

## Focus

### I. The export performance of the euro area

*Euro-area exporters have performed relatively well during the period spanning the launch of the euro up to the onset of the global economic crisis. Notwithstanding a substantial appreciation of the euro's real effective exchange rate, losses in market share were more contained than for the US or Japan. Euro-area exporters benefited from a strong position in fast-growing destinations such as Russia and new EU Member States, which more than offset a comparatively weaker position on the Chinese market. Judging by traditional indicators of comparative advantage, the sectoral structure of the euro-area exports does not appear particularly strong, with a higher specialisation in labour intensive goods than the US or Japan and a weaker specialisation in research-intensive and ICT sectors. But euro-area exporters performed well in some key export sectors, which worked as export engines. Among those were fast-growing, high-tech sectors such as pharmaceuticals, but also medium-tech, slower-growing ones such as machinery and transport. There is also evidence that exporters have withstood competition by improving product quality. Notwithstanding a relatively good pre-crisis performance, euro-area exporters have been strongly affected by the crisis and face a number of medium-term challenges. These include the shift of the driving force of world trade from advanced to emerging economies and a potentially lasting negative effect of the crisis on demand in some important trade destinations.*

The past two years highlighted the role of foreign trade as a transmission channel during economic crises. The global economic crisis was associated with a sharp slump in world trade which imposed a heavy toll on growth in the euro area. This focus section reviews the export performance of the euro area before and during the crisis with a view to assessing the potential challenges faced by euro-area exporters in a post crisis world. Section I.1 discusses pre-crisis developments in euro-area exports and relates them to developments in various price and non-price competitiveness factors. Section I.2 reviews the behaviour of euro-area exports during the crisis and Section I.3 draws some lessons on the medium-term challenges faced by euro-area exporters. Section I.4 concludes.

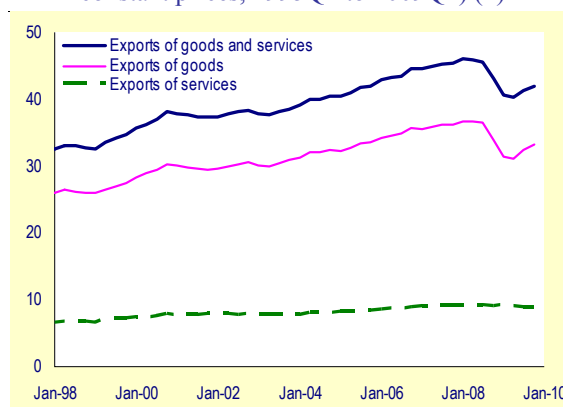
#### ***I.1. Pre-crisis developments in euro-area exports***

##### **A fairly strong pre-crisis performance...**

Total euro-area exports of goods and services (i.e. intra and extra) expanded rapidly during the decade preceding the crisis, growing in real terms at about 5-6% annually. As a result, the share of exports in euro-area GDP gained more than 10 pp between 1998 and 2007 (Graph I.1). Trade has been severely hit by the global economic crisis and the ratio of exports to GDP lost 5 pp in 2008-09. Exports shed more than 17% in volume between their peak in 2008Q1 and their trough in 2009Q2. Signs of recovery have been visible since the second half of 2009 but the level of exports still remains well below its pre-crisis peak.

As shown in Graph I.1, real exports of goods and of services expanded at a broadly comparable pace over the period. Nevertheless, services managed to sustain somewhat faster price growth and the share of services in total nominal exports increased significantly and now exceeds 30%. The impact of the crisis and the ensuing rebound were significantly stronger for goods than for services.

**Graph I.1: Export of goods and services, euro area (intra- and extra-EA, in % of GDP at constant prices, 1995Q1 to 2009Q4) (1)**



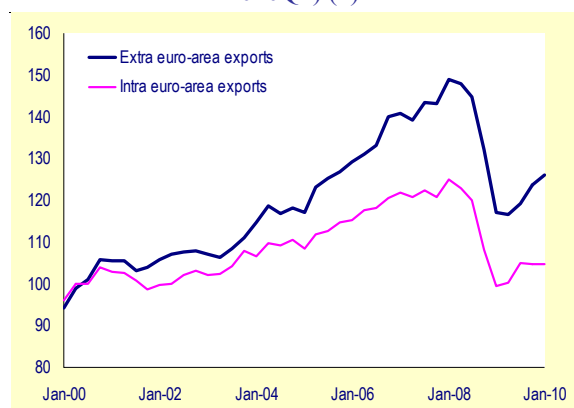
(1) Based on quarterly national account data.

Source: Commission services.

National accounts for the euro area currently still lump together intra and extra-euro-area exports. Only trade data for goods provide a breakdown into intra- and extra euro area destinations. They indicate that extra-euro-area exports grew much faster, in real terms, than intra-euro-area trade during the decade preceding the crisis with a pace of expansion nearly twice as high (Graph I.2). The growth gap is however much lower in nominal terms reflecting much more muted inflation in

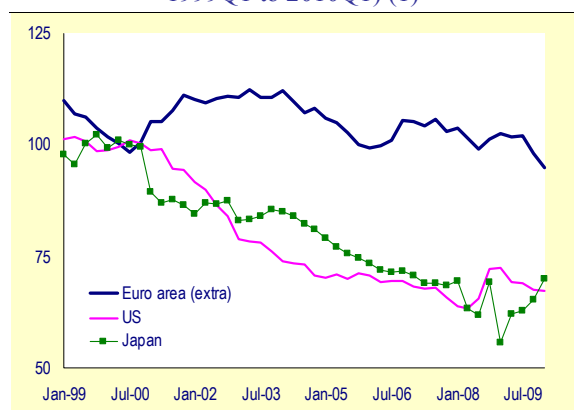
extra euro-area than intra euro-area export prices. In addition to possible exchange rate factors, differences in the various export markets' growth rates and differences in the product composition of the two types of trade, this could also be an indication that exporters wield more pricing power inside than outside the euro area.

