

Charting a Course Ahead

THE GLOBAL ECONOMY FACES A crisis of staggering proportions that has reduced confidence in the prospects for growth and depressed economic activity almost everywhere in the world. While recent data indicate that the fall in global production and trade may be slowing, prospects remain uncertain and the potential for a further downturn is not negligible. For developing countries, the breadth and severity of the crisis have underscored the risks of globalization. Over the past 15 years, many of those countries had opened to the world, revamping their macroeconomic policies and their framework for private investment. With expanding opportunities for trade and strong inflows of capital, those improvements made possible a long run of rapid economic growth, accompanied in many places by impressive reductions in poverty. Unfortunately, the channels of integration with the world economy have operated in reverse during the current crisis, as a falloff in demand for developing countries' goods and services and reduced access to international capital markets have sparked a sharp decline in growth and in capital flows to developing countries.

This chapter considers how policy makers in developing countries and the international community more generally can chart a course toward a robust recovery that can be sustained over the long term. We first examine the intense pressures on many corporations in developing countries that are facing heavy refinancing needs under very harsh financing conditions. Private capital flows to developing countries are expected to decline sharply in 2009 and fall short of meeting their external financing needs by a wide margin—estimated at between \$352 billion and \$635 billion. This discussion highlights the need to expand

the lending capacity of international financial institutions, an issue that played a prominent role in the G-20 Leaders' Summit in April, 2009. We then consider a few key issues facing policy makers in developing countries, assessing the scope for expansionary policies at the country level, while stressing the importance of international policy coordination and the need to strengthen the international financial regulatory framework.

The main messages that arise from this analysis are as follows:

- *Corporations in developing countries face severe financing difficulties.* Unlike most crises over the past three decades, the impact of the current crisis on developing countries has been transmitted primarily through the corporate sector. As firms' reliance on short-term debt has increased, so has the probability of default, particularly in highly leveraged firms. As refunding pressures are building, sources of finance are drying up. Many private firms will be hard-pressed to service their foreign-currency liabilities with revenues earned in sharply devalued domestic currencies. In addition, the financial positions of some developing-country firms that participated in the global expansion of derivatives have been weakened by huge losses on speculative financial instruments. Corporations in countries with well-developed domestic corporate bond markets are better positioned to weather the crisis, as such markets can provide an alternate source of funds when external debt flows cease suddenly. But where foreign investors play a prominent role, domestic bond markets can also be vulnerable to a sudden shift in external financial conditions.

- *Countries with large external financing needs face balance-of-payments crises.* The current crisis has affected the external financing position of virtually all developing countries, although not equally. Countries that have high levels of external debt, large current-account deficits, and inadequate foreign reserve holdings are more likely to encounter difficulties in obtaining the finance they will need to avoid a more severe contraction in growth. Balance-of-payments crises and corporate debt restructurings are particularly likely in countries where the corporate sector accounts for a large share of external borrowing.
- *Low-income countries lack the resources to respond to the crisis.* Most of the resources of international financial institutions are likely to be allocated to high-income emerging markets and middle-income countries that have the ability to repay the loans they receive. Low-income countries, by contrast, face grave economic prospects, especially if their exports, workers' remittances, and foreign direct investment (FDI) fail to recover quickly from the dramatic deterioration in 2009. The amount of development assistance presently available to these countries is inadequate to meet their projected external financing needs. At the same time, given the intense fiscal pressures resulting from the crisis, donor countries will be hard-pressed to increase aid significantly.
- *The potential for expansionary policies varies significantly among developing countries.* Several governments have adopted emergency legislation aimed at raising expenditures and cutting taxes, while automatic stabilizers such as unemployment insurance and income-related transfers have further boosted fiscal expansion. However, the scope for using such policies has varied significantly across countries. Countries that faced excessive inflationary pressures with little fiscal room and insufficient reserve holdings at the onset of the crisis had few viable policy options. Moreover, countries with large external financing needs may find themselves compelled to suppress demand further in order to meet their external obligations.
- *International policy coordination will play an important role in securing a global recovery.*

