Globalisation and the transmission of global financial shocks to the euro-area countries – implications for (national) economic policy

In recent years, the experiences of several emerging market economies in the wake of the global financial crisis have underscored the crucial impact of global factors on the financial markets and the limited power of national economic policy to smooth capital inflows and outflows. This has given rise to the theory that there is no longer much scope for national monetary policy to influence domestic financial conditions and that regulating capital flows is the only way to tame global financial flows. The countries of the euro area, where the Eurosystem is responsible for monetary policy and the financial markets are highly integrated, also face this problem. The key question is whether the single monetary policy tends to cushion the impact of global shocks or whether it makes the member states even more vulnerable to external factors. The proper functioning of the monetary union also hinges on the options available to national economic policymakers to prevent macroeconomic imbalances and ensure sustainable conditions both internally and in external relations.

Empirical studies by the Bundesbank, which also include the effects of the global financial crisis, show that membership of the European monetary union strengthens resilience in the global financial setting. Given the euro area's size, the Eurosystem is better able than the central banks of small countries to influence the monetary and financial conditions in its geographical remit and reap the benefits of a floating exchange rate regime. Commercial banks' equal access to Eurosystem open market operations and the redistribution of liquidity within the Eurosystem through the TARGET mechanism partly offset the asymmetric effects of global shocks on the different member countries. However, the experiences of some euro-area countries have also shown that being shielded from abrupt reversals of capital flows can delay necessary real wage adjustments. Establishing a European capital markets union may help to further increase international risk sharing based on market mechanisms whilst also creating incentives for more efficient economic structures. This is all the more important given that, in recent years, the influence of domestic factors on private capital flows has increased again relative to global factors.

Combined with an appropriate policy mix of sound public finances, effective financial sector regulation and targeted macroprudential measures, the leeway that the monetary union's protective role affords its member states must be used to safeguard financial and macroeconomic stability. By contrast, regulation of capital flows between member countries would pose a major hindrance to the internal market and disrupt monetary policy transmission; it should therefore be considered only as a temporary solution and a last resort.

Introduction

Key influence of global factors on international financial markets

During the financial crisis, global factors again had a key influence on the capital flows of several emerging market economies. US monetary policy in particular has a major impact on international financial markets and limits the options available to national economic policymakers – especially in smaller countries – to smooth capital inflows and outflows. This raises the question of whether the "impossible trinity" theory still holds true in today's globalised world. The theory goes that, in principle, a state can achieve (only) two of the three following economic policy objectives at the same time: independent monetary policy, stable exchange rates and free capital mobility. In recent years, however, doubts have grown as to whether floating exchange rates alone are sufficient to grant national central banks sufficient scope for independent monetary policymaking. Consequently, it may be that only direct capital controls can prevent undesirable external spillovers to the domestic economy and the financial sector.[1] The effectiveness of monetary policy in the face of global shocks is also a matter of importance to the euro-area countries, especially as the Eurosystem's monetary policy cannot always satisfy sometimes conflicting national interests. However, the economic weight of the euro area in the global economy combined with its floating exchange rate regime can also help to assuage the effects of external shocks on euro-area economies. The degree to which changes in the global financial setting have asymmetric effects on capital flows to the individual member states and how such divergences can be absorbed are of crucial importance to the cohesion and proper functioning of the European monetary union. Irrespective of this, precautions must be taken to counteract the build-up of macroeconomic imbalances at an early stage.

Global financial integration

Term "globalisation"

There is no single accepted definition of the term "globalisation". Generally speaking, it denotes the process of growing international interconnectedness and a global integration of markets. The impact of globalisation goes far beyond purely economic considerations. As natural and man-made borders become less important, political ideas, knowledge and cultural influences spread ever faster and more widely. Well into the middle of the past century, trade in goods was the main driver of international economic relations. In the 1980s, advances in information and communications technology led to rapid growth in cross-border capital mobility. Transaction costs fell substantially and geographical distance lost much of its significance. An important measure of a country's global financial integration is its financial openness. It is defined as the sum of a country's cross-border assets and liabilities as a ratio of its gross domestic product (GDP). Its counterpart is real openness, which denotes the global integration of trade in goods and services and is the ratio of a country's total exports and imports to GDP.

Increase in financial openness

In most economies, financial openness has seen a significantly greater rise in the past 40 years than real openness. However, levels differ substantially between the advanced economies and most emerging market economies. While Germany's external assets and liabilities at the end of 2014 were almost four times the size of its GDP of that year, China's financial openness stood at only 100% in 2014, although this was still considerably higher than in most other emerging market economies. The United States and Japan scored just under 300% and 250% respectively.

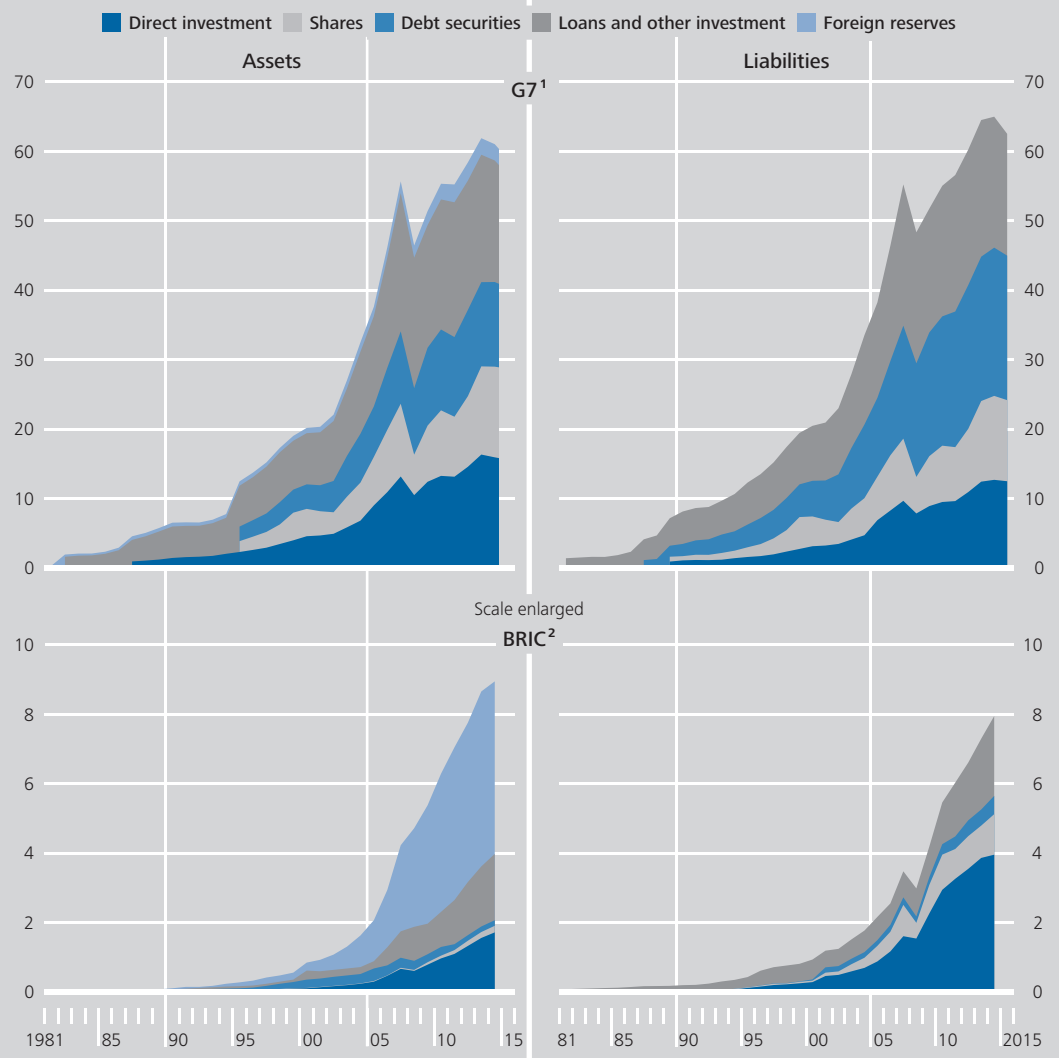
Decrease in home bias

Another measure of global financial integration is home bias. Most notably, this indicator is

1 See H Rey (2015), Dilemma not trilemma: the global financial cycle and monetary policy independence, NBER Working Paper 21162.

