The role of trade in goods in the development of global imbalances

Current account balances, which are an indicator of global imbalances, continue to run through analyses conducted by international organisations as a major theme. The focus is often on the determinants of macroeconomic saving and investment decisions, of which current account balances are the mirror image. Domestic and foreign demand developments specific to individual countries have recently been coming increasingly under the spotlight. In the past, however, not enough attention has been paid to the role played by the structure of external trade, even though international trade in goods is a key determinant in the movement and size of current account balances.

A closer look at trade in individual categories of goods initially reveals relatively stable surpluses and deficits relative to the respective trade value. Nonetheless, in the past few decades trade imbalances have increased owing, not least, to the advance of globalisation. In energy trade, moreover, price swings have played a major role. Although capital goods trade has recently assumed a relatively prominent position, the decline in current account balances in the past few years can be explained less by specific developments in individual categories of goods; rather, shifts between deficit countries and surplus countries have been the driving factor.

A breakdown of trade in goods by exports and imports clearly shows that current account deficits are typically accompanied by relative export weakness. Among the advanced economies, the latter could also be a response to the growing importance of the emerging market economies (EMEs), whose increasing integration into global trade may well have put added competitive pressure on some industrial countries. Other countries may have benefited on balance from the growth and shifting composition of global demand. The export structure of each individual country is likely to have determined which of the countervailing effects has dominated. Empirical findings suggest that such product range effects have also impacted on the movement of national current account balances, though not as much as other factors. In this context, however, it must also be noted that relevant characteristics, such as the quality of the exported products, are difficult to measure.

Despite the persistence of current account balances, which is also likely to be attributable to very slow change in export structures, experience over the past few years clearly shows that national positions are quite capable of switching over a long period. This has been demonstrated, for instance, by recent developments in some euro-area countries which, as a result of extensive adjustment processes, have not only reduced excessive domestic absorption but have also improved price and non-price competitiveness alike.

Development of global imbalances

Current account balance as a mirror of microeconomic decisions

An economy's current account balance reflects income flows with the rest of the world. Put simply, it is in deficit if a country's aggregate domestic demand exceeds output. This means more goods and services are being procured from abroad than provided to the country's partners. At the same time, the economy is a net importer of foreign capital, which is used to cover the nation's funding needs. Net borrowing is equivalent to the difference between aggregate investment and saving. Accordingly, a current account surplus, in which output is greater than demand or saving is greater than investment, is associated with net capital exports. The potential causes of current account surpluses or deficits are manifold, as they ultimately reflect myriad individual decisions at home and abroad. Macroeconomically, they may entail entirely desirable deficits (eg in an economic catching-up process) or surpluses (eg if population aging is looming). However, various forms of market failure and potentially distortionary government measures can also influence current account positions.

Analyses of national current account balances often focus on intertemporal determinants of macroeconomic saving and investment decisions.[1] Empirical studies on this basis look at the following factors as potential determinants of the current account balance: the net external position, indicators of income levels and their expected future growth, demographic metrics, metrics which measure the quality of social security systems and the state of development of the financial markets, and indicators of institutional and political risks.[2] However, for many countries this approach only goes part of the way towards explaining the actual extent of their current account position.[3] An alternative, complementary perspective focuses more on the determinants of cross-border trade flows. In its October 2014 edition of the World Economic Outlook (WEO), the International Monetary Fund (IMF) shows that diverging trends in real domestic and foreign demand, in particular, explain a large part of annual change in current account balances.[4]

The global significance of the USA as a deficit country

Not only the determinants of current account balances but also aspects of their sustainability are significant. The question here of whether there exists such a thing as a critical level at which a current account balance may be classified as disproportionately large or even systemically risky is difficult to answer. The IMF monitors and assesses the path of current account balances at the global level.[5] It uses the concept of "global imbalances", which is calculated as total surpluses or deficits of all countries over global gross domestic product (GDP). A country's contribution is thus given by the balance of its current account (in absolute terms) over global GDP. Therefore, the impact of an economy on global imbalances hinges decisively on its size. This is particularly true of the United States, which in 2013 accounted for just under one-quarter of nominal global GDP (aggregated using market exchange rates). The expansion of the US current account deficit from 1½% of national GDP in the mid-1990s to

1 For an overview of the intertemporal theory of the current account, see M Obstfeld and K Rogoff (1995), The intertemporal approach to the current account, Handbook of International Economics, Vol 3, pp 1731-1799. Current research developments in this area may be found in P Gourinchas and H Rey (2015), External adjustment, global imbalances, valuation effects, Handbook of International Economics, Vol 4, pp 585-645.
2 See as an example IMF, External Balance Assessment (EBA) Methodology: Technical Background, Working Paper, June 2013.
3 This is particularly true of major surplus countries such as Germany, Sweden and Switzerland and the oil-exporting countries, but also applies to certain deficit countries. See IMF (2013), External Sector Report, p 26.
4 See IMF, Are global imbalances at a turning point?, WEO, October 2014, pp 115-154.
5 In its "Macroeconomic Imbalance Procedure", the European Commission relies on a series of scorecard indicators – including the current account balance – to make an early diagnosis of potential macroeconomic imbalances in the EU. It analyses the current account balance as a percentage of national GDP in greater detail if the three-year backward-moving average deficit of a member state has fallen below -4% or the surplus has risen above +6%. See Macroeconomic Imbalance Procedure, Regulation (EU) No 1176/2011 of 16 November 2011 and European Commission (2012), Macroeconomic Imbalance Procedure, Scoreboard for the surveillance of macroeconomic imbalances, European Economy, Occasional Papers 92.

5¾% immediately preceding the outbreak of the global financial crisis had a correspondingly strong impact.[6] The associated sharp increase in global imbalances was regarded prior to the financial crisis as a considerable threat to the global economy; with high deficits, there is the danger that interrupting financial flows (also known as a "sudden stop") could trigger an abrupt correction.[7] The risk scenario of violent turmoil in the international foreign exchange and capital markets discussed frequently by the IMF and in the literature at the time, triggered by a sudden shift in foreign investors' preferences away from US assets, failed to materialise even at the peak of the global financial crisis following the demise of Lehman Brothers.[8]

Current account surpluses coming under growing scrutiny in past few years

In the past few years, the focus was placed not only on the major deficit countries but also on the significant surplus countries. One of the issues addressed was China's high level of savings, which prior to the financial and economic crisis had played a major role in the expansion of global imbalances.[9] Japan, too, occasionally stood under particular scrutiny.[10] Since 2011, however, Japan's surplus has fallen considerably, not least owing to increased energy imports following the shutdown of nearly all nuclear power plants. Among the major industrial countries, Germany's current account surplus, at 6¾% in 2013, is at the top of the table (see box on pages 16 and 17).[11] Germany and China each contributed ¼ percentage point to the surplus side of the global imbalances in 2013, whereas the Japanese contribution, owing to the events described above, was recently virtually nil.

Different phases in the development of global imbalances

A look at current account balances relative to global GDP over a relatively long period of time shows different phases of development. After a period of continuous increase, global imbalances appear to have peaked in 2006-07. Since then, numerous countries have seen a perceptible reduction in their current account surpluses and deficits in absolute terms, which means that, on the whole, the dispersion of national positions has likewise diminished.[12] All of the countries in the euro-area periphery, in particular, have succeeded in eliminating their deficit positions completely or for the most part. Moreover, the major importance of the oil-exporting countries, whose surpluses grew perceptibly in the aftermath of the rise in global energy prices at the time, is apparent; however, between 2006 and 2013 the contribution by this group of countries to global current account surpluses fell by one-third. On the whole, the latest figures show global imbalances accounting for only around 2% of global GDP, putting them back close to their level at the turn of the millennium.[13]

IMF expecting sustained decline

The IMF believes that global imbalances have reached a turning point. In a special chapter of the October 2014 edition of the WEO, the

6 In terms of global GDP, this results in an expansion from -¼% to -1½% from 1995 to 2006.
7 See eg O Blanchard and G Milesi-Ferretti (2013), (Why) should current account balances be reduced?, reprinted in H Faruqee and K Srinivasan, Global rebalancing: a roadmap for economic recovery, IMF, pp 9-18, and G Calvo (1998), Capital flows and capital-market crises: the simple economics of sudden stops, Journal of Applied Economics, pp 35-54.
8 See eg IMF, How will global imbalances adjust? WEO, September 2005, pp 68-90, and M Obstfeld and K Rogoff (2007), The unsustainable U. S. current account position revisited, reprinted in R Clarida, G7 Current Account Imbalances: Sustainability and Adjustment, University of Chicago Press, pp 339-376.
9 In a 2005 speech which attracted a lot of attention, Federal Reserve chairman Ben Bernanke drew a link between the US deficit and the pronounced global savings at that time. See B Bernanke, The global saving glut and the US current account deficit, speech delivered on 10 March 2005.
10 However, the Chinese and Japanese current account balances went back down considerably between 2006 and 2013 (from 8¼% to 2% and from 4% to ¾% respectively of national GDP).
11 For more on Germany's current account surplus, see Deutsche Bundesbank, The German economy's current account surplus, Annual Report 2013, pp 39-60, and Sachverständigenrat, Leistungsbilanz: Aktionismus nicht angebracht, Jahresgutachten 2014/15, pp 216-269.
12 For instance, the standard deviation of national current account balances over national GDP contracted by one-ninth between 2006 and 2013.
13 The data refer to the sum total of the balances of all countries running a current account surplus. If, alternatively, global imbalances are measured on the deficit side, the result is much smaller, most recently amounting to a deficit of 1½% of global GDP. The difference between these two figures, known as the "statistical discrepancy", is largely an expression of measurement error and recording problems. It has been positive every year since 2004. By contrast, however, aggregated current account deficits regularly exceeded global surpluses in earlier periods.

