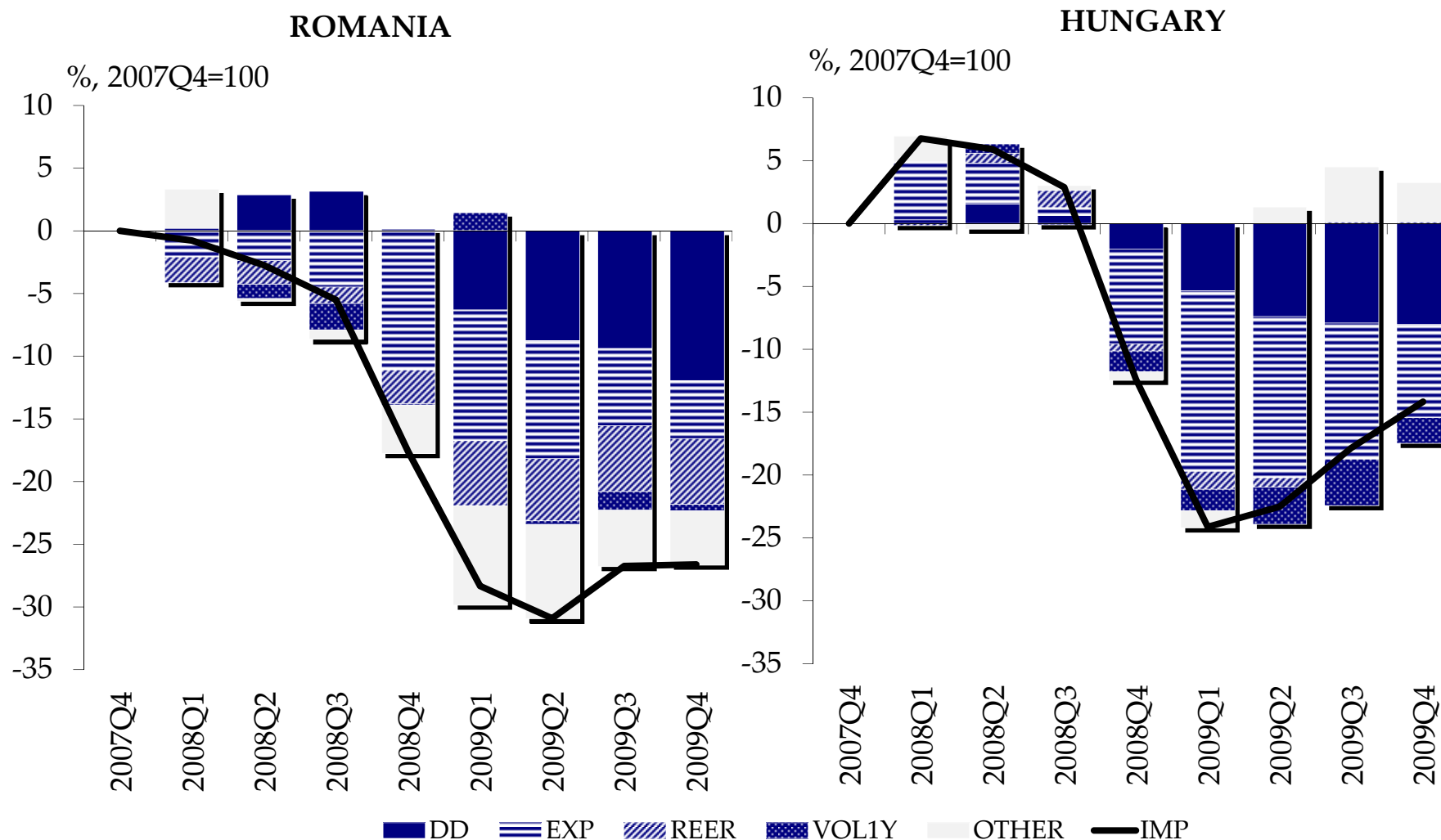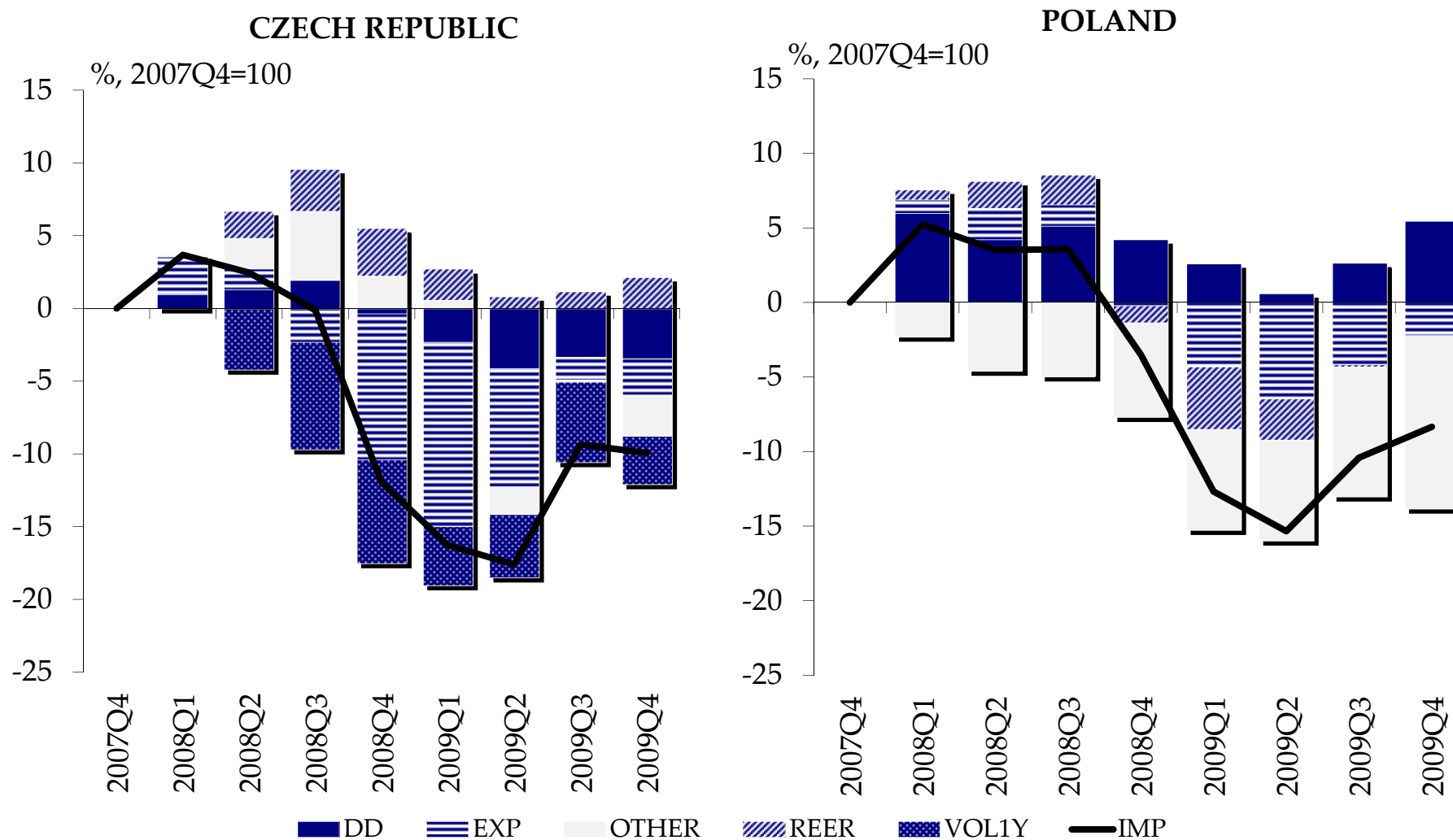