Capital Flows in the Third Age of Financial Globalization

Coming changes in the patterns of investment and saving, as described in the first two chapters of this report, raise several imperative questions. Should a shortage of saving be anticipated at the global level, which would push up yields on investment? Or, on the other hand, will the future bring a global excess of saving and a lack of investment opportunities that can return current yields? Similar questions can be asked at the country level, but the analysis is more complicated. In a specific country, future domestic saving might be sufficient to finance all investment opportunities at current yields, but this domestic saving might also be invested abroad, and foreign saving may flow into the country as well. What are the resulting net capital flows, and what are the pressures on yields in individual countries? This chapter not only addresses all of these pertinent questions, but also goes beyond them to cover what may be the most dominant trend in international finance in the coming decades: the increase in gross capital flows and the role of developing countries in that process.

What the analysis in this chapter finds is that developing countries will become more important as both sources and destinations of capital through 2030, and for the first time in history they seem poised to play a significant role in global intermediation of capital. In tracing the potential path of capital flows across borders through 2030, this chapter focuses on the interplay of three key long-term structural forces: economic convergence, demographic transition, and financial globalization. Policy choices at the national and international levels, of course, will affect the speed and intensity of these forces on global capital flows, chief among them the management of what *Global Development Horizons (GDH)* identifies as the Third Age of Financial Globalization, when developing economies will become much more deeply integrated into the fabric of global finance and will account for a growing share of the world’s gross capital inflows and outflows. This age follows two previous eras: the first era was dominated by Great Britain through the 1930s, and the second, which began after World War II and now appears to be concluding, has been dominated by the United States (box 3.1).

Relative to their contribution to global output and trade, emerging and developing economies historically have accounted for a much smaller share of activity in global finance. In recent years, developing countries have accounted for 30 percent of world production and trade and more than half of global growth but only 22 percent of the world’s capital market capitalization of $49.5 trillion, merely 8 percent of gross capital flows, and 9.6 percent of global external assets. Of the 25 banks that set the London interbank offered rate (LIBOR) based on their costs of borrowing in one or more of the 10 currencies covered by the measure, not a single bank is based in a developing country. Even after the surge of cross-border capital flows in the 1990s and 2000s, global investors’ exposure to developing countries remains limited relative to their exposure to developed countries. No emerging-market currency is used internationally to a significant extent. But all these statistics may change considerably through 2030.

The defining aspect of the Third Age of Financial Globalization will be a change in the dynamics of global capital flows. Because the relevance of capital flows extends well beyond the balance of a country’s borrowing or lending captured by net inflows or outflows, the approach taken in this chapter is to examine the future paths of both gross flows and net flows.
As developing countries’ volumes of gross inflows and outflows expand in the future, the potential benefits to these countries are significant: the diversification of idiosyncratic national risks, the imposition of greater market discipline on policy making, the opportunity to supplement domestic saving in ramping up fixed investment and growth, and the promotion of financial sector competitiveness.

Realization of these outcomes could be particularly valuable for developing countries with relatively young populations and significant potential for economic convergence with the developed world. But the potential risks involved—particularly with developing countries’ absorption of large amounts of capital inflows—cannot be overlooked. Exchange rate appreciation (and thus decreased trade competitiveness), the formation of asset bubbles, and economic overheating have all been problematic in the past. A potential reversal in capital inflows can also have detrimental effects. Designing policy frameworks at the national and international levels that take into consideration all of these potential benefits and risks will become more urgent as the amount of capital moving across borders rises in the decades ahead.

**BOX 3.1 The Third Age of Financial Globalization follows two previous eras**

During the First Age of Financial Globalization, starting in the second half of the 19th century, large amounts of capital were directed from European countries to the New World, mostly for investment in railways, real estate, and large-scale agricultural projects (Obstfeld and Taylor 2003). By the start of World War I in 1914, more than one-quarter of British wealth was invested outside of Great Britain, mainly in foreign government securities and railroads (Gilpin 1987). In 1913, almost half of Argentine and one-fifth of Australian capital stock was owned by foreign investors in Europe (Taylor 1992). This age wound down as European countries dramatically reversed their nondefense capital outflows during World War I, eventually giving way to the Bretton Woods arrangements shortly after World War II.

As noted by several observers of international monetary affairs, the Bretton Woods Agreement gave priority to multilateral trade expansion and investment at the expense of financial liberalization. To the extent that private capital moved across borders in the post–World War II era, it was confined to the foreign currency business of major banks, largely in the form of trade financing and payment services.

Progress toward full capital market liberalization among developed countries took a large step forward in the post–Bretton Woods period, which may be regarded as the Second Age of Financial Globalization (Bordo and Eichengreen 2003). Obligations under the Organisation for Economic Co-operation and Development’s Code of Liberalization were broadened to include virtually all capital movements, including short-term transactions by enterprises and individuals. Rapid globalization in the financial industry in the 1990s and 2000s brought even more dramatic change to the landscape of the global financial system, not only encouraging steep increases in cross-border capital flows as money market instruments, forwards, swaps, and other derivatives were created, but also allowing developing countries to be integrated into the global financial system in earnest.

At present, the world appears to be in a transition into a Third Age of Financial Globalization. The beginnings of this shift would likely have occurred in the early 2000s as developing countries became more integrated into the global financial system and capital inflows to them became significant in absolute terms for the first time. The trend became more noticeable during the global financial crisis, when gross inflows of capital to developing countries declined much less than inflows to advanced countries, after having increased more rapidly on an annual basis over 2003–07. Scenarios for gross capital flows produced for this chapter indicate that developing countries will likely account for a steadily increasing share of inflows in the future—a continuation of the trend that began in the precrisis years.
Several key messages emerge from the chapter:

- **Investment demand and saving are likely to remain more or less in balance at the global level, causing no substantial changes in global rates of return over the coming decades. At the country level, however, trends in investment and saving may result in significant tensions and current account imbalances. At the global level, not only will returns stay relatively constant under the two scenarios considered, but global saving and investment relative to global gross domestic product (GDP) is also expected to be surprisingly stable: the effect of falling rates within countries will be offset by the rising share in the world economy of developing countries with relatively high saving and investment rates. At the country level, tensions exist for specific countries in terms of their excess demand for capital, relative to supply, at initial rates of return. These tensions will put pressure on rates of return, attracting capital inflows and affecting current account positions. Such tensions are more pronounced in the rapid convergence scenario.**

Countries and regions with relatively young populations and those with the greatest scope for financial market development—both of which tend to moderate saving and at the same time boost investment—have the greatest potential to experience increases in investment relative to domestic saving and net inflows of capital from abroad. For example, India and, on aggregate, Sub-Saharan Africa will run current account deficits averaging 2.4 percent and 3.2 percent of GDP, respectively, over 2010–30 under the gradual convergence scenario. The corresponding net capital inflows will not come primarily from the North but from newly industrialized East Asian countries, most notably China.

- **Developing countries are poised to account for a growing share of global gross capital flows in the decades ahead. Although establishing a picture of net capital flows in the future offers important information about the path of balance-of-payments imbalances, from the perspective of financial market development and integration—and, crucially, global financial stability—gross flows are a much more relevant metric than net flows. To complement the computable general equilibrium (CGE)-based scenarios for saving, investment, and net capital flows, this chapter builds a picture of gross capital flows corresponding to the same gradual and rapid convergence scenarios. By 2030, gross capital inflows to developing countries will reach $6.2 trillion under the gradual convergence scenario (47 percent of the global total) and more than $13 trillion under the rapid convergence scenario (60 percent), rising from $1.3 trillion (23 percent of the global total) in 2010.1 The increase will be driven by more rapid economic growth and slower population aging in developing countries than in advanced countries, as well as by developing countries’ relatively greater scope for increasing openness and strengthening financial sector institutions. The seemingly large increase in the share of gross flows destined for developing countries is not as dramatic when considered relative to output, however: the scenario analysis foresees gross inflows to developing countries of 6–11 percent of their GDP as of 2030. The previous all-time peak was 9 percent, in 2007.**

Institutional improvement in developing countries, combined with greater perceived risk in high-income economies, is set to remove advanced countries’ monopoly on supplying high-quality liquid assets in the decades ahead. Encouraged by positive business environment changes, solid economic growth, and demographic trends supportive of growing consumer demand in the long term, investors are showing increasing interest in developing countries far beyond the largest emerging markets.

- **As developing countries become more deeply integrated into the global financial system and account for a larger share of the world’s gross capital flows, they will also have a greater impact on financial and monetary policy**
Capital Flows in the Third Age of Financial Globalization

making. Because the use of international currencies in financial transactions extends beyond their home country borders, the monetary policies of the Euro Area and the United States currently have a disproportionate effect on global monetary conditions and developing countries’ access to capital. Looking ahead, this suggests that developing countries may become increasingly exposed to spillovers of Euro Area and U.S. monetary policy shocks as their international balance sheets grow. This outcome is uncertain, however, considering that because developing countries account for a growing share of global capital flows, their own monetary policies might have a greater impact on the world. This is a possibility for China, in particular. There is also the potential for greater regional monetary policy spillover from large emerging economies such as Brazil and the Russian Federation.

For small and medium-size developing countries, a world in which China, the Euro Area, and the United States all have key international currencies could be stabilizing in that they will be less affected by monetary policy spillovers from any one source. At the same time, as growing amounts of capital are transferred among developing countries, monetary policy coordination between developing countries will become more critical in promoting stable financial and macroeconomic conditions among them. An increasing share of global flows going to and from developing countries indicates that these countries should have a larger role in management of capital flows within multilateral organizations as well as bilaterally. But, given that monetary policy coordination has never been perfectly feasible even among a small number of major players—and could become even more difficult in an increasingly multipolar world—second-best policy solutions at the national level may become increasingly crucial to stability as well.