The German economy's current account and goods trade surplus

Germany ran a current account surplus of €189 billion in 2013, which equates to 6¾% of gross domestic product (GDP). In recent decades, Germany has predominantly recorded positive current account balances, one exception being the period following the country's reunification. Substantial domestic demand and high capital requirements at that time drove Germany into the red for several years. Only in 2002 did the country return to positive territory, the current account surplus then climbing sharply until 2007 and, after contracting briefly on account of the crisis, reaching its current level.[1]

In regional terms, the growth in Germany's current account surplus was fuelled chiefly by relationships with euro-area countries and to a lesser extent by trade with emerging market economies. However, since the onset of the financial and sovereign debt crisis, the composition of Germany's surplus position has drifted more towards emerging market economies and advanced economies outside the euro area, whereas its positive balance vis-à-vis euro-area partner countries has steadily diminished as a result of the adjustment processes there.[2]

As in many other surplus countries, the balance of trade in goods is the key component of Germany's current account balance. However, the balance of primary income, which predominantly reflects investment income from net external assets (accumulated through current account surpluses), is becoming increasingly significant for Germany. By contrast, the country's current account surplus is being diminished by cross-border services (on account of the negative travel balance) and the persistent deficit in the secondary income item, which comprises *inter alia* government expenditure on contributions to the EU budget.

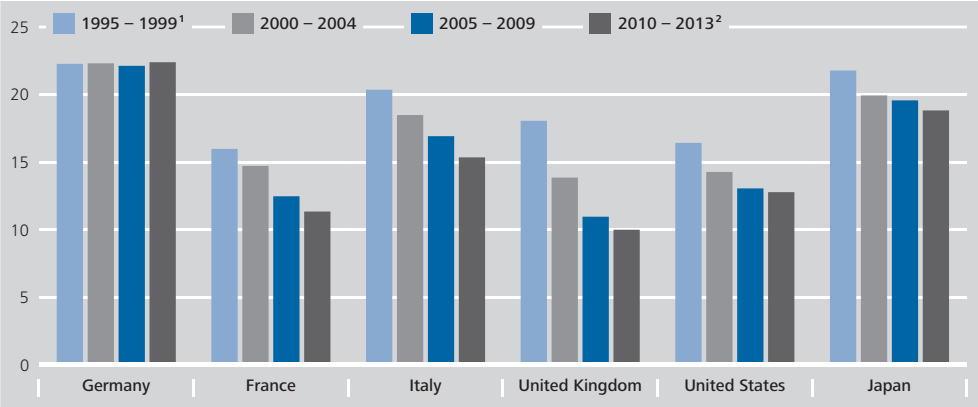
By international standards, Germany's manufacturing sector contributes a relatively high share of value added to GDP. While developments such as the fiercer competitive pressure from abroad or the increasing tendency among firms to shift their production facilities to other countries have eroded other advanced economies' industrial base, substantially so in some cases, over the past two decades, the German manufacturing sector's contribution to total economic output has remained more or less constant. At the end of the day, an economy's specialisation in specific sectors and products reflects its factor endowment and comparative advantages, both of which are influenced by factors including path-dependent investment decisions by the private sector, government framework conditions and the skill structure of the working population. Furthermore, Germany's economic structure should be viewed in the context of domestic demand and the focus of domestic enterprises on exports. For example, German enterprises responded to the weak domestic demand in the late 1990s by stepping up their efforts in the export markets. The output of capital goods and motor vehicles in particular has since significantly outstripped domestic demand. Correspondingly, the structure of the German economy is also reflected in its export portfolio, which is clearly distinct from that of other industrial countries in that these two categories account for a relatively large proportion of total exports.

One of the likely reasons for the strong performance of German exporters is that their range of products dovetailed with the fast-growing demand in emerging market economies in recent decades. Another is that German enterprises knew how to seize the emerging opportunities offered by globalisation in the early 1990s with the fall of the

1 See also Deutsche Bundesbank, The German economy's current account surplus, 2013 Annual Report, pp 39-60.
2 See also Deutsche Bundesbank, German balance of payments in 2013, Monthly Report, March 2014, notably pp 36ff.

Value added in the manufacturing sector

As a percentage of GDP, average for each period



Source: World Bank. **1** Data for the USA from 1997. **2** Data for the USA and Japan until 2012.
Deutsche Bundesbank

Iron Curtain and how to harness cost advantages by creating international production networks.[3] The outcome was that German exporters succeeded in holding their own in the foreign sales markets, notably so in real terms, whilst other advanced economies were increasingly forced to surrender shares of the global market to emerging market economies.[4]

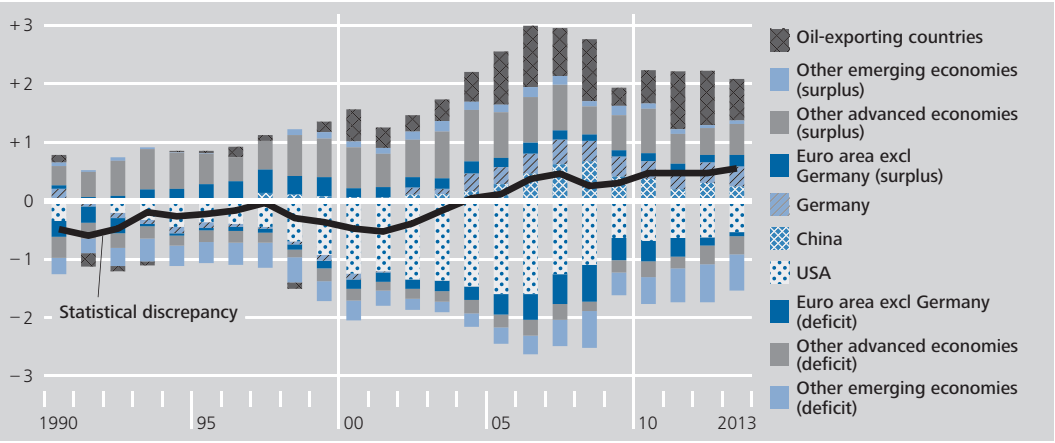
The German economy's supply-side structure in recent decades has, in principle, helped the country to run up external surpluses. But the positive current account balance also needs to be viewed in terms of the saving and investment behaviour in the domestic sectors. One noteworthy factor in this respect – leaving aside the corporate sector's reluctance to invest, insofar as this reticence was motivated in recent years by uncertainties surrounding the euro-area crisis – is Germany's comparatively unfavourable demographics. General government deficits were pre-emptively pared back to allow for demographic trends, while retirement provision considerations during a period of very restrained income growth have caused households to adjust their consumption and savings behaviour in recent years. Non-financial corporations seized the upside potential which the favourable development in international demand has opened up in order to consolidate their capital base.[5] Furthermore, the at times muted growth in domestic consumption, along with the prospect of the ageing population diminishing the labour force, is likely to have sharpened businesses' focus on the external sales markets and dampened their investment at home.

In all likelihood, Germany will continue to run a positive current account balance for the foreseeable future. Indeed, the ongoing decline in oil prices will even have the effect of driving the surplus higher still at the current juncture. Nevertheless, the surplus will probably shrink in size over the medium term as savings in Germany decline because an increasing proportion of the population reach stages of their life when they have a lower propensity to save. The surplus is also likely to diminish when the economic recovery gains pace, as expected, in key euro-area partner countries, which can be expected to be accompanied by lower uncertainty as well as a normalisation of domestic investment.