Foreign assets and liabilities

US$ trillion



1 Germany, France, Italy, Japan, Canada, United States, United Kingdom. **2** Brazil, Russia, India, People's Republic of China.
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often applied to portfolio investment in shares or debt securities; it gauges the preference for domestic financial instruments over foreign assets. It is derived from the share of foreign securities in the portfolio of domestic investors over their share in the global portfolio.[2]

$$Home\ bias = 1 - \frac{Share\ of\ foreign\ securities\ in\ the\ domestic\ portfolio}{Share\ of\ foreign\ securities\ in\ the\ global\ portfolio}$$

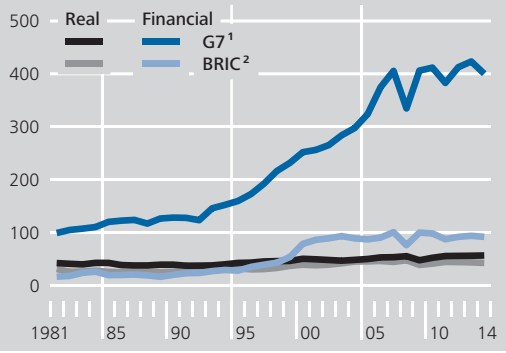
A value of one implies that domestic investors have only domestic securities in their portfolios, whilst a value of zero means that the national securities portfolio has exactly the same composition as the global portfolio, and a negative value indicates that foreign assets are overrepresented in the domestic portfolio.

In most countries around the world, home bias is on the decline, especially for shares.[3] The euro-area countries generally have a lower home bias than Japan, the United States or the

2 The global portfolio is defined as outstanding shares or debt securities worldwide. Securities issued by entities domiciled outside the country are designated as foreign securities.
3 The global financial crisis temporarily halted this trend in many countries, but it has since resumed. However, some economies still show greater home bias than at the end of 2007.

Real and financial openness*

%



* Real openness: sum of exports and imports over GDP. Financial openness: sum of foreign assets and liabilities over GDP. **1** Germany, France, Italy, Japan, Canada, United States and United Kingdom. **2** Brazil, Russia, India and People's Republic of China.

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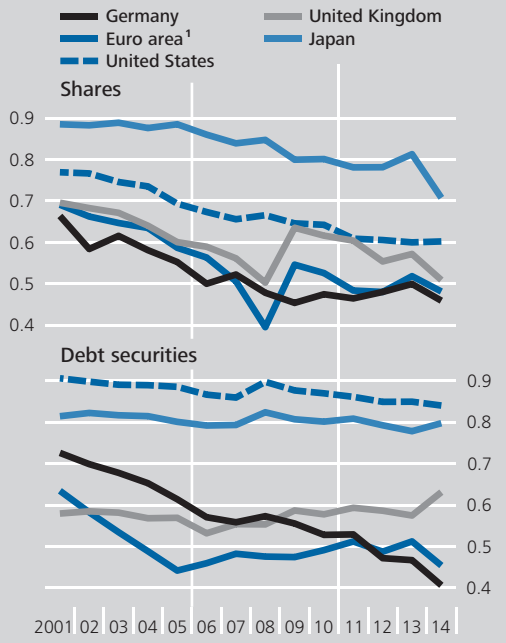
Home bias*



Sources: IMF, BIS, World Bank and Bundesbank calculations.* Underrepresentation of foreign securities in the national portfolio measured by their share in the global portfolio. **1** Unweighted average in the respective composition excluding Luxembourg and Ireland (for shares, also excluding Malta and Cyprus).

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United Kingdom, for example. Financial interconnectedness among the euro-area countries is particularly strong.

Cross-border allocation of capital improves efficiency …

Cross-border optimisation of capital allocation improves efficiency and thus has a positive impact on economic welfare. International diversification of financial assets can also help to better spread risks and consequently reduce the overall risk attached to investments. On the other hand, this also increases interdependence between economies and makes it more difficult for individual countries to decouple from adverse developments abroad. The rise in international financial flows and the capital markets' rapid responses have therefore fundamentally changed the conditions for national economic policy in open economies.

… but also increases vulnerability to global factors

Especially in small open economies, global factors sometimes have a greater influence on cross-border capital flows than domestic circumstances. For emerging market economies with relatively underdeveloped financial sectors, this already began to pose a significant problem in the 1990s.[4] During the recent financial crisis, the issue became particularly acute. While previous crises mainly affected emerging market economies, this time the financial turmoil was triggered by the collapse of Lehman Brothers in the United States, which initially hit the advanced economies of North America and Europe the hardest.[5] In the years that followed, the Federal Reserve's monetary policy included non-standard measures, which brought money market rates down to a historic low. The Fed's purchases of long-term US government bonds (quantitative easing) also put substantial pressure on capital market rates in the industrial countries, especially as the monetary policy stance in other industrial countries was also very expansionary.[6] This created incentives for investors to channel capital into emerging market economies, which had largely been spared the direct impact of the financial crisis and also had higher interest rates. In some of these countries, the sudden surge in capital inflows

4 See G A Calvo, L Leiderman and C M Reinhart (1993), Capital inflows and real exchange rate appreciation in Latin America: the role of external factors, IMF Staff Papers 40.
5 See B Eichengreen and P Gupta (2014), Tapering talk: the impact of expectations of reduced Federal Reserve security purchases on emerging markets, IBRD Policy Research Working Paper 6754.
6 See J Chen, T Mancini-Griffoli and R Sahay (2014), Spillovers from United States monetary policy on emerging markets: different this time?, IMF Working Paper 14/240.

caused the national currency to appreciate in real terms and thus reduced price competitiveness. In addition, foreign debt (some denominated in foreign currency) rose, posing additional risks to financial stability. The Fed's announcement in spring 2013 that it intended to taper its quantitative easing ("tapering talk") led to sudden portfolio rebalancing away from many emerging market economies or an abrupt depreciation of their currencies.[7]

The global financial cycle

Dominance of global factors can lead to global financial cycles

Financial shocks generally comprise all unexpected factors which change the financial environment as seen by financial market actors. Whatever their specific cause, they tend to precipitate a change in market participants' assessment of risk, which in turn is reflected, for instance, in the responses of various indices of volatility in international equity markets (eg the VIX for the S&P 500 stock price index). The extensive spillover effects of financial shocks can have a far-reaching impact on the macroeconomic and financial stability of individual economies. There is animated debate in the academic literature about an approach according to which the global redistribution of liquidity through cross-border bank lending creates a global financial cycle with international synchronicity of lending flows and real estate prices, which individual countries have trouble evading.[8] According to this line of thinking, even flexible exchange rates do not provide complete insulation against the ups and downs of capital waves. Although a restrictive national monetary policy might be capable of averting unwanted liquidity gluts, the price paid is massive local currency appreciation and a threat to international competitiveness. Also, high differentials between domestic and foreign interest rates, so the theory, provide incentives to borrow in foreign currency. This not only lessens the impact of national monetary policy on goods and asset price movements but also increases borrowers' financial risks in the event of a reversal on the international foreign exchange markets and a potential depreciation of the local currency.

Conversely, fixed exchange rates feed the global financial cycle, thanks to the unlimited and virtually risk-free exchange of foreign currency into local currency, thus further fuelling speculative bubbles in local asset markets.[9]

Trade-off between external equilibrium and financial stability

If this analysis holds, national monetary and foreign exchange policy faces a trade-off between maintaining an external equilibrium and ensuring domestic financial stability. If, in the event of a global liquidity glut, it controls the national monetary aggregate and resists potential asset price bubbles, it jeopardises the country's price competitiveness. However, if it adapts the local money supply to the foreign monetary environment in order to limit interest differentials and exchange rate fluctuations, it encourages excessive lending in connection with rising asset prices. The associated risks in the financial sector may not become apparent until global liquidity dries up and assets posted as collateral lose value.[10]

IMF regards regulation of capital flows as justifiable under certain circumstances

Amidst perceptions that national economic policy has lost control, many in the economic policy debate, but also the International Monetary Fund (IMF), have come to regard active capital flow management as a suitable policy measure to reduce vulnerability to exogenous shocks.[11] However, interference in the free movement of capital should only be used as a

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7 The countries most affected were Brazil, India, Indonesia, South Africa and Turkey, which came to be known as the "fragile five".
8 See M Drehmann, C Borio and K Tsatsaronis (2012), Characterising the financial cycle: don't lose sight of the medium term!, BIS Working Paper 380; or V Bruno and H S Shin (2015), Cross-border banking and global liquidity, The Review of Economic Studies 82, pp 535-564.
9 In addition to the relationship outlined here, other transmission effects could also play a role. For instance, portfolio shifts could cause financial crises to spill over to countries with a smaller degree of financial interconnectedness.
10 For more on the monetary policy trade-offs associated with financial globalisation, see M Obstfeld (2015), Trilemmas and trade-offs: living with financial globalisation, BIS Working Paper No 480.
11 IMF (2015), Measures which are both macroprudential and capital flow management measures: IMF approach, Washington DC.

