

## *Chapter 6*

# **GETTING THE MOST OUT OF INTERNATIONAL CAPITAL FLOWS**

## Introduction and summary

**Financial globalisation can be both a blessing and a curse**

Increasing international capital flows can support long-term income growth through a better international allocation of saving and investment. However, they can also make macroeconomic management more difficult, as currently being experienced by several emerging economies, because of the faster international transmission of shocks and the increased risks of overheating, credit and asset price boom-and-bust cycles and abrupt reversals in capital inflows.

**This chapter assesses how policies could shape financial globalisation**

This chapter has two purposes: firstly, to examine the long-term drivers of global financial integration and international capital flows; and secondly to assess the associated vulnerabilities. The focus is on how policies can help to make the most of capital flows both by promoting global financial integration and limiting the associated risks, consistent with the G20 goal to promote strong, sustainable, and balanced global growth. Particular attention is given to the potential role of structural policies – broadly defined to include development of financial markets, general regulatory quality, as well as product market regulation that promotes competition and employment-friendly labour market policies – and how they could complement sound macroeconomic policies and ongoing financial, prudential and macro-prudential reforms which, although not investigated here, have key roles in reducing financial vulnerabilities (see Box 6.1). The main findings of the chapter are as follows:<sup>1</sup>

**Structural reforms could help capital flow “downhill” to emerging economies**

- Structural policy settings are important long-term drivers of capital flows, having a relatively large impact on gross and net foreign capital positions. Growth-enhancing structural policy reform could help to narrow global imbalances by reducing net capital outflows from countries with large positive net foreign assets positions while also supporting their long-term growth. This is particularly the case in emerging countries where under-developed financial markets limit the ability of economies to absorb domestic and foreign capital, and in both emerging and advanced countries where domestic distortions lower risk-adjusted returns to capital.

**A mix of structural and macroeconomic policies can help reduce vulnerabilities**

- Large capital inflows are associated with a higher risk of credit booms, financial crises and sudden stops, but macroeconomic and structural policies can complement ongoing necessary financial and prudential

1. This chapter draws on empirical analysis which is detailed in three background working papers, Furceri *et al.* (2011a, b and c).

### Box 6.1. How should countries respond to large capital inflows?

While on average capital has been flowing “uphill” from developing and emerging countries to advanced countries, several emerging countries are now facing large capital inflows. The most recent data (although sometimes only available to the third quarter of 2010) suggest that gross capital inflows seem to be back to, or above, their pre-crisis levels in several countries, including Argentina, Brazil, Colombia, Indonesia, Mexico, South Africa, where they already represent around 5% of GDP, and Chile and Turkey, where they have reached close to 8-9% of GDP. Such large inflows create a real macroeconomic challenge for these economies, given the associated risks of excessive currency appreciation, credit booms and busts and sudden stops.

The analysis in this chapter suggests that structural reforms, in addition to promoting overall cross-border flows, could help to reduce the associated vulnerabilities mainly via a better composition of inflows, with more FDI and less debt. However, structural reforms generally take time to have their full effects and so may be seen as a complement to other policies which have a more immediate effect on large capital inflows and their consequences.

In the short term, macroeconomic policies have a key role to play. Letting the exchange rate appreciate and tightening fiscal policy could help moderate demand and related inflation pressures generated by the inflows, while making the inflows less attractive. Still these general principles have to be adapted to each specific country situation which in practice may mean the room for manoeuvre is limited: exchange rates may already be overvalued; or the fiscal stance may already be tight. The appropriate stance of monetary policy is a more complex issue as higher domestic interest may attract more inflows while a looser stance may fuel inflation pressures and asset price bubbles. Several factors have therefore to be taken into account in the monetary policy response, including the extent of demand pressures and how they can be contained by exchange rates and fiscal policies, the risk of asset price and credit bubbles and the risks of de-anchoring inflation expectations. Regardless of the scope for using macroeconomic policies, there is likely to be a role for macro and micro-prudential policies, to generally limit excessive risk-taking, but also with the capacity to target particular sectors or asset classes, depending on the precise nature of the inflows and the associated risks.

Reserve accumulation to stabilise the exchange rate is usually costly and not always efficient and should be avoided unless reserves are insufficient from a self-insurance perspective, although the concept of self-insurance needs has been evolving over time (see Box 6.3). Also, reserve accumulation could be justified when the domestic currency is already largely overvalued, putting the export sector at strong risk.

The question of the use of capital controls is being more and more debated (see for instance Ostry *et al.*, 2010; IMF 2010b; IMF, 2011) as controls are being used by several countries, even though their efficiency is still unclear and they create distortions if maintained indefinitely. In any case, such controls are best seen as a last resort and as temporary solution and should preferably be subject to multilateral surveillance as in the framework created by the OECD *Code of Liberalisation of Capital Movements*.

reforms in limiting such vulnerabilities. Appropriate macroeconomic policies, including allowing the exchange rate to appreciate or tightening fiscal policy, can help to reduce the magnitude of the credit cycle during an episode of large capital inflows. Growth-supportive structural policies, while attracting more net inflows, can modify their composition towards sources of financing that are usually seen as more stable and productive. More competition-friendly product market regulation, less stringent job protection, higher institutional quality and greater capital account openness are associated with a larger component of foreign direct investment (FDI) inflows and a smaller

share of debt. Such a composition is likely to reduce the likelihood of credit booms as well as banking, currency and balance-of-payments crises.

**There may also be a role for capital controls**

- There may also be a role for some form of capital controls, if designed in a way that minimises distortions in long-term investments and ordinary business activities, but these should preferably be subject to multilateral surveillance as in the framework created by the OECD *Code of Liberalisation of Capital Movements*.

**Large reserve accumulation in some countries needs to be addressed**

- International reserves can help countries protect themselves against financial crisis caused by currency outflows. But reserve accumulation in some countries has reached levels far beyond average observed behaviour, related to motives of smooth trade financing and self insurance against outflows, and has become an important driver of capital flows from emerging to high-income countries. To the extent that excess reserve holding indicates mistrust in international financial safety nets, the improvement of these safety nets, which is already part of the G20 agenda, is essential.

## The main factors shaping global financial integration

### *Financial flows have recovered after the crisis*

**Financial flows collapsed during the crisis**

After reaching historical highs in mid-2007, international capital flows collapsed during the financial crisis (Figure 6.1). From mid-2007 to September 2008, the contraction concerned mainly OECD countries' international banking flows (see Milesi-Ferretti and Tille, 2010 for more details). However, the bankruptcy of Lehman Brothers in September 2008 precipitated a broader reversal of international capital flows, demonstrating the complexity and rapidity of the international transmission of financial shocks and the financial vulnerabilities associated with increased international capital flows.

