II.3. How vulnerable are emerging market economies to the slowdown in advanced economies?

Introduction

Although emerging market economies are now much more integrated into global trade and capital markets than in the past, they have proved more resilient during the Great Recession of 2008-09 than in previous recessionary periods. With the notable exception of the CIS countries and some Eastern European Member States, the emerging world, in particular Asia and Latin America, was apparently better able to cope with the repercussions of the trade collapse and the deep slump in advanced countries triggered by the Lehman meltdown in September 2008. At first glance, this seems to contradict the persistent trend of increasing globalisation: rising interdependence in the world economy would suggest closer co-movement of economic activity across regions and countries. Similarly, the two-speed recovery of the global economy since 2009 seems to have lent new support to the decoupling hypothesis which postulates that emerging market economies have become less dependent on advanced economies as export markets or creditors.

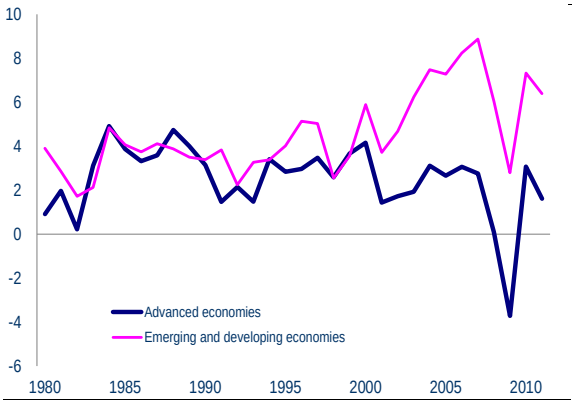
Decoupling is not just a theoretical issue: it may also have a major impact on the dynamics of global growth in the imminent future. With the global economy losing steam and the recovery in Europe put on hold what are the prospects for emerging market economies? To what extent will emerging market economies manage to shield themselves from the downturn in advanced economies?

This section attempts to shed some light on the revived decoupling debate with a particular focus on emerging markets economies' reaction vis-à-vis the expected downturn in advanced economies. In this regard, several transmission mechanisms are identified for the cross-border propagation of shocks. The most obvious ones are (1) through international trade and (2) via financial linkages related to the exposure to foreign banks, holdings of foreign assets and stock market contagion. However, during the Great Recession the world economy might also have been subject to a global confidence shock. For that reason, (3) spill-over effects of confidence indicators are also scrutinised. The rest of the section discusses each transmission channel in more detail.

Decoupling or (re)coupling?

Since the end of the 1990s, real GDP growth rates in emerging markets have become much more correlated with those in advanced economies. During the same period, however, GDP growth in the emerging world has exhibited a substantial upward level shift, which suggests markedly higher trend growth (Graph II.3.1). This is likely to be due to an underlying catching-up process and the implied shift of capital and labour from low-productivity to high-productivity sectors. Furthermore, some large emerging market economies, notably China and Brazil, appear to act increasingly as independent sources of global growth. ([29])

Graph II.3.1: **Real GDP growth, advanced and emerging economies (annual changes in %, 1980-2011) (1)**



(1) Country aggregation according to IMF definitions (WEO).
Source: IMF.

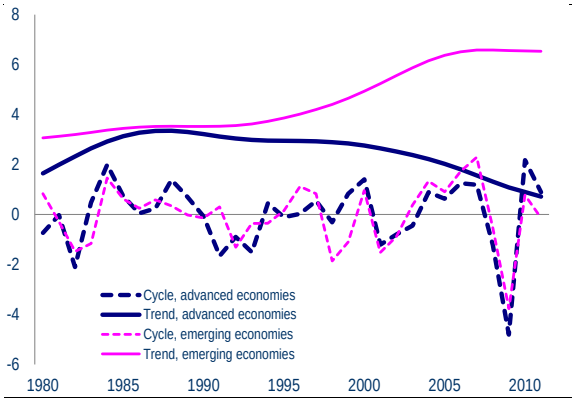
Regarding the recession of 2008-09, it is noteworthy that real GDP strongly co-moved in advanced and emerging markets and that the latter had to bear similar output losses when compared to potential output. In contrast to previous global recessionary periods however, emerging markets now appear to better absorb shocks from the rich world. This is associated with the implementation of improved macroeconomic policy frameworks and the strengthening of financial institutions in response to the debt and financial crises in the 1980s and 1990s. The scope thus obtained for anti-cyclical fiscal and monetary policy has been used to cushion the impact of the recession and thus sustain economic activity. Looking ahead, sound macroeconomic policies together with structural shifts and the still prevalent convergence gap might continue to shift growth