last resort. Empirical studies show that the impact of capital controls dissipates over time, since they increasingly trigger evasive action. Over the long term, they are thus better suited to altering the composition of financial flows than to regulating their absolute size.[12] Moreover, capital controls also mean foregoing the potential advantages of an efficient diversification of risks. Greater protection against exogenous shocks implies less opportunity to guard against the adverse impacts of local events. Arguments in favour of the unfettered movement of capital, which gives each investor the greatest possible choice of investment options, include not only broader risk diversification but also efficiency aspects. After all, unilateral measures taken against foreign investors can always be expected to trigger reprisals, which usually defeat the purpose of the original measures.[13]

European monetary union and global financial shocks

Special features of the European monetary union

The euro-area countries are, in several ways, in a unique position in terms of the transmission and absorption of financial shocks from non-euro-area countries, one that sets them well apart from the starting situation faced by other economies. Their monetary policy responsibilities have been transferred to the Eurosystem; individual euro-area central banks can no longer conduct an autonomous monetary policy. Their scope for national action is thus more strongly constrained than that of economies which are able to pursue an independent monetary policy. This renunciation of sovereignty is particularly noticeable where individual member states differ in terms of labour market flexibility and their tax and social welfare systems, which means that financial shocks affect them in different ways. In this case, they may also have diverging monetary policy interests. To make matters worse, the single European market means that the European Union (EU) cannot impose capital controls. Within the euro area, such controls would, moreover, impair the proper functioning of monetary policy. The current controls in force in Greece or the exceptional restrictions in Cyprus (which have since been rescinded) should be seen only as a last resort to avert the threat of a collapse of the financial system. They are by no means a standard policy instrument to stabilise capital flows within the euro area.

On the other hand, the Eurosystem itself represents a large currency area and thus has a perceptible impact on global liquidity developments. At the same time, its members benefit from the advantages of exchange rate flexibility between the euro and other currencies. A single monetary policy thus serves the global interests of the euro area as a whole. The cohesion of the euro area will hinge on whether all member states ultimately benefit from these cooperation gains and on whether or not there is a mechanism to offset, at least in part, the asymmetrical effects of an exogenous shock despite the constraints imposed by a single monetary policy.

Correction mechanisms needed to prevent long-term imbalances

Alongside this short-term view, it is important to examine the extent to which the EU, and especially the euro area, have medium-term correction mechanisms to prevent the build-up of macroeconomic and financial imbalances within the individual member states and in their relationships to one another. This also raises the issue of the responsibility of national economic policy and the role of macroprudential measures that are not based on discrimination between local and foreign actors and thus cannot be regarded as capital controls in the narrower sense.

The high degree of financial integration in the euro area would, in principle, lead one to initially expect a strong transmission of financial

12 See, for instance, J D Ostry et al (2010), Capital inflows: the role of controls, IMF Staff Position Note 10/04; and J D Ostry (2012), Managing capital inflows: what tools to use?, Asian Development Review 29, pp 82-88.
13 See B De Paoli and A Lipinska (2013), Capital controls: a normative analysis, Federal Reserve Bank of New York Staff Reports No 600.

Substitutive capital flows can smooth overall capital account

shocks. However, unfettered movement of capital does not necessarily also imply a higher volatility of capital flows. Empirical studies have shown that cross-border bank lending, which is predominantly procyclical, is offset in part by countermovements in other financial instruments, thereby smoothing the overall capital account. This is especially true of highly developed economies such as the euro area.[14] In the worst-case scenario, the misuse of capital controls can even make capital flows more volatile overall. That would be the case if they were applied to instruments which are thought to be subject to high volatility but are negatively correlated with other capital flows. Even in the member states of the euro area, capital movements for individual financial instruments sometimes go in opposite directions. This is evident even from the standard breakdown into foreign direct investment, equities, debt securities and other investment. Equities, debt securities and other investment, in particular, are close substitutes and are thus less volatile in concert than in isolation. Foreign direct investment, which is longer-term in orientation, is less affected by short-term shocks anyway and is thus generally regarded as a particularly effective risk diversification instrument.

Negative correlation between private credit flows and TARGET flows

However, one particularity of cross-border payment flows between euro-area member states only shows up if other investment is further broken down into lending relationships among private investors and financial relationships between national central banks and the ECB.[15] The mutual claims and liabilities within the Eurosystem are based not only on balancing items for national differences in cash in circulation but also, and primarily, on TARGET balances created by daily settlement of cross-border payments between participants.[16] These TARGET flows are highly negatively correlated with private credit flows, in particular.

Equal access to monetary policy instruments …

Empirical research by the Bundesbank has confirmed the prominent importance of equal access to monetary policy instruments and the redistribution of liquidity between national central banks in cushioning global financial shocks within the euro area (see box on pages 45 to 49). According to the estimates, the member states are initially affected in very different measure by an unexpected increase in perceived risk in the US equity markets – which is often used as an indicator of global uncertainty in empirical research. Following a period of heightened volatility, net private credit flows into some European periphery countries with less solid fundamentals decline over the medium term. Such countries include Greece, Ireland, Italy, Portugal and Spain (known as GIIPS). To compensate for the difficulties in obtaining funding on the interbank market, the affected commercial banks increasingly participate in Eurosystem open market operations through their responsible central banks, where the terms and conditions are the same for all participating credit institutions irrespective of their nationality or country of domicile. Private liquidity outflows ultimately show up in the national central bank's balance sheet as an increase in claims on the domestic banking sector and in an increase in the TARGET liability to the ECB. On balance, no perceptible impact on net credit flows can be discerned for the other euro-area countries. Although the increase in their TARGET claims on the ECB reflects the rise in the liabilities of the periphery countries' central banks, suggesting private net inflows from this region, this is largely offset by less recourse to funds from non-euro-area countries.

On balance, the effects of global financial shocks, which are initially asymmetrical, tend to

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14 See C Becker and C Noone (2008), Volatility and persistence of capital flows, BIS Papers 42, pp 159-180.

15 "Credit" here comprises not only financial and trade credit but also the category "cash and deposits". In the balance of payments terminology, items where the borrower is a commercial bank are booked as "currency and deposits". Moreover, other investment includes certain insurance and old-age provision payments as well as other equity not recorded as portfolio investment or foreign direct investment.

16 The original version of TARGET was replaced by TARGET2 in 2007 and 2008. The innovations mainly concerned settlement technology. In this article, the term TARGET will be used throughout for simplicity. See Deutsche Bundesbank, TARGET2 – the new payment system for Europe, Monthly Report, October 2007, pp 69-82.

… leads to a broader dispersion of asymmetrical shocks

become dispersed more broadly across euro-area member states with regard to overall net capital flows. In the last stage of transmission to the real economy, there is a weakened decline across the euro area in lending by commercial banks to enterprises and households.

In economic terms, the uniform supply of liquidity to all euro-area commercial banks represents a special form of international risk sharing, which is available to euro-area member states but not to non-euro-area economies. This is why the recoverability of the collateral pledged to central banks is of primary importance for mitigating the risks to be borne by the community. The quality standards for eligible securities also determine the extent of potential liquidity provision by the Eurosystem.

Importance of global factors …

However, one should be careful not to overestimate the overall influence of global and European factors on private capital movements in the individual euro-area countries. A forward error variance decomposition (FEVD) can be performed in order to assess the significance of various determinants for unexpected changes in a variable. This instrument maps the overall variance in the prediction of a variable to exogenous shocks in the individual model variables and thus illustrates the causes of uncertainty. According to the estimation model used, prior to the onset of the European debt crisis, uncertainty about future US equity price movements and US monetary policy accounted for around 7% of the error variance of cross-border credit flows to euro-area member states in the long run (including intra-European credit flows). Another 24% was explained by European factors which can be attributed to the single monetary policy.[17] The majority of forecast uncertainty, however, was either due to national factors or impossible to pinpoint.