**The recovery in financial flows has not been broad based**

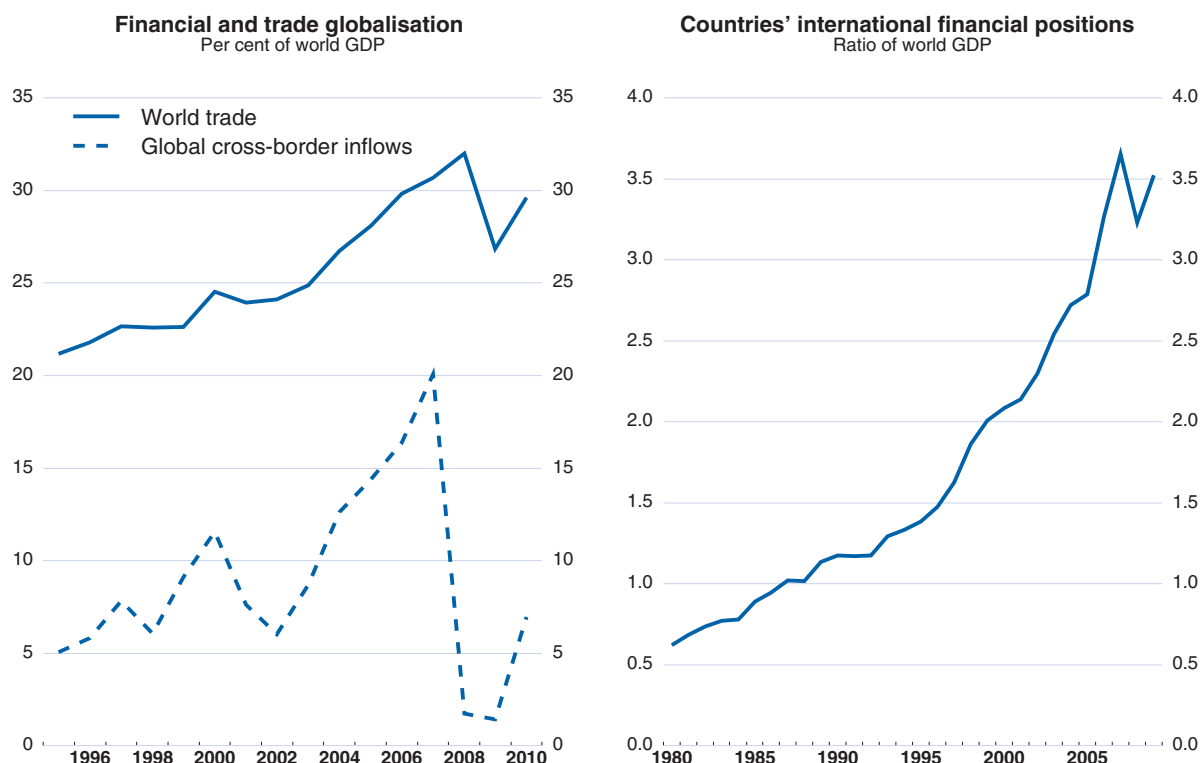
Capital flows have partially rebounded since spring 2009, but in a very heterogeneous way. They have mainly been driven by a bounce back in portfolio investments from advanced to emerging countries, which have proven quite resilient to the global crisis and have been seen as underweighted in international portfolios (see especially Suttle *et al.*, 2010). As a result, in 2010, although overall cross-border flows remained well below pre-crisis levels, several countries – including Chile, Korea, Mexico and Turkey in the OECD and some large emerging markets – have faced large capital inflows.

### *International financial integration in the 2000s and its main drivers*

**Global financial integration accelerated prior to the crisis driven by...**

International financial integration accelerated in the decade prior to the financial crisis. The size of annual gross cross-border flows increased considerably from about 5% of world GDP in the mid-1990s to about 20%

Figure 6.1. Global financial integration



Note: See footnote 2 for more details on the capital flow data. 2010 global cross-border flows are estimated using available quarterly data. Countries' international financial positions are measured as the absolute sum of all countries' gross assets and liabilities positions (taken from Lane and Milesi-Ferretti (2007) and IMF Balance of Payments Statistics after 2004) as a share of world GDP (taken from the IMF World Economic Outlook database).

Source: IMF Balance of Payments Statistics; IMF World Economic Outlook database; Lane and Milesi-Ferretti (2007); OECD Economic Outlook 89 database; OECD calculations.

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in 2007.<sup>2</sup> As a result, international financial openness (measured by the sum of countries' external assets and liabilities as a share of GDP) more than doubled over that period from 150% of world GDP to 350% in 2007,

2. Cross-border flows series used in this chapter are from the financial account of the IMF Balance of Payments Statistics (BOPS). Strictly speaking, according to the IMF Balance of Payments Manual what are referred to throughout the chapter as capital flows should instead be referred to as financial flows. Annual cross-border flows are measured by the acquisition of assets abroad (equity and debt securities, cross-border lending and deposits, and foreign direct investment [FDI]) where transactions are recorded in net terms and shown separately for financial assets and liabilities (i.e. net transactions in financial assets is acquisitions of assets less reductions of assets, not assets less liabilities). FDI is defined according to the OECD Benchmark Definition of Foreign Direct Investment. In this chapter, gross capital inflows or outflows refers to either the credit (gross inflows, i.e. net increase in liabilities) or debit (gross outflows, i.e. net purchase of assets) while "net" capital flows refers to the difference between gross inflows and gross outflows. Stocks of assets and liabilities used in this paper are from Milesi-Ferretti (2007) before 2004 and the IMF BOPS International Investment Positions after 2004. They reflect both the cumulated annual flows in assets and liabilities and valuation effects, including exchange rate movements.

with a substantial acceleration during the 2000s (Figure 6.1). This acceleration in global financial integration reflected a combination of various cyclical and structural factors:

- ... financial innovation and development...**

  - Further financial innovation and development in both emerging and developed economies accelerated global financial integration. The strong increase in international banking activity and the associated rising share of cross-border ownership of financial institutions together with changes in the funding structure of these institutions toward international capital markets have played a particularly important role, especially in the years prior to the crisis. Overall, according to the BIS, the value of external assets and liabilities of banks doubled as a share of world GDP from about 30% in 1990 to about 60% in 2007, with most of this increase taking place in the 2000s (see Milesi-Ferretti and Tille, 2010). Most of this activity was concentrated in advanced economies.
- ... greater capital account openness...**

  - The global reduction of capital controls also played a major role in this process (see Box 6.2 on issues relating to measurement of capital account openness). Based on available indicators, high-income OECD countries are typically in the upper quartile of the distribution of capital account openness, but the increase in openness over the last decade was similar between high-income OECD and emerging market economies. Among emerging countries it was mainly driven by Latin American and Eastern and Central European countries.
- ... trade globalisation...**

  - The rapid growth of world trade also contributed to the global financial integration through the creation of trade credits and export insurance. Still, international capital flows increased about three times more than world trade between 1994 and 2007.
- ... European financial integration...**

  - Among advanced countries, the elimination of the intra-euro area exchange risk premium after the creation of the euro contributed to greater European financial integration (see Lane, 2010 and Waysand et al., 2010).
- ... increased attractiveness of emerging countries...**

  - Investment opportunities increased in many emerging market economies which also benefited from a substantial reduction in home bias, even though most flows remained between advanced countries.
- ... and cyclical factors**

  - The impact of these structural changes was exacerbated in the years to 2007 by cyclical factors including the prolonged period of low interest rates in advanced countries and windfall savings by commodity exporters.

**Financial development, capital account and trade openness were the driving forces**

The empirical analysis of the long-term drivers of financial openness across countries supports the role of these factors and in particular of financial development, capital account and trade openness as the main long-term forces driving world capital flows (see Furceri et al., 2011a). All

### Box 6.2. Issues in measuring capital account openness

#### Measuring capital account openness across countries is a difficult task

The measure of capital account openness used in this chapter and background working papers is the Chinn-Ito index computed using principal components extracted from disaggregated capital and current account restriction measures documented in the IMF *Annual Report on Exchange Arrangements and Exchange Restrictions* (AREAER) (see Chinn and Ito, 2008). This is the most commonly-used indicator in the recent empirical literature. It is available for 120 advanced and emerging countries in the 2000s (from around 75 in the 1970s). The index ranges from  $-2$  to  $+2.5$  with higher values implying greater openness. More disaggregated datasets have been constructed recently based on the same source, such as the one by Schindler (2009) which includes more disaggregated information on restrictions on inflows versus outflows and on the relative levels of controls across different asset categories.

The shortcomings associated with these measures and other measures based on the AREAER are summarised in Kose *et al.* (2006). First, AREAER focuses on restrictions associated with foreign exchange transactions and does not necessarily fully reflect the degree of openness of the capital account. Second, as a *de jure* measure it does not capture the degree of enforcement of capital controls which may vary over time. Third, some regulations not counted as controls may act as such. This can for instance be the case for prudential regulations limiting the foreign exchange exposure of domestic banks.

