

Box 1

THE ROLE OF CENTRAL AND EASTERN EUROPE IN PAN-EUROPEAN AND GLOBAL VALUE CHAINS

A large share of the external trade of central and eastern European (CEE) countries¹ passes through global value chains² in which exporters from these countries are usually located further “downstream” – i.e. closer to the customer buying the finished product – than their euro area partners.

The analysis below is based on the analytical framework put forward by Koopman, Powers, Wang and Wei (2010)³ and uses data from the Trade in Value-Added (TiVA) database.⁴ It complements the more general discussion of the impact of global value chains on world trade patterns in Box 1 of the May 2013 issue of the Monthly Bulletin. In particular, this box provides a detailed examination of the pan-European and global value chains involving exporters from CEE countries in order to better understand the interlinkages between CEE and euro area countries.

Importance of euro area countries participating in global value chains for exporters from CEE countries

Table A shows that euro area countries account for a large share of the external trade of CEE countries associated with the intermediate stages of global value chains. At least one-third of CEE countries’ top 15 trade partners in global value chains are from the euro area. Among the

1 In this box, central and eastern European countries are defined as the following non-euro area EU Member States: Bulgaria, Czech Republic, Hungary, Latvia, Lithuania, Poland and Romania.

2 For a definition of global value chains, see Koopman, R., Powers, W., Wang, Z. and Wei, S., “Give Credit Where Credit Is Due: Tracing Value Added in Global Production Chains”, *NBER Working Paper*, No 16426, The National Bureau of Economic Research, Cambridge, Massachusetts, September 2010, p. 2.

3 *ibid.*

4 The OECD-WTO Trade in Value-Added (TiVA) database, May 2013, available at stats.oecd.org/Index.aspx?DataSetCode=TIIVA_OECD_WTO. The latest available data are for 2009.

Table A Importance of trade partners in global value chains for CEE countries in 2009

(percentage points)

Bulgaria		Czech Republic		Hungary		Latvia	
Russian Federation	6.0	Germany	15.6	Germany	12.3	Germany	4.9
Germany	4.6	China	3.4	China	3.5	Russian Federation	4.3
Italy	3.1	Russian Federation	3.3	United States	3.4	Sweden	3.5
United States	2.2	<i>Poland</i>	3.1	Russian Federation	3.0	<i>Lithuania</i>	3.4
Turkey	2.1	Slovakia	3.0	France	2.6	United States	2.6
China	1.9	France	2.8	Austria	2.5	China	2.0
Greece	1.9	Italy	2.7	Italy	2.5	Singapore	2.0
France	1.9	United States	2.5	Japan	2.0	France	1.9
<i>Romania</i>	1.4	Austria	2.3	Netherlands	1.8	Estonia	1.8
Belgium	1.3	Japan	2.1	United Kingdom	1.8	United Kingdom	1.8
Japan	1.2	United Kingdom	1.9	Korea	1.5	<i>Poland</i>	1.7
Spain	1.0	Netherlands	1.7	<i>Czech Republic</i>	1.5	Denmark	1.4
United Kingdom	0.9	Belgium	1.4	Slovakia	1.4	Netherlands	1.3
Netherlands	0.9	Spain	1.3	<i>Poland</i>	1.4	Finland	1.2
Singapore	0.9	Switzerland	1.2	<i>Romania</i>	1.4	Japan	1.2

Lithuania		Poland		Romania	
Russian Federation	18.5	Germany	11.0	Germany	7.3
Germany	3.2	Russian Federation	3.4	Italy	4.6
United States	2.1	Italy	3.0	France	3.1
<i>Poland</i>	2.1	France	2.4	<i>Hungary</i>	2.6
<i>Latvia</i>	1.9	China	2.3	Russian Federation	2.2
France	1.7	<i>Czech Republic</i>	2.2	China	1.8
Sweden	1.4	United States	2.0	United States	1.7
China	1.4	United Kingdom	1.6	Turkey	1.6
Denmark	1.2	Netherlands	1.4	United Kingdom	1.4
Estonia	1.1	Sweden	1.4	Austria	1.3
Italy	1.0	Austria	1.1	Spain	1.1
Netherlands	1.0	Belgium	1.0	Netherlands	1.1
Japan	0.9	Japan	1.0	<i>Poland</i>	1.0
United Kingdom	0.9	Spain	1.0	Belgium	1.0
Hong Kong	0.8	Korea	1.0	<i>Czech Republic</i>	0.9

Sources: OECD-WTO TiVA database and ECB staff calculations.