- Policy makers will need to prepare for a greater role of capital markets in international financial intermediation and promote the development of domestic capital markets. Looking forward, as gross capital inflows and outflows grow in scale, the composition of these flows will become more important because different channels have different capacities for creating stabilizing or destabilizing conditions in recipient countries. Globally, capital markets will likely intermediate an increasing share of gross flows in the future, and bank loans will account for less. Whether this will be good news for countries that currently receive most of their inflows in the form of bank loans remains to be seen; bank lending tends to be highly procyclical and generally less supportive of risk sharing than foreign direct investment (FDI) or equity portfolio investment (Brunnermeier et al. 2012). In middle-income countries, portfolio investment has historically been even more volatile than bank lending, in relative terms (that is, adjusting for the smaller magnitude of this component of developing countries’ inflows) (World Bank 2012). Moreover, as households and firms in developing countries increasingly demand not only greater access to credit but also greater choice and variety in financial assets and services, domestic financial markets will have to compete globally in terms of their structure and their depth. Although the many efforts under way to improve regulation of the international banking sector will remain highly relevant, policies should also be prepared to accommodate—and in some cases actively promote—the development of domestic capital markets. At the same time, regulatory authorities in developing countries should monitor the composition of both capital flows and domestic financial intermediation, and, more broadly, should develop regulatory institutions to be more forward-looking—ready to adapt to potentially destabilizing changes in the composition of balance sheets and financial market innovations.
**Rates of return around the world**

It has long been argued that large differences in output per worker across countries imply similarly large differences in capital-labor ratios and thus higher returns to capital in developing countries than in high-income countries. This result came to be viewed as something of a puzzle, with a number of hypotheses competing to explain why, given high rates of return to capital, investment is not much greater in the developing world or, alternatively, why returns are not in fact higher in developing countries despite lower capital stocks. This question was articulated most notably by Lucas (1990), who argued that accounting for disparate endowments of complementary factors, in particular human capital, goes a long way toward resolving the puzzle. Some other potentially relevant factors are political risk and barriers to capital flows.

Empirically, the evidence on cross-country differences in returns is mixed. Observed interest rates tend to be significantly higher in developing countries, but these rates depend on default risk and, in some cases, on financial repression, both of which are not straightforward to quantify but almost certainly tend to have a greater impact on interest rates in developing countries than in advanced ones. The underlying return to capital is not directly observable, and alternative assumptions upon which its measurement can be based produce widely varying estimates. Gollin (2002) made an important advance in attempting to account for self-employment income, which is often incorrectly counted as capital income and is important for cross-country comparisons because self-employment typically constitutes a greater share of economic activity in developing countries than in developed ones. Caselli and Feyrer (2007) extended this line of reasoning to land and natural resources and used estimates of the stocks of these other factors to measure the return to reproducible capital distinctly from the income that should be attributed to them. This greatly reduces the variation in returns across countries because land and natural resources tend to play a larger role in production in developing countries than in developed countries.

This report estimates each country’s yield to suppliers of capital as the marginal product of reproducible capital, after adjusting for the relative price of capital to consumption goods and depreciation. By this measure, the average yield in developing countries for 2007 was 12.4 percent, compared with 5.3 percent in high-income countries. Of course, the true extent of differences in yields across countries remains an open question, and an important one. Steps toward resolving this question can shed light on a wide range of policy questions, such as the potential for official aid flows to stimulate growth, effects of political instability on investment, and the role of policies designed to spur human capital accumulation and knowledge spillovers in driving investment and growth.

**There will not be much pressure on global rates of return to investment**

Saving and investment are set to remain more or less in balance at the global level, so there will not be significant pressure on equilibrium yields. The global saving rate can be expected to hold more or less steady over the next two decades. This is because, at least up to 2020, acceleration of economic growth in developing countries will moderate the negative impacts of aging and financial market development on developing countries’ saving rates, so that they tend to fall only moderately. More important, the effect of falling saving rates across countries on the global aggregate saving rate will be offset by the growing weight of relatively high-saving developing countries in the world economy.

To compare trends in demand for capital to trends in its supply, a measure of investment demand must be constructed that is independent of yields. This measure—“notional” demand for investment—reflects the level of investment that producers desire, at a given fixed yield. Of course, at the global level the quantity of investment demanded is ultimately determined by the supply of saving, with yields adjusting so that the two are equal.
In the scenario of gradual economic convergence between the developed and developing worlds, global \textit{notional} investment demand remains fairly close to global saving supply, which demonstrates that investment demand is not constrained by the availability of saving. Consequently, the global average yield stays essentially constant in this scenario. In the rapid convergence scenario, however, rapid growth and financial development in the developing world results in faster global capital demand growth relative to saving supply, which translates to some moderate upward pressure on yields. Even in this scenario, however, the deceleration of labor force growth (and even shrinking labor forces in some parts of the world) will mean that global investment will not be constrained by the supply of saving much more severely than it is today.\textsuperscript{8}

The evolution of returns to capital at the country level has implications for net capital flows

At the country level, to better understand the forces that are shaping the direction of yields to capital, it is useful to conduct a thought experiment where not only the ex ante notional demand is estimated but also the ex ante notional supply. This will allow one to identify whether the demand for capital—at a fixed yield—is met by a supply of investment financing at the same fixed rate. If notional demand exceeds supply, for instance, there will be pressure for the rate of return to rise; the observed ex post rate of return is a reflection, in equilibrium, of the easing of such tensions, if any, between notional demand and supply of capital.

In the gradual convergence scenario, investment demand in most economies remains fairly muted, which translates to a fairly stable path for yields between 2014 and 2030 (figure 3.1, panel a). There is greater heterogeneity in investment demand in the rapid convergence scenario, with certain economies experiencing significant increases in capital demand; this results in sharply rising yields over the next 15 years in some countries (figure 3.1, panel b), in contrast to global average yields.

Consider, for example, the case of India in the gradual convergence scenario. Here, notional demand for investment exceeds notional supply, therefore signaling a tension in favor of higher yields. However, the excess demand is modest and decreasing over time, hence yields in India between 2010 and 2030 remain fairly stable, at around 10 percent. The current account deficit for India—and hence capital inflows—likewise remains fairly stable, at around 2 percent of GDP.

The excess demand for investment is slightly higher for the case of Sub-Saharan Africa, and trending upward; this leads to a small increase in yields (by close to one percentage point over two decades), to around 13 percent. Were saving to remain unchanged, this would imply a worsening current account deficit over time; however, rising African saving actually offsets the increasing excess demand, resulting in an improvement in the current account (which nevertheless remains in slight deficit for the entire projection horizon).

It is also illuminating to contrast these countries’ experiences in the rapid convergence scenario, where brisk growth has a disproportionate effect on the demand for, relative to supply of, capital. In this scenario, for the case of India, excess demand remains high throughout the projection period. This induces a more substantial increase in yields, by almost two percentage points. This increase attracts more capital inflows and, as a consequence, current account deficits in India rise from −2 percent to −6 percent of GDP.

Sub-Saharan Africa, in the rapid convergence scenario, offers the starkest example of how tensions between notional investment demand and supply can affect the evolution of yields and resultant capital flows. Here, excess demand for capital rises substantially throughout the 20-year period—the ratio of notional demand to supply rises by five percentage points—and the region’s yields reach 14 percent by 2030 (from slightly less than 15 percent). As a result, Sub-Saharan Africa as a whole eventually runs current account deficits of almost 7 percent of GDP.

Changing patterns in net capital flows

Capital flows, on a net basis, reflect the difference between a country’s saving and investment; as
financial market development has the potential to reduce many developing countries’ current account surpluses (or raise their deficits). China is a special case, facing relatively severe aging but also having less scope for a rapid expansion in credit, so that investment will likely fall at least as much as saving in the years ahead. To put the scenarios in context, box 3.2 provides a brief look at the historical record of shifts in the global pattern of net capital flows.

The evolution of net capital flows depends on the paths of growth and financial market development

The configurations of which countries are net importers or exporters of capital will continue to shift in the future. Under the gradual convergence scenario, developing countries’ saving rates will tend to fall somewhat because of a
Between 1850 and 1929, Great Britain was a net provider of capital to the rest of the world, on the order of about 3.5 percent of its GDP annually and as much as 8–9 percent in some years (figure B3.2.1, panel a), first by running a trade surplus as a major exporter of goods such as textiles, and later because repatriated earnings from overseas investments more than compensated for a declining trade balance. Following World War I, the United States gradually took over that mantle, running an annual balance-of-payments surplus of 1.9 percent in the interwar period and again through most of the post–World War II period until the mid-1970s. Japan and Germany became net lenders of significance in the 1980s.

More recently, the global pattern of balances of payments has undergone yet another transformation. Newly industrialized East Asian economies (particularly China since around 2000), together with major oil exporters, have become significant net providers of capital to the rest of the world, with the United States and a diverse group of Latin American, African, and peripheral European economies serving as the primary recipients of that capital (figure B3.2.1, panel b). There has been much debate over the causes, consequences, and sustainability of large balance-of-payments positions (see, for example, Blanchard and Milesi-Ferretti 2010; Lin and Dailami 2010; Caballero and Krishnamurthy 2009; Chinn and Ito 2007; and Obstfeld and Rogoff 2007). But to the extent that such positions are believed to be destabilizing to the global economy, any sustainable long-run rebalancing must address underlying cross-country variations in incentives for investment and saving behavior.