… has receded since the onset of the European debt crisis

The impact of non-European factors has even diminished somewhat since the start of the European debt crisis.[18] This is particularly true of the countries worst hit by the crisis. Uncertainty about the future trajectory of private credit flows in Greece, Ireland, Italy, Portugal and Spain was caused almost exclusively by domestic factors in the past few years and was itself responsible in key measure for the volatility of TARGET flows between the Eurosystem's national central banks. Moreover, the development also reflects efforts by European banks to bring their capital levels into line with tougher regulatory standards. In many cases, this involved a reduction in foreign business and concentration on core business and core markets (deleveraging).[19]

TARGET balances …

When monetary union was established and TARGET was set up, it was in no way envisaged that the Eurosystem would play the role of "crisis manager" in the event of a disruption to private credit transactions or that there would be a large-scale reallocation of central bank money between the member states. Until the onset of the global financial crisis in the autumn of 2008, private cross-border payments between member states were largely in equilibrium. TARGET balances were only temporary and on a small scale.

… have risen in times of crisis

However, in the months that followed, TARGET balances within the Eurosystem increased markedly and reached a temporary peak of €421 billion in cumulated claims and liabilities in the first quarter of 2009. At the same time, euro-area countries weathered the global turmoil better than many other advanced economies. As the financial situation in the United States stabilised, the interbank markets also started to function better again and TARGET balances in the Eurosystem temporarily dipped.

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17 Data relate to the breakdown of forecast variance for a 16-quarter forecast. The estimations are based on quarterly observations from the first quarter of 1999 to the fourth quarter of 2009.

18 The data below are based on estimates for the period from the first quarter of 2010 to the fourth quarter of 2014.

19 See M Brunnermeier et al (2012), Banks and cross-border capital flows: policy challenges and regulatory responses, Brookings Committee on International Economic Policy and Reform, and R Frey (2015), Multinational banks' deleveraging in the crisis driven by pre-crisis characteristics and behavior, Deutsche Bundesbank Discussion Paper No 18/2015.

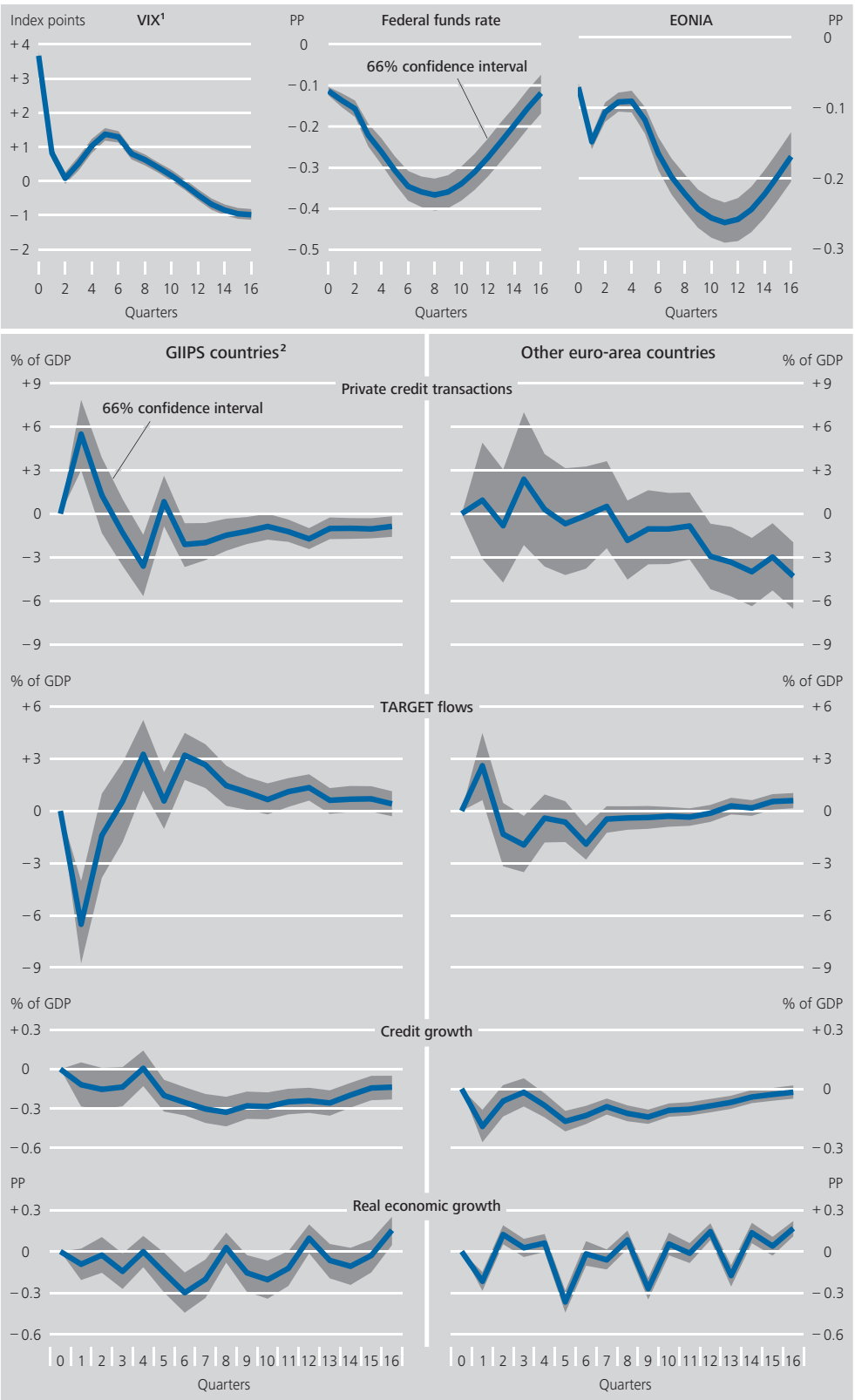
The transmission of financial shocks through cross-border lending

The global integration of the financial markets has meant that developments in key money and capital markets propagate rapidly across borders.[1] This results in the formation of a global financial cycle with an international co-movement of credit flows, from which it is difficult for individual countries to break free. Rey (2015) uses a vector autoregression (VAR) model to analyse the transmission of global financial shocks via international credit flows to the financial markets of emerging market economies.[2] This question is also relevant to the member states of the euro area, although due account has to be taken of the particularities of the monetary union.[3] A panel VAR model can be used to analyse the effects of an unexpected rise in uncertainty in the US stock markets – as measured by the Chicago Board Options Exchange Volatility Index (VIX). It is shown that the financial shock modelled in this way triggers a response in the effective volume-weighted overnight rates for the US dollar (federal funds rate) and the euro (EONIA). These overnight rates represent the monetary policy response in the USA and in Europe to the more strained financial setting. In addition to the cross-border credit flows, which are described in the literature as central transmission channels of the global financial cycle, the model used also takes into account the financial relationships between the national central banks and the ECB via the TARGET system.[4] Both variables are entered into the equations over national gross domestic product (GDP). The impact on the national variables in the euro-area member states themselves is reflected in the growth rates in lending to the private sector and real GDP.

The panel comprises the 11 founding members of the euro area, as well as Greece, with quarterly data from the first quarter of 1999 up to the final quarter of 2014. Here, a clear distinction is made between those countries that are deemed to be comparatively vulnerable, namely Greece, Ireland, Italy, Portugal and Spain (GIIPS), and the other member states. The VAR model is estimated using a least square dummy variable (LSDV) estimator.[5] The order in which the variables are inserted into the equation system is determined on the basis of Cholesky restrictions, which are used to identify shocks. Each variable can simultaneously respond to disturbances in the preceding variables, but does not respond to the subsequent variables until the following quarter at the earliest. Given that GDP responds the most sluggishly of all the variables under consideration, it is the first variable that is entered into the model. This is followed by the growth rate of domestic loans to the private sector. Cross-border credit transactions and TARGET flows respond immediately to these national factors and, in turn, have an immediate impact on the VIX and the overnight rates in the USA and in Europe. The overall sequence is as

1 See, for example, S Eickmeier and T Ng (2015), How do US credit supply shocks propagate internationally? A GVAR approach, European Economic Review 74, pp 128-145.
2 See H Rey (2015), Dilemma not trilemma: the global financial cycle and monetary policy independence, NBER Working Paper 21162.
3 See M Gelman, A Jochem and S Reitz (2016), Transmission of global financial shocks to EMU member states: the role of monetary policy and national factors, Deutsche Bundesbank Discussion Paper No 23/2016.
4 In addition to the changes in the TARGET balances, the "TARGET flows" variable contains capital inflows via official assistance programmes as these are directly reflected in the TARGET balances of the beneficiary central banks and replace refinancing via the Eurosystem.
5 The Stata program used was taken from T Cagala and U Glogowsky (2014), Panel Vector Autoregressions for Stata (xtvar).