**Graph I.2: Extra and intra euro-area exports of goods** (volume index 2000=100, 2000Q1 to 2010Q1) (1)



(1) Based on goods trade statistics.  
**Source:** CPB, Commission services.

**Graph I.3: Export market shares, euro area, US and Japan** (current prices, index 2000=100, 1999Q1 to 2010Q1) (1)



(1) Euro-area exports cover extra euro-area trade only. Based on goods trade statistics.  
**Source:** CPB, Commission services.

The euro area's performance over the decade preceding the crisis compares quite favourably with the US and Japan. In volume terms, extra-euro-area exports grew significantly faster than in the US over that period, although more slowly than in Japan. In nominal terms, however, the performance of the euro area stands out. Since the mid- to late 1990s, most advanced economies have experienced a significant erosion in the share of their exports in total world trade, reflecting the

emergence of new major players, most notably China.

Losses in market shares have however been considerably more contained for the euro area than for the US or Japan (Graph I.3). The comparatively strong position of the euro area on the basis of nominal trade data is suggestive of a product and geographical specialisation that affords higher pricing power.

**... that cannot be explained by exchange rate developments**

Price and cost competitiveness is one of the key determinants of the export performance. New estimations of medium-term exchange rate elasticities presented in Box I.1 suggest that a 10% appreciation of the euro real effective exchange rate (REER) leads to 5-6% drop in extra euro-area exports of goods in the medium term. The 25 to 30% appreciation of the REER (depending on concept used) from its 2000 trough to its pre-crisis peak has probably curbed annual euro-area export growth by more than 1.5 pp.

**Table I.1: Changes in real effective exchange rates and export market shares (1)**

	Euro area	US	Japan
	2002Q1-2008Q2		
Change in REER	24.1	-26.8	-17.0
Change in market share (value)	-9.6	-28.4	-21.0
Change in market share (volume)	-19.3	-3.1	6.4

(1) Changes in REER: in %; changes in market shares in pp. Markets shares are measured by the ratio of goods exports to total world imports.

**Source:** Commission services.

Nevertheless, as shown in Table I.1, differences in export performance between the euro area, the US and Japan in the years preceding the crisis are difficult to explain on the basis of exchange rate developments. For instance, between 2002 and 2008, the euro real effective exchange rate experienced a strong appreciation while, both US and Japan exporters benefited from large gains in price competitiveness. Differences in market share developments over that period are difficult to relate to these swings in exchange rates.

This is just another evidence of the importance on non-price competitiveness factors in advanced economies. Section II.1 in this report provides an econometric analysis of the importance of non-price factors for euro-area exports. The analysis focuses mostly on technological factors and highlights the importance of innovation and product quality. For instance, R&D spending and

*Box 1.1: Euro-area export demand equations*

Standard export demand equations regress real exports on foreign income and relative export prices. Based on this framework estimates of export price and income elasticities for the euro area are presented below, using quarterly data between 1989Q1 and 2009Q3. Exports are defined as extra-euro area exports of final and intermediate goods, deflated by export unit value indices. Foreign income is defined as the weighted average of the real GDP of 25 trading partners (8 before 1995, chain linked), with weights proportional to the inverse distance of the trading partners. This choice of weights avoids the possible endogeneity problem inherent to standard export shares used as weights in the literature. Finally, relative export prices are measured by the real effective exchange rate (REER). A CPI-based REERs is used, computed by DG ECFIN vis-à-vis 25 competitor countries since 1995 (8 before 1995, chain linked). The resulting baseline specification is:

$$\ln x_t = \beta_0 + \beta_1 \ln y_t^* + \beta_2 \ln reer_t + e_t \quad (1)$$

where t indexes time,  $x_t$  denotes real exports,  $y_t^*$  denotes foreign income,  $reer_t$  denotes the real effective exchange rate and  $e_t$  is the disturbance. Given that the series are non-stationary the estimation was carried out in a cointegration framework using a Dynamic Ordinary Least Squares (DOLS) estimator with four leads and lags.

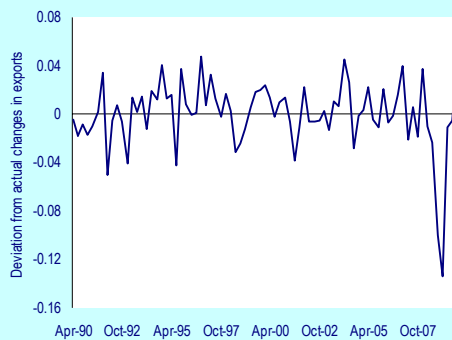
Next to the baseline regressions, specifications with imported intermediate products as an explanatory variable are estimated as well. Arguably, if exported output makes use of imported intermediate products, then the expected sensitivity of exports to exchange rate variations is lower because, in case of appreciations, firms benefit from lower import prices of intermediates. Including the import of intermediate goods as additional explanatory variable in the regression will control for this effect.

Dependent variable	Log of extra-euro-area exports	
	(1)	(2)
Log of foreign income	1.55*** (0.063)	1.27** (0.305)
Log of REER (ECFIN)	-0.52*** (0.102)	-0.59*** (0.129)
Log of intermediate imports		0.15 (0.208)
No. of observations	76	71
R <sup>2</sup>	0.987	0.991

Newey-West standard errors are shown in parentheses.

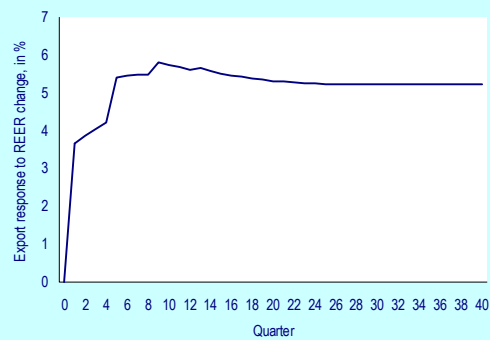
Results show that long-term elasticities to the REER range between 0.4-0.6 in absolute value, while the elasticity of exports to changes in foreign income ranges between 1.2-1.6. The REER elasticities are higher when intermediate imports are controlled for, in line with the argument for including them. However, the direct effect of intermediate imports on exports cannot be estimated precisely as these coefficients are not significant. The corresponding Error Correction Models (ECMs) permit to estimate the speed of adjustment of exports to their long-run equilibria. They indicate that the half life of exports is approximately 4 quarters.