**FIGURE B3.2.1** Net capital outflows (current account), the United Kingdom and the United States, 1850–1945 (panel a) and evolution of the global pattern of current account balances, 1980–2010 (panel b)


a. Major oil exporting countries, as defined by the IMF (International Monetary Fund), are Algeria, Angola, Bahrain, Canada, Colombia, Ecuador, the Islamic Republic of Iran, Iraq, Kuwait, Libya, Mexico, Nigeria, Norway, Qatar, the Russian Federation, Saudi Arabia, the United Arab Emirates, and the República Bolivariana de Venezuela.
Global Development Horizons

Capital Flows in the Third Age of Financial Globalization

As discussed in chapter 2, under this scenario, aging and financial development lead to a fall in China’s saving rate of roughly 7 percentage points, from 52 percent of GDP in 2010 to 45 percent in 2030. However, China’s investment rate will decline even further, falling from 48 percent to 37 percent over the same period. The scenario analysis implicitly accounts for a transition from heavy state involvement in investment decisions to a more market-driven structure of investment in China. At the same time, steadily rising wages will result in a steep decline in its rental-wage ratio, rendering returns in China relatively less competitive, and this manifests in the investment rate falling from its very high historical levels, although it remains high by international standards. The net result will be that China maintains its role as a significant exporter of capital to the rest of the world.

Under the rapid convergence scenario, because of steady credit growth, saving rates in developing countries will be lower in the future. Conversely, their investment rates will fall only marginally, sustained by institutional development and

FIGURE 3.2  In the gradual convergence scenario, there will be sizable net capital flows from China to high-income countries

a. High-income countries and the developing world

b. Selected developing countries and regions


Note: Net capital flows are reported as the current account position, with surpluses indicative of capital outflows. The current account positions for the two groups do not exactly offset because they are computed as a share of each respective group’s output. It is also well known that historical data on current account balances do not generally sum to zero at the global level, as required by theory, because of measurement problems.

combination of aging and moderate but steady financial market development. At the same time, investment will slow because of a moderate slowdown in growth. For most developing countries, these two effects will roughly cancel out and have fairly little impact on current accounts. Excluding China, the developing world will, on aggregate, maintain a moderate, gradually attenuating deficit between 2015 and 2030 (figure 3.2, panel a). For example, India and, on aggregate, Sub-Saharan Africa will follow this pattern, being fairly early in their demographic transitions and having significant scope for financial market development. Brazil will fit this pattern for most of the projection period as well, but, facing more severe aging, its deficit will level off and then begin to rise slightly in the mid- to late 2020s. Net capital flows from China to advanced countries, on the other hand, will increase substantially, leveling off after reaching 6–7 percent of China’s GDP (figure 3.2, panel b); the flows will represent a rising share of high-income countries’ output because these economies will expand relatively more slowly than China.
policy community: how to manage China’s current account surplus. Some reduction in China’s surplus should be desirable for the country, at least to the extent that surpluses are the result of domestic distortions such as lack of social protection and weak corporate governance. Benefits to China include regaining monetary independence through reducing reserve accumulation, smoothing international relations, and improving global financial stability. At the same time, it must be acknowledged that a rapid reduction in China’s reserve accumulation has the potential to destabilize the global financial system; thus, the timing and speed of adjustment are important.

But this result also highlights a caveat that must be made to the approach taken to generate these two scenarios. The determinants of investment and saving in the model were selected because they tend to be important across countries, and the sensitivity of saving and investment to these factors is assumed to be the same across countries (online annexes 1.6 and 2.6). This approach may miss some idiosyncratic factors that influence saving and investment behavior, and thus net capital flows, in any particular country. Given the institutional and policy challenges faced by China and, indeed, by the international policy community: how to manage China’s current account surplus. Some reduction in China’s surplus should be desirable for the country, at least to the extent that surpluses are the result of domestic distortions such as lack of social protection and weak corporate governance. Benefits to China include regaining monetary independence through reducing reserve accumulation, smoothing international relations, and improving global financial stability. At the same time, it must be acknowledged that a rapid reduction in China’s reserve accumulation has the potential to destabilize the global financial system; thus, the timing and speed of adjustment are important.

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faced by China in the context of its atypical economic system, such idiosyncratic factors might be especially important there, which deserves special mention because of the country’s size and global economic influence.

In the context of investment rates moderating to more sustainable levels, current account imbalances can only be resolved by implementing policies to bring saving down more quickly than it would fall from demographic change alone. One policy avenue is institutional reform to promote broad-based financial market development. Most developing countries will experience a faster decline in saving rates than investment rates in the rapid convergence scenario because of credit growth, as discussed earlier, but China will sustain its surplus under this scenario.

This result for China is observed chiefly because the country starts out with a high initial ratio of credit to GDP and thus has less room for convergence. Domestic credit to the private sector as a share of GDP, a standard aggregate measure of financial sector development, was 130 percent of GDP in China in 2010, well above the average of 73 percent for middle-income countries (World Bank World Development Indicators database) and implying that China already has a highly developed financial sector. In Tunisia and Uruguay, also middle-income countries, domestic credit extended to the private sector was 69 percent and 22 percent of GDP, respectively. The situation in China is considerably more nuanced than this one metric indicates, however. On an index of household access to financial services developed by Honohan (2008), for example, China scored 42 out of a possible 100, the same as Tunisia and Uruguay. Financial underdevelopment has been identified as one of the factors behind increases in China’s saving, as the need for credit-constrained households to save for big-ticket items and precautionary motives increased as social safety nets shrank (Chamon and Prasad 2010). On the corporate saving side, distortions such as barriers to competition, corporate governance weaknesses, undertaxation, and advantageous access to finance for state-owned enterprises have led to high retained earnings (Lin and Dailami 2010). Institutional reforms of the corporate sector, financial market liberalization, and social safety net measures such as pension and public health reforms have the potential to significantly reduce Chinese savings and external imbalances, and these policy choices are only crudely captured by the scenario analysis. Of course, policy makers in deficit countries, particularly the United States, have a role to play in resolving global imbalances as well.

### Expanding volumes of gross capital flows to and from developing countries

Although the scenarios for the path of net capital flows offer important information on the extent of balance-of-payments imbalances in the decades ahead, assessing net capital flows alone overlooks important monetary and financial stability aspects of transferring capital across national borders. From the perspective of assessing these issues, measuring gross capital flows—along with the composition of those flows—is more informative than looking at net balances.

Furthermore, the impact of financial market development on developing countries’ volumes of gross inflows and outflows is quite distinct from its impact on the net balance between the two. Although greater access to finance has the potential to both stimulate investment and reduce saving, thus narrowing current account balances, development and integration of developing countries’ financial markets can be expected to expand gross flows significantly and to potentially alter the composition of capital flows as well. An expansion of developing countries’ gross capital flows will also be driven by relatively favorable demographic conditions for attracting foreign investment as well as by healthy productivity improvements and growth. A country’s pace of growth and path of financial market development and integration depend on institutional change and policy choices—a range of possibilities highlighted by considering alternative scenarios of how these variables may evolve in the future and the corresponding paths of gross capital flows.

International financial integration is reflected by growth in both inflows and outflows of capital as investors at home and abroad diversify and
their countries share risk. Greater gross flows can mean more access to finance for some types of investment projects because the composition of inflows and outflows tends to differ.\textsuperscript{19} Thus, investment projects can go ahead despite residents’ relatively low tolerance for risk and without the country necessarily borrowing on net. Large amounts of gross flows can be destabilizing, though; cross-border banking flows, in particular, are volatile and highly procyclical, potentially magnifying risk instead of spreading it (Brunnermeier et al. 2012). Given that volumes of gross capital flows have been growing much more rapidly than net balances globally, and that the path of gross flows is both an essential underpinning of investment and a potentially destabilizing force with important policy implications, thinking about how gross flows will evolve in the future is a valuable exercise.

### Developing countries’ inflows and outflows of capital remain small relative to those of high-income economies, but they have begun to take off

Since the mid-1990s, financial globalization has meant that the significant expansion in total gross capital inflows and outflows has vastly exceeded the increase in their net counterparts (figure 3.4). Initially, this was a high-income-country phenomenon, visible in the takeoff in gross inflows to and outflows from those countries. The upward trend continued for two decades, so that from 1990 to the peak in 2007, the sum of high-income countries’ gross capital inflows and outflows grew tenfold, compared with a less than fourfold increase in trade flows (imports plus exports) and a less than two-and-a-half-fold increase in nominal GDP over that period.\textsuperscript{20}

Developing countries’ integration into the financial system during the 1990s remained quite modest relative to their economic size, perceived investment opportunities, and engagement in global trade. Evidence to this effect can be observed in patterns of global capital flows, in the role of developing-country banks and other financial institutions in the process of international financial intermediation, and in developing countries’ capacity to influence the rules of global finance. It was only during the expansionary years just prior to the global financial crisis that developing countries came to play a greater role in international financial intermediation and that gross inflows to and outflows from developing countries began to take off.\textsuperscript{21} By 2007, 11 percent

### FIGURE 3.4 Gross capital flows have long expanded relatively faster than net flows in high-income economies, and in recent years a similar trend can be observed in developing economies

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital flows (% of GDP)</th>
<th>High-income economies</th>
<th>Developing economies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>-25</td>
<td></td>
<td></td>
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<tr>
<td>1982</td>
<td>-15</td>
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<td>1984</td>
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Note: Current account surplus (deficit) is equal to the sum of current accounts across surplus (deficit) countries in each group, divided by the group’s GDP. Gross capital flows are summed across all countries in each group, divided by the group’s GDP.
of gross global capital inflows went to developing countries, versus 4 percent in 2000.

Although the financial crisis brought on a dramatic downturn in the volume of global capital flows, capital flows to and from developing countries were much less affected during the crisis than flows in and out of advanced countries. Before the crisis, not only did high-income countries account for the great majority of both global gross inflows and outflows, but current account balances also constituted a much smaller share of gross flows in high-income countries than in developing countries. Even as high-income countries’ flows have recovered in the immediate post-crisis years, developing countries’ share of global flows is significantly greater than a decade ago, although still not commensurate with their share of global output, growth, and trade. International investment positions reflect a large disparity in foreign asset holdings between advanced and developing countries as well (figure 3.5).