Impulse response functions following a one-standard-deviation increase in the VIX



1 Chicago Board Options Exchange Volatility Index. **2** Greece, Ireland, Italy, Portugal and Spain.

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follows:[6] real economic growth, credit growth, private sector lending, TARGET flows, VIX, the federal funds rate and EONIA.

Thomson Reuters Datastream was used for the VIX and the US overnight rate data, whereas ECB data were used for the EONIA. The data pertaining to cross-border credit flows were taken from Eurostat's balance of payment statistics. Eurostat also provides the figures for GDP and domestic lending to the private sector. Information regarding payments made in connection with official assistance programmes can be found on the websites of the European Commission and the International Monetary Fund, whereas the TARGET balances are published in the ECB's Statistical Data Warehouse.

Impulse response functions illustrate the impact that global shocks have on national credit growth in both country groups and the associated transmission channels. An increase in the VIX results in a drop in the effective overnight rate in the USA, which, in turn, is reflected accordingly in the EONIA. According to the model, the private net credit flows to the GIIPS countries respond significantly to the disturbance, despite the monetary policy easing, and, following a period of heightened volatility in the first few quarters, fall back below the starting level over an extended period of time. The fluctuation in the private credit flows is, however, largely offset by the contrasting use of central bank liquidity by commercial banks and fund flows within the Eurosystem in the form of TARGET transactions.

In the rest of the euro area, this results in reverse capital flows in TARGET. However, the private inflows of funds from the periphery recorded over the medium term are not, on balance, reflected to a significant extent in the private sector lending of the core countries as the commercial banks in these countries conduct, in turn, fewer refinancing transactions with credit institutions outside the euro area. As a result, the originally asymmetric effects of the exogenous shock are more widely dispersed across the Eurosystem through the liquidity redistribution and the impact on private credit growth is similar in both country groups.

Subdividing the sample into the time period prior to the onset of the European debt crisis and the time period thereafter clearly shows that the impact of global factors on the credit flows of the euro-area member states has diminished.[7] This applies to the GIIPS in particular. The forward error variance decomposition (FEVD) provides information about the determinants to which the uncertainty regarding the future path of a certain variable is attributable. As long as the confidence of international investors in the rapidly growing southern Mediterranean countries and Ireland was still intact, over 30% of uncertainty regarding the net credit flows to these countries was attributable to US factors (VIX, federal funds rate) or to factors linked to European monetary policy and the Eurosystem (EONIA, TARGET).[8] Following the outbreak of the European debt crisis, global and European variables as influencing factors on credit

6 All the variables used in the sample are stationary at a significance level of 5%. The unit root tests of Im, Pesaran and Shin as well as the Fisher PP and ADF test defined by Maddala and Wu were used. See K S Im, M H Pesaran and Y Shin (2003), Testing for unit roots in heterogeneous panels, Journal of Econometrics 115, pp 53-74, as well as G S Maddala and S Wu (1999), A comparative study of unit root tests with panel data and a new simple test, Oxford Bulletin of Economics and Statistics 61, pp 631-652.
7 Other studies have also shown that spillover effects from financial shocks can change dramatically over time. See, for example, N Metiu, B Hilberg and M Grill (2016), Credit constraints and the international propagation of US financial shocks, Journal of Banking and Finance, forthcoming.
8 For a forecast horizon of 16 quarters.

Forward error variance decomposition (FEVD)

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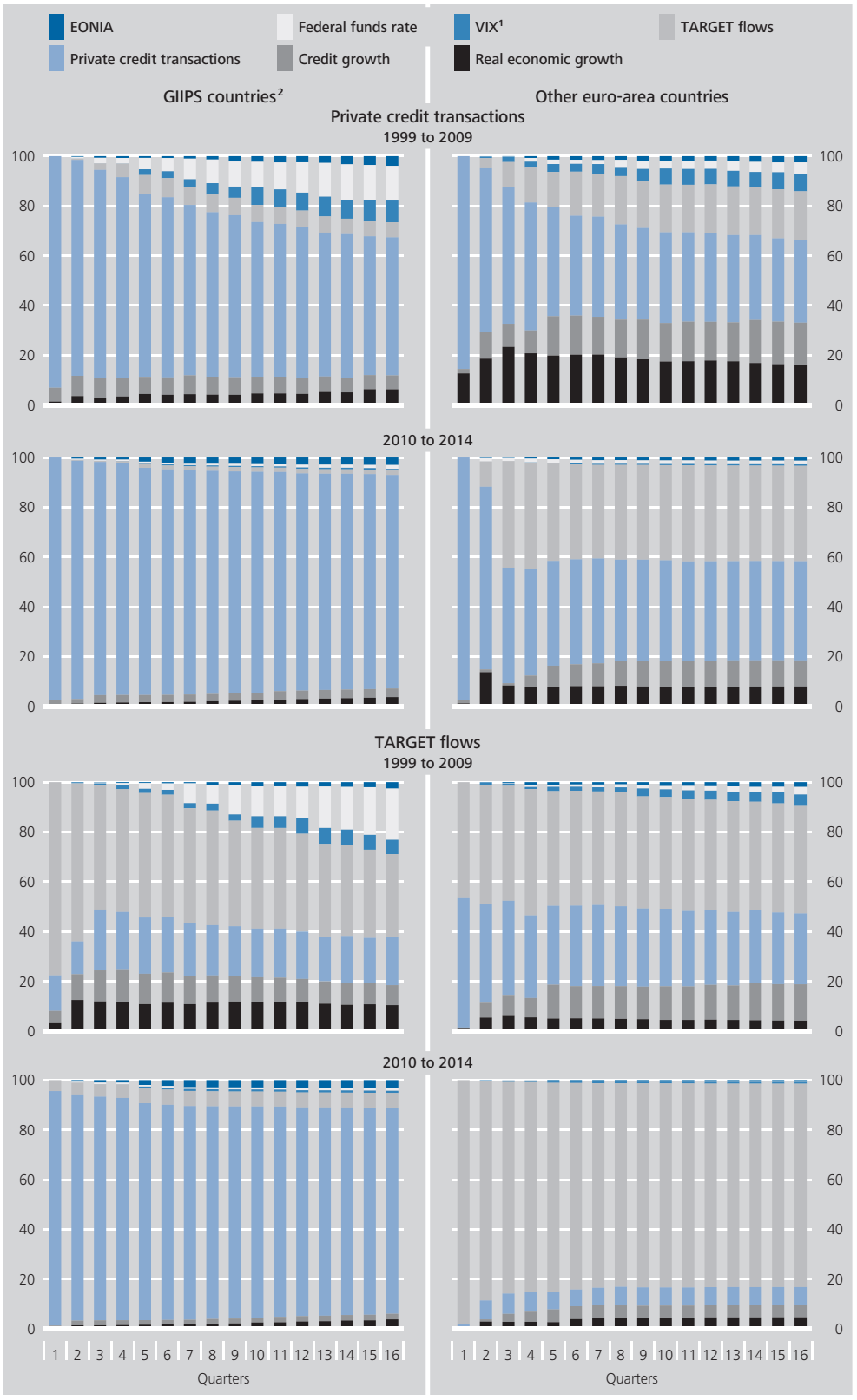

1 Chicago Board Options Exchange Volatility Index. **2** Greece, Ireland, Italy, Portugal and Spain.

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transactions dwindled in importance. This, however, is likely to have been due less to a greater resilience to external shocks than to the large-scale decoupling of the domestic financial sector from the international capital markets.

This decoupling is also reflected in the fact that since 2010, the variance of the forecast errors for the TARGET flows of these countries has almost exclusively been attributable to uncertainty regarding private credit flows. This confirms the importance of unrestricted access to central bank liquidity and its redistribution via the TARGET system as a substitute for private sector lending. By contrast, the changes in the TARGET balances in the other euro-area member states are primarily influenced by the TARGET transactions of the national central banks in the crisis countries, as is suggested by the variance decomposition analysis tool.

However, these balances soon began to rise again in the second quarter of 2010, when the Greek government gave the first indications that it might not be able to service public debt on time and in full, causing capital drain from the country. This time, unlike two years earlier, the causes of the financial disruption thus lay inside the euro area. The shock absorption mechanism provided by the generous provision and redistribution of liquidity via the central banks, as well as an extensive assistance package from the international community, helped to avert a collapse of the Greek financial sector (along with possible domino effects on other European countries) during this period.