([29]) On the other hand, emerging markets geographically close to the rich world, for example Mexico or Eastern Europe, are still rather dependent on their developed neighbours.

drivers in emerging market economies further to consumption and investment.

One way to reconcile the opposing trends of rising global integration and increased regional resilience is therefore to distinguish between long-term shifts and cyclical co-movements. ([30]) The claim that activity in advanced and emerging economies substantially co-move is corroborated by decomposing GDP growth rates into cyclical and trend components using a Hodrick-Prescott filter (Graph II.3.2). Based on this methodology, long-term trend decoupling coincides with increasing short-term cyclical co-movement. This dichotomy is especially pronounced since the mid-1990s. ([31])

Graph II.3.2: **Trend versus cyclical decoupling, advanced and emerging economies (1980-2011) (1)**



(1) Cycle and trend components of annual GDP growth rates are estimated using a Hodrick-Prescott (H-P) filter (lambda=100). Trends are expressed in annual growth rates (in %) and cycles in % of trend.
Source: IMF, Commission calculations.

In a recent study, Yetman (2011) finds that business cycles strongly co-move during recessions, but are rather uncorrelated in non-recession periods. ([32]) In light of these results and referring to the current economic situation, a major recession in the US or in Europe would likely entail a slowdown in emerging economies. These suggestions are supported by a similar investigation by Imbs (2010) based on monthly industrial production data. ([33])

Using a dynamic factor model with 106 countries and annual data for 1960-2008, Kose et al. (2010) make a cautious case for decoupling. ([34]) They find some indication of business cycle convergence starting in the mid-1980s within industrial countries and emerging markets, but also divergence between these two groups. Although the authors identify a common factor (e.g. related to oil price shocks) in international business cycle fluctuations, the group-specific factor seems to have gained relative importance over the sample period. The predominance of regional factors over a global factor is also suggested by an IMF study based on a similar methodology. ([35]) According to the IMF, the increasing importance of regional factors from the mid-1980s onward is associated with the intensification of regional trade and financial linkages. However, both studies do not include the 2008-09 recession and might rather point to long-term trend divergence between advanced and emerging economies than short-term decoupling.

Overall, even though emerging market economies proved rather resilient during the last recession and recovered quickly afterwards, there is little empirical evidence so far suggesting a general business cycle decoupling. However, it is true that emerging market economies have featured higher trend growth rates than their more advanced trading partners and are likely to outpace their developed economy counterparts in the future. These diverging trends notwithstanding, GDP growth tends to be increasingly correlated globally, with co-movement particularly pronounced in recessionary periods. Thus, a major downturn or an outright recession in advanced countries is likely to have a detrimental impact on growth in emerging market economies. The underlying business cycle spillovers might occur through various propagation channels which are examined in the next section.