#### Making use of the OECD Code of Liberalisation of Capital Movements

Another potential source of information on capital account openness is the position of countries under the OECD *Code of Liberalisation of Capital Movements* (OECD, 2010). It provides a much more comprehensive coverage of capital account restrictions concerning direct investment, liquidation of direct investment, real estate, securities on capital markets, money markets, negotiable instruments and non-securitised claims, collective investment securities, credits directly linked with international commercial transactions or rendering of international services, financial credits and loans, sureties, guarantees and financial back-up facilities, deposit accounts, foreign exchange, life assurance, personal capital movements, physical movement of capital assets and disposal of non-resident-owned blocked funds. However, due to the so far limited country coverage it has not yet been exploited. With wider country coverage, the Code or a similar international instrument could thus serve as a yardstick to assess the degree of liberalisation achieved by each country in regard to capital movements.

At present, the Code is a binding instrument for the 34 member countries of the OECD and allows countries to pursue liberalisation progressively over time, in line with their level of economic development. An adhering country enjoys the liberalisation measures of other adherents, regardless of its own degree of openness and OECD countries have unilaterally extended their measures to all members of the IMF. The Code provides flexibility to cope with situations of short-term capital volatility, including the introduction of controls on short-term capital operations and the re-imposition of controls on other operations in situations of severe balance-of-payments difficulties or financial disturbance. To avoid a beggar-thy-neighbour approach, or suspicion thereof, which could invite counter-measures, the Code provides an established process of international co-operation, managed and controlled through a forum, in which each country can explain its policies and raise questions about the policies of others.

Adherence to the OECD Codes of Liberalisation is open to non-OECD countries.

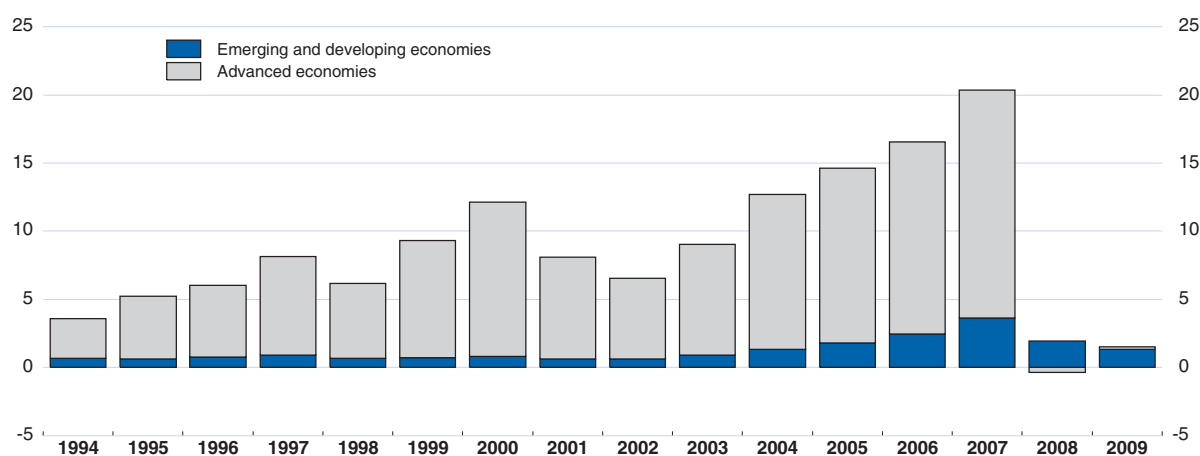
together, these three variables explain more than half of the variation of financial integration across countries and over time. Going forward, the same factors that drove increased global financial flows before the crisis are likely to increasingly reassert themselves.

**Banking flows within advanced countries dominated the pre-crisis period**

The main contribution to the acceleration of world financial integration in the 2000s came more from advanced countries (Figure 6.2) and particularly from banking operations reflecting the rise of cross-border ownership of financial institutions and an increase of their funding on international markets mentioned above. Those countries with large asset and liability positions in which banks played a large role were the most affected by the financial crisis. In the past two years, most countries and jurisdictions have undertaken initiatives to reform financial regulation and tackle the failures that led to the financial crisis. Such reforms are likely to have some impact on capital flows, which may not go back to pre-crisis levels, especially between advanced countries. In particular, higher liquidity requirements, tighter funding rules and regulations to limit leverage of banks and their foreign exchange exposure (resulting notably from Basel III) may constrain the recovery in cross-border bank flows.

Figure 6.2. **Advanced countries drove international cross border flows**

Per cent of world GDP



Note: Average of inflows and outflows recorded by each region (both calculated as the sum of flows recorded by individual countries) as a ratio of world GDP; advanced countries are those defined as such by the IMF. See footnote 2 for more details on the capital flow data.

Source: IMF Balance of Payments Statistics; OECD calculations.

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**The contribution of emerging economies to world flows has increased**

Emerging markets started to contribute more to global financial integration in the past decade and their share in world capital flows increased from 7% to 17% between 2000 and 2007. Over that period, rising outflows from emerging and developing economies were mainly driven by reserve accumulation and invested in advanced economies' sovereign debt securities or close substitutes, with about one-fifth of the increase corresponding to higher outflows from oil-exporting countries. This increase in reserve accumulation reflects several factors, including exchange rate policies, self-insurance strategies by emerging markets partly due to some mistrust in the current system of financial safety nets (see Box 6.3, and Mateos y Lago *et al.*, 2009). Inflows to emerging and



### Box 6.3. What is driving the demand for international reserves?

World foreign reserve holdings have risen from around 6% of world GDP in 1999 to almost 15% in 2009, with this increase being overwhelmingly accounted for by Asian and oil-exporting countries. By the end of 2010 the foreign exchange reserves of China alone totalled almost \$3 trillion or around half of its annual GDP and accounted for almost one-third of total global foreign exchange reserves. After a temporary slowdown during the global economic downturn, reserve accumulation across the world continued apace through 2009 and 2010.

This rapid increase and high level of reserve holdings in some surplus countries has attracted considerable attention. Firstly, the build-up of reserves is closely associated with global imbalances and indeed, some have argued, contributed to the financial fragility that precipitated the recent global financial crisis. Secondly, the high opportunity cost of holding large stocks of low yielding assets is wasteful from a social welfare standpoint (Rodrik, 2006; Summers, 2006). And thirdly, with the US dollar being the pre-eminent global reserve currency, large holders are constrained in the choices they have regarding divestment, diversification and even the productive use of these assets, as such action could entail significant negative valuation effects (the so-called “dollar trap”).

The reasons countries accumulate foreign exchange reserves fall into two broad categories. Firstly, reserves may be amassed as a direct consequence of export-led growth strategies and holding down the real value of the local currency. Reserves may also accumulate as a result of attempts to smooth short-term exchange-rate fluctuations. A second reason to hold foreign reserves is that they may provide a form of self-insurance against balance of payments crises, including sudden stops in access to external funding, or even just a means to smooth high-frequency volatility of flows. Traditionally, the focus was on adequately covering imports. In the late 1990s, following the Asian crisis, the focus shifted to covering a country’s stock of short-term debt (the so-called Guidotti-Greenspan rule). Then after the Argentine crisis, the scope of self-insurance broadened to include protecting local financial systems that are exposed to foreign market sentiment, capital flight by domestic agents and exchange rate movements. This evolution has implied a considerable escalation in the global demand for reserves.