Risk sharing via the Eurosystem can cause adjustments to be delayed

Overall, it is evident that international risk sharing via the Eurosystem is a suitable way to reduce the immediate strain of financial disruptions. At the same time, however, there is a danger that the weaker penalties imposed by the capital market could lead to necessary adjustment processes being delayed. Bundesbank analyses show that this is particularly true of financially vulnerable sectors that had seen particularly rapid growth in borrowing prior to the onset of the global financial crisis. The generous provision of liquidity by the Eurosystem in the aftermath of the crisis meant that real wages in the affected enterprises were relatively high. There is therefore a risk of competitiveness being lost in the long term if there is a renewed rise in funding costs (see the box on pages 50 to 52). Irrespective of which effect ultimately predominates – the benefit of lower capital costs or the drawback of higher wage costs – it is clear that the single monetary policy can cause not only regional distributional effects, but also sectoral shifts.

If a situation is to be avoided in which long-term risks are mutualised and structural developments are influenced by the Eurosystem, measures must be taken both at Community and national level which promote private risk

The influence of central bank liquidity provision on internal adjustment to a sudden stop*

The financial and sovereign debt crisis led to massive capital outflows from various European countries within and outside the euro area, comparable to a sudden stop. The Eurosystem reacted to this liquidity shock, and to the strained situation on the euro-area financial markets, with extensive provision of central bank liquidity. While countries inside the euro area (Greece, Ireland, Italy, Portugal and Spain, hereinafter GIIPS) were able to access this liquidity, Eastern European countries outside the euro area with currencies pegged to the euro (Bulgaria, Estonia, Latvia, Lithuania, hereinafter BELL) were not. However, alongside this difference, the two groups of countries also share one significant common feature: neither BELL nor GIIPS were able to react to the liquidity shock by depreciating their exchange rate (external adjustment). Instead, the necessary adjustments had to be made internally – in other words, through a change in relative prices.

This quasi-natural experiment enables us to examine how liquidity provision influenced internal adjustment to the liquidity shock, using sector-level panel data from the BELL and GIIPS countries. The baseline hypothesis is that the liquidity shock exerts greater adjustment pressure in those sectors which are relatively heavily dependent on external financing. Since liquidity provision cushions the impact of the original shock, it might alleviate the internal adjustment in financially dependent sectors. On the other hand, sectors which need little external financing should be hit less hard by the shock in the first place. Therefore, possible liquidity provision by the central bank should also affect these sectors less strongly than the financially dependent sectors. To test this hypothesis, and therefore to answer the question of how liquidity provision by the Eurosystem influenced internal adjustment, the following difference-in-differences regression equation is estimated:[1]

$$\Delta_t log\ (Y_{ikt}) = \alpha_{i\tau} + \alpha_{it} + \alpha_{k\tau} + \alpha_{kt} + \beta[FV_k \times X_{it}] + \gamma[FV_k \times LP_{it}] + \varepsilon_{ikt}$$

$\Delta_t log\ (Y_{ikt})$ is a measure of sectoral adjustment to the country-specific liquidity shock. Sectoral adjustment is measured on the basis of cumulative changes to nominal and real wages and to prices. The regression equation contains time-varying fixed effects α encompassing all the (observable and non-observable) country and sector-specific influential factors. FV_k measures the extent to which a sector depends on external financing.[2] LP_{it} represents liquidity provision by the Eurosystem; for BELL countries, this variable stands at zero throughout.[3] X_{it} are

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* These explanatory comments are based on C M Buch, M Buchholz, A Lipponer, E Prieto (2016), Liquidity provision, financial vulnerability, and internal adjustment to a sudden stop, Deutsche Bundesbank discussion paper, forthcoming.

1 The index i represents the periphery countries within and outside the euro area, k the individual sectors of the economy, t the quarter following the country-specific liquidity shock and τ the actual (calendar) quarter.

2 We measure financial dependence on the basis of sectoral lending in the euro area over the period 2003-2008. As is customary in the literature, the measure of financial dependence varies between sectors but does not change over the course of time; see R Rajan and L Zingales (1998), Financial dependence and growth, The American Economic Review, 88(3), pp 559-586, and P Agion, D Hémous and E Kharroubi (2014), Cyclical fiscal policy, credit constraints, and industry growth, Journal of Monetary Economics, 62(C), pp 41-58.

3 We measure the liquidity provision on the basis of country-specific TARGET balances. This enables us to capture not only the liquidity provision in the form of open market operations by the Eurosystem, but the entire extent of central bank liquidity available to member states as compensation for a "sudden stop".

Liquidity assistance and internal adjustment*

Item	Nominal wages	Real wages	Prices	Employment
FV_k x LP_{it}	0.465	10.010***	– 3.710***	– 1.537**
	(1.373)	(2.029)	(1.095)	(0.601)
Obs	1,647	1,647	1,647	1,647
R^2	0.711	0.717	0.627	0.813

* The table shows the effect of an expansion of liquidity provision (LP_{it}) on the adjustment of nominal wages, real wages, prices and employment where there is greater financial dependency at the sector level (FV_k). All regressions contain country and sector-specific fixed effects and other control variables. Standard errors in brackets are cluster-robust at the country level. ***/** denote a significance level of 1%/5%.

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other control variables. The central parameter is γ, which measures whether expansion of liquidity (first difference) influences adjustment differently if a sector has been more strongly affected by the original liquidity shock because of greater dependence on external financing (second difference).[4]

As the above table shows, increased liquidity provision did not significantly influence the adjustment of nominal wages. In contrast, the estimated coefficient for real wages is positive and of high statistical significance: as a result of increased liquidity provision, real wages in financially dependent sectors did not fall as steeply as in sectors which are less dependent on external financing.[5]

The negative and highly significant parameter in the regression equation for prices reveals that liquidity provision caused smaller price rises in financially dependent sectors than in financially independent sectors. At first glance this seems surprising, since the aim of these non-standard monetary policy measures is precisely to raise prices. However, these results reflect the interplay between liquidity provision on the one hand and a negative liquidity shock on the other. In such a setting, businesses might try to compensate for a negative liquidity shock by expanding their margins and raising their prices.[6] The empirical results show that price increases following the liquidity provision tended to be lower in financially dependent sectors, perhaps because they particularly benefited from more favourable funding costs. On the other hand, there were no significant differences in the adjustment of nominal wages. Overall, real wages in financially dependent sectors fell less steeply following increased liquidity provision. This less pronounced fall in real wages, however, went hand in hand with a greater decline in employment in these sectors.

These empirical results are in line with the theoretical paper by Schmitt-Grohé and Uribe (2016). These authors emphasise the

4 We use cluster-robust standard errors at the level of the individual countries. See M Bertrand, E Duflo and S Mullainathan (2004), How much should we trust differences-in-differences estimates?, The Quarterly Journal of Economics 119(1), pp 249-275, and M A Petersen (2009), Estimating standard errors in finance panel data sets: comparing approaches, Review of Financial Studies, 22(1), pp 435-480.

5 The results for nominal and real wages are also reflected in nominal and real unit labour costs. Sectoral labour productivity, on the other hand, is not significantly influenced by increased liquidity provision.

6 The resulting inflationary effects of negative liquidity shocks are described in recent theoretical literature, for example L J M Christiano, S Eichenbaum and M Trabandt (2015), Understanding the Great Recession, American Economic Journal: Macroeconomics 7, pp 110-167, W W Dou and Y Ji (2015), External financing and customer capital: a financial theory of markups, MIT, mimeo, and S Gilchrist, S Raphael, W S Jae and E Zakrajsek (2015), Inflation dynamics during the financial crisis, Finance and Economics Discussion Series 2015-012, Board of Governors of the Federal Reserve System.

significance of asymmetric wage rigidity in fixed exchange rate regimes. In this setting, real wages can be reduced by higher prices. Thus, unemployment rises if real wages do not fall sufficiently on account of downward rigidity in nominal wages.

Although this analysis cannot draw any conclusions about the macroeconomic impact of liquidity provision, it reveals an important trade-off. On the one hand, liquidity provision can reduce price adjustment pressure precisely for those sectors of the economy which are hit hardest by a negative liquidity shock, such as the construction sector. This means that necessary adjustments to (relative) prices can be stretched out over a longer period of time. On the other hand, there is a risk that this extra time will be bought at the cost of higher unemployment and that necessary (structural) adjustments will be postponed for too long.

sharing, but which also ensure that member states themselves shoulder responsibility.