**Residuals from the ECM of regression (1)**



Source: Commission services.

**Export response to 10% REER depreciation**



Source: Commission services.

(Continued on the next page)

*Box (continued)*

The ECM can be used to answer two timely questions as well. The first is whether the drop in export volumes, observed in late 2008 and early 2009, can be treated as a usual response of trade to GDP changes. The left-hand panel of the graph above, which shows the residuals from the ECM of regression (1), suggests otherwise. The recent slump was clearly out of the ordinary, with exports falling much more sharply than what the equation would suggest on the basis of the slump in world GDP. Moreover, the graph also shows that the following rebound is quite strong in historical comparison. This decoupling between exports and GDP is, however, not a purely euro-area phenomenon as indicated by large swings in the ratio of world exports to world GDP over the period. The second question is how the recent devaluation of the euro affects exports. The right-hand panel of the graph presents the export response to a 10% permanent decrease in the REER based on the same ECM. The long term increase in exports is 5.2%, 80% of which is realised in the first year and the remaining part in the second year. The model indicates slight overshooting, which is adjusted slowly and is eliminated by the end of the fifth year.

patents are reported to be positively correlated with exports of goods. The remainder of the present section takes a different (non-econometric) approach and analyses the structural strengths and weaknesses of the euro-area exports in terms of its geographical and product market specialisation.

#### A fairly supportive geographical specialisation

The geographical specialisation of euro-area trade reflects to a considerable degree its trading partner's geographical proximity. The euro area trades predominantly with the rest of Europe which absorbs more than 50% of its exports if Russia is included. In contrast, Asia or Latin America are destinations of much lesser importance than for US or Japanese exporters (see Table I.2). The euro area ships a share of its exports to the BRICs (Brazil, Russia, India and China) that is slightly larger than the US's but considerably lower than the Japan's. The biggest part of this is accounted for by Russia with China playing a comparatively more modest role

In pre-crisis years, the euro-area's geographical specialisation proved to be conducive to export growth. For instance, simple calculations show that the geographical structure of euro-area exports was somewhat more supportive than that of the US or Japan from the beginning of the decade to the onset of the crisis.<sup>(1)</sup> Although the euro area is less well positioned than the US or Japan in some critical emerging markets like China, this has tended to be more than offset by a comparatively strong position on fast growing European markets, including new EU Member States, Russia and other emerging European

<sup>(1)</sup> Cross-country comparisons of the effect of the geographical structure can be assessed by calculating what export growth would have been if market shares had remained constant on all geographical destinations.

economies. Obviously, whether a specific geographical specialisation is supportive or not is period-dependent and, as will be discussed in Section I.3, a structure that was supportive in pre-crisis years may turn out to be unfavourable in post-crisis years.

**Table I.2: Geographical breakdown of exports, euro area, US and Japan (in %) (1)**

	Share of total exports in 2007			Import growth
	Euro area	US	Japan	2000-07 (1)
US	13.1	-	20.4	1.1
Brazil	1.2	2.1	0.6	5.5
China	4.1	5.6	15.3	16.2
India	1.5	1.5	0.9	15.7
Russia	4.5	0.6	1.5	21.8
Africa	5.8	2.0	1.6	7.7
DAE (2)	4.5	8.7	21.8	4.3
Euro area	-	15.7	11.1	5.8
EFTA	7.1	1.8	0.6	4.8
UK, DK, SE	21.2	5.0	2.7	3.6
Latin America (excl. BR)	2.9	17.7	3.8	2.8
Other Asia	9.8	13.3	13.9	4.0
Other Europe	5.8	0.8	0.6	12.7
Non-euro NMS	14.1	0.7	1.0	12.8
other	4.3	24.5	4.3	4.8
Total	100	100	100	5.2
of which:				
OPEC	5.6	4.2	4.5	9.4
Total BRICs	11.4	9.9	18.2	14.0

(1) Average annual growth in EUR. (2) Hong-Kong, South Korea, Malaysia, Singapore, Thailand.

*Source:* Commission services.

Looking at how the euro area has responded to the emergence of new trading partners, the picture is somewhat less encouraging. The euro area has, to some extent, adjusted to the changing geographical structure of world import demand by channelling exports to fast growing markets. In particular, the shares of the BRICs and of fast growing European markets in total euro-area exports have increased more or less steadily over the 2000-07 period. Nevertheless, much of this shift reflects the intrinsic dynamics of these new

markets as the euro area has tended to lose market shares vis-à-vis these two broad destinations in recent years. The losses partly reflect the emergence of new global players but, worryingly, they have generally been larger for the euro area than for the US or Japan. This points to some form of erosion in the euro area's relative advantage in terms of geographical specialisation.

**A relatively weak sectoral structure of exports in terms of factor intensity and technology...**

The sectoral composition of exports can be analysed by looking at sectors aggregated according to their factor intensity or technology content. <sup>(2)</sup> This shows that euro-area exports are mainly specialised in capital- and research-intensive goods, especially in those that can be further classified as 'difficult to imitate' (Table I.3). However, in contrast to the US and Japan, the euro area also exhibits a small comparative advantage in labour intensive goods. Furthermore, its specialisation in research-intensive goods that are difficult to imitate is less strong than in the US or Japan.