Notes: CEE countries are indicated in italics. The tables show the top 15 trade partners in global value chains for each CEE country. The indicator shown is the sum of: (i) value-added from a trade partner embodied in the CEE country's total exports; and (ii) the domestic value-added from the CEE country exported to and then embodied in the exports of that trade partner (in USD millions). Data are reported as a percentage of the CEE country's total exports. As explained in Box 1 of the May issue of the Monthly Bulletin, the shares of these two value-added components in total exports can be seen as measures of, respectively, the "downstream" and "upstream" activities of the exporters from each CEE country in global value chains. The upstream activity measure does not cover value-added from the CEE country embodied in its trade partners' exports that end up being re-imported by the CEE country. Box 1 of the May issue of the Monthly Bulletin shows that the share of this value-added component in total euro area exports is below 1%, which is also the case for all CEE countries.

euro area countries, Germany is the most important trading partner of CEE countries in global value chains, followed by Italy, France and Austria.

These trade data should be seen in conjunction with those on foreign direct investment (FDI). Euro area companies held 78% of the FDI stock in CEE countries as at the end of 2005 (the most recent time for which data are available for all euro area countries),⁵ with Germany, Austria, France and Italy accounting for a significant share of the total (see Table C). The large share of euro area countries in the external trade of CEE countries that passes through global value chains, coupled with the euro area's significant investment in the region, suggests that a significant number of the global value chains in which CEE countries participate are associated with euro area companies. Exporters from CEE countries that participate in such chains are often either owned outright by, or operated as joint ventures of, euro area companies.

5 See Eurostat's Foreign Direct Investment Statistics database, available at http://epp.eurostat.ec.europa.eu/portal/page/portal/balance_of_payments/data/main_tables.

Table B Positions of trade partners in global value chains vis-à-vis CEE countries in 2009

(unitless ratio)

	Bulgaria		Czech Republic		Hungary		Latvia		
Upstream	Russian Federation	19.9	Japan	12.9	Russian Federation	11.4	Russian Federation	10.0	
	Japan	6.9	Russian Federation	8.7	Japan	8.6	United States	3.2	
	United States	4.4	United States	6.5	United States	8.2	Japan	3.2	
	Switzerland	2.9	Korea	2.6	Korea	4.4	<i>Lithuania</i>	2.0	
	Austria	2.0	China	2.6	France	2.9	<i>Poland</i>	2.0	
	France	1.9	Italy	2.2	Netherlands	2.7	<i>Bulgaria</i>	1.9	
	<i>Romania</i>	1.9	United Kingdom	2.1	United Kingdom	2.3	Italy	1.6	
	China	1.8	<i>Poland</i>	1.9	Italy	2.2	France	1.4	
	<i>Lithuania</i>	1.6	Spain	1.8	Germany	2.1	<i>Romania</i>	1.4	
	<i>Poland</i>	1.5	<i>Romania</i>	1.6	China	2.0	Austria	1.3	
	Korea	1.4	Netherlands	1.6	Switzerland	1.7	Switzerland	1.3	
	Italy	1.4	France	1.5	Austria	1.7	Germany	1.2	
	Germany	1.3	Germany	1.2	Sweden	1.6	↓ <i>Hungary</i>	1.1	
	↓ United Kingdom	1.3	<i>Latvia</i>	1.1	<i>Romania</i>	1.6	Latvia	.	
	Downstream	↓ <i>Czech Republic</i>	1.3	Switzerland	1.0	<i>Poland</i>	1.5	↓ <i>Czech Republic</i>	0.9
Bulgaria		.	↓ Belgium	1.0	<i>Lithuania</i>	1.5	China	0.7	
Netherlands		1.0	Czech Republic	.	Spain	1.4	Netherlands	0.7	
Spain		1.0	<i>Hungary</i>	0.9	Belgium	1.4	Spain	0.4	
<i>Hungary</i>		0.8	Sweden	0.9	<i>Bulgaria</i>	1.2	Belgium	0.4	
Sweden		0.7	Austria	0.8	↓ <i>Czech Republic</i>	1.1	United Kingdom	0.4	
<i>Latvia</i>		0.5	<i>Bulgaria</i>	0.8	Hungary	.	Sweden	0.3	
↓ Belgium		0.4	↓ <i>Lithuania</i>	0.7	↓ <i>Latvia</i>	0.9	↓ Korea	0.2	
Upstream		Lithuania		Poland		Romania			
		Russian Federation	39.3	Russian Federation	11.5	Russian Federation	6.7		
		Japan	5.0	Japan	6.0	Japan	3.1		
		United States	4.0	United States	5.5	United States	2.7		
		Germany	3.2	Korea	3.1	Italy	1.4		
		Italy	2.2	Italy	2.0	Switzerland	1.3		
		China	1.8	Spain	1.4	Austria	1.3		
	<i>Romania</i>	1.6	United Kingdom	1.4	United Kingdom	1.3			
	<i>Poland</i>	1.6	China	1.3	<i>Poland</i>	1.1			
	<i>Czech Republic</i>	1.5	France	1.3	↓ France	1.0			
	France	1.4	Netherlands	1.3	Romania	.			
	Switzerland	1.3	Switzerland	1.2	Netherlands	1.0			
	Austria	1.3	↓ Belgium	1.1	Germany	0.8			
	↓ Korea	1.0	Poland	.	China	0.8			
	Lithuania	.	Austria	1.0	Korea	0.8			
Downstream	Netherlands	0.9	<i>Romania</i>	0.9	Sweden	0.7			
	Belgium	0.8	Germany	0.9	<i>Latvia</i>	0.7			
	United Kingdom	0.7	<i>Bulgaria</i>	0.7	Spain	0.7			
	<i>Hungary</i>	0.7	<i>Hungary</i>	0.6	<i>Lithuania</i>	0.6			
	Sweden	0.6	<i>Lithuania</i>	0.6	<i>Hungary</i>	0.6			
	Spain	0.6	Sweden	0.6	<i>Czech Republic</i>	0.6			
	<i>Bulgaria</i>	0.6	<i>Czech Republic</i>	0.5	Belgium	0.6			
	↓ <i>Latvia</i>	0.5	↓ <i>Latvia</i>	0.5	↓ <i>Bulgaria</i>	0.5			