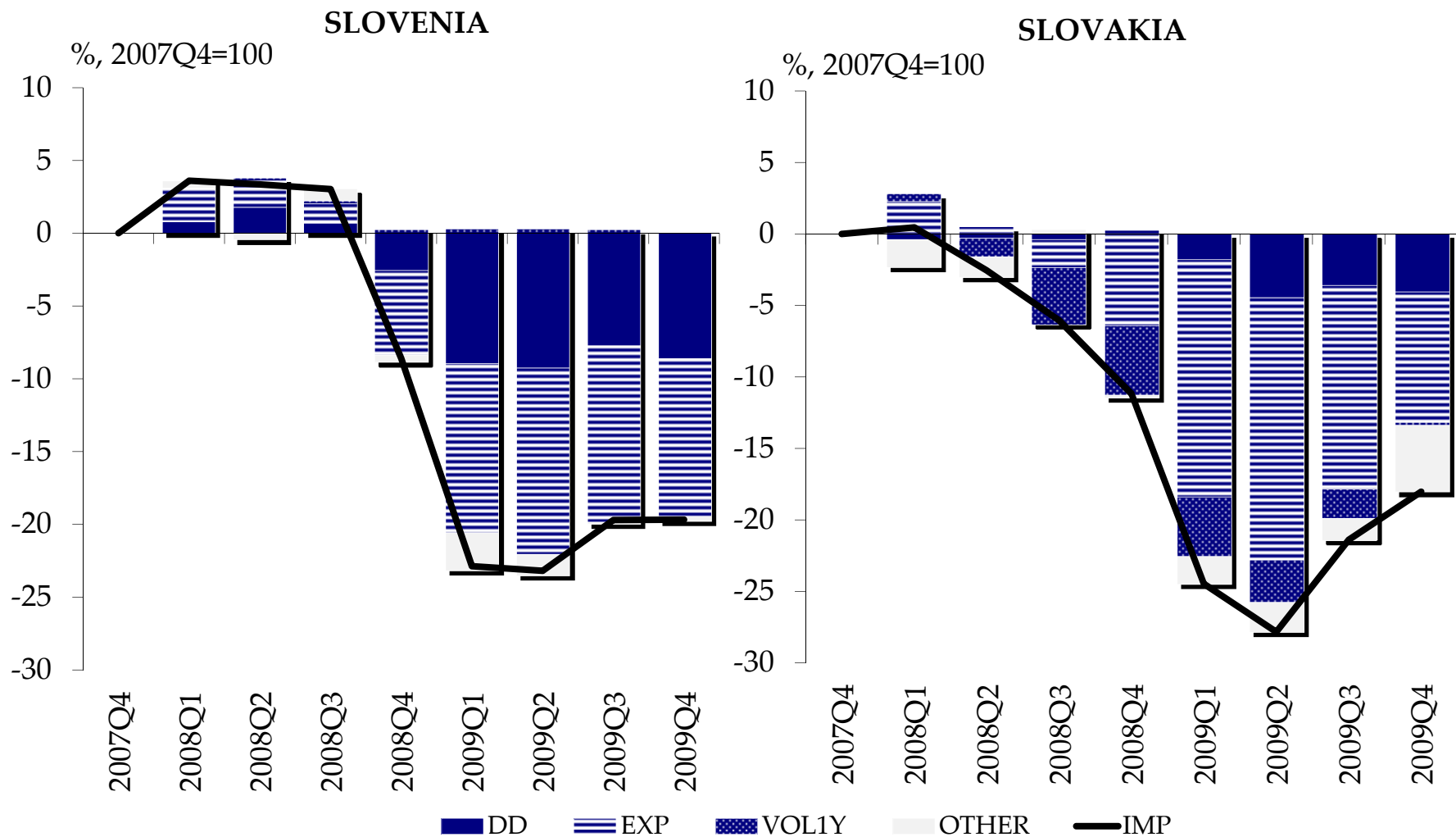
A comparative analysis of the factors behind import contraction