3 See also Deutsche Bundesbank, The German economy in the international division of labour: a look at value added flows, Monthly Report, October 2014, pp 27-42.
4 See also Deutsche Bundesbank, The German economy in the international division of labour: a look at value added flows, Monthly Report, October 2014, notably pp 29-30.
5 See Deutsche Bundesbank, Capital base of non-financial enterprises in Germany sustainably strengthened, Monthly Report, December 2013, pp 44-46.

Current account balances

as a percentage of global GDP



Source: IMF.
Deutsche Bundesbank

Fund has identified a sustained decline, which it attributes largely to non-cyclical factors.[14] The article states that national current account positions are increasingly in line with the fundamentals, and that the significance of policy-induced imbalances has tended to diminish. Therefore, by that reasoning, global imbalances are less likely to be a source of systemic risk.

Contribution of trade in goods to global imbalances

Decomposing imbalances into sub-accounts of the current account …

Existing explanations cannot completely account for the trends and determinants of current account balances and thus of global imbalances. However, little attention has been paid thus far to the sectoral aspects of cross-border transactions. The sub-accounts of the current account, which distinguish between trade in goods, trade in services and international primary and secondary income, shed light on the structure of the transactions.[15]

… shows the dominant role of trade in goods

By aggregating national balances at this level separately for the countries running current account surpluses and deficits, global imbalances can be decomposed into sub-accounts. This calculation shows that international divergences are largely located in trade in goods; for instance, when global imbalances peaked in 2006, the total nominal balances in trade in goods of the deficit countries even exceeded those of current account balances.[16] Movements in trade in goods also seem to have been determinants of the ups and downs over time.[17] Trade in services, by contrast, tends to have had the effect of narrowing imbalances. China's rising deficits in trade in services are a particularly prominent factor (see box on pages 20 to 22). This is mirrored by net service ex-

14 See IMF, Are global imbalances at a turning point?, WEO, October 2014, pp 115-154.
15 According to the sixth edition of the Balance of Payments and International Investment Position Manual (BPM6), the current account is broken down into the following sub-accounts: trade in goods, trade in services, and primary and secondary income. In the fifth edition (BPM5), the two lattermost sub-accounts (merged here to form one) were still listed as the balance of income and the balance of current transfers. See Deutsche Bundesbank, Changes in the methodology and classifications of the balance of payments and the international investment position, Monthly Report, June 2014, pp 57-68.
16 For the group of surplus countries, net goods exports virtually matched the aggregated current account position. The causes for the differences between the two groups of countries are not economic in nature but go back instead to the statistical discrepancy in the current account statistics.
17 The interpretation of the contributions by each sub-account over time is impaired by a statistical break in 2010. From that year onwards, the analysis is based on data provided by national statistics offices or the IMF according to the BPM6 guidelines. Data for earlier years are based on the BPM5 structure, which is not identical. At least for 2010, for which the IMF Balance of Payment Statistics provides data according to both sets of definitions, the impact of the chosen accounting standard on the structure of global imbalances presented above is negligible, however.

ports of countries running a current account deficit – including the United States and United Kingdom. By contrast, the other transactions increased global imbalances slightly.[18]

Closer analysis of trade in goods …

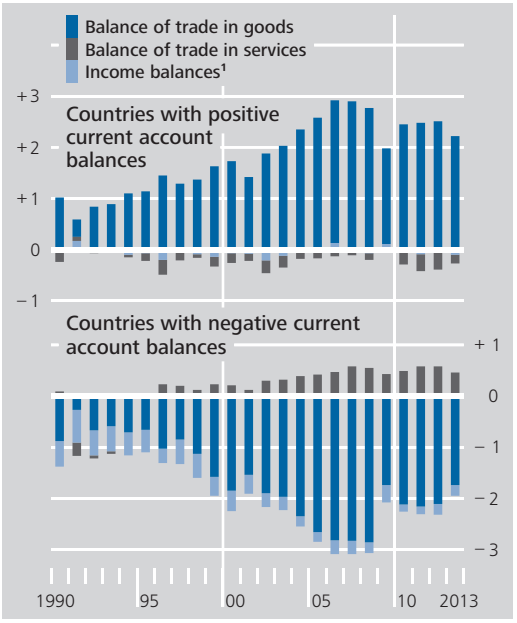
For a better understanding of global imbalances, it therefore makes sense to examine international trade in goods more closely. One particular question is whether individual categories of goods can be isolated as the main components of global current account gaps. The first step will be to analyse balances more closely at the level of individual categories of goods.[19] They are an expression of the differences between output and demand in each respective category of goods across countries which, according to the theory of international trade, are the result of comparative advantages. These balances are then divided by global GDP to identify their potential impact on global current account balances. This is not the same, however, as the actual contribution by a category of goods to global imbalances, which is the sum total of the respective positions of countries with current account surpluses or deficits. Both approaches match only if all economies with positive or negative net exports in the respective goods categories also have an identical sign in their overall current account balance. This would be the case, for instance, with respect to the category of motor vehicles if all net importers of motor vehicles were running current account deficits and all net exporters were running surpluses. However, in actual fact, the sign of trade balances at the level of the individual category of goods will never always match the sign of a country's current account balance. That is why the actual contribution of a category of goods to global imbalances is generally considerably smaller than the potential contribution.

… points to relatively stable balances in major categories

At the level of individual categories of goods, the ratio between total (absolute) next exports and the respective total market value yields information about the unequal distribution of supply and demand. These ratios are found to vary strongly in the individual categories whose

Contributions of the sub-balances to the global current account balances*

as a percentage of global GDP



Sources: IMF and Haver Analytics. * Global balances show statistical discrepancies. Prior to 2010: classification based on Balance of Payments and International Investment Position Manual 5 (BPM5); from 2010, based on BPM6. 1 Primary and secondary income (BPM6) or income and current transfers (BPM5).

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definitions follow the structure of the system of national accounts. [20] The degree of concentration thus defined is particularly high for energy,

18 In mathematical terms, the balances of primary and secondary income caused the deficits of the countries with negative current account balances to increase somewhat. For this relatively stable negative position, however, the countries with a positive current account balance do not have a correspondingly-sized surplus, on the aggregate; the primary and secondary income recorded here therefore have made, on the whole, only a minor contribution to the size and movement of global imbalances. The relatively large statistical discrepancy is attributable in part to the omission of the current account balances of international organisations, which run large surpluses particularly in the balance of secondary income.

19 Disaggregated data on trade (UN Comtrade) are compiled and published by the United Nations Statistics Division. Owing to major gaps in data availability, the analysis below is confined to the period between 1998 and 2012.

20 The breakdown is based on the classification of trade in goods in Broad Economic Categories (BEC), which in turn allows items to be assigned to the demand components of the national accounts. Motor vehicles are reported separately because they can be used as both consumer and capital goods. In addition, from now on trade in motor spirit, which does not fit into a unique category, will be recorded together with trade in other fuels and lubricants and crude oil as an independent category (energy). See United Nations (2002), Classification by Broad Economic Categories, Statistical Papers, Series M, No 53.

Driving forces behind the Chinese current account

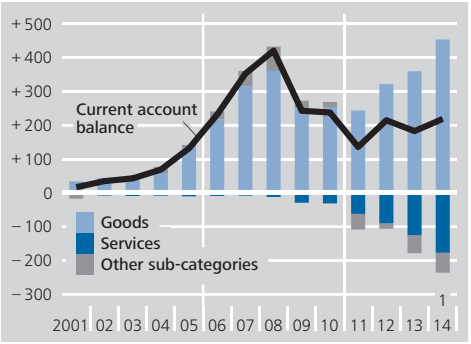
China was instrumental in contributing to the accumulation of global imbalances prior to the worldwide financial and economic crisis. Its current account surplus, which stood at just US$17 billion in 2001, had ballooned to US$421 billion by 2008, the year in which China accounted for almost one quarter of the world's total current account surplus. Relative to the country's gross domestic product (GDP), China's current account balance reached its zenith at 10% in 2007.

The sharp increase in this figure was mainly driven by expanded surpluses stemming from international trade in goods. These in turn were largely caused by the substantial jump in nominal goods exports between 2001 and 2008, which averaged an annual 27¼% (in US dollar terms).[1] This export growth had been given an important boost when China joined the World Trade Organization (WTO) in 2001 and in so doing signed up for the liberalisation measures this entailed. Moreover, up to the middle of the last decade, China's price competitiveness improved distinctly according to a range of indicators.[2] This improvement was also facilitated by the strict pegging of the renminbi to the US dollar up to 2005 before the Chinese central bank allowed the currency to gradually appreciate. Overall, in the period up to 2008, China's exports grew at a much faster pace than did its export markets.[3] This is also reflected in the fact that between 2001 and 2008 China more than doubled its (nominal) share of global goods exports from 4¼% to 9%.