Cross-border transmission channels

Openness to trade and finance are well-established globalisation indicators and are likely

([30]) Canuto, O. (2010), 'Recoupling or switchover: Developing countries in the global economy', in: Canuto, O. and M. Giugale (eds.), *The day after tomorrow: A handbook on the future of economic policy in the developing world*, World Bank, 2010, p. 31-49.
([31]) A word of warning is in order when applying mechanical filters to identify permanent and cyclical components of time series. Apart from the well-known endpoint sample problem, a major drawback (not only) of the HP filter is that it may introduce spurious cyclicality into the irregular component of a series.
([32]) Yetman, J. (2011), 'Exporting recessions: International links and the business cycle', *Economics Letters*, Vol. 110, No 1, pp 12-14.
([33]) Imbs, J. (2010), 'The first global recession in decades', *IMF Economic Review*, Vol. 58, No. 2, pp. 327-354.
([34]) Kose, M. A., C. Otrok and E. Prasad (2010), 'Global business cycles: convergence or decoupling?', manuscript, revised version of *NBER Working Paper* No 14929, 2008.
([35]) IMF (2007), 'Decoupling the train? Spillovers and cycles in the global economy', *World Economic Outlook*, April 2007, pp 139-144.

to facilitate business cycle transmission between countries. ([36]) Additionally, cross-border confidence spill-overs have progressively come to be regarded as channels for the propagation of shocks from advanced to emerging market economies.

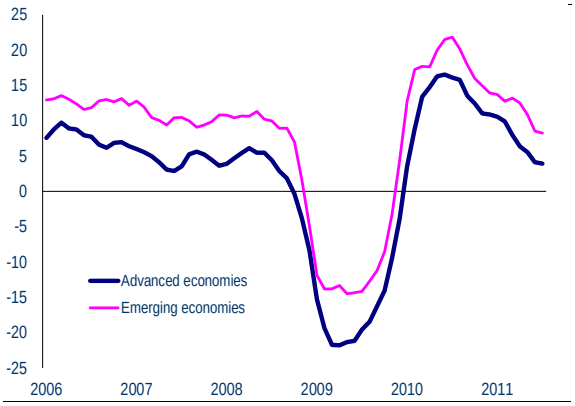
Trade relations

In 2010, emerging and developing economies accounted for almost 50% of world GDP and well over a third of world exports. From a theoretical point of view, increasing international trade can lead to business cycles that either converge or diverge across countries. On the one hand, a positive demand shock in one country may spill over to trading partners via increasing demand for exports, resulting in strong correlation between trade relations and economic activity across countries. On the other hand, increasing trade integration may induce greater specialisation of production across countries that eventually brings about less synchronised business cycles.

Turning to the empirics, integration of emerging markets into the world economy and the internationalisation of supply chains have led to increasing trade between the rich and the emerging world. ([37]) The 2008-09 recession has only briefly interrupted this trend. Overall, trade dynamics have been highly synchronised in recent years. Against this backdrop, a slowdown of growth in advanced economies is likely to impact significantly on emerging markets' exports (Graph II.3.3).

An important factor in the propagation of shocks is the internationalisation of production processes. In practice, global supply chains and vertical specialisation – i.e. the break-up of production into multiple stages across different countries – tend to amplify the impact of GDP fluctuations on international trade (*bullwhip effect*). ([38]) Given that exports and imports are recorded as gross flows, while GDP is measured in terms of value added, an initially small decline in GDP can cause a disproportionately high drop in trade, in both final and intermediate goods. Recent empirical evidence suggests that tight cross-border supply chain linkages reinforce the transmission of business fluctuations between countries. ([39])

Graph II.3.3: **Export growth, advanced and emerging economies (y-o-y changes in %, Jan 2006-Jul 2011)**



Source: CPB, Commission calculations.

Turning to particular emerging market economies, East Asia and Central and Eastern Europe appear exceedingly vulnerable to a slowdown in industrial output in advanced economies given for example their large clusters of subcontractors in the production of semiconductors and car components respectively. Therefore, business cycle co-movement is likely to depend on the specific structure of production and the degree of intra-industry trade. ([40])

As regards commodity-producing countries, mostly located in the emerging world, economic activity is closely related to commodity prices. Thus, these economies might be subject to negative terms-of-trade effects resulting from downward pressure on commodity prices due to the slowdown in advanced economies. However, commodity price movements may affect fuel exporters and non-energy producers differently depending on the relative size of commodity exports and imports. ([41]) Keeping this

([36]) Artis, M. and T. Okubo (2009), 'Globalization and business cycle transmission', *North American Journal of Economics and Finance*, Vol. 20, No 2, pp. 91-99.