Decomposition of cummulated import contraction (2009Q4 / 2007Q4)

Legend: ■ DD ≡ EXP ▨ REER ▨ REER volatility ☐ Other ▬ IMP

Countries: BG, EE, LV, LT, RO, HU, CZ, PL, SI, SK
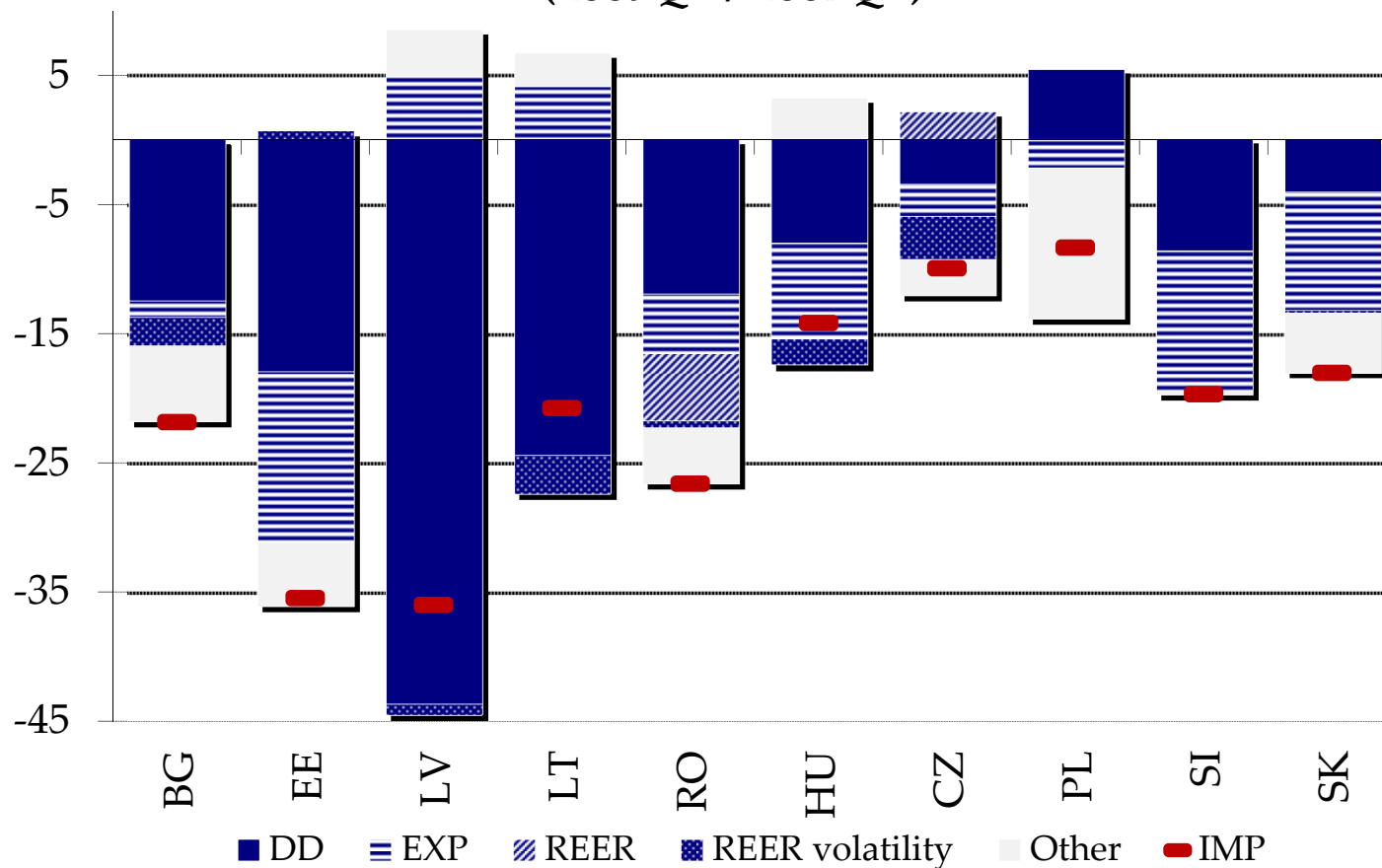
A robustness check

◆ The existence of a level relationship among the analyzed variables was investigated by means of the bounds procedure as in Pesaran et al. (2001). This method circumvents the problem of potential different orders of integration of the regressors and performs better in small samples

◆ The conditional error correction version of the ARDL models were estimated using OLS

◆ The existence of cointegration relations was confirmed by comparing the Wald statistic of the lagged level variables to the critical values tabulated by Pesaran et al. (2001)

Conclusions

◆ Generally, the trade balance had the largest contribution to the adjustment process through imports of goods

◆ The results of the counterfactual simulations distinguish between different mechanisms behind import contraction during the crisis:

  ◆ In Group1, the adjustment magnitude is explained mainly by the subdued domestic absorption

  ◆ In Group2, the fall in imports is mainly ascribable to the fall in external demand

◆ Despite the advantage of having a flexible exchange rate regime, in the case of the floaters (where REER was found significant), most of the burden of the adjustment was borne by demand factors; out of these four countries, Romania appears to have benefitted the most in terms of external adjustment from its exchange rate flexibility

Policy implications and suggestions

- In countries exhibiting the largest pre-crisis imbalances, the external adjustment process occurred mainly through changes in domestic demand, which suggests the predominant cyclical nature of the adjustment (as previously pointed by Algieri and Bracke, 2007).

    - a potential threat for the catching-up economies is that imbalances may accumulate in the future ⟹ the design of domestic policies will have to be strongly counter-cyclical

- Generally, in countries with a stronger export-import link, the fall in imports occurred mainly via the external demand channel, which lowered the magnitude of the external adjustment, but mitigated the social costs associated to domestic demand compression ⟹ the implication is not less trade, but developing better safeguards against financial constraints

- Imports are not sufficiently price sensitive to achieve external adjustment through relative price changes ⟹ the role of the exchange rate as a shock absorber appears to be overrated and the exchange rate policies less effective than expenditure-reducing policies in correcting trade deficits.

Ongoing research

◆ Assessing the relative importance of domestic demand components (consumption and investment) to import dynamics

◆ Estimating ECMs for export volumes in order to:

    ◆ disentangle the drivers of export growth; and

    ◆ build more comprehensive models for import dynamics to better capture the influence of REER via endogenous exports and more adequately assess the import-export link.

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