**Several ongoing trends will support a rapid expansion of capital flows to developing countries in the future**

Rapidly growing economies attract increased capital flows because that growth implies sizable investment opportunities and, often, improving creditworthiness and more opportunity for investment diversification. Stronger, more developed financial institutions, in particular, tend to allow developing countries to attract larger capital flows. In terms of intermediation, although stock markets would need to be of some threshold size to attract institutional investors, the internationalization of the banking industry has been an important vehicle of information transmission for global investors (Portes and Rey 2005), in turn allowing a growing amount of capital to be directed to developing countries.

Demographic conditions also matter: countries with a large share of working-age people tend to attract more capital inflows because of their relatively large labor pools and potential for high rates of productivity growth (Lane and Milesi-Ferretti 2002; Domeij and Flodén 2006, among others). The large diversity in the demographic conditions across the world, as well, provides structural support for cross-border capital movement in that capital tends to flow out of countries with high saving rates.

One promising line of research views gross capital flows from the perspective of international trade in financial assets; as such, a country’s engagement in global finance depends on its residents’ demand for foreign assets as well as its capacity to supply assets with return and risk characteristics sufficiently appealing to foreign investors (Broner et al. 2013). Thus, gross capital flows into and out of a country can be expected to be related not only to the country’s generation of profitable investment opportunities but also to its level of financial market sophistication and global integration.

It has been a longstanding stylized fact that international portfolio diversification has occurred much less than implied by models of risk sharing unless they incorporate frictions such as asymmetric information or other sources of transaction costs. A reduction in these frictions would imply a large increase in gross flows into and out of a given country, as domestic agents diversify by sending capital abroad and foreign agents diversify by sending capital in. Advanced countries seem to have been following this

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**FIGURE 3.5  International investment positions still reflect a large disparity in foreign asset holdings between advanced and developing countries**

![International investment positions](image-url)
pattern at least until the onset of the global financial crisis, as their financial markets integrated and gross flows expanded rapidly.

The relationship between gross flows and overall development, proxied by per capita GDP, is also evident when the accumulation of gross flows into stocks of international assets and liabilities is examined. As presented in figure 3.6, the relationship between GDP per capita and external balances across countries is nonlinear: a 1 percent difference between countries in GDP per capita corresponds to an increasingly large difference in external assets as a percentage of GDP as countries at higher levels of GDP per capita are compared.

Were countries to follow a similar curve over time (which is admittedly a strong assumption but makes for an interesting thought experiment), then developing countries would first move along the downward-sloping and relatively flat portions of the curve. This is consistent with the observation that these countries’ shares of gross capital flows and international investment positions have lagged behind their shares of global output and trade. This line of reasoning is also consistent with the prospect that developing countries’ volumes of capital flows are set to accelerate.

**The expansion of developing countries’ gross capital flows will depend on the pace of growth and financial development**

The econometric work underlying this report’s forecast of gross capital flows is supportive of previous literature in that it finds that higher levels of capital inflows—encompassing FDI, portfolio flows, and bank lending—are associated with increasing financial development and openness (measured by domestic credit to the private sector as a percentage of GDP and the Chinn and Ito [2006] index of capital account openness, respectively) as well as with higher GDP growth, a lower dependency ratio, and global monetary conditions. This work provides the basis for two scenarios of projected gross inflows to 2030, corresponding to the gradual and rapid convergence scenarios presented in the previous two chapters (box 3.3 and online annex 3.4).

Under the gradual convergence scenario, global gross capital inflows will reach $13 trillion in 2030 (figure 3.7, panel a), with the share destined for developing countries rising to 47 percent ($6.2 trillion). In the rapid convergence scenario, developing countries’ comparatively stronger growth and convergence with developed countries in terms of financial sector development and globalization will contribute to a faster increase in the growth of capital flows than in the first scenario. Global gross capital inflows will reach nearly $22.6 trillion by 2030 in the rapid convergence scenario, with a larger share of the total (60 percent, or $13.5 trillion) expected to go to developing countries (figure 3.7, panel b).

One factor behind the increase in developing countries’ share of global gross flows is simply the change in their relative size. Under the gradual scenario, gross inflows to developing countries will change little relative to their output (figure 3.8), so the increase in their share is due largely to their growing relative economic size, coupled with a moderate decline in high-income
Gross capital flow scenarios are based on historical evidence on the relationship between the flows and their determinants

The construction of gross capital inflow projections begins with the estimation of four specifications of a model capturing the determinants of gross capital inflows along five broad categories of explanatory variables. These categories include country-level demographic factors, country-level macroeconomic factors, country-level structural and institutional factors, global economic factors, and controls for global shocks over time and country and income group effects. The model is estimated for a large number of developing and developed countries using data for the period 1980–2010.

Using the results of the preferred specification of the model (column 4 in table 3A.1 of online annex 3.3), forecasts of gross capital inflows to 172 countries through 2030 are constructed, treating developed and developing countries as distinct groups. The paths of the key explanatory variables correspond to the paths of these variables as assumed, or endogenously generated by the CGE model, in the two global scenarios (gradual convergence and rapid convergence) developed in chapters 1 and 2. The only exception is the measure of capital account openness, which is not a variable in the CGE model; scenario paths for capital account openness are built specifically for the gross capital flows projections.

Finally, estimates of gross capital outflows are inferred from the difference between gross inflows and net flows (the current account). A full explanation of the variables, the modeling process, and the projection process is presented in online annexes 3.3 and 3.4.

By 2030, most gross capital flows may go to developing countries

![Graphs showing gross capital inflows for advanced and developing countries under gradual and rapid convergence scenarios.](image)


Note: Inflows are depicted in nominal U.S. dollars, assuming a constant 3.5 percent world inflation rate that is based on the 2003–07 five-year average from the World Bank Global Economic Monitor database. Gradual and rapid convergence refer to projected scenarios concerning the relative pace of convergence between developed and developing economies in terms of productivity growth and structural changes.

countries’ inflows as a share of output due to a slowdown in growth.

The potential contribution of financial development and integration to an expansion in gross capital inflows to developing countries is illustrated by the rapid convergence scenario. Here, the rise in gross capital inflows to developing countries will outstrip economic growth, so that
Developing economies’ growing importance as sources and destinations of capital flows will not be a BRICs story alone

Disaggregating the scenario results by country shows that China will be an important part of the story, but by no means will changing future patterns of capital flows be a China story alone (figure 3.9), nor will it be a BRICs (Brazil, the Russian Federation, India, and China) story alone. Financial development and integration have the potential to boost gross capital flows across the developing world. Sub-Saharan Africa, for example, can be expected to not only receive a growing volume of capital flows, but also to attract an increasing share of total capital flows to developing countries (box 3.4). Under the gradual convergence scenario, developing countries other than the BRICs will collectively account for 17 percent of global gross inflows in 2030 and 15 percent of outflows. In this multipolar world, no single country will attract as great a share of global inflows as the Euro Area or the United States do today, not even China; small and medium-size developing countries will collectively matter much more in the global economy than they do today, particularly in terms of their role in the global financial markets and capital flows.

On the other hand, by 2030, China may be as important a source of capital flows as Europe and the United States are today. Under both the gradual and rapid convergence scenarios, China is expected to account for over 40 percent of global outflows in 2030.25 This will be driven mainly by its robust growth, greater integration with global financial markets, and significant current account surpluses stemming from its investment rate (currently very high) falling somewhat faster than its saving rate as wages rise (some details are provided in chapters 1 and 2).

The composition of global capital flows in terms of financial instruments may be poised for change

Financial market development and integration can be expected to affect the composition, as
changes in the composition of inflows thus may affect an economy’s exposure to exchange rate risk and monetary policy spillovers.26

There is widespread speculation that a larger percentage of the world’s capital flows will be intermediated by capital markets in the future, implying that banking and FDI inflows will represent relatively less of the total. This is an uncertain outcome, however, considering that portfolio flows currently make up a relatively small share of capital flows into and out of developing countries and that these countries’ flows can be expected to constitute a growing share of global aggregate flows in the future. But even if the predicted increase in the use of capital markets as a channel of financial intermediation is not borne out globally, capital markets are likely to be increasingly important in developing countries as their financial markets mature, with the long-term effect of developing-economy convergence with advanced economies in terms of the composition of their capital inflows.

Ultimately, the extent to which capital markets play a greater role in funding investment in these countries depends to some degree on policy choices. Historically, policies deliberately designed to promote FDI, such as tax incentives,
Sub-Saharan Africa is poised to receive steadily increasing amounts of capital inflows over the next two decades. In the gradual convergence scenario presented in this chapter, gross capital inflows to the region will reach $254 billion in 2030 (figure B3.4.1), compared with $62 billion in 2012. As a share of gross inflows to developing countries, Sub-Saharan Africa will rise from 5.4 percent in 2012 to 8.2 percent in 2030 under the gradual convergence scenario. Although the share of developing-country inflows going to Sub-Saharan Africa is not expected to reach the peaks observed during periods of severe economic tension in recent years, it will remain well above the level observed during most of the 2000s.

The largest single stream of gross capital inflows to Sub-Saharan Africa is in the form of FDI, and much of this is directed to the natural resources sector—oil in Angola, Nigeria, and other West and Central African countries; copper in the Democratic Republic of Congo and Zambia; bauxite in Guinea; and natural gas in a number of countries. In recent years, the level of FDI inflows has been driven in part by the rapid expansion of large developing economies such as Brazil, China, and India. Notwithstanding the decline in the level of FDI inflows to Sub-Saharan Africa in the aftermath of the global financial crisis, the long-term expansion of the global economy and rich natural resource endowments of countries in the region are likely to keep Sub-Saharan Africa’s FDI inflows at robust levels in the years ahead. Guinea alone contains 26 percent of the world’s known bauxite reserves; the Democratic Republic of Congo accounts for 45 percent of cobalt reserves; Botswana, the Democratic Republic of Congo, and South Africa together represent 58 percent of industrial diamond reserves; and South Africa accounts for more than 95 percent of platinum-group metals (USGS 2012). Strong global demand for energy indicates that international capital will continue to flow to oil development projects, even in challenging governance environments such as that in South Sudan.