There is a considerable literature that tries to explain the levels of foreign exchange reserves held across countries and their changes over time. However, this research is hampered by a number of factors including heterogeneity in reasons for accumulating reserves (for example, the intergenerational considerations of oil and other exporters of finite resources) and also the increasingly large role played by sovereign wealth funds (SWF). This literature falls into two broad categories. The first approach is to use calibrated behavioural models that rely on quantifying risk aversion, discount rates and other fundamental parameters (*e.g.* Jeanne, 2007 and Jeanne and Rancière, 2008). These models generally conclude that current reserve holdings are well above optimal levels in the large accumulating countries. The second approach is to determine what factors account for reserve accumulation behaviour for a set of countries over time and then to make inferences about the behaviour of individual countries based on this (*e.g.* Aizenman and Lee, 2007; Obstfeld *et al.*, 2008; Cheung and Ito, 2009). This approach generally concludes that reserve levels in the large accumulating countries are in line with average behaviour given the particular characteristics of, and conditions in, these countries. However, the existing work that takes this second approach is somewhat outdated, and in light of the fact that reserve accumulation has accelerated over the past five years, so might be the conclusions.

Recent OECD work has updated and extended the existing econometrics-approach literature using a panel of over 130 countries between 1980 and 2008 (see Vujanovic, 2011). The long-run determinates of a country’s reserve holdings are found to be trade openness and the size of the domestic financial sector (as proxied by M2), both of which may capture the self-insurance motives previously referred to. In addition to these factors, changes in GDP per capita, the exchange rate regime, exchange rate volatility and the degree of financial openness are associated with changes in the level of a country’s reserve holdings. This analysis suggests that the current ratio of reserves to GDP in the big accumulating countries is significantly above levels that are consistent with the average behaviour of all countries, even after taking into account developments in trade, financial deepening and other pertinent factors. Specifically, China and Japan record the largest deviations from the levels implied by the long-run cross-country determinants of reserves-to-GDP ratios, followed by South Korea, India and South Africa (see Figure below). Moreover, when expressed in dollar terms the global magnitude of these deviations stands out even more; on average over

### Box 6.3. What is driving the demand for international reserves? (cont.)

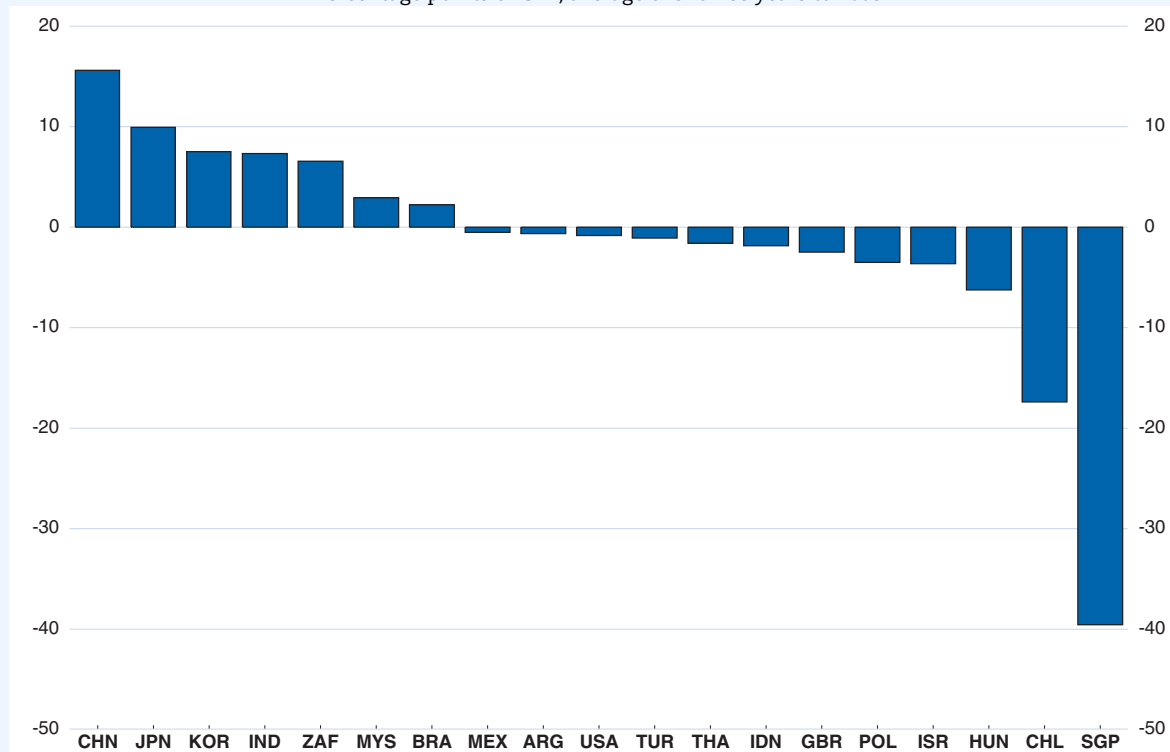
the three years to 2008, the analysis suggests that China and Japan held reserves in excess of what corresponds to average behaviour of around \$600 billion and \$450 billion, respectively. Furthermore, back-of-the-envelope calculations suggest that in the case of China, where the accumulation of reserves accelerated after the end of 2008, the deviation from average behaviour eclipsed \$1 trillion by 2009. In the case of Japan, large interventions in the foreign exchange market in 2003-04 dramatically pushed up the level of international reserves. So while the long-run level implied by average behaviour also climbed through to 2008 (on the back a surge in trade), a large (but declining) positive gap remains.

To the extent that the level of reserves does indeed exceed adequacy ratios in many countries, a greater proportion of these funds could be invested more diversely (and productively), thereby reducing the opportunity cost of holding reserves. This might include transferring a greater proportion of excess reserves to SWFs which typically invest more aggressively and in assets that are less liquid than do central banks (Jeanne, 2007). Indeed, recent moves in that direction by many countries add credence to the view that the current historically unprecedented levels of reserve holdings in some countries are excessive from the stand point of precaution or self-insurance. Diversification in the currencies in which reserves are held might also be prudent as an excessive concentration in one reserve currency could mean that the benefits of self-insurance might be offset by the risk of large capital losses in the event of a major realignment in exchange rates.

That having been said, there are good reasons that the US dollar is the preferred currency in which to hold foreign reserves. Firstly, reserves need to be in a currency that holds its value in a crisis. Secondly, the market for US dollars is both deep and liquid. Thirdly, to the extent that the stock of reserves serves as insurance against trade and debt shocks, if trade and debt are mostly denominated in US dollars, so therefore should be reserves. Furthermore, if the purpose is to defend a peg to a particular currency, then holding reserves in that counterpart currency would be preferable.

#### Reserves, deviation from long-run average behaviour

Percentage points of GDP, average over three years to 2008



Source: OECD calculations.

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developing countries increased less than outflows and FDI remained the main overall source of international financing for these countries until 2007 when debt inflows became more important.

**Net international investment positions have widened**

While overall financial globalisation has been associated with advanced countries becoming net debtors to the rest of the world, the evolution of net foreign assets has been very heterogeneous across countries. A common feature is, nevertheless, the widening of net international investment positions in the main regions with a strengthening of the creditor positions of Germany, Japan, major oil producers and China and an increase in indebtedness of the United States, France, Italy and the United Kingdom.

**Understanding cross-country differences in external positions**

**Several structural settings tend to be associated with lower net foreign asset positions including...**

Cross-country differences in the size and evolution of foreign asset and liability positions can be accounted for by several factors including the level of economic and financial development, capital account restrictions, trade openness and the size of the market, and differences in institutional quality (Lane and Milesi-Ferretti, 2008; Alfaro *et al.*, 2008). Countries with more open financial markets, better institutional quality and more competitive product and labour markets tend to be more able to attract and absorb foreign and domestic capital as well as to export capital, and on balance have lower net foreign assets (Furceri *et al.*, 2011a). More precisely:<sup>3</sup>

**... greater financial development and liberalisation and capital account openness...**

- More financial development (measured by the size of the domestic credit market and stock market capitalisation) and capital account openness tend to be associated with higher foreign asset and liability positions and overall lower net foreign assets positions. Countries with more liberalised financial systems (as measured by the IMF financial liberalisation indicator) tend to have higher foreign liabilities and lower net foreign asset positions.