**Table I.3: Sectoral specialisation of exports (1995-2007) (1)**

	Euro area		USA		Japan	
	Average	Change	Average	Change	Average	Change
Factor intensity						
Research intensive						
- difficult to imitate	1.16	0.07	1.45	0.20	1.58	-0.02
- easy to imitate	1.02	0.14	1.08	-0.07	1.08	-0.27
Capital intensive	1.28	0.07	0.87	-0.01	1.75	0.38
Labour intensive	1.05	-0.01	0.75	0.12	0.40	0.04
Raw materials intensive	0.49	-0.10	0.66	-0.25	0.09	0.05
Technology content						
High tech	0.94	0.13	1.50	0.09	0.84	-0.47
- of which ICT	0.51	-0.01	1.04	-0.40	1.22	-0.82
Medium-high tech	1.18	0.03	1.11	-0.02	1.61	0.08
Medium-low tech	0.90	-0.11	0.75	-0.02	0.91	-0.04
Low tech	0.81	-0.09	0.64	-0.07	0.19	-0.02

(1) Balassa index of revealed comparative advantage

Source: Commission services.

When exports are classified according to their technology content, the US stands out with a strong comparative advantage in high-tech products, whereas the euro area and Japan rather specialise in medium-technology goods. Both the US and Japan have a strong position in ICT sectors, which are a subset of high-technology goods. In contrast, the euro area is particularly disadvantaged in this group of goods.

<sup>(2)</sup> Compare e.g. Baumann, U., F. di Mauro (2007), "Globalisation and euro area trade. Interactions and challenges", ECB Occasional paper series No. 55.

Overall, the static analysis of the indicators of so-called revealed comparative advantage does not point to a strong competitive position of euro-area exports. However, as discussed in the next two paragraphs, the dynamic picture appears somewhat more favourable.

World trade developments in the decade before the crisis were marked by the integration into the world economy of large and dynamic emerging markets, in particular the BRICs. Due to a different level of economic development, their export structure is rather different from that of industrialised economies (see Box I.2). This export structure is changing rapidly over time and is becoming more similar to that of advanced economies. The change has been particularly visible in China, which has been rapidly changing its export structure towards more research intensive goods and ICT products in particular.

In the US and Japan, the counterpart to the changing product structure in emerging markets' exports has been a steady loss (particularly in Japan) in the comparative advantage in ICT industries. In contrast, and rather surprisingly, the euro-area export structure has remained remarkably stable over time. This is true for both labour-intensive exports, where the euro area has kept its slight comparative advantage, and ICT exports, where the comparative disadvantage has persisted, but markets shares remained rather stable. At the same time, comparative advantage in the broad high-technology sectors (which includes ICT) has even increased slightly.

The rapid development of communication technologies and a fall in transport costs have enabled multinational companies to split up production process internationally, offshore some stages of production or even individual tasks. <sup>(3)</sup> These trends are boosting bilateral trade in intermediate goods and components. For this reason, any analysis of export structure needs to be complemented by an analysis of trade balances as an apparently strong competitiveness position on the basis of export data may conceal increasing outsourcing and deteriorating trade balances.

A closer look at trade balances indeed points to a weaker position of the US and Japan in the ICT sector, suggesting that their strong export performance in this sector is built on rising

<sup>(3)</sup> Baldwin, R. (2006), "Globalisation: the great unbundling(s)", Prime Minister's Office, Economic Council of Finland. Grossman, G. E. Rossi-Hansberg (2006), Trading tasks: a simple theory of offshoring", NBER Working Paper 12721.

outsourcing. However, trade balance data do not alter the picture significantly for the euro area, with exception of the sector 'easy to imitate research intensive goods'. In this sector the persistent comparative advantage of the euro area on the basis of export data has come at the expense of a deteriorating trade balance.

### **... has been compensated by a strong position in some key sectors...**

The fact that the euro area lacks clear competitive advantages in terms of factor or technology intensities seems to be at odds with its relatively good performance in terms of market shares. The apparent puzzle is due to the fact that growth in world trade before the crisis is not straightforwardly associated with any specific factor or technology intensity. Although trade in high-tech industries such as ICT or pharmaceuticals indeed grew fast, other, lower-tech sectors such as metals or chemicals also recorded fast rates of growth.

Moreover, euro-area exporters have done well in some sectors that constitute a large part of euro-area exports. These are both high-tech sectors such as pharmaceuticals, which were one of the fastest-growing manufacturing sectors before the crisis, but also medium-tech sectors such as machinery or cars, where growth in world trade was around average for manufacturing goods. The euro area's market shares in these sectors remained more stable or increased faster than in the case of US or Japan. The robust performance, together with large size, made these sectors powerful engines of euro-area exports.

### **... and steady improvements in product quality**

An additional strength of euro-area exports is their positioning in high-quality segments within a given product group. The fact that euro-area exporters increased market shares in some industries, where competition is high both from advanced economies (such as pharmaceuticals or machinery) or from emerging economies (such as metalworking or labour-intensive sectors in general) at a time of an appreciating currency suggest strong gains in non-price competitiveness. Indeed, there is some evidence that euro-area exporters have secured strong positions in high-price segments across various sectors thanks to their capacity to sell high-quality products. To the best of our knowledge no empirical study is available for the euro area as a whole, but data for the EU show that European producers tend to be

positioned more upmarket than their US or Japanese counterparts and that the importance of high quality products in total exports is increasing (see Curran and Zignago (2009) or Baldwin and Ito (2008)).<sup>(4)</sup> This up-market positioning has, at least so far, partly shielded euro-area exports from competition of emerging economies and can, in particular, explain relatively high and stable specialisation in labour-intensive goods.

Overall, the above assessment paints a mixed picture of the euro area's export structure. On the one hand, euro-area exporters managed to perform relatively well in pre-crisis years, compared to other advanced economies. This was due to strong world demand in sectors where the euro area had a strong specialisation but also to further gains in market shares and high product quality. Nevertheless, the relatively low specialisation in high-tech goods and especially in ICT products and higher specialisation in labour-intensive ones is a potential weak spot and could weigh on export performance in the future.