Although extractive industries are set to be an important target of capital inflows to Sub-Saharan Africa in the future, there are also signs of increasing investor interest in financing the infrastructure, retail,
Box 3.4 (continued)

and financial services sectors. Infrastructure financing is especially important because insufficient power generation, lack of basic water and sanitation systems, overcrowded urban roads, and inefficient ports pose major constraints to productivity and international trade in the region and have a significant impact on livelihoods. Reversing these deficiencies will require significant amounts of capital from domestic and foreign sources, but at the same time infrastructure improvements promise to make doing business in Africa significantly easier.

Estimates produced for chapter 1 indicate that aggregate water and sanitation sector investment needs among Sub-Saharan African countries will rise from $2.2 billion in 2012 to $3.8 billion in 2030. This figure will be dwarfed by investment needs in the power sector, expected to nearly triple, from $4.9 billion to $13.8 billion, over the same years. Roads will require an estimated $11.2 billion of investment in 2030. Nigeria, with the region's largest (and rapidly growing) population, will require power sector investment of almost three-and-a-half times its 2012 level in 2030. Relatively rapid population growth in Sub-Saharan Africa means that infrastructure financing needs will grow faster than in other developing regions. At the same time, the growing proportion of global economic growth attributable to developing countries suggests that other developing countries will be a key source of capital flows to Sub-Saharan Africa in the decades ahead. China and India are already active investors in infrastructure projects and telecommunications projects in the region.

Another driver behind the growth in capital inflows to Sub-Saharan Africa over the next two decades will be the region's rising per capita incomes. The expectation that Africa's emerging middle class will support a range of consumer goods industries—processed food and beverages, ready-to-wear clothing, cosmetics, household appliances, and home improvement—is increasingly becoming reality for multinational companies and retail banks, their confidence was bolstered by the very visible success of the mobile phone industry on the continent. Just as important are key demographic statistics: 42 percent of Sub-Saharan Africans are under the age of 15, versus a range of 17 percent (Eastern Europe and Central Asia) to 32 percent (South Asia) in other developing regions. The large proportion of young people in Africa means that the region is at an advantage in terms of accumulating savings over the long term and in terms of having a large proportion of working-age population for decades to come.

One clear signal of the world’s growing assurance of the power of the African consumer was Walmart’s $2.4 billion purchase of the South African retail giant Massmart in 2011. Although intraregional investment currently accounts for a small proportion of total FDI inflows—only 4 percent (in terms of value) of cross-border mergers and acquisitions and greenfield FDI projects undertaken in Sub-Saharan African countries between 2003 and 2010 were funded by other countries in the region—such projects can help convince companies elsewhere in the world considering investing in Africa to move forward. Good examples include high-profile investments such as Mauritius-based SEACOM’s $600 million investment in an underwater fiber-optic cable that linked South Africa, Mozambique, Tanzania, and Kenya to Europe and South Asia in 2009. Ecobank, for another example, a bank operating in some 30 Sub-Saharan Africa countries, was among the top FDI investors in the region during 2003–11 (Ernst & Young 2012).

Looking ahead, there may be an adjustment in the type of capital going to Sub-Saharan Africa. A long-standing trend is that most capital inflows to the region have been in the form of FDI. But in recent years, access to bank lending and international bond markets has improved. Figure B3.4.2 tracks capital inflows in the form of cross-border bank loans, clearly depicting a rising trend. In 2007, the peak year for cross-border capital flows, nine international syndicated loans of more than $1 billion went to borrowers in Angola, Mauritius, Nigeria, and South Africa in the retail, telecommunications, construction, oil, and mining industries. The lenders in these transactions are broadly based geographically. Despite dropping in 2008 in the face of the global financial turmoil, the volume of bank lending has increased in each subsequent year. Here, too, there is evidence of growing intraregional involvement: Standard Bank group, the largest commercial bank in Sub-Saharan Africa, was among the top three arrangers of syndicated loans in 2011 (Bloomberg 2012).
Raising capital on international bond markets has also become a possibility for some African countries. The governments of Gabon, Ghana, Namibia, Senegal, and the Seychelles raised a total of $3.18 billion on international bond markets between 2006 and 2011. Though few corporations based in the region have access to markets outside their home countries, the increased ability of sovereigns to issue debt on international markets is likely to pave the way for enhanced corporate access in the future. A similar narrative can be found in access to international capital markets: only 37 Sub-Saharan African companies are listed on equity markets outside the region—17 on European exchanges and 11 on U.S. exchanges (Bloomberg database). That said, international investors have demonstrated increasing interest in African capital markets, albeit from a low starting point.

For all the positivity, Sub-Saharan Africa faces undeniable challenges in creating an environment suitable for large capital inflows, not least of which is the relative underdevelopment of its domestic banking sector. Only 24 percent of people age 15 and above have an account at a formal financial institution, compared with 33 percent in South Asia and 55 percent in East Asia and the Pacific (World Bank Global Financial Inclusion database). Domestic credit to the private sector as a percentage of GDP is less than 30 percent for most Sub-Saharan African countries, and in several countries that rate is in the single digits. Investors still shy away from some countries because of entrenched corruption and other risks. In the immediate future, increased consumer spending by the middle class will remain concentrated in commodity-exporting and other relatively wealthy countries.

For all three of the regions mentioned, the figure does not include countries classified as high-income by the World Bank. Thus, for Sub-Saharan Africa, Equatorial Guinea is excluded.

have been one factor behind the predominance of FDI in inflows to the developing world, along with trade barriers, shallow financial markets, barriers to competition in the economy, and, at the broadest level, informational asymmetries and transaction costs. These constraints can generally be expected to relax as income levels rise, but these changes do involve shifts in policy. Policy makers should recognize that initiatives designed to deepen and better integrate financial
markets may also promote portfolio inflows, and that regulatory institutions should be strengthened in tandem with liberalization, given the volatility of private capital flows (portfolio flows in particular).

In addition to changes in the composition of capital flows that are likely to accompany the increasing share of inflows and outflows attributable to developing countries, the two scenarios of gross capital flows in this chapter indicate that the coming decades are likely to see much greater South-South capital flows (as illustrated in online annex 3.5). GDH 2011 documented the rise of South-South FDI, which is already under way and will become an increasingly important component of investment in developing countries in the future (World Bank 2011). As developing countries’ banks grow in size and become more internationally active, as their stock and bond markets continue to develop, and as their financial markets become more regionally integrated, they will have an opportunity to intermediate a greater share of South-South flows and, broadly, to play a much larger role in intermediating global capital flows than they do today.

At present, more than half of capital outflows from developing countries are in the form of government reserve accumulation, while external investment activity in advanced countries is mainly accounted for by private sector entities. But reserve accumulation among developing countries can be expected to decelerate, perhaps dramatically, as more countries move toward floating exchange rate regimes and as capital markets are allowed to become more open, meaning that developing countries will become more similar to advanced countries in terms of the composition of their capital outflows. China will be a major determinant of the speed and extent of developing countries’ changing capital outflow composition.

**Capital flows and monetary policy spillovers**

As discussed above, in the years ahead the volumes of gross capital flows to and from developing countries are likely to expand dramatically. The developing world’s financial markets will

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**FIGURE 3.10** Historically, the composition of capital inflows has differed between income groups, with FDI providing stability in flows to developing countries

- **a. Advanced countries**

- **b. Developing countries**


Note: Each component depicted is the annual net change in liabilities to nonresidents. Loans consist mainly of lending by banks and nonbank financial institutions, but also include any other type of liabilities to nonresidents not counted as FDI or portfolio investment. Portfolio investment includes equity and debt portfolio investment.
become deeper, more sophisticated, and more
globalized. These economies’ capital flows and
stocks of international assets and liabilities will
not only grow in size but also change in terms
of their composition, rates of return, and risk
profiles. South-South investment will increase.
Developing countries’ banks and capital markets
will intermediate a growing share of global capi-
tal flows, both between developing countries and
between developing and advanced economies.

An implication of these developments is that
developing countries may become more exposed
than ever to spillovers of monetary policy shocks
through their international balance sheets.
However, the dominant position of today’s global
financial centers will be eroded to some extent.
Thus, the configuration of the sources and chan-
nels of international shocks may become more
dispersed than today, reducing the exposure of
the world economy to shocks originating in any
one economy and offsetting the potential for
greater instability that developing countries face
as their financial markets expand and integrate.

The international monetary
system is anchored to the
U.S. dollar and the euro

Use of the national currencies of a few major
advanced countries as the world’s dominant inter-
national currencies has been a prominent feature
of the post–World War II global financial system.
Currently, the international monetary system is
anchored to the U.S. dollar and, to a lesser extent,
the euro (Dailami and Masson 2011). This situ-
ation has long had strong relevance for develop-
ing countries, which rely more than advanced
countries on credit denominated in foreign cur-
currencies. Monetary policy may be neutral in the
long run, but at any given time prevailing mon-
eyary conditions have real effects, and the insta-
бility that can result from an inability to control
monetary conditions is an important issue facing
developing-country policy makers. A long-term
shift in which currencies are most prominent at
the global level, as well, has policy implications.

Demand for international currency originates
from four sources: accumulation of official for-
eign exchange reserves, international bank credit,
international securities issues, and turnover in
foreign exchange markets. The first three of these
sources, at least, will be in flux over the coming
two decades as developing countries come to
account for a much greater share of global capital
flows than they do today, as their domestic finan-
cial markets mature and become more sophisti-
cated, and as South-South flows increase.