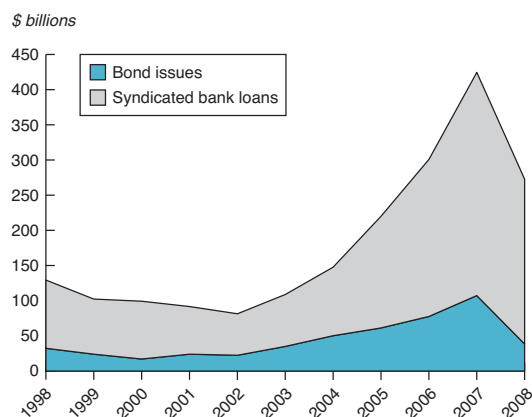
The financial crisis in today's integrated global economy has underlined the importance of coordinating policy so that measures taken in one country do not defeat those taken in another. The economic channels through which nations trade goods and services also serve to propagate the crisis if countries severely restrict imports. A clear danger to coordinated recovery is the politically tempting tactic of protectionism, either in its classic expression (selective trade barriers) or in proposed measures to restrict stimulus spending to domestically produced goods and services.

- *Fault lines in the international financial regulatory framework are in need of major repair.* The main driver of this crisis—excessive risk taking in the financial system—underlines the importance of tighter and more comprehensive supervision and regulation. In a world of global financial institutions, effective control over the financial system can be achieved only through coordinated efforts, because lax regulation in one jurisdiction makes it more difficult for other jurisdictions to enforce more stringent standards. National regulators have privileged access to information on financial institutions operating within their borders. For that reason, they should retain primary responsibility for supervision. But greater international cooperation in sharing information and establishing broad standards for regulation is needed to make national regulators more effective.

Corporations in developing countries face severe financing difficulties

Unlike many other emerging market crises over the past three decades, the impact of the present crisis on developing countries has been transmitted primarily through the corporate sector. Corporate borrowing expanded rapidly during the recent boom in capital flows. External bond issuance and bank borrowing by corporations in developing countries rose from \$81 billion in 2002 to \$423 billion in 2007, before falling last year to \$271 billion as global financial turmoil increased (figure 3.1). Corporations account for the bulk of developing countries' short-term debt (debt with an original maturity of one year or less), which

Figure 3.1 Gross external borrowing by developing country corporations, 1998–2008



Source: Dealogic DCM Analytics and Loan Analytics.

rose to almost 25 percent of total external debt in 2007, compared with just 12 percent in the late 1980s. Corporations' share of total medium- and long-term external debt held by developing countries also reached about 50 percent in 2008, up from only 5 percent in 1989.¹

Developing countries in all regions participated in the boom in corporate borrowing from external sources (table 3.1). However, Europe and Central Asia accounted for the largest share of the increase, as corporate borrowing shot from \$19 billion in 2002 to \$197 billion in 2007. South Asia and Sub-Saharan Africa registered the largest percentage increases in corporate borrowing from 2002 to 2007, given that borrowing was minimal prior to the boom. By the standards of these regions, the rise in corporate borrowing in Latin America and the Caribbean and in East Asia and the Pacific was relatively modest. All regions, except the Middle East and North Africa, participated in the 2008 drop in corporate borrowing. Interestingly, despite the presumably higher risk of private versus public sector corporations, the public sector accounted for a larger percentage decline in corporate borrowing; the public sector's share of external corporate borrowing fell from 30 percent in 2007 to 25 percent in 2008.

Refunding pressures are building, as corporate debt falling due in the first half of this year is estimated at \$17 billion per month, well above the

Table 3.1 Foreign debt contracted by developing-country corporations, 1998–2008 (billions of dollars)