**... better regulatory quality and product market regulations...**

- Better regulatory quality, which likely increases the risk-adjusted return to capital and so increases opportunities for investment in the domestic economy, is associated with lower gross foreign assets and higher foreign liabilities. While the results using a survey-based indicator of regulatory quality have to be interpreted with caution, similar results are obtained, but over a smaller sample of countries,

3. The main empirical analysis has focused on the link between stocks of foreign assets and liabilities and structural variables and has a pure cross-section nature, weakening the confidence with which inferences can be drawn about causality. The analysis also suggests that countries with *de facto* more flexible exchange rates (as measured by their monthly volatility) tend to have lower net foreign assets in the medium term.

using OECD product market regulation (PMR) indicators.<sup>4</sup> The finding that better regulation is associated with lower net foreign assets is consistent with results by Kerdrain *et al.* (2010) concerning determinants of current-account balances and suggests that regulatory reform in surplus economies may contribute towards diminishing global imbalances.

**... as well as more flexible labour markets**

- In general, labour market policies tend to affect returns on investments and could thereby affect foreign asset and liability positions. In particular, labour market reforms that reduce labour costs may affect foreign asset positions via two conflicting channels: on the one hand, they will support investment at home at the expense of investment abroad (with a negative effect on net foreign assets), while, on the other hand, labour may be substituted for domestic capital (with a positive effect on net foreign assets). Using a measure of employment protection legislation (EPL) as a proxy measure of the overall stance of labour market policies, the empirical analysis suggests that the first effect dominates so that less stringent EPL is associated with lower gross and net foreign assets.<sup>5</sup> These findings need, however, to be qualified because the set of countries for which the EPL indicator is available is mainly limited to OECD countries over the period under review.

**Going forward, growth enhancing reforms could attract more capital inflows...**

Overall, these results are consistent with the view that going forward international capital should flow more to emerging markets, given the likely future economic and financial developments and improvements in institutional quality in emerging market economies on the one hand, and the smaller scope for financial development and improvements in institutional quality in advanced economies on the other hand. Hence, while also supporting long-term growth, better regulatory quality, greater financial development and capital account openness and more flexible labour and product markets would contribute to a reduction of net asset positions of emerging economies in the long term. Getting there would involve a reduction in current account imbalances over a long period of time during which net foreign asset positions adjust to their new levels. The magnitude of the effects from structural policy changes is potentially

4. "Regulatory quality" is measured by the World Bank's survey-based indicator of the perceptions of the governments' ability to formulate and implement sound regulations promoting private sector development. It is widely used in academic research and transparency in the methodology and in the sources used has significantly improved over the years. However, its use could be questioned on a number of grounds including the fact that it is inherently subjective and relies on data collected using a large variety of sources (for more details see Furceri and Mourougane, 2010). The various shortcomings notwithstanding, for the OECD countries the indicator is highly correlated with the OECD's "product market regulation" indicator (with a correlation coefficient of 0.7). OECD product market regulation indicators are available for all OECD countries plus Brazil, China and Russia. The database is currently being expanded to include more non-member countries.
5. These results, however, contrast with previous OECD empirical evidence on the effect of EPL on current-account balances (Kerdrain *et al.*, 2010).

large. Back-of-the-envelope calculations based on necessarily uncertain regression results suggest that:<sup>6</sup>

**... in emerging and transition economies...**

- If emerging market and transition economies improved their average level of institutional quality (as proxied either by OECD measures of product market regulation or the World Bank's measure of regulatory quality) to the level of high-income OECD countries, this would eventually and *ceteris paribus* be associated with a long-term reduction in net foreign assets by about 30 percentage points of GDP on average.

**... including China**

- For China, reducing the gap with the OECD average in respect of regulatory quality by one quarter (as measured either by the World Bank indicator or the OECD's PMR indicator) would eventually be associated with a reduction of the net foreign asset position by about 15 percentage points of GDP. Assuming that half of the effects of such reforms materialise over the first 10 years, China's current-account surplus could be reduced by about  $\frac{3}{4}$  percentage point of GDP on average over a decade.

**But individual country situations differ**

Individual country situations have to be taken into account. In external surplus countries, reforms would have the double benefit of supporting welfare and long-term growth and reducing imbalances. But in deficit countries, notably emerging ones, growth-enhancing reforms may increase external imbalances. If wider deficits are deemed undesirable they might have to be complemented by other measures to help increase net savings or at least limit their deterioration. In particular, reducing large fiscal deficits would have the double benefit of reducing risks associated with public debt sustainability and shrinking current account deficits.

### **The role of policies in limiting the risks associated with financial globalisation**

#### *Financial globalisation can increase macroeconomic risks*

**Global financial integration is good for growth but has risks**

Global financial integration promotes income growth both directly via a better allocation of investment and new insurance possibilities and indirectly via incentives for better macroeconomic policies and structural reforms. But it also implies vulnerabilities and risks both at the global and national levels.

**The financial transmission of a shock is faster and more complex**

First, at the global level, the financial crisis has revealed the complexity of the international transmission of financial shocks and the financial vulnerabilities associated with increased international capital flows and gross positions. The size of bilateral gross positions, the

6. Such illustrative quantifications need to be interpreted with considerable caution given the difficulty to draw causal conclusions based on cross-country variation, the uncertainty around point estimates and the high collinearity between the indicators involved, which further suggests that summing the effect of changes in each indicator may substantially exaggerate the overall impact.

diversity of their composition and the complexity of financing networks make direct and indirect exposure of countries and sectors to a financial shock difficult to assess. The needs for data collection and monitoring of risks have therefore become more important.<sup>7</sup>

**Large capital inflows create macroeconomic dilemmas...**

At the country level, capital inflows, especially when they are large, create numerous challenges, and can complicate macroeconomic management. Currently, for instance, several emerging market economies are faced with large private capital inflows generating upward pressures on their real exchange rates. This creates the difficult dilemma of either letting the currency appreciate and competitiveness deteriorate or trying to contain the appreciation which may either lead to a risk of over-heating or, if inflows are sterilised, a risk of additional capital flows being attracted.<sup>8</sup>

**... risk destabilising the domestic financial system...**

In addition, capital inflows are often associated with credit booms and a deterioration of credit quality, as well as with rapid increases in financial asset and real estate prices and associated wealth effects on the economy (Reinhart and Reinhart, 2008). The risk of a misallocation of foreign capital is important, especially when financial markets in host countries are not well developed and not well regulated. But even well-developed and regulated systems are not spared. Countries with strong regulatory standards may also experience misallocation of foreign investment, as for example in Spain in the years before the crisis. Even in the well-developed US financial system, large inflows before the crisis may have been a factor behind a deterioration of lending standards.