Capital markets union

Capital markets union to promote private risk sharing, …

The European Commission is advancing a capital markets union as a key measure to promote private risk sharing at the European level.[20] Proponents currently still see considerable potential for expansion, particularly concerning the cross-border use of securitisations and equity instruments. If this potential were harnessed, it would not only increase efficiency, but would, above all, also provide alternatives to procyclical bank loans. In addition to generating compensatory capital flows, a broader distribution of income risks in the case of equity instruments could also have a stabilising effect. Compared to, say, debt investors, equity investors can be expected to be more responsive to the economic policies in the investment countries and less likely to tolerate unsustainable local developments.

… which is lower in the euro area than in the United States

Financial integration in the euro area is already well advanced and is significantly greater than the degree of financial integration that exists between other advanced economies. However, if the aim is to limit implicit risk sharing via the Eurosystem and, at the same time, to strengthen the cohesion of the euro area, the degree of other countries' integration in the global economy is not the appropriate yardstick. If, instead, one compares private risk sharing within the euro area with risk sharing between the individual US states, there is still a lot of catching up to do, despite the undeniable progress that has been made since the introduction of the

20 See European Commission (2015), Action plan on building a capital markets union, http://ec.europa.eu/finance/capital-markets-union/docs/building-cmu-action-plan_en.pdf

euro as a single currency.[21] Market integration should not, however, mean that differences between the individual euro-area countries in the assessment and the design of financial instruments will disappear completely. Such differences may well be economically justified and should in that case certainly not be eliminated for political reasons.[22]

Expansion of the securitisation market …

The European action plan on building a capital markets union will presumably have only a minor impact on stock markets. A considerable portion of shares, at least in the main listed companies, are already held by non-residents, and there is already brisk international trade in these shares. This is evident not least from the extremely low home bias for equities. In some countries, shares from other European countries are already overweighted compared to the relative proportion of these shares in the global portfolio. Other segments of the capital market, such as securitisations, crowdfunding or venture capital, are, however, still relatively weak in some member states and highly fragmented at the European level.

… and strengthening of equity financing

Furthermore, debt financing still enjoys tax advantages over equity financing in most member states, hampering substitution. However, in stepping up efforts to promote cross-border equity capital flows, policymakers must take care to ensure that no new distortions arise. They should also examine the extent to which market-based forms of financing lead to new financial stability risks, such as those caused by pronounced information asymmetry between lenders and borrowers, which can be particularly severe in a cross-border context. Furthermore, as far as private risk sharing is concerned, risk-takers must actually be able to absorb potential loss events. In particular, new systemic risks, which could ultimately lead to a government bail-out, must not be allowed to arise. In order to prevent possible unsound developments, the expansion of the common capital market must be accompanied by the introduction of appropriate microprudential and macroprudential instruments.[23]

Responsibility of the member states

Insurance principle instead of a transfer principle

International risk sharing via the capital market, just like risk sharing through the provision and redistribution of liquidity by the Eurosystem, can only work in the long term if it actually constitutes fair protection – akin to an insurance policy – against the effects of exogenous shocks. The "insurance benefits" should therefore tend to offset each other in the long term, or at least have the same expected value *a priori* for all participants. Neither the capital market nor the single monetary policy can or should provide ongoing transfers to offset permanent imbalances. When implementing the capital markets union, it is therefore vital to harmonise standards but also, above all, to ensure that instruments have a high degree of transparency. Monetary policymakers must additionally apply high quality standards when implementing their instruments. This applies not only to the collateral requirements for traditional refinancing operations, but also, in particular, to the use of non-standard measures such as the expanded asset purchase programme (APP).

Preventing asset price bubbles …

Beyond this, however, responsibility for a consistent and sustainable economic policy lies with the euro-area member states themselves. The impact of global financial cycles on the emergence of macroeconomic imbalances manifests itself directly in the formation of asset price bubbles.[24] From the point of view of long-term sustainable economic development, the question thus arises as to how policymak-

21 See J Mélitz (2004), Risk sharing and EMU, Journal of Common Market Studies 42, pp 815-840; or Y Demyanyk, C Ostergaard and B E Sørensen (2008), Risk sharing and portfolio allocation in EMU, European Economy, Economic Papers 334.
22 See Deutsche Bundesbank, Reduction of cross-border financial vulnerabilities, Monthly Report, January 2014, pp 67-78.
23 See Deutsche Bundesbank, Capital markets union – financial stability and risk sharing, Financial Stability Review 2015, pp 85-94.
24 See M K Brunnermeier and I Schnabel (2016), Bubbles and central banks: historical perspectives, in M D Bord et al (eds), Central banks at a crossroads: what can we learn from history?, pp 493-562.

External liabilities and asset prices

The long-term impact of sustained in and outflows of funds on an economy's financial and macroeconomic stability can be determined by looking, for instance, at the relationship between aggregate capital flows and domestic asset and goods prices.[1] The experiences made in previous financial crises have shown that real estate markets are frequently at the epicentre of speculative bubbles in the financial sector. In addition, the literature on the mechanisms of the international financial cycle concludes that there is a close relationship between cross-border bank loans and developments on the housing market.[2]

This text will examine this relationship for the eleven founding members of the European monetary union, as well as Greece, with quarterly data from the first quarter of 2005 up to the final quarter of 2014.[3] Cointegration tests as described by Pedroni (2001) and Kao et al (1999) confirm, at a significance level of 95%, that real house prices *(house)* are cointegrated with "private" gross external debt *(priv_debt)*, the average capital adequacy ratio of commercial banks *(car)* and the consolidated balance sheet total of the Eurosystem *(bal)*.[4]

In line with the procedure described by Kao and Chiang (2000), a version of the dynamic ordinary least square (DOLS) estimator pursuant to Saikkonen (1992) and Stock and Watson (1993) is tailored to panel data and applied.[5] The endogeneity in the relationship between the variables and serial correlation is recognised by including country-specific leads and lags of the first differences of all variables on the right-hand side of the regression equation:[6]

$$
\begin{aligned}
house_{i,t} = {} & \alpha_{0,i} + \alpha_1 debt_{i,t} + \alpha_2 car_{i,t} \\
& + \alpha_3 bal_t + \sum\nolimits_{k=-1}^{1} \gamma_{i,k} \Delta debt_{i,t+k} \\
& + \sum\nolimits_{k=-1}^{1} \delta_{i,k} \Delta car_{i,t+k} \\
& + \sum\nolimits_{k=-1}^{1} \delta_{i,k} \Delta bal_{t+k} + \epsilon_{i,t} \qquad (1)
\end{aligned}
$$

1 The sub-items of the international investment position are available as quarterly data only from 2005 onwards. Given the short observation period, the sample cannot – unlike in the analysis on pp 45-49 – be broken down into the time before and after the onset of the European debt crisis. Similarly, the limited number of observations means that no differentiation is made between the periphery countries Greece, Ireland, Italy, Portugal and Spain and the other euro-area member states.

2 See M Drehmann, C Borio and K Tsatsaronis (2012), Characterising the financial cycle: don't lose sight of the medium term!, BIS Working Paper 380.

3 See M Gelman, A Jochem, and S Reitz (2016), Transmission of global financial shocks to EMU member states: the role of monetary policy and national factors, Deutsche Bundesbank Discussion Paper No 23/2016.

4 See P Pedroni (2001), Purchasing power parity tests in cointegrated panels, The Review of Economics and Statistics 83, pp 727-731; and C Kao, M-H Chiang and B Chen (1999), International R&D spillovers: an application of estimation and inference in panel cointegration, Oxford Bulletin of Economics and Statistics 61, pp 693-711. All the tests cited here were conducted beginning with just two variables and the gradual inclusion of an additional variable, until a cointegration relationship was confirmed (bottom up). This rules out the existence of more than just one cointegration relationship. Real house prices are represented using the logarithm of the house price indices deflated using the harmonised consumer price index; the data on private gross external debt (external debt excluding central banks' TARGET liabilities) are normalised with the national gross domestic product (GDP); the Eurosystem's consolidated balance sheet total is in logarithmic form. The data on harmonised consumer prices, on GDP and on commercial banks' capital adequacy ratio are provided by Eurostat, house price indices, TARGET balances and the Eurosystem's consolidated balance sheet are published by the ECB, and the information on external debt is taken from the World Bank's external debt statistics.

5 See P Saikkonen (1992), Estimation and testing of cointegrated systems by an autoregressive approximation, Econometric Theory 8, pp 1-27; and J H Stock and M Watson (1993), A simple estimator of cointegrating vectors in higher order integrated systems, Econometrica 61, pp 783-820.