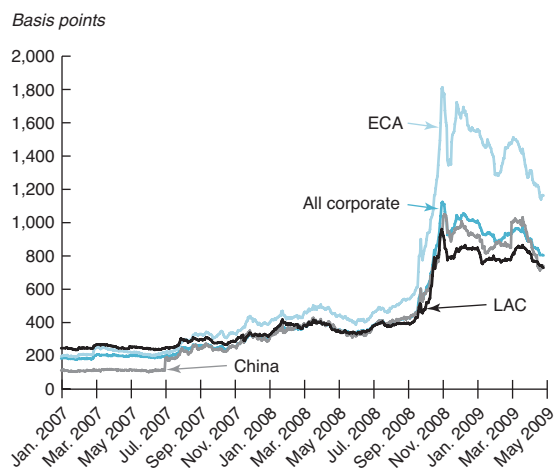
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Total	107.3	86.9	99.2	91.7	81.5	108.6	147.4	219.9	300.6	423.3	271.2
By instrument											
Bond	32.2	23.9	17.3	23.9	22.6	35.2	50.2	61.4	77.7	107.3	38.5
Bank lending	75.1	63.0	81.9	67.8	59.0	73.4	97.2	158.4	222.9	315.9	232.8
By Region											
LAC	63.4	49.4	57.2	57.1	25.5	38.5	45.6	54.3	88.9	97.1	48.5
EAP	16.2	12.6	12.7	9.6	23.7	21.3	24.7	36.1	42.7	54.2	40.3
ECA	16.5	12.9	18.0	12.8	19.2	30.9	52.6	95.7	122.5	196.9	136.6
SSA	5.2	5.6	6.2	7.4	7.5	8.4	8.6	12.6	20.6	33.5	9.7
MENA	1.7	3.3	2.3	2.6	3.9	6.4	7.5	10.1	6.1	5.6	15.1
SAR	4.3	3.1	2.8	2.3	1.8	3.1	8.5	11.1	19.9	35.9	21.0
By ownership											
Public	38.0	23.5	22.9	26.4	23.9	33.9	43.8	82.4	80.8	126.2	67.3
Private	69.3	63.5	76.3	65.3	57.6	74.7	103.6	137.5	219.8	297.1	203.9
By sector											
Finance	29.4	20.9	23.7	20.5	14.7	24.5	40.2	64.1	92.2	98.2	56.4
Oil & Gas	21.4	13.3	19.8	21.7	23.5	28.2	29.4	61.5	46.2	99.1	60.1
Telecommunications	16.8	14.4	15.5	11.7	9.1	7.6	17.3	19.8	35.3	45.4	19.3
Utility & Energy	13.8	15.2	15.5	10.6	8.0	14.4	7.5	9.5	13.2	24.2	28.1
Metal & Steel	2.9	1.2	2.5	1.6	1.1	3.4	6.6	8.4	12.8	20.0	25.0
Mining	3.9	3.1	2.2	3.0	3.6	4.3	8.4	6.4	30.8	24.6	17.2
Construction/Building	1.8	1.8	4.1	3.5	1.2	1.5	4.2	8.7	14.9	30.9	11.3
Other	17.3	17.0	15.9	19.2	20.4	24.8	33.8	41.4	55.2	80.9	53.9

Source: World Bank staff estimates based on Dealogic Loanware and Bondware.

recent levels of issuance (IIF 2009). Simultaneously, sources of finance are drying up. For example, the hedge funds that made a major contribution to the expansion of the Asian corporate sector in recent years are now attempting to sell their largely illiquid assets (IMF 2009c). In Sub-Saharan Africa, trade finance volumes have declined (in part because of lower demand), while spreads on trade finance transactions have increased from 100–150 basis points over LIBOR to 400 basis points.

At the same time, firms' cost of capital has risen substantially. The global recession cut sharply into the revenues of developing-country firms, raising the risk of corporate debt default, while investors' tolerance for risk waned. Taken together, these factors have raised the cost of capital dramatically, especially for less creditworthy borrowers. Spreads on emerging market corporate bonds, which averaged about 200 basis points in 2007, jumped to more than 1,000 basis points by end-October 2008 (figure 3.2),² though they have since declined to below 800 basis points. Corporate bond spreads widened dramatically in mature and emerging markets alike, including China and others in relatively strong positions to withstand the financial repercussions of the crisis. At the same time, the crisis has led to greater differentiation among developing countries, with firms in Europe and Central Asia experiencing much greater increases in spreads than firms in other emerging markets.

Figure 3.2 Spreads on emerging market corporate bonds, February 2007–April 2009



Source: JP Morgan (CEMBI-Global).

These pressures have been exacerbated by huge losses on speculative financial instruments. Many developing-country firms participated in the global expansion of derivatives. In India, for example, the stock market boom was accompanied by futures trading that was at least six times the turnover in spot markets (Sen 2008). Exchanges in developing countries, including Brazil, India, Malaysia, and Mexico, were among the top 10 derivatives exchanges in terms of the number of contracts traded (Basu and Mukhopadhyay 2006). The average daily turnover in over-the-counter derivatives in developing countries increased from \$27 billion in 2001 to \$99 billion in 2007, or to about 2 percent of the global market (Saxena and Villar 2008).