## ***1.2. Trade developments during the crisis***

The financial and economic crisis caused a very sharp fall in world trade.<sup>(5)</sup> According to CPB data, the volume of world goods trade fell peak to-trough by 18 % between 2008Q1 and 2009Q1. Exports of the euro area, which is closely integrated with the world economy, followed a similar path. Eurostat's trade statistics show that extra-euro-area export volumes fell by almost 22% peak to trough (2008Q1-2009Q2). Euro-area's main competitors were also affected, but to a different extent. The peak-to-trough fall in US exports (2008Q3-2009Q2) was similar to the euro area's, while Japan's exports slumped by 40% (2008Q1-2009Q1). Meanwhile, exports of emerging economies were comparatively resilient falling by 15% peak-to-trough (2008Q2-2009Q1).

Euro-area exports to all geographical regions were affected by the crisis, led by some hard-hit European countries and some very open south-east Asian economies. There were pronounced

<sup>(4)</sup> Curran, L. and S. Zignago (2009), 'The evolution of EU and its Member States' competitiveness in international trade', report prepared by CEPPII-CREM ATCLASS consortium, DG Trade, European Commission.

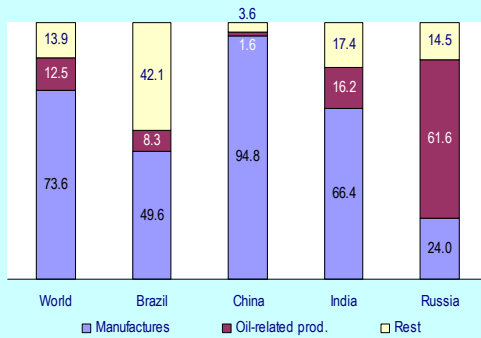
Baldwin, R.E. and T. Ito (2008), 'Quality competition versus price competition goods: An empirical classification', NBER Working Papers 14305.

<sup>(5)</sup> For the analysis of the slump in world trade and its impact on the euro area see Quarterly Report on the Euro Area No 3/2009.

*Box 1.2: Export development of the BRICs*

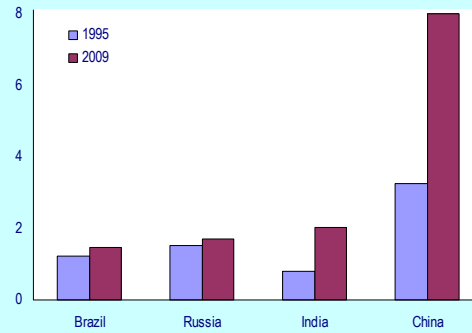
The growing role of emerging market economies, in particular the role of China and India, is one of the most outstanding economic transformations in the past decade. Recently, as the world economies are emerging from the deepest crisis since the Great Depression, this ascent is reflected in the BRICs' <sup>(1)</sup> (Brazil, Russia, India, China) contribution to GDP growth and in encouraging growth prospects in the coming years <sup>(2)</sup>. By 2015, using IMF forecasts, the BRICs are to reach 29% of global GDP (based on PPP), with the EU and the US falling further.

**Export compositions by product groups**  
(in % of total exports)



Source: Commission services.

**Share in world trade (in %)**



Source: Commission services.

Between 1995 and 2009, the share of BRICs in world trade has increased markedly, particularly for China and India, mirroring growth developments in these emerging economies. As a result, China now accounts for 8% of total world trade and India 2% while the respective shares of the other BRICs remain smaller (see right panel of the chart above). A noteworthy feature of BRICs' trade is the rising importance of intra-BRICs trade since 2000. On average, total intra-BRICs trade has doubled since 2000, up from around 6% to around 12% of their total trade <sup>(3)</sup>. Another noteworthy feature is the heterogeneity of the product composition of trade across the four countries. As illustrated in the left panel of the graph above, the share of manufactured goods in total exports of goods is comparable to the world average (about 75%) only in the case of India. In Brazil and Russia, this share is much lower, due to the importance of commodity exports in the goods exported by these countries. China stands out as exporting almost exclusively manufactured goods. The heterogeneity is even larger for intra-BRICs trade: typically, the commodity content of exports from other BRICs to China is much larger than to the rest of the world, except in the case of Russia. One caveat, however, in assessing recent trade developments for BRICs (including intra-regional), is the large commodity content of exports. The recovery in commodity prices since the start of 2009 translates into increasing trade values between BRICs, but this does not necessarily correspond to an increase in real terms.

The changing composition of the exports of the BRICs over time shows evidence that some of these economies have been moving up the value chain.<sup>(4)</sup> The first table hereafter illustrates this move up the value chain in the cases of China and India. In these two countries the share of research intensive goods in total exports has increased substantially since the mid-1990s, particularly for the "easy to imitate" sub-category but also, in the case China, for the "difficult to imitate" one. These gains have been mostly achieved at the expense of the share of labour intensive goods. Similar, although smaller changes are visible in Brazil, while Russia have increased their comparative advantage in primary sectors. The second table hereafter shows a clear move towards higher-tech industries in China, Brazil and to lesser extent India, while Russia remain positioned in the medium-tech industries.

In sum, emerging market economies are a major driving force in the recovery of the world economy, but they constitute a rather heterogeneous aggregate. In future these economies will likely gain more economic weight while the currently advanced countries will see their relative weight further decline in world GDP. Going forward, the

<sup>(1)</sup> Goldman Sachs' 2003 economic paper on "The Building BRICs for the World Economy to come".  
<sup>(2)</sup> Commission spring forecasts estimate that the GDP of BRICs grew by 3½ in 2009, while in the countries of the G20 GDP contracted by 2%. In 2010 and 2011, BRIC countries are expected to grow by 7½-8% while G20 countries are seen to achieve 3½% GDP growth in these years.  
<sup>(3)</sup> Source: IMF DOTS data.  
<sup>(4)</sup> Similar conclusions are found in the literature, see Baumann, R., R. Araujo and J. Ferreira (2010), 'As Relações Comerciais do Brasil com os demais BRICs', ECLAC Working Paper LC/BRS/R.221, CEPAL, Brasília, February.