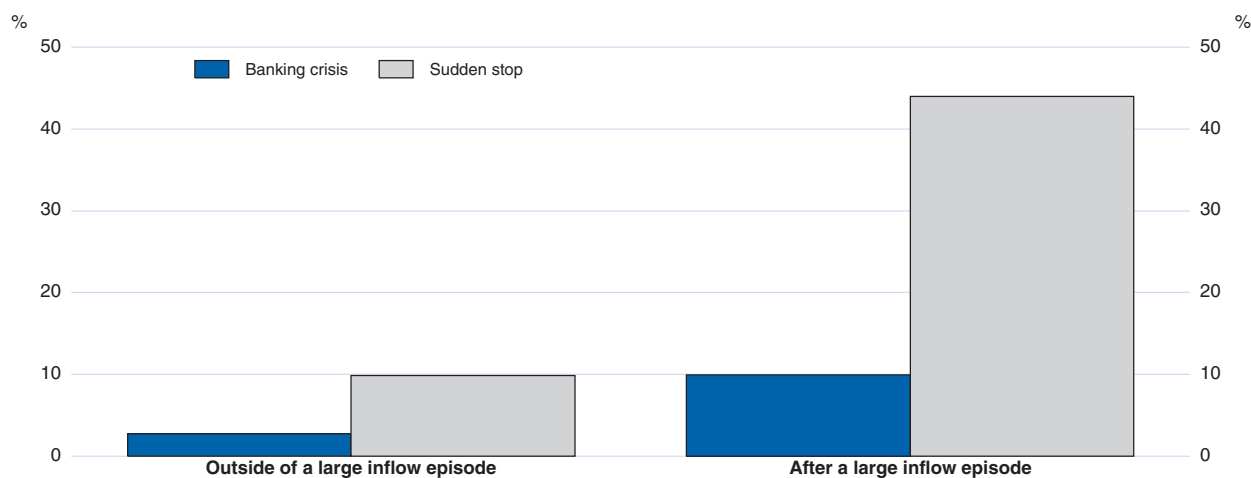
**... and may end up in a crisis**

Overall, large capital inflows make recipient countries more vulnerable to booms and busts and to financial crises and their associated economic and social costs. About 60% of 268 episodes of large foreign capital inflows (identified by large deviations of the net capital inflows-to-GDP ratio from historical trends in Furceri *et al.*, 2011b) ended in a “sudden stop”, and about one in ten episodes ended in either a banking crisis or a currency crisis.<sup>9</sup> Considering only OECD countries, about 40% of the 75 large capital inflow episodes ended in a sudden stop and about one in ten episodes in either a banking crisis or a currency crisis. The empirical analysis in Furceri *et al.*

7. Milesi-Ferretti *et al.* (2010) notably highlight some important gaps in data on cross-border asset holdings, mostly related to external claims and liabilities of offshore centres, oil exporters, and other emerging markets. See also Mihaljek (2008) and IMF (2010a).

8. See for instance Ghosh *et al.* (2008) and Roubini (2010) for a review. In some cases, fiscal consolidation may help to ease the trade-off involved in dealing with large capital inflows.

9. Large capital inflow episodes are defined as large inflows (as share of GDP) relative to the trend (and the normal volatility) experienced by each specific country. Banking and currency crises are from Laeven and Valencia (2008) where the starting dates of banking crises are based on a combination of quantitative indicators measuring banking sector distress and currency crisis episodes are identified when a currency has a nominal depreciation of 10% in one year and 30% overall. Sudden stops are defined as a large fall in a country's net capital inflows. See Furceri *et al.* (2011c) for more details.

Figure 6.3. **The annual probability of a banking crisis or a sudden stop**

Note: Based on regression results in Table 7 and Table 11 in Furceri et al. (2011c). Probabilities are evaluated at sample means for all other variables entering the equation. A large capital inflow episode is defined by a large deviation of the net capital inflow-to-GDP ratio relative to its historical trend.

Source: OECD calculations.

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(2011c) shows that the probability of a banking crisis or sudden stop is quadrupled after a large foreign capital inflows episode (Figure 6.3).

### Currency and maturity mismatches magnify risks

Currency and maturity mismatches resulting from these flows are an additional potential source of financial instability, and may amplify the impact of a sudden stop or currency crisis (see Park, 2010, for a discussion). Although mismatches are inherent to banking and intermediation activity, large mismatches may make countries extremely vulnerable to financial shocks, for instance, when banks hold local-currency long-term assets funded by short-term borrowing on foreign wholesale funding markets (as was the case in many European countries just before the crisis – a practice that has not totally disappeared). The costs of a financial crisis and exchange rate depreciation are also particularly high in countries with large foreign indebtedness (as depreciation may dramatically increase the cost of debt servicing and external financing dries up), and it may lead to a debt crisis.<sup>10</sup>

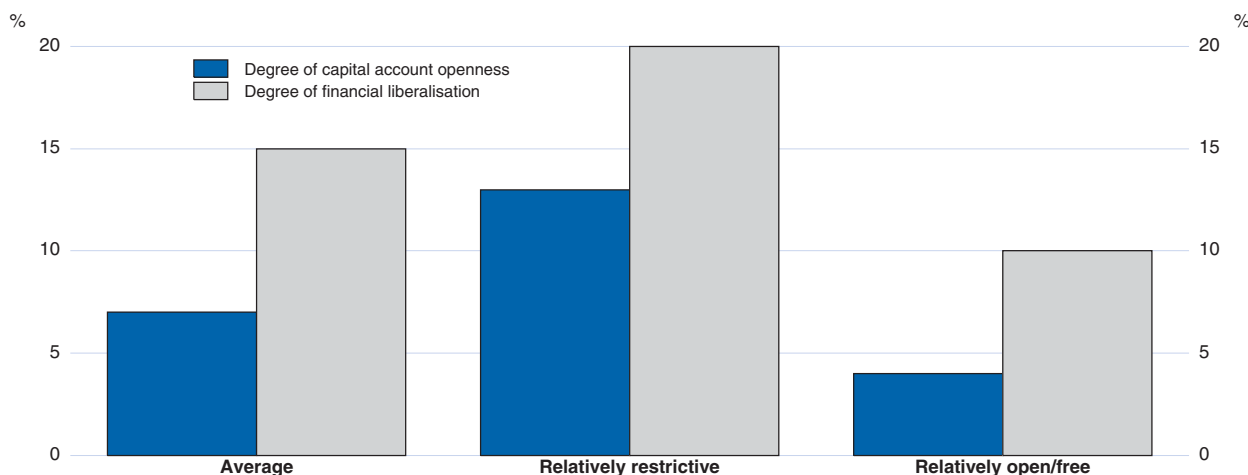
### The role of structural policies in mitigating vulnerabilities

#### Structural settings can mitigate vulnerabilities associated with large inflows...

The empirical literature largely finds that capital account liberalisation has a more favourable impact on growth when institutions are strong and of good quality, and when the financial system is deep and developed (see Tirole, 2002; Obstfeld, 2008; Kose

10. A main exception being US legal entities that, thanks to the reserve status of the US dollar, borrow in their own currency, while holding a large share of their foreign assets in foreign currencies so that a depreciation of the dollar reduces US net external debt.

Figure 6.4. **The probability of a banking crisis following a large capital inflow episode under different policy settings**



Note: Based on regression results reported in Table 7 in Furceri *et al.* (2011c). Due to differences in data availability the sample varies from one equation to the other and is also different from the sample used for Figure 6.3 resulting in different crisis probability when all variables are at sample mean. Probabilities are evaluated at sample means for all other variables entering the equation. “Relatively restricted” relates to the first quartile of the distribution. “Relatively open/free” relates to the fourth quartile of the distribution. Capital openness is measured using the Chinn-Ito index and financial liberalisation using the IMF index. Most OECD countries are classified in the fourth quartile of the distribution for both indicators (*i.e.* relatively liberalised and open) while no BRICS can be found in that quartile (and most rank in the first quartile).

Source: OECD calculations.

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*et al.*, 2009).<sup>11</sup> The analysis by Furceri *et al.* (2011c) also supports the view that structural policies can help to minimise the vulnerabilities generated by large inflows. For instance, capital account openness and greater financial liberalisation are associated with a lower probability of experiencing a banking crisis following large capital inflows (Figure 6.4). However, these relationships have to be interpreted with caution since they may also reflect some form of reverse causality, as countries that are less prone to crises may be more willing to liberalise and open their financial system. In addition, since greater financial liberalisation and capital account openness may also increase the number and scale of episodes of large capital inflows, their total effect on the probability of banking crises remains uncertain.