Most of these instruments were designed to hedge foreign exchange risk in response to several factors: (a) higher demand from firms and households, as rising wealth increased their holdings of foreign assets; (b) the increased exchange rate volatility of more open economies; (c) the more prominent role played by foreign investors; and (d) the experience of the late-1990s crises, when firms and households suffered from large exchange-rate exposure. Many emerging market exporters sought protection against gradual currency appreciation by writing options on their foreign exchange earnings.

“Carry trades” were a common speculative vehicle, with an estimated volume of between \$200 billion and \$1 trillion in recent years (BIS 2008).³ These trades kept high-yielding currencies rates (such as the Indonesian rupee, Mexican peso, South African rand, and Brazilian real) at relatively high appreciated levels. However, sudden withdrawals from the affected countries, as investors sought safe havens in U.S. Treasury securities, led to rapid depreciations. Estimates of recent losses by emerging market corporations from their foreign exchange positions exceed \$40 billion, with perhaps the largest losses in Brazil (where some 200 firms incurred losses of an estimated \$28 billion, according to Marques and Moutinho 2008), Poland (where authorities estimate total losses at \$5 billion), and the Republic of Korea (where the government had spent \$1.3 billion by January 2009 to stave off bankruptcies of firms with derivative losses). Several commercial banks—for example, Hana Bank (Republic of Korea), Bank Millennium (Poland), Banorte (Mexico), and the government-owned development bank BNDES (Brazil)—also chalked up substantial credit losses as a result of corporate

bankruptcies. The unwinding of these speculative positions, in turn, accentuated the fall in emerging market currencies (for example, in Mexico, according to Nanto 2009), despite cuts in high-income official rates that increased short-term interest differentials in favor of emerging markets.

The case of Korea illustrates the risks of assuming cheap foreign-currency financing. The won/yen exchange rate has been very stable over the past decade, in part because of policy support. Thus firms could generate large profits by borrowing in yen at low interest rates (including issuance of Samurai bonds) and using the proceeds to invest in higher-yielding won-denominated instruments. Moreover, firms reduced the funding costs by assuming so-called KIKO (“kick-in, kick-out”) options offered by banks as part of structured products, whereby funding was subsidized in return for the firm writing a put option with unlimited payout in case of a currency depreciation. The firms’ rationale for making this bet was that their export receipts would rise in step with any depreciation of the won, enabling them to cover the put option. In turn, banks used these options to cover the protection that they had offered to carry-trade investors. However, the financial crisis simultaneously cut firms’ export revenues (as global demand plummeted) and put the won under pressure (because of the flight to quality). As a result, the firms suffered massive losses through these derivative trades (for example, Daewoo reported \$1.7 billion in losses from foreign currency derivatives trades in 2008), and the banks then suffered losses when firms could not repay their loans. Eventually a portion of the banks’ losses were covered by the government.

The case of Poland illustrates the fallacy of projecting stable exchange rates for EU countries that are expected to adopt the euro. Authorities estimate that 80 percent of nonfinancial firms took on substantial currency exposure through derivative trades, although with a rapid global recovery the resulting losses may eventually be offset by stronger export revenues. For the time being, however, Polish banks have experienced rising nonperforming corporate loans. In addition, about 60 percent of the mortgages issued by Polish banks were denominated in Swiss francs, and the franc has appreciated by 40 percent against the zloty since October 2008. The Polish Financial Supervision Commission estimated that as of February 2009 corporations had lost \$5.5 billion from currency derivatives.