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Box (continued)

BRICs will certainly remain the focus of analysts, while other dynamic emerging economies may also deserve further attention (e.g. South Africa or Indonesia).

Balassa index of revealed comparative advantage (1995-2007)								
	Brazil		China		India		Russia	
	Average	Change	Average	Change	Average	Change	Average	Change
Factor intensity								
Research intensive								
- difficult to imitate	0.57	0.09	0.65	0.37	0.25	0.22	0.23	-0.12
- easy to imitate	0.40	0.01	1.30	0.92	0.53	0.13	0.19	-0.12
Capital intensive	1.38	-0.27	0.48	0.06	0.65	0.21	1.15	-0.51
Labour intensive	0.73	-0.16	2.23	-0.41	2.61	-0.38	0.26	-0.04
Raw materials intensive	2.09	-0.20	0.46	-0.52	1.17	-0.07	3.36	0.05
Technology content								
High tech	0.40	0.22	0.71	0.77	0.33	0.15	0.35	-0.02
- of which ICT	0.18	0.08	1.01	1.32	0.08	0.03	0.12	0.00
Medium-high tech	0.79	0.11	0.57	0.19	0.45	0.27	0.69	0.02
Medium-low tech	1.21	-0.39	1.04	-0.02	0.86	0.38	3.16	-0.55
Low tech	1.62	0.13	1.84	-0.56	2.41	-0.43	0.58	-0.11

Source: Commission services.

differences in developments in various product groups. On the one hand, non-cyclical sectors, such as food, beverages or pharmaceuticals proved relatively resilient, while trade in raw materials and manufacturing collapsed. Services were overall more resilient than goods, but exports of transport and financial services were also severely affected.

After a broadly flat second quarter of 2009, world trade staged an impressive upturn and by end-2009 was growing by 11% compared with the trough in 2009Q1. High frequency data show that the momentum continued further early 2010.

Euro-area exports have also recovered. The recovery has been concentrated in Asia (particularly China and India), Latin America and Australia. Other markets, including main euro-area trade destinations, such as other EU countries, Russia and the US have lagged behind. For some markets, the seemingly sluggish recovery is a reflection of their relative resilience during the fall in trade at the beginning of 2009. This is the case for Africa and OPEC as well as EFTA, although to a lesser extent. Among EU destinations, the differences in dynamics have been very large: Poland, Romania and Sweden have been recovering vigorously, while the Baltic

countries, after a massive fall in 2009, have remained broadly flat (Table I.4).

Table I.4: Euro-area export growth to various destinations (volumes - % change)

	2008Q1-2009Q1	2009Q1-2009Q4
Intra euro area	-20.4	5.4
Extra-euro area	-21.3	5.5
Non-euro-area EU	-25.3	5.1
Non-euro-area		Recent
Member States (1)	-27.2	6.1
UK	-24.3	4.6
EFTA	-11.2	1.1
CIS	-36.9	1.2
Russia	-37.6	3.1
Africa	1.8	-1.3
US	-23.8	0.5
Latin America	-23.3	14.8
Brazil	-22.0	28.7
ASEAN (2)	-20.1	12.8
China (3)	-13.0	21.8
Japan	-26.6	8.1
India	-24.1	26.8
Near and Middle East (4)	-13.5	-0.7
Australia and Oceania	-20.6	12.9
OPEC	-0.4	-5.7

(1) Poland, the Czech Republic, Hungary, Bulgaria, Romania, Lithuania, Latvia, Estonia; (2) Brunei Darussalam, Indonesia, Cambodia, Laos, Myanmar, Malaysia, Philippines, Singapore, Thailand, Vietnam; (3) Excluding Hong Kong; (4) Israel, United Arab Emirates, Saudi Arabia and Iran.

Source: Commission services.



These differences in the geographical distribution of the pick-up in trade activity have translated into differences in the strengths of the recovery in the euro area and its competitors. While euro-area exports grew by 5.5% between 2009Q1 and 2009Q4, US exports increased by 13% and Japan by 34%. These differences reflect a much bigger exposure of the US and Japan to the dynamic regions of Latin America and Asia.

**Table I.5: Euro-area exports of goods: sectoral breakdown (volumes - % change)**

	2008Q1-2009Q1	2009Q1-2009Q4
Food and beverages	-7.6	3.3
Raw materials	-20.2	21.7
Crude materials, exc fuels	-22.0	24.0
Manufactured goods	-24.4	7.0
Chemicals	-10.2	8.7
Machinery and transport equip.	-29.3	6.8
Other manufactured goods	-24.1	6.1

*Source:* Commission services.

Looking at the various trade sectors, the recovery has so far been more evenly distributed across products than the slump. The only sector that stands out for growing much faster than other product groups is crude materials excluding fuels (SITC 2), which includes such products as rubber and metalliferous ores. Manufactured goods have been recovering faster than food, but the difference has not been as pronounced as during the slump. Also, the differences among various manufacturing sectors have been rather limited. Services, where the impact of the crisis was more muted than for goods, do not yet seem to have registered a recovery.

### ***1.3. Looking ahead: what are the medium term challenges in a post-crisis world?***

The trade recovery is now gathering momentum on the back of strong import demand in emerging markets. Euro-area exports will be further stimulated by the recent depreciation of the euro. Since its peak last October, the euro's real effective exchange rate has lost close to 10%. Based on the estimates provided in Box I.1, the depreciation, if it persists, could boost exports by about 5%, with much of the gains taking place already in 2010. <sup>(6)</sup>

This is probably a conservative estimate based on relatively low estimates of the price elasticity of euro-area exports. As discussed further in Box I.3, recent empirical research has pointed to much larger estimates of trade price elasticities at the sectoral than at the aggregate macroeconomic level. This could indicate the existence of a downward bias in aggregate macroeconomic estimates and suggests that the sensitivity of euro-area exports to exchange rate fluctuations could be higher than the estimates presented in Box I.1.