### ... notably by improving the composition of inflows

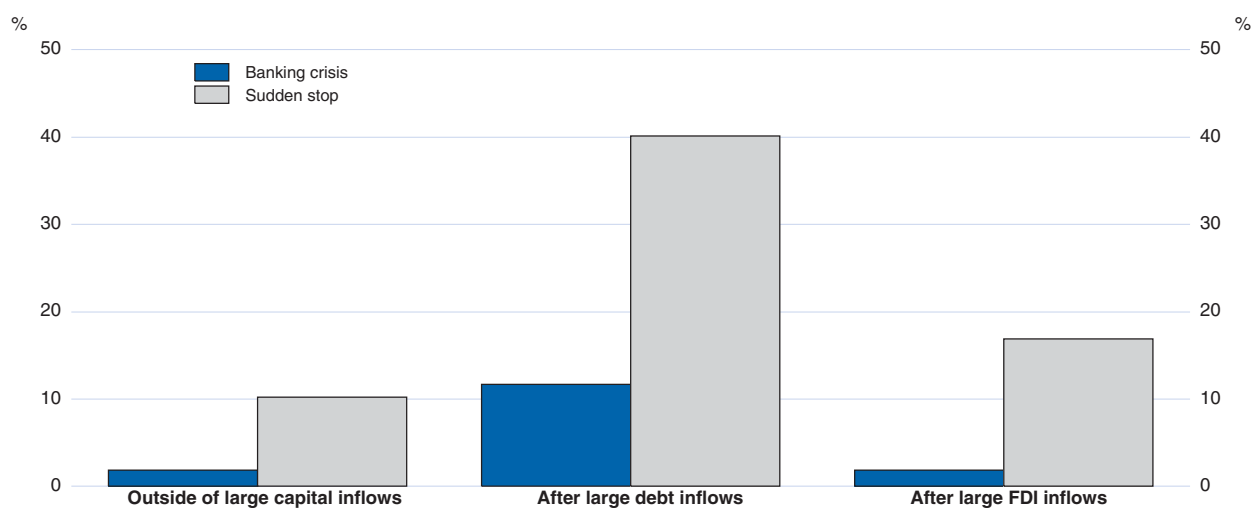
The main channel by which structural policies reduce vulnerabilities associated with capital inflows is indirect via the composition of these inflows. Better structural policies – a more liberal financial system, more

11. In particular, there seems to be a non-linear effect of capital account liberalisation on long-term growth that depends on the level of financial development, institutional quality (including strong property rights and accounting standards) and also, but less importantly, trade openness, labour market flexibility and the overall level of development (see Kose *et al.*, 2009, Eichengreen *et al.*, 2009). The composition of inflows is also important in limiting risks and maximising benefits. For instance, the existence of non-linearities between capital account liberalisation and growth seems more important when inflows are mainly debt flows rather than FDI or equity investment (see Kose *et al.*, 2009).



open capital accounts,<sup>12</sup> but also more pro-competition product market regulation and avoidance of overly stringent employment protection – are associated with a higher share of FDI and a lower share of debt (Furceri et al. 2011a).<sup>13</sup> Conversely, the probability of facing a crisis or a sudden stop after large inflow episodes is especially high when inflows are driven by debt (Figure 6.5).<sup>14</sup> Moreover, debt-driven episodes of large capital inflows tend to have a stronger impact on domestic credit than when inflows are driven primarily through FDI or equity portfolio investment (Figure 6.6). Also FDI inflows are less volatile than debt and equity inflows

Figure 6.5. **Annual probability of banking crisis and sudden stops depending on the nature of the capital inflows**



Note: Based on regression results in Tables 10 and 14 in Furceri et al. (2011c). Probabilities are evaluated at sample means for all other variables entering the equation.

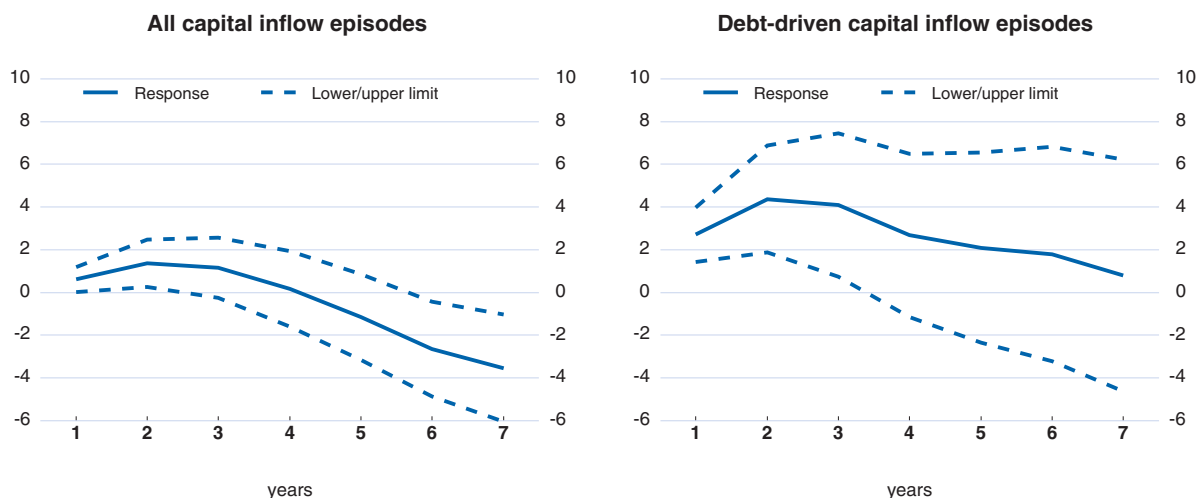
Source: OECD calculations.

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12. The impact of capital account openness is, however, ambiguous. While it is associated with a higher share of FDI in inflows and a lower probability of banking crises, it is also associated with a higher probability of a sudden stop in capital inflows after a large inflow episode even when controlling for the size of inflows. This may reflect the role played by some forms of capital controls in skewing the composition of inflows towards longer maturity and in limiting subsequent outflows and capital flights. This was the case in Chile in the 1990s and it may have contributed together with structural reforms, some liberalisation of capital outflows and sound macroeconomic policies to the large inflows recorded in the first half of the decade not ending up in a crisis, in sharp contrast with the experience of the late 1970s-early 1980s. In any case, this suggests that more work is needed, notably on the implications of the different types of capital controls.
13. Some of these results are in line with findings in other studies, including previous OECD work. The finding that pro-competition regulations are associated with more FDI and less equity portfolio investment and debt is common to Hajkova et al. (2006) and Nicoletti et al. (2003). Less stringent EPL in host countries being associated with a higher share of FDI in liabilities is also in line with previous OECD findings and those of Javorcik and Spatareanu (2005).
14. Debt is defined as the sum of bond portfolio investments and other investments.


Figure 6.6. **The response of private credit to capital inflows**

Increase in credit-to-GDP ratio, percentage points of GDP



Note: Based on regression results reported in Furceri *et al.* (2011b). Solid lines represent average responses of credit to GDP to a large inflow episode and dotted lines represent 90% confidence bands.

Source: OECD calculations.

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and may be associated with lower risks of misallocation of capital compared with equity or debt inflows because they reduce asymmetries of information between foreigners and locals (see for instance Kirabaeva and Razin, 2010).

### Emerging countries could attract a higher share of FDI with improved institutions

Back-of-the-envelope calculations based on the empirical results from Furceri *et al.* (2011a) suggest that if emerging market and transition economies increased their level of institutional quality in terms of product market regulation to the average level of OECD countries, this would be associated with an eventual increase in the stock of FDI by about 10 percentage points of the total stock of liabilities, and a corresponding reduction in the stock of portfolio liabilities.<sup>15</sup> Similarly, an increase in their level of capital account openness to the average level of OECD countries would be associated with an increase in the share of FDI in the total stock of liabilities by about 5 percentage points, and a corresponding reduction in the share of debt.<sup>16</sup>

### The effect of structural policies on overall macroeconomic risks is ambiguous

The overall effect of better structural policies on macroeconomic risks is, however, ambiguous. On the one hand, improved structural policy settings are likely to increase the overall scale of capital flows which will increase risk. On the other hand, better structural policies (more

15. Since the global composition of liabilities can only change with the global composition of assets, the share of outward FDI in foreign assets should also increase, driven for instance by further financial development and liberalisation in capital exporting countries.