([37]) The consequences of cross-border vertical integration have been demonstrated for instance by the supply shortages linked to the Tōhoku earthquake in Japan in March 2011.

([38]) This effect derives its name from the larger and larger swings in inventory further and further back in the supply chain in response to changes in demand for a final product. Since these amplifying oscillations are reminiscent of a cracking whip, it became known as the 'bullwhip effect'.

([39]) Arkolakis, C. and A. Ramanarayanan (2009), 'Vertical specialization and international business cycle synchronization', *Globalization and Monetary Policy Institute Working Paper*, 21, Federal Reserve Bank of Dallas; Artis, M. and T. Okubo (2011), 'Does international trade really lead to business cycle synchronization? A panel data approach', Discussion Paper, DP2011-05, Research Institute for Economics and Business Administration, Kobe University, 2011.

([40]) Calderón, C., A. Chong and E. Stein (2007), 'Trade intensity and business cycle synchronization: Are developing countries any different?', *Journal of International Economics*, Vol. 71, No. 1, pp 2-21.

([41]) Spatafora, N. and I. Tytell (2009), 'Commodity terms of trade: The history of booms and busts', *IMF Working Paper* 09/205, September.

qualification in mind, the overall impact of terms-of-trade effects on the economy crucially depends on exchange rate behaviour. For example, a real depreciation might dampen the potentially contractionary effect of terms-of-trade decreases resulting from a commodity slump.

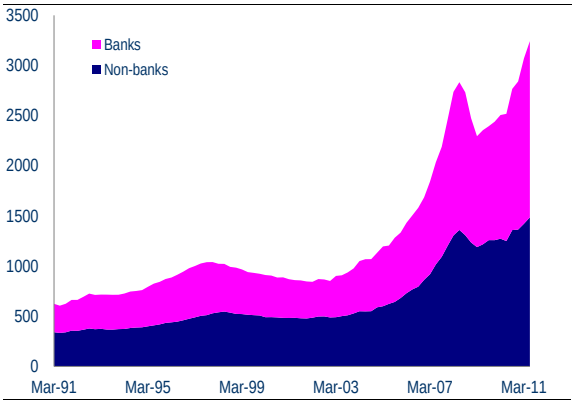
Generally, the gradual shift toward higher exchange rate flexibility in several emerging markets after the Asian crisis was conducive to price competiveness during the last recession and thus supported exports during the subsequent recovery. ([42]) Following this line of reasoning, rather than having decoupled from their advanced counterparts emerging market economies seem to have become relatively more flexible, a change that facilitates the absorption of shocks.

Financial linkages

As the global financial crisis has clearly demonstrated, financial linkages through stock and credit markets or via the banking system can amplify the propagation of shocks. Already during the financial crisis in 1997/98, the Western banks' precipitous retreat from emerging Asian economies highlighted the potentially devastating effects of short-term borrowing, especially in foreign currency. At first sight, these bank linkages should be even stronger now than in the late 1990s. According to the Bank of International Settlements (BIS), foreign bank claims on emerging market economies surged in the second half of the 2000s, fell briefly during the 2008-09 recession but have recovered since (Graph II.3.4). In the second quarter of 2011, they exceeded their level of mid-2008 by 14.5% and reached USD 3242 bn, with claims on emerging market banks accounting for 54% of total foreign lending.