Sources: OECD-WTO TiVA database and ECB staff calculations.

Notes: CEE countries are indicated in italics. The uniform set of trading partners consists of all CEE countries and those countries that are among the top 15 trade partners of at least three CEE countries in cross-border production chains (see Table A). The tables show the relative importance of CEE countries' "downstream" and "upstream" activities vis-à-vis their main trade partners in global value chains. The indicator is constructed as the ratio of: (i) the value-added from a trade partner embodied in a CEE country's total exports (reflecting CEE countries' downstream activities); to (ii) the domestic value-added from the CEE country exported to and then embodied in the exports of that trade partner (reflecting CEE countries' upstream activities). The higher the value of the index, the more upstream the trade partner is situated in the global value chain relative to the CEE country's exporters.

The relative position of CEE countries in global value chains

CEE countries are usually located further downstream in global value chains than their euro area partners. They typically import industrial equipment and higher value-added

Table C Foreign direct investment positions of selected countries in CEE countries in 2011

(US dollars; millions)

FDI recipients	FDI providers						
	Austria	France	Germany	Italy	Czech Republic	Hungary	Poland
CEE countries	47,127	43,596	74,449	21,155	1,971	2,340	6,141
Bulgaria	5,903	751	2,849	614	597	1,076	48
Czech Republic	14,100	10,842	18,165	1,298	-	323	2,453
Hungary	11,131	4,408	19,592	1,827	74	-	493
Lithuania	67	561	1,126	31	..	5	2,463
Latvia	205	98	537	35	..	0	30
Poland	4,777	21,281	25,954	12,542	590	340	-
Romania	10,944	5,654	6,225	4,807	711	596	653

Source: The OECD's database on FDI positions by partner country.

Notes: Data for Germany are for the end of 2010; .. indicates that data are not published; - indicates not applicable.

components from euro area countries, which they then use to produce additional components and assemble intermediate goods or final products shipped along the value chain en route to final consumers around the globe. This is reflected in Table B, which shows the position of individual CEE countries relative to their main trading partners in global value chains. The euro area countries that actively participate in pan-European value chains, especially Germany, Italy and France (see Table A), are generally located further “upstream” (i.e. further away from the final customer) than exporters from CEE countries, with the notable exception of Germany in its trade with Poland and Romania (see Table B).

Looking at individual CEE countries, Hungarian exporters are located furthest downstream in global value chains relative to other CEE countries, with Latvia and Bulgaria close behind (see Table B). The upstream position of Romania and Poland relative to the other CEE countries and some euro area countries could stem from their specialisation in industrial equipment and intermediate goods or from natural resources accounting for a significant share of their exports.

The evolving role of CEE countries in global value chains

Analysis also suggests that exporters from some of the larger CEE countries have started to set up their own value chains within the CEE region. CEE countries are among the main trading partners of other CEE countries in global value chains (see Table A). For example, Poland stands out, as it occupies an upstream position in global value chains relative to all the other CEE countries (see Table B). At the same time, Polish companies had made around USD 6 billion of FDI in the CEE region as at the end of 2011 (see Table C). Similarly, the Czech Republic is located upstream of Bulgaria and provides it with sizeable FDI flows. All in all, this points to the ability of Polish and Czech exporters, including subsidiaries of euro area multinational companies, to set up regional value chains.

Conclusion

This box has shown that a large share of exports from the CEE region passes through cross-border production chains associated with euro area companies, with exporters from CEE countries generally being located further downstream than their euro area partners. This production model, which is both pan-European and globally integrated in nature, constitutes an important channel for transmitting output fluctuations from the euro area to CEE countries via

the propagation of industry-specific shocks and of inventory adjustments along the supply chain. At the same time, the participation of CEE countries in global value chains appears to have had a “learning-by-doing” effect, as evidenced by the ongoing efforts of exporters from CEE countries to set up their own value chains within the region.