6 The index i represents the individual countries, t stands for the quarters.

The coefficients of the leads and the lags are included in the regression, but are not part of the long-term relationship described by equation (2).[7]

$$house_{i,t} = \underset{(0.0005)^{***}}{0.0019} priv\_debt_{i,t} - \underset{(0.940)^{***}}{5.118} car_{i,t} + \underset{(0.039)^{***}}{0.078} bal_t \quad (2)$$

As was to be expected, large levels of private external debt are associated with higher real house prices. Undesirable developments on the real estate markets can therefore, as a general rule, be combatted by controlling capital flows, which limits the volume of external liabilities. However, real house prices are also influenced by capital levels at commercial banks and the provision of liquidity by the Eurosystem. The member states of the euro area therefore have at their disposal instruments, especially in the form of macroprudential measures that target commercial banks' balance sheet metrics, that do not conflict with the free movement of capital enshrined in the EU's *acquis communautaire* or with the OECD's Code of Liberalisation of Capital Movements.

Other asset markets besides the real estate sector are also sensitive to cross-border capital flows. This is particularly true of equities, where the effective financial market exchange rates may give an indication of valuation in an international comparison.[8] The effective financial market exchange rate, in turn, displays a stable long-term correlation with a country's total external liabilities in the form of equity *(ext_equ)* and debt *(ext_debt)* and with overall government debt *(gov_debt)*, in each case relative to GDP:[9]

$$refer_{i,t} = \underset{(3.092)^{***}}{15.820} liab\_equ_{i,t} + \underset{(3.090)^{***}}{14.128} liab\_debt_{i,t} - \underset{(16.043)^{***}}{102.149} gov\_debt_{i,t} \quad (3)$$

Within the euro-area member states, the level of external debt and the scale of externally provided equity is therefore relevant for price formation on the domestic stock markets. Moreover, both forms of financing make a very similar contribution. It is obvious that capital inflows that are not directly used to buy shares and other equity also indirectly boost demand for these forms of investment. Unlike aggregate external liabilities, public debt has a dampening influence on domestic equity prices. While aggregate capital inflows from abroad and the resulting increase in external liabilities do, to a certain degree, reflect the attractiveness of the domestic economy for foreign investors, high levels of government debt hurt investor confidence and therefore have the opposite effect. Sound public finances are therefore an important contribution of economic policy in order to ensure a country is financially competitive.

Pronounced capital inflows result not only in high asset prices, they can also drive up consumer prices. Like the effective financial market exchange rate, the consumer-price-

7 t values are in brackets. ***/** refer to a significance level of 1%/5%.
8 The effective financial market exchange rate compares the international price level of equities and corresponds, in conceptual terms, to the real effective exchange rate for goods. The weights of the partner countries are determined based on the reciprocal holdings of portfolio assets (CPIS), and bilateral exchange rates (ECB) are deflated by national equity price indices (MSCI). See M Gelman, A Jochem, S Reitz (2015), Real financial exchange rates and capital flows, Journal of International Money and Finance 54, pp 50-69.
9 This statement is based on the above-mentioned cointegration tests for a significance level of 95%.

based real effective exchange rate *(reer)*[10] also exhibits a stable long-term correlation with an economy's external liabilities and level of government debt:

$$\begin{aligned} reer_{i,t} = & \underset{(0.446)^{*}}{0.870} liab\_equ_{i,t} \\ & + \underset{(0.418)^{**}}{0.826} liab\_debt_{i,t} \\ & - \underset{(1.605)^{***}}{6.791} gov\_debt_{i,t} \end{aligned} \quad (4)$$

A high effective exchange rate can be the result of strong demand for domestically produced goods and services, but it may also reflect low price competitiveness. As with the cause of high capital inflows, interpreting this variable requires a more in-depth analysis of the situation at hand. In the long term, however, high levels of general government debt must be accompanied by a low valuation for the domestic currency as measured by the real effective exchange rate if the emergence of an external imbalance is to be avoided.

10 Real effective exchange rates are based on relative consumer prices against 42 countries, source: European Commission.

ers can influence the relationship between aggregate capital flows and national asset prices.

Empirical studies show that economic policy, even in financially open economies, is indeed able to mitigate the impact of global financial conditions on the domestic economy in the long term.

… through macroprudential policy measures and …

For example, macroprudential policy measures aim to regulate commercial banks' lending and to prevent an excessive increase in real property prices.[25] In contrast to capital controls, they do not interrupt the global financial cycle at the national border, but instead target the issuance of real estate loans by private commercial banks. As macroprudential policy measures do not discriminate between residents and non-residents, it is possible, in principle, to reconcile them with the European single market and the principles of monetary union. In recent years, the German Financial Stability Committee has recommended a number of new instruments for the macroprudential oversight of real estate loans,[26] instruments which are also advocated by the European Systemic Risk Board (ESRB).[27] In order to avoid distortions between the member states and a deterioration of standards through regulatory competition, it is essential that the measures taken are coordinated at the European level.[28]

… sound fiscal policy

In addition to providing effective financial market regulation, policymakers must also address

25 Real property prices show property prices in relation to prices for consumer goods.
26 See German Financial Stability Committee, Recommendation of 30 June 2015 on new instruments for regulating loans for the construction or purchase of residential real estate, http://www.bundesfinanzministerium.de/Content/EN/Downloads/2015-06-30-FSC-Recommendation.pdf?__blob=publicationFile&v=3
27 ESRB, Recommendation on intermediate objectives and instruments of macro-prudential policy, ESRB/2013/1, April 2013.
28 On the proposals for and approval mechanisms of macroprudential policy measures in Europe, see Deutsche Bundesbank, Macroprudential Policy, Financial Stability Review 2015, pp 71-83.

macroeconomic stability. The estimates presented in the box on pages 54 to 56 support the view that sound public finances help increase a country's attractiveness for international investors and boost the domestic economy's competitiveness on world markets.

Macroeconomic Imbalance Procedure as a surveillance instrument

The EU's Macroeconomic Imbalance Procedure is, in principle, a suitable instrument for verifying whether member states are acting responsibly and for demanding consistent economic policy. Under this procedure, special attention should be paid to countries' compliance with the Stability and Growth Pact. It is the key pillar for preventing macroeconomic imbalances at the national level and is complemented at the European level by effective financial market regulation and banking supervision. However, the existing coordination mechanisms need to be supplemented by new instruments that are capable of interrupting the vexed relationship between states and financial markets on a lasting basis, as this is the only way to credibly strengthen national responsibility. The Bundesbank presented potential reforms in this vein in June of this year.[29]

Conclusion

In principle, the financial integration of the world economy presents all countries with opportunities for a more efficient allocation of capital and a better diversification of risk. However, it also increases interdependence and facilitates the transmission of potentially adverse financial influences. The global financial crisis showed this to be a double-edged sword and revealed that the global financial system needs considerable reform.

The euro area is unique in this context, as its constituent members have relinquished monetary policy autonomy to the Eurosystem and have thus lost an important adjustment instrument for tackling exogenous shocks. That said, in an environment of global financial shocks, the monetary policy options are in any case limited. This is particularly true of small, open economies. By contrast, the single European monetary policy is certainly capable of influencing global monetary developments. Moreover, the centralised provision of central bank liquidity, in conjunction with the possibility of redistributing existing Eurosystem liquidity between the central banks, represents an effective mechanism for smoothing the impact of financial shocks between the member states.

However, this centralised provision of liquidity by central banks, in conjunction with an offsetting of private credit flows with TARGET flows between the central banks, implies a transfer of risk from the private sector to the Eurosystem. Furthermore, there is a risk that this will not just cushion short-term disturbances, but also fuel structural imbalances.

The reforms made to the European framework, as well as those currently planned, aim to limit this trade-off. Private risk sharing via the capital markets is therefore one of the declared objectives of the European capital markets union. Moreover, the Single Supervisory Mechanism is intended to ensure effective and undistorted oversight of the banking sector. The control measures within the framework of the EU's Macroeconomic Imbalance Procedure also help to identify the build-up of macroeconomic imbalances at an early stage and to take corrective action.

The hypothesis of a dilemma requiring capital controls on account of the increasing powerlessness of economic policy in the face of global factors does not appear to hold true for the countries of the euro area. Instead, a trinity of monetary union can be defined where the single monetary policy, the free movement of capital and effective regulation together make it possible, at least in principle, to reconcile short-term stabilisation with sustainable economic development.

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29 See Deutsche Bundesbank, Approaches to resolving sovereign debt crises in the euro area, Monthly Report, July 2016, pp 41-62.