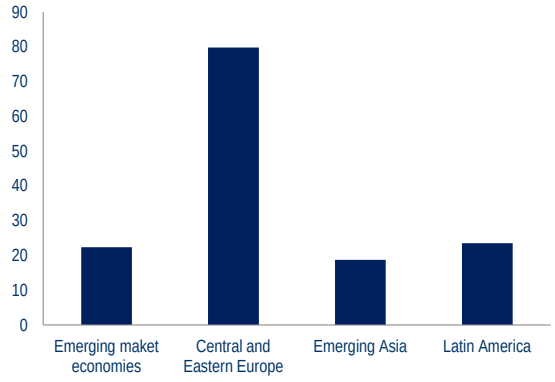
Based on the BIS consolidated banking statistics which additionally account for the exposure of banks' foreign affiliates and net out inter-office positions, international banks' adjusted claims to emerging markets (excluding offshore centres) were USD 5615 bn in June 2011 or 22.4% of emerging market economies' GDP (Graph II.3.5). Emerging economies' exposure to banks from advanced economies should, however, be interpreted with caution as it hides important regional disparities.

Graph II.3.4: **Cross-border bank claims on emerging market economies (bn USD, 1991Q1-2011Q2)**



(1) Excluding off-shore financial centres (e.g. Hong Kong and Singapore) to avoid double counting, as much of what banks lend to these financial centres is on-lent to other economies.
Source: BIS.

Graph II.3.5: **Cross-border bank claims on emerging market economies (in % of GDP, June 2011)**



(1) Cross-border bank claims on an immediate borrower basis.
Source: BIS, IMF; Commission calculations.

Having learnt the lessons from the Asian crisis in the late 1990s, several countries in the region have reduced their dependence on short-term bank lending, and they have thus become less prone to sudden capital outflows. An additional step taken by some was the adoption of more flexible exchange-rate regimes which has limited the risk of currency crises. ([43])

The stock of gross cross-border claims in 2011-Q2 amounts to 43% of the aggregate foreign exchange reserves of emerging economies. However, a large share of reserves is held by China and the oil-exporting countries in the Middle East. Emerging market economies with

([42]) However, foreign exchange interventions and exchange rate management are still prevalent in Asian emerging markets; see Rajan, R. S. (2010), 'The evolution and impact of exchange rate regimes', *ADB Economics Working Paper*, 208, July 2010 (revised January 2011).

([43]) IMF (2010), *World Economic Outlook*, October 2010, p. 13-15.

lower exchange reserves, not least those which have already abolished financial account restrictions, might be more exposed to balance-of-payment and exchange-rate crises if international banks retreat precipitously than average figures suggest. These risks are exacerbated by the still limited role of domestic-currency debt in the funding of external liabilities. This is particularly true in times of global liquidity constraints and high risk aversion. For example, the US dollar shortage resulting from a withdrawal of US dollar money funds from bank-issued paper in the wake of the Lehman collapse induced massive capital outflows in terms of a cutback in US dollar cross-border bank claims and local currencies, particularly in emerging Asia, plummeted accordingly. ([44])

Even though cross-border lending to emerging Asia has surged since late 2009, Central and Eastern European Member States appear to be the most vulnerable to a retrenchment of banks due to their much bigger exposure (Graph II.3.5). ([45]) Alongside a few Asian countries such as Malaysia ([46]), Taiwan, Thailand and Vietnam, Eastern European countries have by far the highest ratios of international bank claims to GDP. Especially non-euro area Member States with large shares of foreign-currency-denominated loans are at risk, given that domestic monetary authorities' ability to provide liquidity in foreign currency to the domestic banking sector is quite limited.

There is some evidence that international banks are reconsidering their presence in emerging markets, especially in Eastern Europe. ([47]) Despite European Banks' declared long-term commitment by European banks to Eastern Europe, as substantiated in the 'Vienna Initiative', ([48]) a strategic reorientation is also ongoing vis-à-vis this region. With banks freezing new lending, these countries are increasingly vulnerable to a credit crunch. This development is to a large part attributable to banks' current and extensive funding problems in a context of persistent tensions in euro-area sovereign debt markets. Policy uncertainty in some Eastern European countries with respect to a bank levy or the treatment of foreign currency loans was also not very helpful. High loan-to-deposit ratios and the net liability position of the banking sector in many Eastern European countries have already prompted several national regulators to require banks to curb new lending in these markets if it is not locally funded. ([49]) For Eastern Europe where about three quarters of the domestic banking system is controlled by banks mostly from Western Europe these prospects are particularly worrisome. ([50])