In 2009, the high surplus on the Chinese goods account experienced a marked fall. This adjustment arose mainly from the fact that Chinese exports of goods dropped sharply in the wake of the global economic slump while its import figures remained more stable, not least owing to a very extensive government investment programme. Since 2012, however, the surplus on the goods account has been following a marked upward trajectory again and, at around US$450 billion, it may well have recorded a new all-time high in 2014. Yet Chinese goods exports have expanded at a much slower pace over the past three years than before the crisis, namely by an average of "just" 7¼% *per annum.* This moderate

Chinese current account balance and components

US$ billion



Source: China State Administration of Foreign Exchange. **1** Bundesbank calculation based on data from first three quarters of 2014.

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1 During the same period, goods imports (in terms of value) grew at a less lively pace, averaging an annual rate of 24½%. The sharp increase in international commodity prices seen over the years in question also helped bring about the nominal growth in imports.
2 See inter alia C Fischer and O Hossfeld (2014), A consistent set of multilateral productivity approach-based indicators of price competitiveness – Results for Pacific Rim economies, Journal of International Money and Finance, Vol 49 (PA), pp 152-169; as well as G Ma, R McCauley and L Lam (2013), The Role of Saving, Investment and the Renminbi in Rebalancing the Chinese Economy, Review of International Economics 21(1), pp 72-84.
3 The growth rate of China's export markets is calculated as the weighted average of the expansion rates of imports by China's trading partners. The weights applied reflect the importance of the individual buyer countries for China's exports.

growth rate resulted not just from the dampened (increase in) demand in major export markets, specifically in a number of advanced economies, but also from China's greatly reduced ability to boost its share of the market, compared with the period before the crisis. The fact that much higher labour costs have eroded the price advantages which Chinese products enjoy may have a played a role in this.[4]

The renewed upturn in China's trade balance since 2012 was instead primarily driven by the fact that the country's nominal growth in goods imports decelerated even more substantially than its nominal growth in exports, by 4% *per annum* on average.[5] This modest growth in imports contrasts somewhat with China's robustly expanded GDP, which increased at an annual rate of around 7½% in real terms over the same period. A breakdown of Chinese imports by Broad Economic Categories (BECs) reveals that import momentum has slackened most in the case of transport equipment and other capital goods. With respect to transport equipment, this would appear to be down to the fact that foreign car manufacturers – including German ones – are now making greater use of local production facilities to cater for the Chinese passenger car market.[6] The slowed growth in other capital goods is less easy to explain. It might be that investment in machinery and equipment is now growing at a perceptibly flatter pace. However, gaps in the Chinese statistics ultimately make it impossible to confirm this suspicion.[7]

The surplus on trade in goods may have widened substantially since 2012, but its impact on the current account balance has been modest at best, with the effect that this figure has remained distinctly below its peak figure from 2008.[8] This was mainly caused by a burgeoning deficit on the ser-

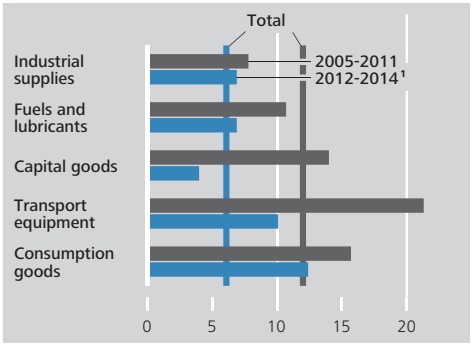
Chinese exports and export markets*

Year-on-year percentage change

Source: OECD. * Referring to goods and services in real terms.
Deutsche Bundesbank

Chinese imports by significant goods categories*

Average annual percentage change



Source: China Customs Administration and Bundesbank calculations. * Price-adjusted (Quantum index). 1 Data for 2014 based on monthly figures up to November.
Deutsche Bundesbank

4 See Deutsche Bundesbank, The development of labour costs in China and their impact on consumer prices in the industrial countries, Monthly Report, May 2013, pp 13-15.
5 In real terms, the increase would appear to have been slightly higher, largely on account of the downward drift in commodity prices. Taking the official price measure for imports (which uses unit values) as the basis for calculations, prices for imported goods have fallen by 2% per annum in US dollar terms.
6 See Deutsche Bundesbank, Reasons for the recent slump in German goods exports to China, Monthly Report, November 2013, pp 47-49.
7 The national accounts presented by China's National Bureau of Statistics do not contain any figures on the country's investment in machinery and equipment, only aggregate data on nominal gross fixed capital formation.
8 At roughly 2% in 2014, the surplus as a share of GDP likewise remained far removed from its past all-time high.

vices sub-account which is likely to have risen to around US$180 billion in 2014.[9] By international standards, China has been the country with the highest services deficit since as far back as 2012. This deficit is driven by a marked increase in imported services which more than doubled to US$331 billion between 2009 and 2013. The lion's share of this amount, ie two-fifths, is accounted for by services relating to travel. According to information provided by the United Nations World Tourism Organization (UNWTO), Chinese citizens are now the world's biggest spenders on tourist travel abroad. Their increasing interest in tourism is chiefly the result of a growing middle class and the removal of travel restrictions.

The upward trajectory of the Chinese current account surplus observed since 2012 will probably continue along the same path in the course of the current year. The latest price movements in the commodity markets are also likely to play a key role here. Over the past few months, crude oil prices, but also the price demanded for iron ore (which is of major significance for China) have plummeted. According to our estimates, if these lower price levels persist, the amount China has to spend on imports could turn out to be around US$80 billion less than in 2014.[10] Even so, the deficit on the services account will doubtless rise once again in 2015 because of the expected further increase in foreign tourism.

9 When comparing recent figures with 2008, account should also be taken of the fall in the primary and secondary income balance (summarised here) that has arisen in the intervening period. This dip reflects inter alia a larger deficit on income from direct investment.
10 This rests on the assumption that China will continue to import the same quantities of crude oil and iron ore as in 2014.

of which trade in crude oil and refined petroleum products is the most important component, and in the motor vehicles segment. Compared to the high level of trade, net exports in the cross-border exchange of intermediate products and in trade in consumer and capital goods are, in nominal terms, much smaller.[21] What is also striking is that the ratios move relatively smoothly in all categories over time. Since the turn of the millennium, the degree of concentration has been declining slightly for energy and increasing for capital goods. Only negligible shifts can be seen for the other categories of goods.

Energy makes potentially greatest contribution to imbalances

Not only the degree of concentration but also the value of trade is important for the above-explained potential contributions by individual categories of goods to global imbalances. Dividing the aggregated balances by global GDP shows clearly that the importance of the motor vehicle segment is comparatively minor, whereas the potentially most important imbalance over the past few years is to be found in trade in energy. It must be taken into account that, in this case, variables in nominal terms are being compared with one another. Therefore, the movements of relative prices are important, specifically as regards energy. The sharp fluctuations of the potential contributions relative to global GDP are likely to be attributable, in particular, to swings in crude oil prices. Looking at the other categories of goods, it is notable that, in the years prior to the international financial and economic crisis, increasing globalisation was causing aggregated foreign trade balances to grow faster than global GDP. In the capital goods segment, the percentage rise was particularly pronounced. Even in 2009, there was only a relatively small correction, and a temporary one at that. At last report, the aggregated category-specific trade balances

21 The varying degrees of homogeneity within each respective category of goods represent one of the problems with this approach. For instance, capital goods are probably more heterogeneous than energy.

appear to have stabilised back at their high levels of 2008.

Composition effects important for actual contributions

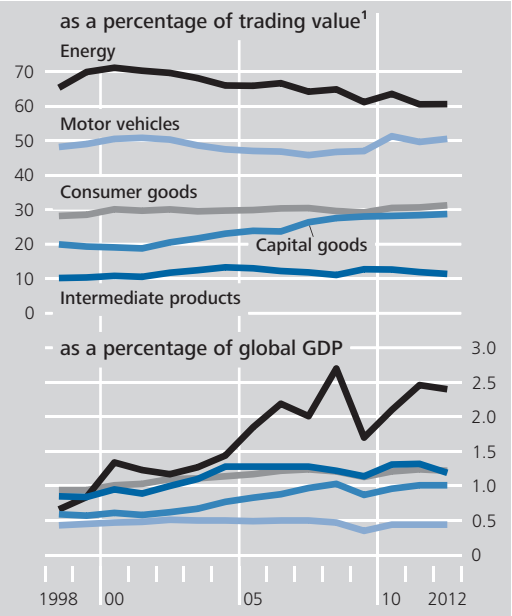
Actually, all categories of goods made relatively similar contributions to aggregated current account balances. For instance, in the period between 1998 and 2012 those countries which had positive current account balances nearly every year also, on the whole, were running surpluses in trade in motor vehicles, energy, capital and consumer goods and intermediate products. It must be emphasised that energy's actual contribution to current account surpluses is relatively small compared to its potential significance. One factor is that the group of countries with current account surpluses also includes many countries which are recording large deficits in this particular category of goods.[22] Over time, the contributions by the individual categories of goods followed the same pattern that has emerged at the category level, especially during the phase in which the global imbalances were built up, which ended in 2006-07. The rise in global imbalances was sustained through all categories of goods, though the growing significance of energy trading is particularly striking. Since then, however, especially in the areas of intermediate goods and motor vehicles, the contributions to the level of global imbalances shrank more markedly than was to be expected on the basis of the potential contributions.[23] On the other hand, it is notable that, in the past few years, the actual contribution by capital goods was rather high in relation to its potential impact. Surpluses in trade in capital goods are apparently a characteristic feature of countries with significantly positive current account balances, while deficits in this category are typical of countries with negative current account balances.