Recent positive developments in exports and competitiveness should, however, not breed complacency. The crisis is indeed likely to leave a persistent mark on the structure of world trade. The euro area's export performance has proven to be relatively robust in pre-crisis years but euro-area exporters now face at least three important medium-term challenges: the emergence of the BRICs as the main driving force of world trade, an ongoing deleveraging trend in some parts of the world and possible excess supply in key sectors. The euro area's export performance in the medium term will in part depend on how successful euro-area exporters will be in tackling these challenges.

### **The BRICs are likely to turn progressively into the main driving force of world trade**

Emerging markets have played a key role in the recent recovery of world trade and are projected to become its main driving forces. For instance, according to the latest IMF World Economic Outlook, the BRICs are likely to account for 29% of world GDP by 2015 (on a PPP basis), against 24% in 2009. The same four countries are set to deliver more than 40% of world real GDP growth over the period, with all emerging markets combined accounting for close to 70% (Table I.6.)

As discussed in Box I.2, the BRICs form a relatively heterogeneous group. Their export specialisation is still rather different from that of industrialised economies as they show a relative specialisation in labour-intensive, raw materials-intensive as well as medium- and low-technology goods. However, the emergence of the BRICs has several noteworthy implications for euro-area exporters.

<sup>(6)</sup> Although the depreciation is likely to have a positive impact on exports and hence growth in the short term, its longer-term

impact on GDP is less certain, as the depreciation seems to be associated with increased risk premia.

Table I.6: **Projected contribution to world growth, BRICs (in pp – 2009 to 2015) (1)**

Country	Shares in 2009 world GDP		Growth	Contribution to 2010-15 growth	
	Based on US\$	Based on PPP	2010-15	Based on US\$	Based on PPP
Brazil	2.7	2.9	4.3	0.1	0.1
China	8.5	12.5	9.8	0.8	1.2
India	2.1	5.1	8.2	0.2	0.4
Russia	2.1	3.0	4.1	0.1	0.1
BRICs	15.4	23.5		1.2	1.9
Emerging and developing economies		46.1	6.6		3.0
World	3.5	4.5		3.5	4.5

*Source: IMF.*

First, despite very high investment rates (at least in China and India), emerging economies have comparatively low capital stocks.<sup>(7)</sup> Convergence processes will require sustained high levels of investment. Monthly export data do not yet point to significant product differences in the strength of the recovery but surveys clearly show a stronger improvement of manufacturers' export expectations for investment goods than for other goods. A rebalancing of world growth towards "capital hungry" emerging markets constitutes an opportunity for euro-area exporters of machinery and equipment who have shown a persistently strong competitive position in recent years.

Second, rapid growth in emerging economies and notably in the BRICs will fuel private consumption in these regions. This will in turn affect the composition of world trade in consumption goods. Whereas rapid growth will generate new demand for luxury goods in emerging markets, a traditional stronghold of euro-area manufacturers, its most important implication will probably be the rapid emergence of a middle class with rising but still relatively moderate purchasing power. Meeting such demand will also require manufacturing low-cost consumption goods, a segment on which euro-area exporters – with a strength in high-quality high-price goods – may not be very well positioned.

Finally, the emergence of the BRICs will also have implications on the supply side. As highlighted in Section I.1 and in Box I.2, there is already evidence that China and India have been changing their export structure since the mid-1990s, with a significant increase in the share of

research intensive goods and ICT in total exports, as well as a decreasing share of labour intensive goods. There is also ample anecdotal evidence that emerging economies are boosting their business innovation capacity with a view to producing goods of medium to high quality at low prices.<sup>(8)</sup> Although euro-area exporters have so far coped relatively well with the moving upmarket of some emerging countries, competitive pressures may well rise substantially further in some market segments where the euro area has traditionally shown a competitive advantage.

#### **The ongoing deleveraging trend in some parts of the world will weigh on demand**

The global financial crisis has entailed a partial unwinding of global imbalances. In particular, rising risk premia and changing attitudes towards risks have triggered a deleveraging process in some advanced and emerging economies (mostly European) which had accumulated high levels of private or public sector debt and significant current account deficits. In these countries, protracted deleveraging processes in the private sector or fiscal consolidation are likely to weigh on domestic demand in the years to come.

A persistent deleveraging trend could be a handicap for euro-area exporters which have traditionally been strong suppliers to a range of countries which entered the crisis with sizeable deleveraging needs and/or current account deficits.

<sup>(7)</sup> Although pockets of over-investment cannot be excluded in countries such as China due to heavy investment subsidies in some privileged sectors (notably export sectors).

<sup>(8)</sup> There is in particular evidence of competition from cheap products in sectors such as cars, computers and mobile phone. See The Economist, 'The World turned upside down', A special report on innovation in emerging markets, April 17<sup>th</sup> 2010.

*Box I.3: Aggregate versus disaggregated estimation of trade elasticities*

Trade elasticities are key parameters in evaluating the trade balance effect of exchange rate movements. The Marshall-Lerner conditions state that starting from a balanced external position and under the assumption of full pass-through, depreciating exchange rates improve the trade balance only if the sum of the absolute value of export and import elasticities is above unity. However, trade elasticity estimates are far from robust and there is an important difference in magnitude between estimates based on aggregate and disaggregated data.

Most empirical analyses using aggregate trade data obtain trade elasticities around unity, but in some cases values well below one can be found as well. Estimated elasticities vary quite widely depending on sample and methodology, as the extensive review of Goldstein and Kahn (1985) demonstrates. Box I.1 in this section presents estimates of a long-run export price elasticity of 0.5 for the euro area, while the ECB Area Wide Model uses an elasticity derived from an estimated export equation of about 0.6. Di Mauro et al. (2008) report a price elasticity of 0.6 for the period 2000 to 2007, down from an estimated 1.05 prior to 2000. Similarly, low values between 0.5 and 0.6 are found in recent IMF estimates of the export elasticity for the United States.