Large net capital inflows do not only expose countries to the risk of a sudden curb on lending and a credit crunch, but tend also to limit the margin for monetary policy when economies are overheating. Given the low interest rates and high liquidity provision in advanced countries capital flows have increasingly been channelled to emerging market economies. The resulting abundant supply of capital might fuel a credit bubble which eventually feeds real estate booms, as witnessed in China and India. Overall, many emerging market economies show clear signs of overheating which requires a more contractionary policy stance. However, the necessary monetary tightening would eventually result in even larger inflows. Admittedly, the ongoing global slowdown is likely to mitigate this policy conflict and support the cyclical cooling-off in emerging markets.

Turning to net capital exports, several emerging market economies have become large creditors as witnessed by the accumulation of foreign exchange reserves and solid net foreign asset positions with an average ratio of net foreign assets to GDP of about 30%. ([51]) The net foreign asset position is determined by current account transactions (trade balance channel) but also subject to asset price fluctuations (valuation

([44]) McGuire, P. and G. von Peter (2009), 'The US dollar shortage in global banking', *BIS Quarterly Review*, March, pp 47-63; Deutsche Bank Global Markets Research (2011), 'Money, credit and prices in Asia', *Global Economic Perspectives*, 3 November 2011.

([45]) European Commission (2011), 'European Economic Forecast – Autumn 2011', *European Economy*, Vol. 6, 2011, pp. 26-27.

([46]) Malaysian figures tend to be inflated by the offshore business in Labuan.

([47]) Jenkins, P. (2011), 'Eastern Europe has most to fear from banks' retreat', *Financial Times*, 14 November 2011; The Economist (2011), 'The euro crisis and emerging markets. Drought warning', 12 November 2011.

([48]) European Commission (2011), 'European Bank Coordination Vienna Initiative moves to meet new challenges', *ECFIN press release*, 18 March 2011.

([49]) Österreichische Nationalbank (2011), 'FMA und OeNB erarbeiten Maßnahmenpaket zur Stärkung der Nachhaltigkeit der Geschäftsmodelle österreichischer Banken', *Presse-aussendung*, 21.11.2011.

([50]) The fact that European banks must comply by mid-2012 with the new targets for capital ratios set by the European Banking Authority (EBA) might add to the pressure, at least in the short term.

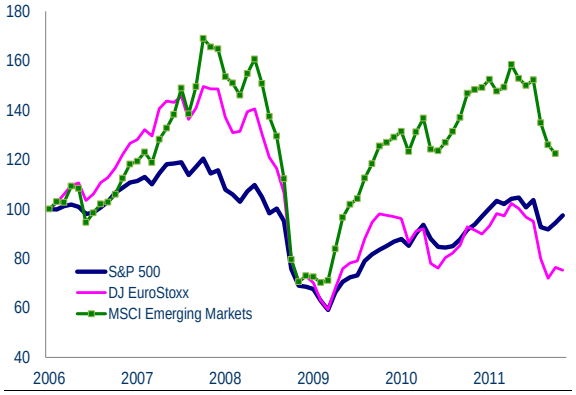
([51]) According to World Bank data, the net foreign asset position of China (including Hong Kong) amounts to 63% of GDP in 2010. Saudi Arabia and Singapore even have ratios of around 100%.

channel). ([52]) Facing a downturn in advanced economies, emerging market economies might thus not only be affected by lower exports but might also see a depreciation of their asset holdings abroad via exchange rate reactions and declining bond and share prices. The resulting negative wealth effects can be substantial. ([53])

An additional financial transmission channel is associated with global equity market declines which could weigh on private consumption and investment spending via negative wealth effects and a higher cost of capital. In practice, asset price declines in advanced economies might trigger sell-offs of emerging market assets by advanced-country investors.