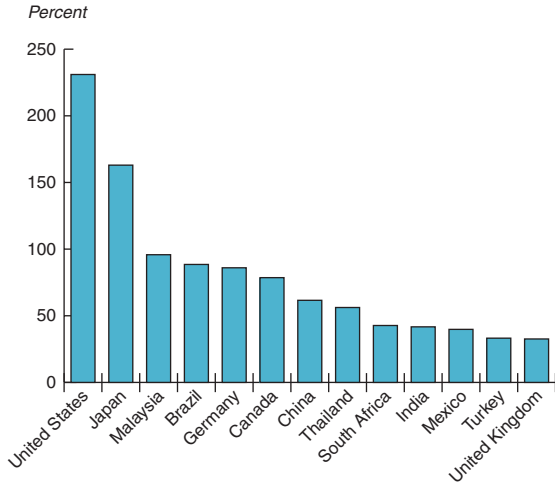
Authorities in some countries have already taken steps to rein in such speculative trades. Some are tightening suitability rules, whereby banks must certify that nonfinancial participants in foreign exchange derivative markets can hedge only their net currency positions. Market participants have also started litigation against banks that offered structured products with an unlimited downside (such as KIKO products in Korea), and several cases are pending in court, creating legal uncertainty as to the enforceability of exotic derivatives contracts. Industry groups are advocating stronger efforts to develop local-currency bond markets to alleviate the pressure to seek foreign financing. Policy makers have stepped up calls for improved surveillance of systemic risks, where the derivatives exposures of corporations will require better monitoring and containment of the very large flows moving through carry trades, as well as the substantial leverage that characterizes such transactions.

Domestic bond markets have helped cushion the impact of the crisis in a few countries

Domestic bond markets have become an important alternate source of funds in major emerging market economies. The dollar value of the outstanding local-currency bonds in 20 developing countries jumped from \$2.9 trillion in 2005 to \$5.5 trillion by end-June 2008, or to 9 percent of global bond issuance.⁴ Reliance on local currency bond markets can help limit mismatches of currencies and maturities in countries affected by the crisis, thus contributing to financial stability. However, just eight countries—Brazil, China, India, Malaysia, Mexico, South Africa, Thailand, and Turkey—accounted for almost 90 percent of local-currency bonds outstanding in June 2008. Relative to the size of these economies, local-currency bond markets have grown to levels comparable to some of the financial centers of the high-income economies (figure 3.3).

Domestic institutional investors (pension funds, insurance companies, and mutual funds) have been the primary investor base. In some countries (Malaysia and Thailand), domestic bond markets have also attracted retail investors looking for relatively safe instruments with higher yields than bank deposits. The assets managed by domestic institutional investors have grown substantially because of several factors—chief among them are high savings rates (particularly in several East Asian

Figure 3.3 Largest local-currency bond markets, 2007 (percent of GDP)

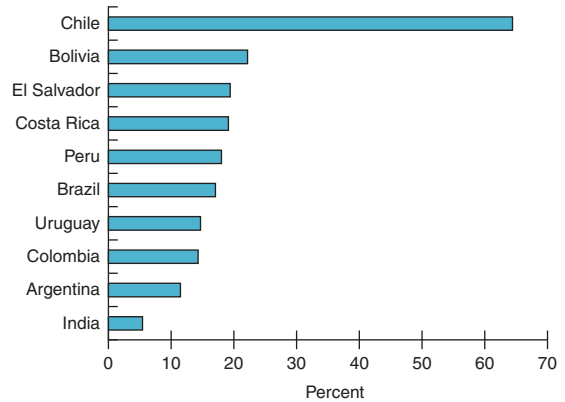


Sources: BIS and World Bank staff calculations.

countries), pension reforms (Brazil, Chile, Mexico, and Thailand), rapid growth of the insurance industry (China and Thailand), and the expansion of collective-investment schemes, such as mutual funds, in most major emerging markets. Pension funds and insurance companies have long-term liabilities that are best funded by high-quality debt instruments such as long-term government bonds. The volume of pension-fund assets is already significant in many Latin American countries (figure 3.4), and there is potential for substantial growth in such assets in countries such as China, India, Russia, and Thailand. That growth will help develop domestic bond markets in those countries.

Corporations in countries with a well-developed domestic corporate bond market are better positioned to weather the current crisis, especially if they face heavy refinancing needs. In 2008 corporate (financial and nonfinancial) bonds accounted for 29 percent of the total domestic bond market in the 20 developing countries, up from 25 percent in 2007, indicating that the domestic bond market has become an increasingly important source of funding for corporations. There is, however, wide variation across countries. Corporate bonds accounted for more than a third of the total domestic bond market in six countries but were negligible in nine other countries. In the case of Malaysia, the value of outstanding corporate bonds issued in the domestic market (\$168 billion in 2008) exceeds the value of