16. These results have to be interpreted with caution, not least because of the complex interactions between FDI and other capital flows. For instance, foreign direct investors may hedge the firm's FDI exposure by borrowing domestically and then taking short-term capital out of the country.

competition-friendly product market regulation, less stringent job protection, higher institutional quality and greater capital account openness) are associated with a composition of capital inflows – principally more FDI and less debt – which is more stable and less prone to risk. The overall net effect on macroeconomic risk will depend on the particular form of structural reforms enacted, but also on how they are buttressed by progress in financial reforms to strengthen the prudential and macro-prudential framework in both emerging and advanced economies.

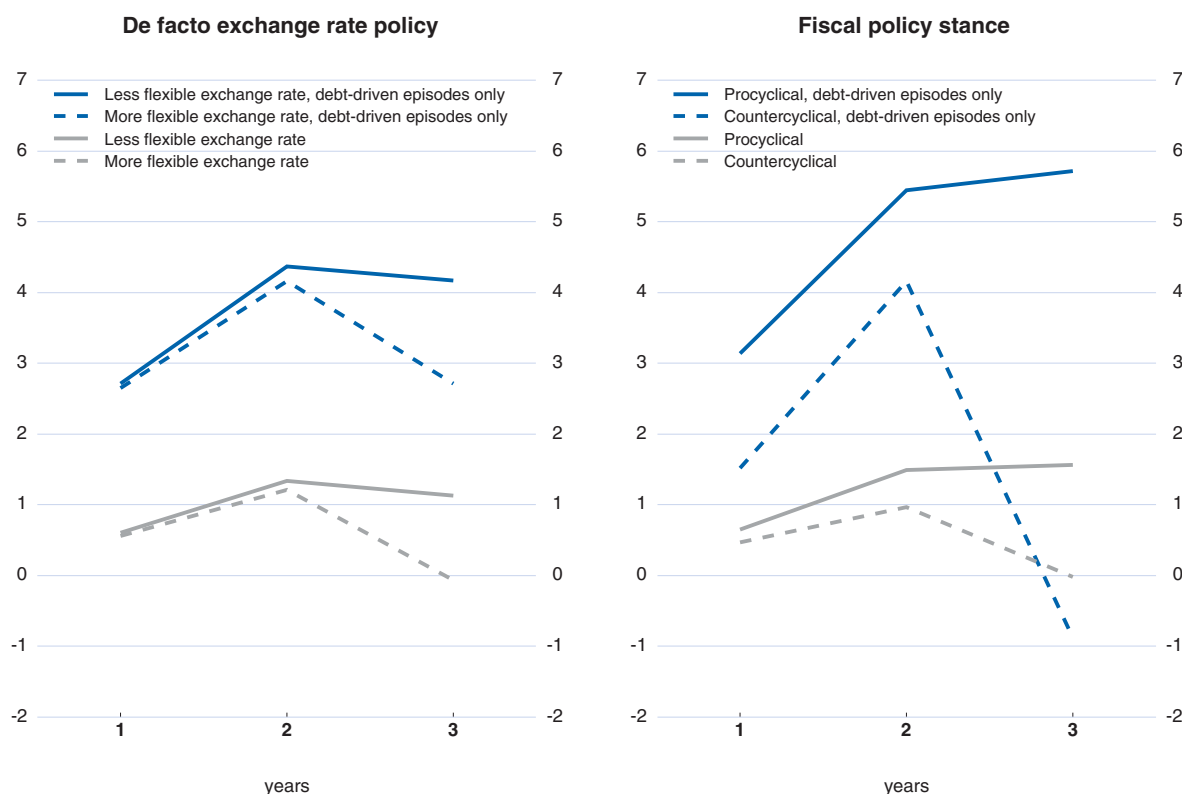
### The role of macroeconomic policies in mitigating vulnerabilities

**Macroeconomic policies are an important part of the response to capital inflows**

In addition to structural and prudential and macro-prudential policies, macroeconomic policies such as exchange rate and fiscal policies also have a significant role to play to reduce vulnerabilities associated with capital inflows. Exchange rate flexibility appears to reduce some of the effect of large capital inflow episodes on domestic credit (Figure 6.7,


Figure 6.7. **The response of private credit to large capital inflow episodes under different policy stances**

Increase in credit-to-GDP ratio, percentage points of GDP



Note: Based on regression results reported in Furceri et al. (2011b). The less flexible exchange rates correspond to cases where real exchange rate volatility does not increase in response to an inflow episode and the more flexible exchange rates to cases where it increases. Countries with pro-cyclical (counter-cyclical) fiscal policy are countries where the correlation between the change in government spending and output growth is positive (negative).

Source: OECD calculations.

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left hand panel), consistent with the arguments that: i) countries which let their exchange rate fluctuate in response to inflows may reduce the duration of a net inflow episode; ii) higher exchange rate volatility (and thereby risk) may reduce credit growth by increasing risk premia and reducing foreign currency-denominated credit; iii) the alternative of foreign exchange interventions may create credit and asset prices bubbles if not fully sterilised; iv) and banks fund themselves less abroad when the exchange rate is more flexible. In addition, countries that typically follow countercyclical fiscal policy have, on average, experienced more moderate credit booms during large inflow episodes, and especially during debt inflow episodes (Figure 6.7, right hand panel). The recommendation for fiscal restraint during episodes of large capital inflows is a common conclusion of the literature (for example Cardarelli *et al.*, 2010).<sup>17</sup> These are, however, general findings and related policy recommendations have to take into account country-specific circumstances and constraints.

### **Conclusions: the role of policies in making the most of global financial integration**

**Structural policies have a role to play to reduce vulnerabilities associated with financial globalisation...**

Countries' net foreign capital positions are strongly influenced by their structural policy settings.<sup>18</sup> A corollary of the empirical evidence is that growth-enhancing reforms in emerging surplus economies could contribute to reducing global imbalances. The effect of growth enhancing structural policy reforms on macroeconomic risks associated with large capital inflows is ambiguous; better structural policies are likely to increase the scale of capital flows together with the associated risks but also to change their composition away from debt towards FDI which should mitigate such risks.

**... but in conjunction with appropriate macroeconomic and financial policies**

To ensure that macroeconomic risks associated with large capital flows are minimised, structural policy reforms need to be complemented by an appropriate macroeconomic policy stance, particularly in respect of fiscal policy and exchange rates, as well as financial reforms to strengthen the prudential and macro-prudential framework. There may also be a role for some form of capital controls if designed in a way that minimises distortions in long-term investments and ordinary business activities, but these should preferably be subject to multilateral surveillance as in the framework created by the OECD *Code of Liberalisation of Capital Movements*.

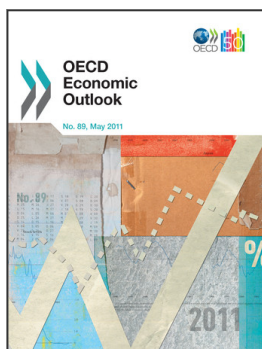
17. An example of a country which has been able to deal with large capital inflows while maintaining capital account openness is Australia in the late 1980s which benefited from high institutional quality, a liberalised and deep financial system and a tight fiscal policy.

18. In this regard, the findings described in this chapter conform with and augment earlier analysis of the link between structural policies and current accounts (OECD, 2011).

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