Stock market movements in advanced and emerging economies have been highly correlated but have tended to diverge since the beginning of the global recovery in spring 2009 (Graph II.3.6). ([54]) Moreover, Granger causality tests can help to identify the predominant direction of causation. The tests indicate that the causation runs from advanced economies to emerging markets (Table II.3.1). The results point to both the US and the euro-area stock market as the driving forces behind equity price movements in emerging Asia, Latin America or Eastern Europe.

Graph II.3.6: **Co-movements of global stock market indices (Jan 2006=100, Jan 2006-oct 2011)**



Source: EcoWin, DataInsight.

Remarkably, these findings do not change substantially for the 2008-09 recession period or for the subsequent recovery. In all three periods, US and euro-area markets show strong evidence of Granger-causing emerging stock markets. These one-way connections suggest in turn that a recession-induced stock market slump in advanced economies might have significant negative effects on the world economy as a whole.

Table II.3.1: **Causality test on advanced and emerging market stock market indices**

		Jan 2006 - Jul 2007	Aug 2007 - Mar 2009	Apr 2009 - Oct 2011
US does not Granger cause emerging markets		0.0000 (reject)	0.0000 (reject)	0.0000 (reject)
Emerging markets do not Granger cause US		0.3502	0.1834	0.4596
Euro area does not Granger cause emerging markets		0.0013 (reject)	0.0384 (reject)	0.0960
Emerging markets do not Granger cause euro area		0.4099	0.1941	0.8077
Contemporaneous correlation	*US vs EM*	0.95	0.97	0.60
	EA vs EM	0.95	0.99	0.70

(1) p-values for the periods shown using daily data.
Source: EcoWin, DataInsight, Commission calculations

However, the integration of emerging market economies into global financial markets still seems to be uneven. According to a recent study based on an international capital asset pricing model, emerging financial markets overall still remain rather segmented from global markets and local risk premiums explain more than 50% of the total risk premium. ([55]) Latin America is found to be the relatively most integrated region in the global economy while, for example, emerging Asia lags behind. This latter result could be explained by the large weight of China, whose financial sector is still rather closed and where transaction volumes are relatively small.

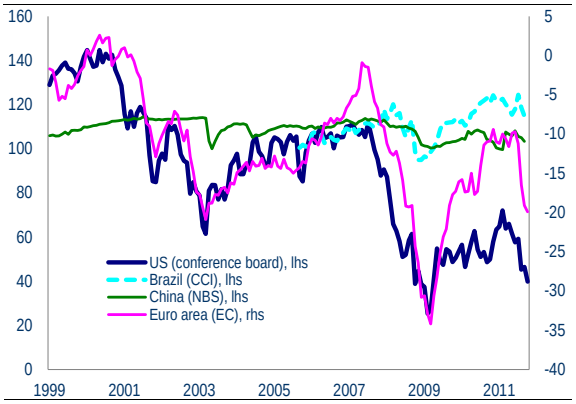
Confidence spillovers

Alongside the interactions or real and financial linkages, the co-movement of consumer confidence and business sentiment is also a non-negligible transmission channel of business cycle fluctuations. For example, US and euro-area consumer confidence indicators have been closely correlated over the last decade (Graph II.3.7) with a corresponding correlation coefficient of 0.86 for the period up to July 2007 and of 0.78 for the

([52]) Lane, P. and G. M. Milesi-Ferretti (2005), 'A global perspective on external positions', *IMF Working Paper*, No. 05/161, 2005.
([53]) Tille, C. (2008), 'Financial integration and the wealth effect of exchange rate fluctuations', *Journal of International Economics*, Vol. 75, No. 2, pp 283-294.
([54]) At this stage, the usual caveat applies that correlation is not causality. For example, consumer confidence in both advanced and emerging economies could just be hit by the same global shock.
([55]) Guesmi, K. and D. K. Nguyen (2011), 'How strong is the global integration of emerging market regions? An empirical assessment', *Economic Modelling*, 28, 2011, p. 2517-2527.

period thereafter. Turning to emerging markets, available data suggest that the extent of co-movement between consumer confidence in Brazil and China and in advanced economies has been increasing in recent years, but is still lower than among advanced countries.