Heterogeneous developments in imports and exports

The increase in imbalances in the international trade in goods prior to the global recession may, in principle, have been a reflection of diverging developments on the import and export sides. In actual fact, those countries which had a current account deficit when global imbalances were at their height in 2006 were distinguished by comparatively muted growth in exports from the second half of the 1990s onwards. In the period from 1998 to 2006, this

Deficit countries with relatively weak export growth

Global external trade balances* in major categories of goods



Sources: UN Comtrade and Haver Analytics. * Measured as the sum of the balances in the trade of goods in absolute terms divided by two. Owing to the statistical discrepancy, a distinction between deficit and surplus positions would otherwise be necessary. 1 Average of imports and exports within each category.

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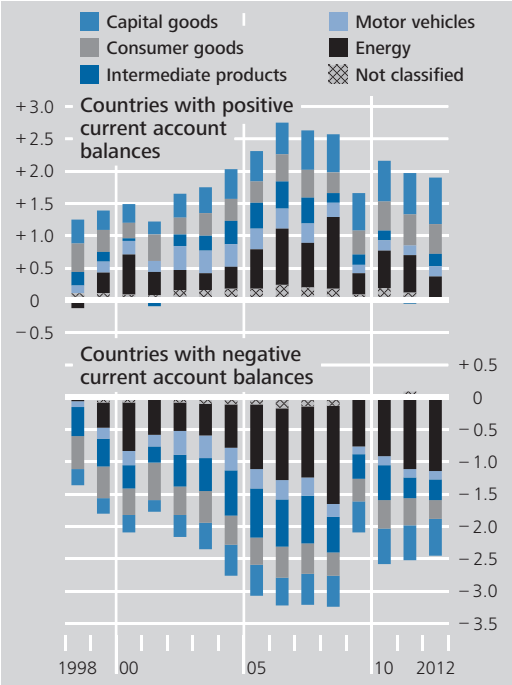
22 In the other categories of goods, too, totalling across deficit and surplus countries masks at times major differences within the respective groups. For instance, in 2006, the ten deficit countries which made the greatest contribution to the level of global imbalances include significant net exporters of consumer goods (Turkey, Italy, Poland), motor vehicles (Turkey, Poland), capital goods (United Kingdom, Italy) and intermediate goods (Australia). Only three countries (United States, Portugal and Greece) reported deficits in all categories.

23 The background to this observation is that in 2006, for example, China – a country with a positive current account balance – ran the highest deficit of all countries relative to global GDP in intermediate goods, and that this deficit has increased further since then. By contrast, over the same period the United States, among other countries, reduced both its current account deficit and the negative gap between exports and imports of intermediate goods. The upshot of these developments is that, although imbalances at category level remained virtually unchanged, the contributions to the level of current account imbalances fell considerably.

Contributions made by trade in various categories of goods to global current account balances

as a percentage of global GDP



Sources: UN Comtrade and Haver Analytics.
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group of countries increased its exports in relation to global GDP only from just under 7¼% to 8¼%, while the surplus countries' ratio of exports to global GDP went up by more than 4½ percentage points to 14¾%.[24] By contrast, growth in imports in relation to global GDP was developing in a quite similar way for both groups of countries up to 2006. Starting from 1998, it grew by 2¾ percentage points in the group of deficit countries and by 3 percentage points in the group of surplus countries. From 2007, however, the decline in imports was sharper and more sustained in those countries which had previously shown current account deficits.

Sharp decline in imports, especially in group of advanced economies

The recent sharp fall in imports in the countries with a negative current account balance likewise becomes obvious if the analysis is confined to advanced economies. Adjustment of the excessive absorption in the economies of the European periphery countries is likely to have played a part in this. Moreover, the fact that growth in the exports of the deficit countries is lagging behind that of the surplus countries is likewise apparent for this more homogeneous group of countries; when the global imbalances were at their height, they comprised at least half of the ten countries with the largest contributions on both the deficit and surplus sides. Thus, it was not just the EMEs that were responsible for the differences.

Increasing importance of emerging market economies in world trade …

The discrepancies in export performance raise the question of whether they are not merely a reflection but also possibly a cause of the observed increase in imbalances. Against this backdrop, the surge in globalisation that occurred almost simultaneously with the expansion of current account balances is of significance. This led to a shift of supply and demand on the international goods markets, resulting in the steadily increasing importance of oil exporters and EMEs in worldwide trade relationships. While this group of countries accounted for no more than 22¼% of global trade in 1998, their share had gone up to 30½% by 2006 and continued on an upward trend thereafter. The growing importance of these groups of countries manifested itself in different ways, however. While emerging markets benefited to a greater extent from the expansion of manufacturing, the accompanying global increase in demand for raw materials led, especially in the oil-exporting countries, to higher exports (and consequently to rising imports of finished products).[25] The ongoing economic catching-up process of the emerging market economies has also been reflected in a markedly different structure of global growth. Worldwide real

24 This is due to the fact that the percentage annual increase in exports in the group of surplus countries (+11¼%), which consists of somewhat more open economies, was significantly higher than that in the reference group (+8¼%). It should nevertheless also be borne in mind that, measured in terms of GDP, the export level of the surplus countries in the starting year was already significantly higher than in the deficit countries.

25 For an overview of developments in world trade, see also N Riad, L Errico, C Henn, C Saborowski, M Saito and J Turunen (2012), Changing Patterns of Global Trade, IMF Strategy, Policy, and Review Department, Departmental Paper No 12/1.

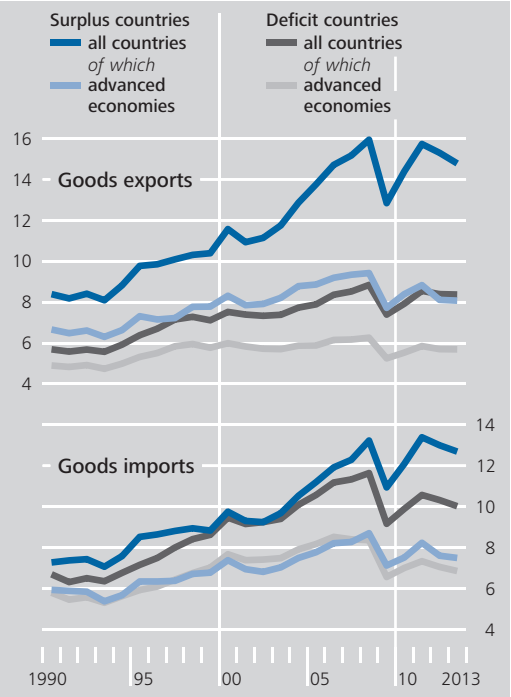
gross fixed capital formation increased by no less than 4% per year in the period from 1998 to 2006, compared with only 2½% in the eight years before. In comparison, growth in real private consumption accelerated less strongly from just 2¾% to 3¼%.[26] The increasing influence of the emerging market economies might also be one key reason for the change in relative growth between world trade and global economic activity over the past few years (see box on pages 27 to 29).