As of the end of 2010, the bulk of capital flows
were still conducted in U.S. dollars and euros;
83 percent of international bonds outstanding
and 80 percent of international banking assets
were denominated in one of these two currencies
(figure 3.11). Despite the increasing importance
of the euro, the U.S. dollar remains the domi-
nant international reserve currency. The share of
reserves held in dollars is more than double the
share of reserves held in euros.28

In the current multipolar international mon-
etary system—in which the U.S. dollar and euro
serve as the principal reserve currencies, most
emerging economies operate under some vari-
ant of a managed floating exchange rate regime,
and there is high capital mobility across national
borders—advanced countries with international
currency status have a disproportionate influ-
ence on global monetary conditions.29 Should
very low interest rates (such as those currently in
place in key currency countries) be maintained
over an extended period, they could potentially
lead to excessive risk-taking behavior on the
part of financial market participants, including
banks, and stimulate portfolio and banking flows
to developing countries as investors and finan-
cial intermediaries “reach for yield” and seek to
maintain returns. Under these conditions, policy
makers in developing countries face a difficult
challenge in deciphering whether capital inflows
are the result of improvements in their domestic
fundamentals or rather are a transitory effect trig-
gered by low yields in advanced countries, subject
to reversal when world interest rates rise.

One gauge of the extent of the international
domain of the U.S. dollar and euro in interna-
tional monetary affairs is the volume of interna-
tional bank claims denominated in those curren-
cies, which is particularly relevant for the large
number of developing countries where interna-
tional banks account for the bulk of capital flows.
As the international banking industry has grown,
the U.S. dollar has persistently played a major
role as the preferred currency for global banking transactions, although there are signs that this may change in the future as the dollar gradually gives way to other currencies (World Bank 2011). It is interesting to note that loans by non-U.S. banks, mainly European banks, account for a significant part of dollar-denominated loans.

Global credit denominated in both dollars and euros grew rapidly in the decade leading to the 2007–09 global financial crisis, although it has been fairly flat from 2008 to 2011 (figure 3.12). U.S. dollar credit stood at $31.4 trillion at the end of 2011, up from $12.6 trillion at the end of 1999. Global credit in euros was €23.9 trillion ($31.4 trillion) at the end of 2011, up from €111 trillion ($11.1 trillion) at the end of 1999. Although the amounts of credit outstanding globally that are denominated in dollars and euros are roughly equal, dollar-denominated credit makes up a substantially greater share of credit outside of the United States than the euro does outside the Euro Area—$11.8 trillion compared with $4.4 trillion.

One implication is that because the U.S. dollar is more internationalized, the global economy is more sensitive to U.S. monetary policy than it is to Euro Area monetary policy, in part through the international banking system.

For emerging-market economies, the ability to insulate domestic monetary policy depends on their willingness to fully accept the exchange rate movements that would result from changes in the monetary policy stance of international currency countries. Because many countries fear the resulting volatility, they intervene to limit the exchange rate changes through accumulation of foreign exchange reserves. Though countries may be successful in the short run in sterilizing the effects on domestic liquidity, empirical evidence shows that there are limits to sterilization. In the current environment, for example, this means that some of the U.S. monetary expansion is likely to appear domestically in emerging-market countries as well.

The international monetary system will be in flux in the future

Looking forward, developing countries as a whole will account for a much greater share of gross capital inflows and outflows than they do today, and it is likely that some developing countries will become major players in international financial intermediation. Regarding how monetary policy spillovers will evolve, these trends in capital flows have two main, countervailing implications: First, were the present composition of capital flows (in terms of type and currency denomination) to remain roughly the same through 2030, as developing countries become more deeply integrated in global financial markets, the impact of U.S. and euro monetary policy on these countries would increase. Second, developing countries’ financial markets are likely to become deeper and more sophisticated in the years ahead, meaning that their capital markets and banks have the potential to intermediate a growing share of the world’s capital flows, and key developing countries’ monetary policy may become more influential on a global scale. Monetary spillovers from key developing countries to other developing countries are particularly plausible given that South-South capital flows are expected to increase in the coming years. This change, on its own, would mean...
that the share of developing countries’ capital flows denominated in advanced-country currencies would likely shrink as a growing share are intermediated by developing country–based capital markets and banks.

Thus, the evolution of developing countries’ exposure to advanced countries’ monetary policy is uncertain. One can even imagine a scenario in which greater liberalization and integration of developing countries’ financial markets proceeds hand in hand with a trend toward greater consolidation and concentration of global financial intermediation, with only a few countries in the world specializing in financial services. In such
The costly string of banking and sovereign debt crises the world has experienced in recent years has left policy makers keenly aware of the trade-off between the instability that can accompany a highly complex and integrated global financial system and the benefits of deepening global integration via capital flows. Capital inflows can be key in supporting economic growth, and open cross-border financial channels are essential in channeling capital from countries with excess savings to productive projects in countries with insufficient savings. Over the years, the steady integration of developing countries into the international financial system by way of international capital flows has provided investors with an important means of diversification. But it is the risks of an increasingly integrated international financial system featuring the movement of capital across countries on a massive scale, and how to best manage the system to avoid future crises, that continue to dominate the minds of financial sector policy makers and regulators at the moment.

Several major concerns lie at the forefront of policy discussions related to the stability of the international financial system: (a) the longstanding underpricing of sovereign risk in some advanced economies, (b) the global impact of unprecedented easy monetary policy in countries containing major financial centers, and (c) the ability of the international financial system to fulfill its primary task of intermediating capital across national borders in a manner that promotes productive investment and sustained growth rather than fueling asset bubbles and instability. Regardless of the short-term versus long-term nature of each of these issues, the magnitude of the expected expansion in the volume of international capital flows through 2030, in both absolute amounts and as a percentage of GDP, means that having an appropriate policy framework in place to manage international capital flows will become even more crucial in the future.

There is broad agreement that central banks and other economic planning authorities must be well equipped to respond quickly and resolutely to mitigate contagion across countries during times of financial distress, and must be vigilant in monitoring and acting upon conditions that

### Conclusion and policy implications

The rapid expansion in the volume of global capital flows expected during the next two decades in the two scenarios presented in this chapter will render the world’s economies more financially interconnected than at any time in history. Interpreting how this increased integration will affect the global economy in the long term, or how policy makers should react to it, is by no means a straightforward task. History can certainly provide guidance, but there is also value in estimating the scope of international financial links in the future, and additionally in envisioning potential policy responses that might be appropriate.
Financial crises can provide strong incentive for international monetary policy and financial stability coordination

An obvious place to look for evidence on these policy matters is the global financial crisis of several years ago, which saw unprecedented coordination of monetary policy among national monetary authorities. For example, central banks around the world set up a large network of liquidity swap lines starting in late 2007 (figure 3.13). Under these arrangements, the home central bank of currencies in short supply globally at the time could provide its currency to commercial banks operating in other countries, with the central banks of the countries in which the commercial banks were located operating as intermediaries (Allen and Moessner 2010). The People’s Bank of China, for instance, agreed to provide a total of RMB 650 billion under swap lines with the central banks of Argentina; Belarus; Hong Kong SAR, China; Indonesia; the Republic of Korea; and Malaysia.33 After implementing several prior rounds of swap agreements with other major central banks, the U.S. Federal Reserve agreed to swap lines of unlimited size with the Bank of England, Bank of Japan, European Central Bank, and Swiss National Bank for a period of

FIGURE 3.13 A number of new central bank liquidity swap lines were extended between December 2007 and December 2010

Source: Based on Allen and Moessner 2010, with updates.
Note: Color of the arrows indicates the swap network, generally according to the central bank at the center of the network: blue is Switzerland, green is the ECB (European Central Bank), orange is China, red is Japan, and black is the United States; aqua arrows show a multilateral swap network between the central banks of China, Japan, and the Republic of Korea.
six months starting in October 2008 (the height of the crisis).

Global and regional organizations responded to the crisis by increasing their volume of lending to client countries. Among multilateral development banks, significant capital infusions also allowed more resources to be devoted to development initiatives in their member countries. International negotiations surrounding postcrisis measures to reduce the probability of future financial crises have been led by organizations such as the International Monetary Fund (IMF) and the Group of 20 Finance Ministers and Central Bank Governors (G-20). The IMF’s revised Flexible Credit Line, for example, together with its newly established Precautionary and Liquidity Line, are intended to improve the institution’s capacity to assist countries heavily affected by the crisis and to prevent future crises. In 2010, the IMF also launched three new concessional financing facilities specifically for low-income countries. The IMF’s proposed Global Stabilization Mechanism would provide liquidity in conjunction with bilateral and regional arrangements with the specific goal of arresting contagion across countries during financial crises.

International commitment to preventing episodes of financial contagion is currently being put to the test by the ongoing sovereign debt crisis in the Euro Area. In one sense, the world is signaling its recognition of the gravity of the situation by allocating additional resources to safety nets. As of the June 2012 meeting of the G-20, 37 IMF member countries had contributed a total of $456 billion to the institution’s firewall fund, which the institution intends to disburse only as a secondary line of defense after resources available via its standard quota arrangements and the New Arrangements to Borrow are significantly drawn down. Developing countries have been remarkably active in contributing to this fund, with the BRICS, along with Mexico and Turkey, pledging a combined $95 billion of the total. This level of involvement by developing countries in international crisis prevention and resolution mechanisms will become increasingly important as developing countries account for a growing share of gross global capital flows in the years to come.