Graph II.3.7: **Consumer confidence in selected advanced and emerging economies (balances in %, Jan 99-Oct 2011)**



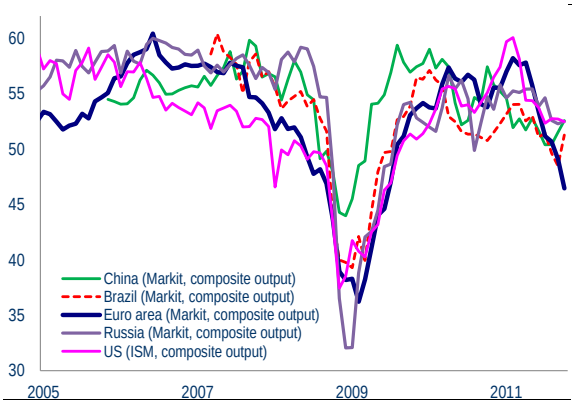
Source: EcoWin.

Unlike consumer confidence, business sentiment and most notably purchasing manager indices (PMIs) in emerging markets tend to be markedly correlated with their counterparts from advanced economies. This is likely to be related to the prominence of cross-border supply chains in global industrial production. When comparing US and euro-area PMIs with those from Brazil, Russia and China, the correlation appears to have increased since the onset of the financial crisis. However, activity in the euro area has been hit remarkably harder than in emerging markets or the US most recently.

Results from Granger causality tests between US and euro-area PMIs and the respective indices of the three emerging market countries indicate that industrial activity in advanced countries influences sentiment developments in emerging market and vice versa. In practice, the euro area PMI Granger-caused respective PMIs in Russia and China, with causation in the latter case also running in the opposite direction. Furthermore, there is evidence that US PMI Granger-caused its Brazilian and Russian counterparts but not the Chinese PMI index. Test suggests that causality is running from China to the US but not vice versa. ([56])

([56]) Results have to be interpreted with caution given the small sample size.

Graph II.3.8: **Purchasing manager indices (PMI) in advanced and emerging economies (Jan 2005-Oct2011) (1)**



(1) The ISM composite index is the weighted average of the ISM manufacturing index and the ISM non-manufacturing index, weighted by value added by industry.
Source: EcoWin, Commission calculations.

Concluding remarks

As the advanced world is heading for a severe downturn, emerging market economies, which account for about half of global output, have still been growing relatively robustly. This has led some observers to suggest that emerging economies have successfully decoupled from the rich world and that a recession in the US or Europe may not have the same devastating impact on the world economy as in the past. While it is true that emerging market economies has featured higher trend growth rates and might continue to outpace their developed economy counterparts due to a successful catching-up process, the empirical evidence presented in this section rejects to a large extent the hypothesis of a general cyclical decoupling. On the contrary, business cycle co-movements tend to have increased during the last decades and appear to be most pronounced during recessionary periods.

In this regard, emerging market economies continue to be vulnerable to a deep recession in advanced countries, which will directly impinge on world trade, whose immediate drop is further multiplied by the high degree of global vertical integration. International financial linkages constitute an additional contagion channel, for example through the high correlation of global stock markets or the exposure of US and European banks to emerging market economies. Emerging economies' reliance on banks from advanced economies remains relatively high although its degree varies with the regions concerned and is primarily high for a few Asian countries and Eastern Europe. The latter are

particularly at risk if European banks were to reduce their exposure in the region as part of their efforts to improve capital ratios. Finally, confidence spill-overs are increasingly seen as a further potential source of contagion which particularly applies to business sentiment.

Although being partly protected by stronger trend growth emerging market economies are likely to be affected by a downturn in advanced economies. Should the current slowdown in advanced economies prove more persistent than expected or even turn into an outright recession, emerging market economies will hardly be left unscathed.