In contrast, studies using disaggregated data at industry level find considerably higher response of trade volumes to relative price changes. To the best of our knowledge, these disaggregated studies have so far focused mostly on import elasticities but their general conclusions appear to hold for export elasticities as well. Kee, Nicita and Olarreaga (2008) estimate import price elasticities for more than 100 countries at the HS6 product category disaggregation and obtain an average estimated import elasticity of 3.12, with standard deviation of 8. Broda, Limao and Weinstein (2008) estimate import demand and export supply elasticities at highly disaggregated level based on the methodology of Feenstra (1994). These results also confirm the high average elasticities at disaggregated level and the large dispersion of these elasticities across products. Using the same methodology, Imbs and Mejean (2009) estimate industry-level import elasticities for the US. One added value of this analysis is that it aggregates the industry specific elasticities into a theoretically-founded, macro import elasticity, which is estimated to equal 4.5. Imbs and Mejean (2009) also show that not allowing for industry-level elasticities, but rather assuming a common elasticity similarly to aggregate studies results in a macro elasticity of 2. This indicates that aggregation bias can play an important role, just as suggested by Orcutt (1950): "Goods with relatively low price elasticities can display the largest variation in prices and therefore exert a dominant effect on the estimated aggregate price elasticity, thereby biasing the estimate downwards".

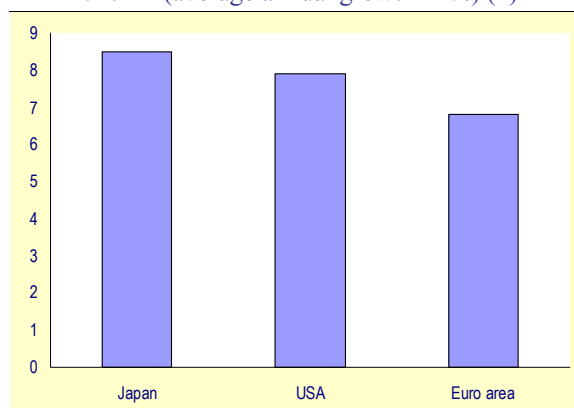
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On average, euro-area export destinations are running current account deficits, notably in large trading partners such as the US and the UK but also in a large part of the new EU Member States.

The impact of the deleveraging will weigh on import dynamics of euro-area trading partners. Graph I.4 shows that external demand is projected to grow less rapidly for the euro-area than for the US and Japan in 2010-11.

Graph I.4: **Forecast foreign demand growth 2010-11** (average annual growth in %) (1)

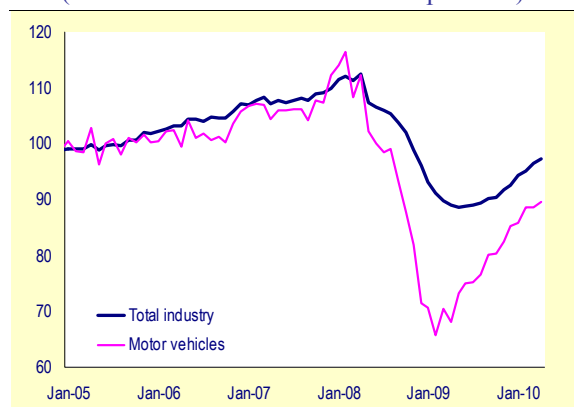


(1) Export-weighted foreign real imports of goods and services in major trading partners. Commission Spring 2010 Forecast.  
**Source:** Commission services.

**Signs on excess supply in some key sectors**

The global financial crisis has left deep scars in some industrial sectors, exacerbating structural weaknesses and forcing a – partly necessary – restructuring. This is obviously true for the housing and financial sectors but also, and more problematically so (for euro-area exports), in the automotive industry. This latter sector has been an important driver of euro-area export growth in the years preceding the crisis, accounting for more than 10% of overall growth in exports of goods. The automotive industry is however facing structural overcapacity problems in Europe as well as in the US and Japan and these problems have been magnified by the crisis.<sup>(9)</sup>

Graph I.5: **Automotive production, euro area** (index 2005=100 – Jan. 2005 to Apr. 2010)



**Source:** Commission services.

Despite a rebound since the middle of 2009, output in the automotive sector in March this year was still 24% lower than at its pre-crisis peak (16% in the case of manufacturing as a whole) (Graph I.5). Competitive pressures in the sector are likely to intensify in the years to come, in particular with the emergence of low-cost producers in some emerging countries.

**I.4. Conclusion**

Euro-area exporters have performed relatively well during the period spanning the launch of the euro up to onset of the global economic crisis. Notwithstanding a substantial appreciation of the euro's real effective exchange rate, losses in market share were more contained than for other major advanced economies such as the US or Japan. Euro-area exporters benefited from a strong position in fast-growing destinations such as Russia and new EU Member States, which more than offset a comparatively weaker position in other emerging markets and in the Chinese market in particular. Overall, the euro area benefited from a slightly more supportive geographical specialisation than the US or Japan.

Judging by traditional indicators of revealed comparative advantage, the sectoral structure of euro-area exports does not appear very conducive to growth. The region shows a stronger specialisation in labour-intensive goods than the US or Japan and a weaker specialisation in research-intensive and ICT sectors. Nevertheless, euro-area exporters performed well in some key export sectors, most notably pharmaceuticals, machinery and transport, which acted as powerful export drivers. There is also evidence that exporters have weathered the competition by raising product quality.

Notwithstanding a relatively good pre-crisis performance, euro-area exporters have been strongly affected by the crisis. Although world trade is now recovering on the back of fast growth in emerging economies, the euro area faces a number of medium-term challenges. These include the shift of the driving force of world trade from advanced to emerging economies with potential strong implications both on the supply and the demand side. The crisis has also triggered a deleveraging process that will have a lasting negative impact on domestic demand in some important trade destinations. Finally, the crisis has also highlighted the existence of structural imbalances in some key export sectors such as the transport sector.

<sup>(9)</sup> See for instance European Commission (2009), 'Responding to the crisis in the European automotive industry', Communication from the Commission COM(2009) 104 final.