**New modes of cross-country cooperation may be beneficial as the international financial system becomes ever more interconnected**

Moving forward, a potentially fundamental question is whether the current decentralized model—in which national (or regional) central banks have control over their own monetary policy and financial regulation is crafted at the country level—is adequate for the task of managing an increasingly globalized financial system. The reality is that any model must fit into the constructs of a world made up of sovereign states. In such a world, perhaps the best way to arrive at outcomes that serve the needs of the most countries possible is to encourage cooperation at both the bilateral and multilateral levels, while acknowledging that a high degree of coordination is not always politically feasible and that national policies will continue to be key in shaping the world’s monetary and financial policy framework.

The scope for cooperative efforts is broad and could take a number of forms. One form is participation in multilateral initiatives—such as those on monetary and financial stability and banking supervision led by the Bank for International Settlements—or public commitments to time lines for policy objectives within the G-20. One potential contribution of the G-20 process would be to emphasize the spillover and mutual dependence aspects of key currency countries’ financial sector and monetary policy, and to ensure that key currency countries move away from a narrow policy focus on just their own economies. Synthesizing the efforts of multilateral institutions might also be called for.

Another form of cooperation is at the bilateral level, such as strengthening and institutionalizing the swap lines that provide liquidity to non-key currency countries during periods of instability or sharing knowledge and experience across countries. Recent crises in advanced economies hold valuable lessons for developing countries whose financial markets will become increasingly sophisticated and globally integrated in the years ahead. Regulatory institutions must be more forward-looking, with systems in place
to monitor new innovations in financial markets in real time—for example, by making this an explicit part of the job description for bank supervisors—and to quickly evaluate and adapt to innovations before they cause systemic risk.

The bottom line is that cooperation in monitoring and managing the international financial system cannot be overemphasized. In a highly interconnected system, international cooperation in managing the system is key for its stability. Multilateral institutions will continue to have a role in this management in the future, particularly in helping countries establish the conditions supporting the development and functioning of financial markets and assisting in coping with periods of crisis or near-crisis. But initiatives within international forums must be considered in light of efforts by authorities in individual countries. Regarding the response to the global financial crisis, the unprecedented provision of liquidity by major central banks to help resolve the crisis has fueled heated debate about the scale and nature of risks being taken in the process of unwinding their positions. At the same time, there is concern that extremely low interest rates in advanced economies could result in an over- abundance of capital inflows to emerging and developing countries as investors search for yield elsewhere, with potentially destabilizing effects in those countries in the future.

As developing countries come to account for half or more of the world’s capital outflows, their policies regarding capital flows are likely to become more influential at the global level

For a given country, the challenges of managing surges of capital inflows are by now well understood and continue to be relevant in understanding how emerging and developing countries may react to accommodative monetary policy conditions that persist in advanced economies. For emerging economies with fixed exchange rates, excessive capital inflows can present a difficult choice between allowing currency appreciation and intervening in foreign exchange markets to hold down the value of the currency. Monetary authorities in emerging economies—facing strong capital inflows as a result of low interest rates in major economies—may feel it is necessary to ease interest rates to discourage inflows even if domestic macroeconomic conditions do not otherwise call for such a move, although the inflationary pressure of lowering rates must also be considered. Macrop prudent responses might also be considered, perhaps targeting a specific sector, such as real estate, that is subject to overheating.

Faced with strong demand for their assets, even economies with floating exchange rates may resort to capital controls, such as Brazil and Taiwan, China, did in 2009, or as Switzerland implicitly began to do in 2011 when it committed to maintaining an exchange rate floor of the Swiss franc against the euro. In the longer term, countries reliant on capital inflows representing a large share of their GDP risk fiscal distress and recession should there be a sudden turnaround in those flows, at which point monetary authorities must step in to assist. It could be argued that there is potential danger for policy makers to err on the side of overly strict capital controls, choking off access to finance, when what is really needed is careful reform of regulatory institutions and greater international regulatory coordination.

Understanding the nature of capital inflows to emerging and developing economies—whether they are driven by good economic fundamentals within the country or by more transitory forces such as low yields in advanced economies or heavy use of carry trades—can help policy makers determine the best response. Deciphering whether fundamental or transitory forces are more powerful in driving capital inflows to a country is no doubt a difficult task, but one that has clear implications for policy. In the case of the former, it has been argued that allowing exchange rate appreciation is the most appropriate response; in the latter, monetary, fiscal, and financial policies should be employed (Sidaoui 2011).

Recognizing the potential impacts of prevailing conditions in advanced economies on the rest of the world is no doubt essential to crafting policy responses to those conditions. But how might policy responses need to change in the long term? The two scenarios presented in
Under both scenarios, the share of global capital inflows going to Europe and the United States is projected to decline substantially, while the share going to China will increase considerably. A similar trend is expected in terms of the share of capital outflows. Several future policy implications follow from the scenarios.

Broadly, the course of global monetary and financial policy making will need to be adjusted at national and international levels to account for the implication that developing countries will become responsible for an expected half or more of the world’s capital outflows. The two scenarios presented in this chapter envisage that developing countries will account for 49–58 percent of the world’s global capital outflows by 2030, rising from 28 percent in 2010. This shift implies that developing countries’ monetary and financial sector policies could be more influential at the global level—although, as noted previously, this notion must be balanced against the currency composition of global capital flows.

Among developing countries, China is unique in its potential to position its currency as a truly global currency during the coming years. Should the increase in the share of global capital flows attributable to China be accompanied by greater use of the renminbi as the currency denominating these flows (internationalization of the renminbi is a stated policy goal in China), then China’s monetary policy stance can be expected to exert considerably stronger influence on the international financial system than it does at present. Under such a scenario, the world would also experience a decrease, to some extent, in the dominance of U.S. and Euro Area monetary policy on the global stage. One conceivable arrangement is that the U.S. dollar, the euro, and the renminbi will all be globally significant currencies by 2030 (World Bank 2011). Of course, alternate scenarios consider that either the dollar remains preeminent in global finance during the next two decades, or there is no clearly preeminent currency by 2030.

For small and medium-size developing countries, a world in which the United States, the Euro Area, and China all have key international currencies implies that developing countries will become less affected by monetary policy spillovers from any one country. This could be stabilizing on a global level because liquidity shocks will be more diversified, but it could also be destabilizing as it becomes more difficult to assess the timing and extent of monetary policy spillovers. Regardless of the currency composition of capital flows in the future, an increasing share of global flows going to and from developing countries indicates that these countries should have a larger role in management of capital flows at the international level, within both bilateral and multilateral organizations.

There are also exchange rate regime implications of a potential shift in the currency composition of global capital flows. With more diversification in the currency makeup of capital flows, countries with fixed exchange rate regimes may find that it is more sustainable to peg to a basket of currencies (for example, the dollar, the euro, and the renminbi) than to any one of those currencies.

The rise in the volume of global capital flows in the decades ahead will increase the influence of foreign investors on capital accumulation in many countries. For some countries, it is conceivable that most of their total investment will be determined by overseas investors and creditors in the future, thus bringing an even greater international dimension to financial policy-making efforts. The efforts of the G-20, IMF, and BIS will be key in developing a financial supervisory architecture that enhances global financial market stability through, by other measures, avoiding excessive volatile speculative capital transactions.

Policy makers will need to monitor the channels of capital inflows (bank loans, portfolio investment, and FDI) because these channels have different capacities for stabilizing or destabilizing conditions in recipient countries. There is wide speculation that capital markets will intermediate a growing amount of global capital flows in the future and that banks will account for less. Whether this will be good news for countries that currently receive most of their inflows in the form of bank loans remains to be seen; bank lending tends to be highly procyclical and generally less supportive of risk sharing than FDI.
or equity portfolio investment (Brunnermeier et al. 2012). But, in middle-income countries, portfolio investment has historically been even more volatile, in relative terms (that is, adjusting for the smaller magnitude of this component of developing countries' inflows), than bank lending (Broner et al. 2013). Though the share of bank loans in global capital flows may well recede in the long term, it must also be acknowledged that loans will continue to represent a significant portion of global capital flows for years to come. The many efforts under way to improve regulation of the international banking sector thus will remain highly relevant.

Finally, as growing amounts of capital are transferred among developing countries, there is even capacity for greater regional monetary policy spillover from large emerging economies such as Brazil and Russia. These countries are not expected to have the global reach that China may, but it is conceivable that their influence could become increasingly apparent at the regional level. Certainly, in a multipolar world, South-South monetary policy coordination will become more critical in promoting stable financial and macro-economic conditions in developing countries.

**Notes**

1. As in other recent scholarship, gross capital inflows in this report are measured as purchases of domestic assets by foreigners net of sales of domestic assets by foreigners, and gross outflows are measured as purchases of foreign assets by domestic residents net of sales of foreign assets by domestic residents. Net capital flows are defined as gross inflows minus gross outflows.

2. Lucas (1990) noted that if positive spillovers from human capital accumulation are sufficiently great and sufficiently local (spilling over more within countries than across borders), then differences in human capital might eliminate differences between countries in the return to capital entirely. However, not enough progress has been made in quantifying the scope of external benefits from knowledge spillovers or the degree to which these benefits spill across borders to resolve this question empirically.

3. Interest rates can also vary as widely between sectors within countries as they do between countries. Estimates for the informal agricultural sector in Ghana, for example, place nominal rates there at as much as 350 percent (Udry and Anagol 2006), and real returns to microenterprises in Sri Lanka have been placed at several percentage points higher than prevailing market interest rates (De Mel, McKenzie, and Woodruff 2008).

4. Some approaches effectively lump land and natural resources together with capital by estimating the income share of capital as one minus the income share of labor, in which case the income share of capital is overestimated. Caselli and Feyrer (2007) estimate that only about half of this amount, on average, should actually be attributed to reproducible capital, but this follows from estimates of the contribution of land and natural resources to production that may be overly aggressive.


6. Averages for each income group were computed by weighting yields for each country by their relative share of the group’s capital stock.