… with differing implications for advanced economies

In 1998, the oil-exporting countries and emerging market economies still had a slightly negative current account balance in relation to global GDP.[27] The steady process of their integration into the world economy led to the build-up of a surplus position of 1¼% of global GDP in 2006.[28] This was admittedly accompanied by increasing deficits in the aggregate of the other economies. Within this group, however, individual countries were affected to widely differing degrees. This is particularly true with regard to the exports of advanced economies. Although stronger competition on the global markets from emerging markets shifted market shares to the detriment of the industrial countries, competitive pressure is unlikely to have increased to the same extent for all the advanced economies. The increase is likely to have been considerably more noticeable for economies with a comparatively large share of less technology-intensive consumer goods exports. By contrast, countries that were able to respond to the rise in global demand with a complementary pattern of export goods appear in some cases to have gained considerably from the emerging markets' growth in importance.[29] Particularly economies which have specialised in the manufacture of high-quality capital goods or which have a large export share of highly tradable industrial goods appear to have been in a better position to service the rapidly growing demand.[30] Heightened demand from EMEs is also likely to have been of importance for the trade balances of the oil-exporting countries, not only because of the increase in the volume of demand, but also owing to the associated increase in the price of oil. To the extent that the oil-producing countries used rising export revenues to buy products from third countries, they also influenced their trade balances.[31]

Trade in goods by countries with current account surpluses and deficits*

as a percentage of global GDP



Sources: IMF and Haver Analytics. * Sorted according to the sign of their current account balance in 2006.
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26 The aggregates were calculated by the World Bank on the basis of 2005 market exchange rates.
27 The underlying trade deficit was, in turn, divided into a marked surplus of the emerging market economies against the advanced economies and a perceptible deficit against the oil-exporting countries, which, in turn, showed a slight bilateral trade surplus with the other two groups.
28 The distribution of trade balances in terms of surplus or deficit positions compared with the individual groups of countries remained the same, however.
29 See R Chen, G Milesi-Ferretti and T Tressel (2013), External imbalances in the eurozone, Economic Policy, 28 (73), pp 101-142.
30 See M Grömling (2014), A supply-side explanation for the current account imbalances, Intereconomics, 49 (1), pp 30-35.
31 See Deutsche Bundesbank, Has the recycling of oil revenues to the consumer countries accelerated?, Monthly Report, May 2005, pp 12-13; and Deutsche Bundesbank, The price of crude oil and its impact on economic activity in the industrial countries, Monthly Report, June 2012, pp 27-49.

The possible role of the export structure

Rough classification shows no obvious differences in the export structure

The described differences in the effects of globalisation on the advanced economies' exports are predicated, among other things, on differences in the pattern of exported goods. A categorisation of exports based on the BEC classification reveals hardly any deviations between the industrial countries under focus here, however. Although a strong dispersion of (normalised) measures of comparative advantage can be observed at national level, no obvious differences between later surplus and deficit countries are to be discerned.[32] At the height of the global imbalances in 2006, for example, countries with a comparative advantage in the production of motor vehicles can be found in both groups. In the case of the surplus countries, this was mainly Germany and Japan, and, on the deficit side, Spain and Portugal. A similar picture is presented by capital goods, in which the deficit countries Poland and Greece show a comparative disadvantage, as do the surplus countries Singapore and Norway. Over time it nevertheless becomes apparent that – starting with quite similar shares of exports in 1998 – the group of deficit countries shows a markedly weaker growth in exports in nearly all categories.

Calculation of detailed indicators …

The rather rough classification used hitherto possibly masks a greater heterogeneity within the individual categories, which may be one factor that is responsible for export growth deviating over time. At this point, therefore, use is made of trade data that provide a more detailed breakdown in line with the Harmonized Commodity Description and Coding System (HS).[33] With the help of these data, information-aggregating indices can be calculated; specifically, the Export Similarity Index (ESI), which is a measure for determining how similar two countries' exports are, and the Trade Complementarity Index (TCI), which captures the extent to which a given country's exports complement the import demand of its trading partners.[34] Below, the advanced economies are compared with the rest of the world consisting of the oil-exporting countries and EMEs.[35] For example, Italy having a higher ESI value than Japan in 2006 implies that Italian exporters were put under greater pressure by rising exports from the latter group of countries than Japanese enterprises were. As the TCI index figure for Japan was, at the same time, higher than the figure for Italy, this signifies that, according to this indicator, the pattern of Japanese exports was better matched to the increased import demand of the oil-exporting countries and EMEs.

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32 The revealed comparative advantage (RCA) is the measure calculated. This places a country's share of exports in one sector j in relation to this sector's share of global exports. The normalised real comparative advantage (NRCA) limits the lower and upper bounds to [-1, +1]. An NRCA greater than 0 implies a revealed comparative advantage of the country in sector j, ie the share of exports j in the country's total exports is larger than the corresponding global share.

33 HS data are available for international comparison up to the six-digit level (HS6), which allows a distinction to be made between more than 5,000 different product categories. For example, cars are broken down at this level according to four cylinder capacity classes as well as type of engine (petrol or diesel). The data were also taken from UN Comtrade.

34 The ESI and the TCI between two countries a and b are calculated applying the formulas:

$$ESI(a,b) = \left[\sum_i min\left[X_i(a)/X(a), X_i(b)/X(b)\right]\right] * 100$$

and

$$TCI(a,b) = \left[1 - \sum_i \left[M_i(b)/M(b) - X_i(a)/X(a)\right]/2\right] * 100$$

with $Xi(z)$ and $Mi(z)$ in the relevant nominators, respectively, standing for the exports and imports of country z in product category i. The figures in the denominator $X(z)$ and $M(z)$, in turn, denote the total exports and imports, respectively, of country z. Accordingly, the quotient represents the respective shares of exports and imports of a product category i in a country's total exports and imports. Both the ESI and the TCI lie in the interval [0,100] and higher index values in both cases indicate that a country has a greater export similarity and a more complementary export pattern compared with the country used as a reference. See J Finger and M Kreinin (1979), A measure of "Export Similarity" and its possible uses, The Economic Journal, 89 (356), pp 905-912, as well as M Michaely (1996), Trade preferential agreements in Latin America: an ex-ante assessment, World Bank, Policy Research Working Paper No 1583.

35 To do this, both the ESI and the TCI are calculated individually for each of the advanced economies in comparison with each country in the reference group, and a weighted average is formed from this. The individual country weights are, in turn, given by the respective countries' export shares (ESI) and import shares (TCI) respectively in the total exports and imports of the oil-exporting countries and EMEs.

The decline in the elasticity of global trade to global economic activity

Economists once assumed that, over an extended period, the volume of global trade grew approximately twice as fast as economic activity.[1] The elasticity of global trade to global real gross domestic product (GDP) was therefore taken to be around two.[2] It should be noted, however, that this figure was no more than a long-term observation, not a correlation derived from theory. Based on data published by the International Monetary Fund (IMF) in its World Economic Outlook (WEO) dated October 2014, the volume of global imports (goods and services) expanded by an annual average of 6% between 1980 and 2007. Over the same period, global economic activity, aggregated using exchange rates based on estimated purchasing power parities (PPPs), increased by 3½% per year, with the result that elasticity, measured by mean growth rates, came in at 1.7. Between 2008 and 2014, PPP-weighted real GDP grew by 3¼%, which was just short of the average observed in the previous period. Global trade momentum, by contrast, decreased quite substantially, such that the annual increase of 2¾% even turned out to be weaker than the rise in global economic activity; elasticity measured using the mean growth rates almost halved to 0.9.

A large number of economists find this conspicuous slowdown in global trade growth relative to the pace of global economic activity a cause for concern. The debate centres on whether the observed decrease in elasticity is of a cyclical, and hence temporary, nature or whether its causes are structural. Various explanations for a permanent shift have been posited, first and foremost a flattening of the pace at which international production chains are expanding, the growing importance of trade in services or increased protectionism.[3]

However, it should be borne in mind that global GDP in PPP terms, which is the IMF's preferred indicator of global economic activity, is not the best benchmark for global trade because PPP exchange rates are not relevant on international markets, nor are they used to measure trade variables. Using official or market exchange rates to aggregate national data, however, attaches a smaller weighting to emerging market economies which have grown rapidly over the past few years. Consequently, this

Average growth of economic activity and import volume

% or unit-free

Item	Period	
	1980-2007	2008-2014
Real GDP growth		
World at purchasing power parities	3.6	3.2
Advanced economies	2.9	0.8
Emerging market and developing economies	4.4	5.3
World at market exchange rates	3.0	2.0
Import volume growth[1]		
World	6.0	2.8
Advanced economies	5.8	1.4
Emerging market and developing economies	6.2	5.6
Import/GDP growth ratio		
World at purchasing power parities	1.7	0.9
Advanced economies	2.0	1.7
Emerging market and developing economies	1.4	1.1
World at market exchange rates	2.0	1.4

Sources: IMF WEO (October 2014) and Bundesbank calculations. IMF country groupings. Data for 2014 are IMF projections. **1** Goods and services. Aggregated using market exchange rates.