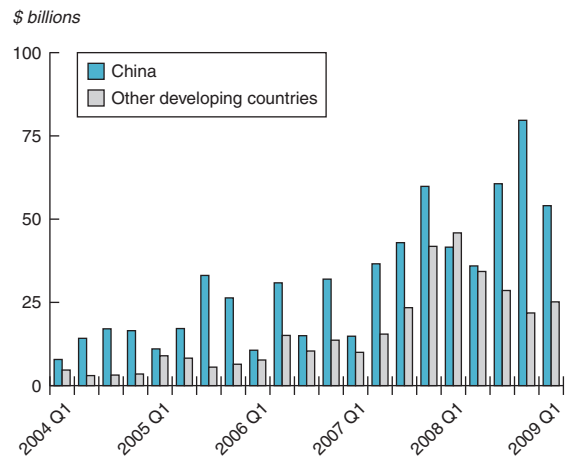
Figure 3.4 Pension assets in selected countries as a share of GDP, 2007



Source: OECD Private Pension Outlook 2008.

government bonds (\$110 billion) and the nation's external debt (\$66 billion) by a wide margin. China dominates domestic corporate bond issuance in the 20 developing countries, accounting for two-thirds of the total amount issued over the past five years (figure 3.5). Domestic bond issuance by Chinese corporations reached a record high of \$80 billion in 2008Q4 amid all the turbulence in international financial markets. By contrast, the volume of issuance by corporations in domestic bond markets of other developing countries declined from record highs reached in early 2008. The difference partly reflects large movements in exchange rates. Currencies

Figure 3.5 Corporate bond issuance in domestic markets, 2004Q1–2009Q1



Source: Dealogic Analytics.

in many of the developing countries with active corporate domestic bond markets (Brazil, India, and Mexico, in particular) depreciated by more than 30 percent against the dollar in 2008, while the Chinese renminbi appreciated by 5 percent.

The deep domestic market for corporate bonds in countries like Brazil, China, Malaysia, Mexico, South Africa, and Thailand will help to attenuate the impact of the crisis. The development of a domestic market for corporate bonds in other countries is limited by several factors, including the small size of corporate bond issues, the lack of a market-based yield curve, incomplete disclosure of

accounting information, the small base of domestic investors, and weak corporate governance.

Despite their clear value in expanding the range of options available for governments and corporations to meet their financing needs, domestic bond markets can be vulnerable to a sudden shift in external financial conditions in cases where foreign investors play a prominent role in the market (similar issues are raised with the large foreign bank participation in many emerging markets—box 3.1). Foreign investors account for only about 10 percent of the amount outstanding of bonds issued in the domestic markets of the

Box 3.1 Foreign bank participation and the financial crisis^a

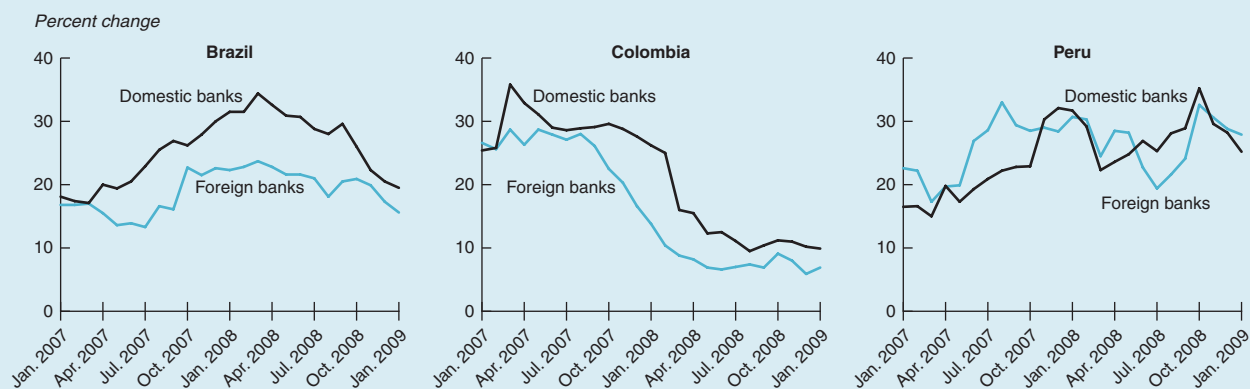
Foreign participation is a concern in the domestic banking sector of some developing countries, as foreign affiliates may tend to cut off credit when their parent banks suffer an adverse liquidity shock (Cull and Martinez Peria 2007). The host country in such cases stands to suffer a larger credit contraction than if banks were predominantly owned by domestic investors. Although it is far too soon to come to a reliable conclusion on the impact of foreign bank ownership on developing countries' experience during the financial crisis, preliminary evidence does not support the view that foreign banks' subsidiaries bear an inordinate responsibility for observed contractions in domestic credit.