7. The notional investment demand equation is calculated across time at the country level, holding yields constant at 2014 levels, and this is summed across countries to estimate a path of global notional investment demand. This straightforward measure of notional demand abstracts from the endogeneity of variables such as output on the right-hand side of the factor demand equation, as these variables follow the path generated by the model, which is codetermined with the realized path of investment as opposed to the path of notional investment demand. In the special case when, globally, yields tend to change little over time, the distortion from not accounting for endogeneity is quite minor because notional demand barely differs from realized demand in this case.

8. More precisely, 2030 global notional investment demand is within 0.04 percent of the supply of saving. Note that, at the global level, the supply of capital will be equal to the pool of saving, and this represents the notional global supply of saving for investment because—by the assumptions of the model—saving is not affected by yields.

9. More precisely, 2030 global notional demand exceeds global supply by 2.6 percent; this pressure corresponds to a cumulative increase in global average yields (weighted by capital stocks) of roughly half a percentage point between 2014 and 2030.

10. It is also important to recognize that a scenario with rapid growth alone (unaccompanied by changes in
structural factors) does not result in global saving and investment deviating significantly from the gradual convergence scenario. This underscores the importance of allowing structural variables to experience substantial change—as is considered in the rapid convergence scenario—to grasp the full extent of potential transformations in the developing world for global saving and investment outcomes.

11. Higgins (1998) and Lane and Milesi-Ferretti (2002) point to potential effects that changes in the age structure of populations have on current account balances, but the theoretical direction of the effect is ambiguous because aging can affect both saving and investment negatively (and potentially non-linearly). In the scenario analysis in this report, the impact of demographic change on net capital flows is not directly identified, but the model generating the scenario results does incorporate projected changes in the age structure. Further details are given in online annex 1.6.

12. Details of how the two scenarios are constructed can be found in online annex 1.6. Details of the current account balance projection calculations are in online annex 3.2.

13. In the CGE model, the parameters in the investment equation are calibrated uniformly across countries based on results from a panel regression, with an implicit assumption that the future path of investment will be determined similarly across countries. Details are given in online annexes 1.5 and 1.6. For China, investment has historically been higher than would be predicted by the model, so its projected path reflects an adjustment down to what would be expected for a typical country, given the paths of the right-hand-side variables.

14. The relatively large differential in high-income versus developing-country yields described earlier raises the Lucas (1990) question of why capital can flow "uphill" from the South to the North in the model. The reason for this is that the key endogenous variables in the World Bank’s LINKAGE model are calibrated to observed 2007 data, allowing surpluses (deficits) to coexist with positive (negative) yield differentials. Consequently, only subsequent movements of yields, along with the other determinants of investment financing, have the potential to alter the path of net capital flows. The mitigation of the Lucas paradox relative to levels today in the rapid convergence scenario thus has two interrelated reasons: first, investment demand in many developing countries is greater, which raises country-specific relative yields and hence capital inflows to finance realized investment; second, realized investment is also greater because developing countries can attract more investment financing as their financial development and institutional quality improve substantially.

15. Under the rapid convergence scenario, high-income countries’ investment falls from 17.3 percent of the group’s GDP in 2010 to 14.9 percent in 2030, compared with 16.4 percent in 2030 under the gradual convergence scenario. The group’s saving rate in 2030 does not differ significantly between the two scenarios, so the difference in the group’s aggregate current account balance is due mainly to this difference in interest rates.

16. Blanchard and Milesi-Ferretti (2010) distinguish between "good imbalances" and "bad imbalances," and provide a summary of how domestic and systemic distortions can give rise to potentially destabilizing imbalances. The main role of national-level policy makers is to address domestic distortions of incentives to save and invest in their economies, whereas there is also a role for international policy coordination in addressing systemic distortions—for example, by improving global liquidity provision.

17. In the LINKAGE model, national saving does depend negatively on the degree of social security protection. Details are given in online annexes 1.5 and 1.6.

18. Advanced economies might reduce current account deficits by increasing public saving and encouraging private saving by avoiding negative real interest rates over extended periods (see, for example, Blanchard and Milesi-Ferretti 2010).

19. Lane and Milesi-Ferretti (2001, 2007), for example, document a transition in the composition of emerging markets’ international balance sheets to a large FDI and portfolio equity component of liabilities, with heavy reserve accumulation on the asset side.

20. At the peak in 2007, global gross capital flows amounted to $1.1 trillion—an amount equivalent to 19 percent of world GDP—up from $0.4 trillion in 1980 and approximately $3.7 trillion in 2000. At the nadir in 2009, total global gross capital flows had dropped to $1.8 trillion.

21. In 2010, for example, among majority foreign-owned banks in developing countries, 34.6 percent (350 banks) had another developing country as the main nationality of ownership, up from 29.3 percent (212 banks) in 2000 (authors’
calculations based on bank shareholder data on banks in Bankscope).

22. Didier, Hevia, and Schmukler (2011) show, however, that the crisis affected economic performance in high-income and developing countries similarly when differences in precrisis growth rates are accounted for, and also that there was wide variation among developing countries, with Eastern European countries among the most affected and low-income countries relatively isolated from the global crisis.

23. For example, Martin and Rey (2004) build a theoretical model with transaction costs in which financial assets are imperfect substitutes and the number of assets is endogenous, which gives rise to a link between market size and integration, and asset returns. Another formal model of how greater integration of financial markets can drive an expansion of capital flows is developed by Evans and Hnatkovska (2005); the model implies a relationship between integration and changes in the composition and volatility of capital flows as well.

24. Lucas (1990) compares international diversification to that predicted by a portfolio model and reviews a range of possible sources of home bias. Kraay et al. (2005) incorporates sovereign risk in such a model to reconcile the predictions of the model to the data. A growing body of literature supports the idea that informational asymmetries are important in explaining capital flows; see, for example, Kang and Stulz (1997); Ahearne, Griever, and Warnock (2004); and Leuz, Lins, and Warnock (2009).

25. The scenarios for outflows are calculated as a residual of the gross inflow and current account projections, rather than being explicitly modeled (as in online annex 3.4), and thus are admittedly less theoretically grounded. Some factors that drive residents’ capital outflows from a country are not taken into account, and these may differ significantly from the factors that drive foreigners’ capital flows into the country and the determinants of current accounts. To the extent that income growth and the development and global integration of financial markets are likely drivers of gross outflows, however, these effects are accounted for by the modeling strategy via their intermediary impact on gross inflows.

26. In addition, the currency makeup of the components themselves may evolve with financial market development. For example, in some larger developing countries, domestic bond market development could lead to more inflows in the form of bonds denominated in domestic currency.

27. Hooper and Kim (2007) estimate the association of various measures of transparency with the three main components of capital inflows to developing countries and find that the relationships vary widely, both by dimension of transparency and by type of inflow, so that, broadly speaking, an increase in transparency over time can be expected to affect the composition of capital flows. For example, an index of competitiveness is found to have a much larger positive association with portfolio flows than with FDI, and a negative association with bank lending; stock market depth similarly has a positive association with portfolio flows and a negative association with bank lending (and, in this case, an association with FDI that is not statistically significant).

28. These shares are based only on the portion of reserves voluntarily identified by central banks to the International Monetary Fund to be denominated in a specific currency. In 2010, the currency of 56 percent of total reserve holdings was identified.

29. These effects may not be additive because liquidity in each of the currencies may not be easily substitutable, particularly during times of financial distress, as experienced during the recent crisis when acute dollar shortage in international markets pushed up the costs of borrowing in foreign currencies and swapping the proceeds into dollars. In particular, the intensive funding pressures experienced by European banks increased the euro-dollar implied swap basis spread.

30. A second source of monetary policy spillover is that, given the importance of the United States in the world economy, spillovers from the United States may influence economic conditions in other countries, such that business cycles become synchronized and corresponding fiscal and monetary policy stances become similar across countries. For instance, a demand shock in the United States may increase both U.S. economic activity and U.S. imports, inducing a rise in interest rates in the United States and abroad.

31. This outcome depends on political commitment in China to move toward full currency convertibility and institutional transparency. An expanded discussion of the conditions necessary for the renminbi to become an international currency is in World Bank (2011).

32. In the context of the present uncertainty surrounding the institutional arrangement of the Euro Area, it should be noted that the extent to
which the euro will be used as an international currency over the next one or two decades depends to some extent on the resolution of inconsistencies between the Euro Area’s monetary and fiscal institutions.

33. East Asian countries had a network of swap lines already in place, part of the legacy of the 1997–98 Asian financial crisis, although the People’s Bank of China created new swap lines and expanded existing ones (Allen and Moessner 2010).

34. The International Monetary Fund, traditionally considered the global lender of last resort for countries facing financial crises, tripled its lending capacity in response to the crisis. Multilateral development banks (MDBs), as well, expanded their volume of lending to client countries. The increase in lending by MDBs was possible following significant capital increases within many of the institutions. In March 2011, the International Bank for Reconstruction and Development’s board of governors approved an $86.2 billion (31 percent) increase in subscribed capital, including $5.1 billion over the next five years. Shareholders of the Asian Development Bank agreed in April 2009 to triple the institution’s capital base, from $55 billion to $165 billion, the largest general capital increase among the major MDBs, including a 4 percent increase of paid-in capital over the next five years. In 2010, the Inter-American Development Bank approved a $70 billion (70 percent) increase in general capital, and the African Development Bank approved a $63 billion (200 percent) increase.

35. At the same time, rapid adjustment of asset prices means that foreign holders of equity absorb much of a negative shock before they can exit, and thus may be less likely to exit in response to the shock. However, investors face high costs of monitoring a fund manager’s medium- to long-run performance, and this can tend to induce a focus on short-term returns and herding behavior (De la Torre, Ize, and Schmukler 2011; World Bank 2012).

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