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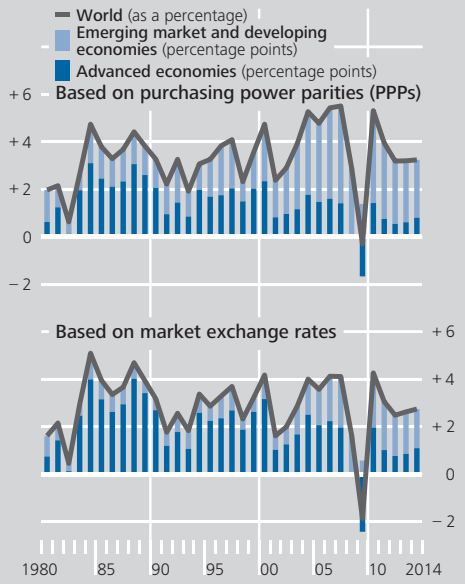
1 See C Freund, The Trade Response to Global Downturns, in R Baldwin (ed), The Great Trade Collapse: Causes, Consequences and Prospects, Center for Economic Policy Research, 2009, London, pp 59-70.
2 In economics, elasticity indicates the relative change of a variable in relation to the relative change in another variable.
3 See C Constantinescu, A Dennis, A Mattoo and M Ruta, What Lies Behind the Global Trade Slowdown?, World Bank, Global Economic Prospects, January 2015, pp 169-177; and C Constantinescu, A Mattoo and M Ruta, Slow Trade, IMF, Finance & Development, December 2014, pp 39-41.

Global economic growth and contributions of groups of countries

Year-on-year change in real GDP



Source: Bundesbank calculations based on International Monetary Fund (IMF) data from the World Economic Outlook (October 2014). Values for 2014 based on IMF projections. Countries grouped according to IMF definitions. Aggregate growth rates may vary from the corresponding IMF data.

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measure would suggest that growth in global output slowed more significantly, namely from an average of 3% between 1980 and 2007 to 2% in recent years. As a result, the elasticity of global trade based on these rates has fallen from 2.0 to 1.4. Thus the decline turns out to be noticeably smaller than it is when purchasing power parities are factored into the equation, but is nonetheless significant.[4]

To date, little attention has been paid to the considerable differences between the elasticity of imports of the advanced economies on the one hand and the emerging market and developing economies on the other. WEO data can be used to derive an elasticity of 2.0 for the industrial countries from the mean growth rates from 1980 to 2007, but of no more than 1.4 for the emerging market economies. For the period since the global recession, these figures are 1.7 and 1.1 respectively. The -0.3 decrease in import elasticities in terms of groups of countries, then, is significantly smaller still than the figure of -0.6 resulting from global aggregation using market exchange rates.[5] Furthermore, the elasticity of global trade to global GDP at PPPs – at a figure of just 0.9 – is lower than the separate elasticities of imports in both groups of countries (1.7 and 1.1 respectively). How can these observations be explained?

The rate of growth in real global GDP is calculated by adding the growth contributions of the individual countries or groups of countries. In turn, these contributions are derived from the growth rates at the subordinate level, weighted according to the corresponding shares of nominal global GDP. The rate of change in the global volume of imports is calculated using a similar method. Given the lower elasticity of imports in the emerging market and developing economies, these countries' growing share of the global aggregates could be one of the reasons why global trade elasticity has fallen over the past few years. However, these shares only shift slowly over time, so they are likely to have played little more than a minor role in the observed weakening of elasticity.

In fact, the shift in growth rates between the groups of countries has been far more substantial than it has for their respective shares. Between 1980 and 2007, real GDP in the advanced economies grew by just under 3% a year on average, while output in the emerging market and developing economies advanced by 4½%. Weighted by market exchange rates, it was the industrial countries which made the substantially

4 See Deutsche Bundesbank, The empirical relationship between world trade and global economic output, Monthly Report, November 2013, pp 13-17.

5 What must also be considered is that the IMF's data on groups of countries are themselves aggregates that may contain composition effects. Above all, the IMF staff aggregated GDP growth for the groups of countries using PPP exchange rates. According to Bundesbank calculations, applying an alternative weighting based on market exchange rates for the advanced economies results in a smaller decrease in elasticity. The decline for the emerging market and developing economies is confirmed, meanwhile.

more sizeable contributions to global economic growth during that time. In the later period, however, growth in the advanced economies decelerated to a mean figure of just ¾% *per annum*, while output in the rest of the world even pipped its earlier performance with growth of 5¼%. Thus, from 2008 to 2014, emerging market and developing economies made a far greater contribution to global economic growth than in the past. Given the comparatively low elasticity of imports to real GDP in this group of countries, it comes as no surprise that, at the global level, the elasticity of trade has fallen noticeably as a result.

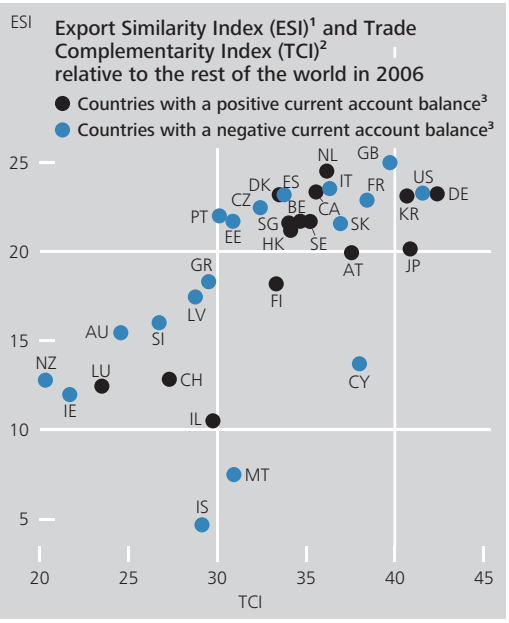
A rough calculation reveals that half of the decline in the ratio of global trade growth to global GDP growth (based on market exchange rates) from 2.0 to 1.4 is explained by a decrease in the elasticity of imports in the individual groups of countries. Of the other half, a third is attributable to the shift in the share of global aggregates towards emerging market and developing economies, while two-thirds is due to the shift in the focus of international growth. Looking at global activity in terms of purchasing power parities, the impact of the steeper drop in growth is more considerable still. This is due mainly to the interplay with the discrepancy between the groups of countries' shares of world trade and aggregate economic output. For instance, the emerging market and developing economies' share of global GDP in PPP terms has exceeded their share of global trade by far in recent years. The contributions of these groups of countries to global economic growth were correspondingly large, which dampens the elasticity of global trade. This means that it is also possible, statistically speaking, for global elasticity to be lower than the elasticity of imports in the individual groups of countries.

Furthermore, the ratio of the average growth in imports to mean GDP growth provides only a rough measure of elasticity. Simple regressions of log levels suggest that the elasticity of imports might not have weakened in the advanced economies, but might have done so in the emerging market and developing economies. This is consistent with the observation that import growth has been relatively muted recently, especially in China (see the box on pages 20 to 22). Nonetheless, it should be remembered that there are often deficits in the availability and quality of data for emerging market and developing economies, particularly for periods further back in time. But even in the United States, it is noticeable that imports have been relatively weak in recent years.[6] Given the previously large trade deficit, however, some may regard this as a welcome correction to the external imbalance.

So it is not a law of economics that the elasticity of global trade to global economic activity must remain the same. Marked deviations from a long-term value are also possible without any shift in the underlying correlations. One reason for this is the comparatively low sensitivity of imports in the emerging market and developing economies. The growing importance of these countries, but, above all, the shift in focus of international growth towards the emerging market economies, are likely to have distinctly dampened the elasticity of global trade in recent years. How long this easing will persist depends, then, on the durability of the current growth ratios. Nonetheless, it remains to be seen how far, and how sustainably, the correlation between external trade and income has shifted in terms of groups of countries and individual economies.

6 Constantinescu et al (2014, 2015) underline that import elasticity in China and the USA has decreased, while the correlation between external trade and income in the European Union has proven to be relatively stable.

Indicators for the export patterns of advanced economies



Sources: UN Comtrade and Bundesbank calculations. **1** The ESI, as an indicator of export competition, measures the similarity of two countries' export patterns. **2** The TCI measures the similarity between one country's export pattern and another country's import pattern. **3** Sorted according to the sign of the current account balance in 2006.

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… highlights differences between surplus and deficit countries

All things considered, the two indicators at the height of the global imbalances in 2006 do not seem, at first sight, to present a good correlation with the status of the respective countries' current account balances. For example, Germany and the United States show quite similar ESI and TCI values despite having very different current account positions. Moreover, in the group of advanced economies posting a deficit there are countries which, according to the ESI, compete strongly with the rest of the world as well as countries with export structures that display little overlap. On an average of all the deficit countries, however, this indicator is higher than that of the surplus countries throughout the period from 1999 to 2012 under consideration. A mixed picture is also presented when looking at the complementarity of the industrial countries' export structure with regard to the import demand of the oil-exporting countries and EMEs. The major surplus and deficit countries, in particular, are very close together in this respect. What is striking, however, is that, in comparison with the average of all the advanced economies, only seven of the 18 deficit countries achieve a TCI that is higher than the average, whereas, in the group of 15 surplus countries, 12 economies display an above-average complementarity in their export structure. Germany's positioning is noteworthy, too: among all the advanced economies, it shows the highest match between its exports and import demand from the rest of the world.

Significant impact of export similarity …

The impact of export similarity and complementarity on a country's exports and/or balance of trade and the current account is likely to be masked by other factors as well. An econometric estimate taking account of these factors should provide deeper insights. The starting point for this is the aforementioned October 2014 IMF study which uses a panel model to analyse the determinants of changes in current account balances (in relation to national GDP). On the basis of this model, the two variables ESI and TCI are incorporated in addition to indicators of real external and domestic demand as well as indicators of relative prices.[36] The sample comprises 30 countries in the period from 1999 to 2012.[37] The similarity between the export structures of the advanced economies and the rest of the world (measured by the ESI) has a negative significant impact on

36 The dependent variable of the panel estimate with fixed country effects (u) is the change in the current account balance in relation to nominal GDP (CA). Explanatory variables (X) are a country's domestic demand (DD), the weighted domestic demand in a country's trading partners (DD^*), the real exchange rate $(REER)$, the terms of trade (ToT) as well as one year-lagged values of these variables $(L.X)$ and an error term (ε). All explanatory variables are defined as percentage changes, with the exception of ESI and TCI, which are incorporated as level variables. The change in the current account balance is measured in percentage points. Overall, the following equation is estimated: $CA_{z,t} = \beta_0 + \beta_1 DD_{z,t} + \beta_2 DD^*_{z,t} + \beta_3 REER_{z,t} + \beta_4 ToT_{z,t} + \beta_5 ESI_{z,t} + \beta_6 TCI_{z,t} + \gamma L.X + u_z + \varepsilon_{z,t}$, where the notation z stands for the individual countries among the advanced economies and t for the respective year. See IMF, Are global imbalances at a turning point?, WEO, October 2014, p 140.

37 Among the advanced economies, a lack of data in some cases meant that it was not possible to include Taiwan, Luxembourg, Malta and Cyprus.

the current account. An increase in the ESI by one point is associated, two years later, with a deterioration of 0.2 percentage point in the current account balance relative to national GDP.[38] The indicator of import complementarity (approximated by the TCI) also shows the expected positive sign, but the statistical significance is low. Very similar results to those reported by the IMF are produced for the other variables. An increase in the growth rate of domestic final demand amounting to 1 percentage point in one year is reflected in a lower current account surplus (or a higher deficit) relative to GDP of 0.5 percentage point within two years. Similarly, an increase in external final demand leads to an improvement in the current account balance.

… but conceptual limitations

All in all, the analyses show that a country's range of exports and its bilateral trading relationships can have an impact on the current account balance. When interpreting the results, certain conceptual difficulties nevertheless have to be taken into account. For instance, a country's export structure, as reflected in the ESI and TCI indices, should not be regarded over an extended period of time as an independent variable.[39] Furthermore, in calculating these measures, it was not possible to capture differences in quality within a single product category – despite the very high level of disaggregation in the trade data.[40] How important this aspect is can be demonstrated by a comparison of mass-produced goods and high-quality versions of the same product. For example, Switzerland still occupies an outstanding position globally in the production of luxury watches, while the manufacture of standard watches has in most cases long since migrated from Switzerland to lower-wage countries.[41] One reason for this is that the promise of quality associated with luxury goods can often be communicated credibly to the customer only if the product has been manufactured in certain countries – Switzerland in the case of watches (or, in the case of premium-segment cars, for example, in Japan and Germany).

Regression analysis on the determinants of international current account balances over time*

Item	Basic model	Augmented model
Contemporary variables		
Domestic demand	– 0.51***	– 0.53***
	(– 8.21)	(– 7.52)
Domestic demand, trading partners	0.21*	0.20*
	(2.03)	(1.97)
Real effective exchange rate	0.04	0.05
	(0.88)	(0.88)
Terms of trade	0.10**	0.10**
	(2.57)	(2.48)
Export Similarity Index	.	– 0.28**
	.	(– 2.41)
Trade Complementarity Index	.	0.11*
	.	(1.89)
Lagged variables		
Domestic demand	0.06	0.06
	(1.31)	(1.25)
Domestic demand, trading partners	– 0.05	– 0.05
	(– 0.52)	(– 0.45)
Real effective exchange rate	– 0.07	– 0.07
	(– 1.06)	(– 1.11)
Terms of trade	0.02	0.01
	(0.56)	(0.35)
Export Similarity Index	.	0.10
	.	(0.63)
Trade Complementarity Index	.	– 0.09
	.	(– 1.41)
Observarions	390	390
R^2 (within)	0.42	0.43
R^2 (overall)	0.39	0.35
Number of countries	30	30

* Absolute changes as a percentage of nominal GDP. t-values in brackets: robust standard errors. ***, **, *: significant at the 1%, 5% and 10% level respectively.
Deutsche Bundesbank

38 In this calculation, the estimated coefficients of the lagged variables are also taken at face value. Leaving aside non-significant factors, the aggregate effect amounts to just under 0.3 percentage point.
39 The ESI and TCI also merely model whether two countries, with regard to their export goods, are potentially in competition with each other or whether they are natural trading partners, since transport costs, tariff and non-tariff barriers to trade likewise have an impact on actual trading relationships.
40 With regard to the difficulties of determining product quality in the case of disaggregated data and possible solutions, see H Vandenbussche (2014), Quality in exports, European Commission, Economic Papers No 528.
41 See P Feubli, E Gachet, P Hänggi and D Künzi, Schweizer Uhrenindustrie – Perspektiven und Herausforderungen, Credit Suisse Branchen Report, October 2013.

Outlook and summary

According to the IMF's medium-term forecast, global imbalances could continue to recede over the next few years.[42] The decline in the surpluses of the oil-exporting countries, which was projected in the autumn, is playing a key part in this. In all probability, this process will become even stronger if the steep fall in oil prices since the IMF's October forecast continues for a long period.[43]

International goods flows determine to a large extent dynamics and level of global imbalances

Despite their persistence, developments in current account balances over an extended period highlight the fact that widening deficits and surpluses are not a reflection of irreversible processes and that national positions do indeed change. The dynamics and level of current account balances are essentially determined by international flows of goods. In this context, trade in crude oil and refined petroleum products occupies a somewhat special position, as short-term fluctuations in prices have a strong influence on imports and exports in terms of their value. Imbalances in international trade in other goods are less prone to fluctuations and are characterised more by longer-term trends, although, recently, these have not been standing in the way of a reduction in global current account balances. Moreover, it is apparent that there has been a relative increase in the importance of imbalances in trade in capital goods.

National supply structures relevant for current account position

Taking a closer look, it is possible to confirm the hypothesis that global developments in conjunction with national supply structures have played a part in the industrial countries showing diverging current account positions. However, the additional explanatory power of the econometric model tends to be modest. This should be qualified by taking into account the fact that individual countries' specific structural features (above all, with regard to product quality) can be captured only inadequately in the statistics. Above and beyond that, enterprises are likely to pursue quite different internationalisation strategies. They can, for example, step up domestic production as a response to a rise in global demand. Alternatively, they can expand their production capacities abroad.[44]

Maintaining international competitiveness of key importance

The advanced economies have experienced varying degrees of success in terms of maintaining their position in global markets in the wake of heightened competitive pressure from the EMEs. In this connection, it is striking that the deficit countries, in particular, display weaker growth in their exports than the surplus countries. In the period under review, this contributed to an expansion of global imbalances. However, the adjustment process in a number of euro-area periphery countries illustrates that, along with a reduction of excessive absorption, primarily improvements in price and non-price competitiveness can achieve a turnaround in the current account within a relatively short space of time. In global terms, enhancing competitiveness remains on the agenda not only for countries that are still posting high – and, in the long term, unsustainable – current account deficits, but also for those countries that have been able to improve their position over the past few years. With waning enthusiasm for reform, there does indeed exist the danger for some countries that pronounced deficit positions – believed to be a thing of the past – will re-emerge.

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42 See IMF, Recent developments, prospects and policy priorities, WEO, October 2014, pp 11-13.
43 According to the Bundesbank's studies, this effect might be quite minor, however. The outcome should be a considerable decline in the current account surpluses of the oil-exporting countries. On the whole, the oil-importing countries will benefit from the lower import value. Nevertheless, these also include some surplus countries that will expand their current account positions and this will run counter to a major reduction in global imbalances. Added to this are the effects of adjustments to exchange rates and real demand in the individual groups of countries due to the fall in oil prices.
44 With regard to the increased use of international value added chains from a German perspective, see also Deutsche Bundesbank, The German economy in the international division of labour: a look at value added flows, Monthly Report, October 2014, pp 27-42.