Evidence gathered for three Latin American countries in which foreign banks have a prominent role suggests that foreign bank subsidiaries and domestic banks responded

similarly to the global financial crisis. Foreign banks accounted for 23 percent of total bank lending during 2006–08 in Brazil, 24 percent in Colombia, and 50 percent in Peru. In Brazil, the slowdown in domestic credit creation was modest, and credit creation by domestic banks shrank more from the peak than that of foreign banks (see box figure). In Colombia, the rate of growth in bank lending has been decelerating since 2007, but there is no evidence of a sharper decline in the wake of the financial crisis—if anything, domestic banks reduced credit creation more than did foreign banks. In Peru, the pace of lending by domestic and foreign banks has remained roughly stable since early 2008.

a. For a detailed discussion of this issue see chapter 3 in World Bank (2008).

Real credit growth by ownership of banks

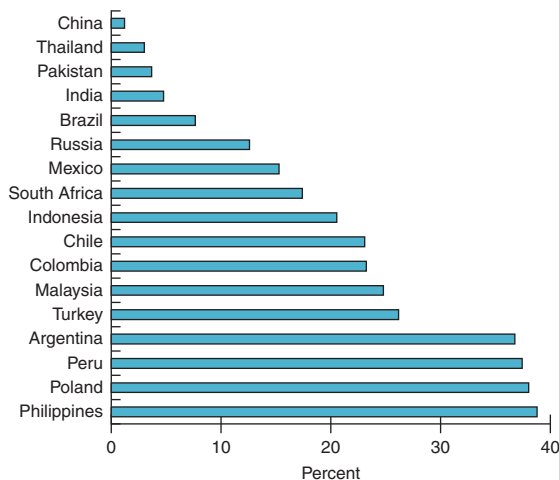


Source: World Bank staff estimates based on data from national authorities.

Note: This figure plots the yearly month-to-month growth rate of total by domestic (private) and foreign banks, measured at fixed January 2006 local currency prices.

Figure 3.6 Foreign holdings of domestic bonds, 2007

Share of total



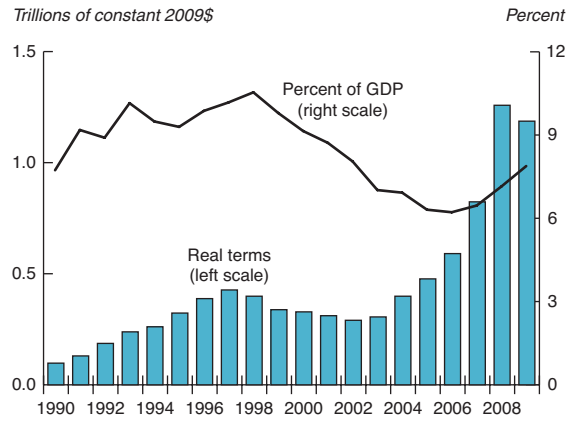
Sources: IMF; BIS; World Bank staff calculations.

20 developing countries for which BIS data are available. However, foreign participation varies widely from country to country. In 2007, foreign investors held more than one-third of the amount outstanding of domestic bonds in Argentina, Peru, Poland, and the Philippines, but less than 5 percent in China, Thailand, Pakistan, and India (figure 3.6).

Countries with large financing needs face balance-of-payments crises

The projected sharp decline in private capital flows follows a long period of increase in developing countries' reliance on external finance. Most countries will require significant capital inflows to meet their external financial needs, defined as the external funds required to finance current-account deficits and make scheduled payments on private debt coming due this year. In 97 of 108 developing countries for which data are available,⁵ the total financing needs in 2009 are estimated to be \$1 trillion, \$600 billion higher than in 2003 in constant 2009 prices (figure 3.7). Strong growth during 2004–06 enabled developing countries' financing needs to decline as a share of GDP, even as the dollar amount rose. However, in the past two years, financing needs have continued

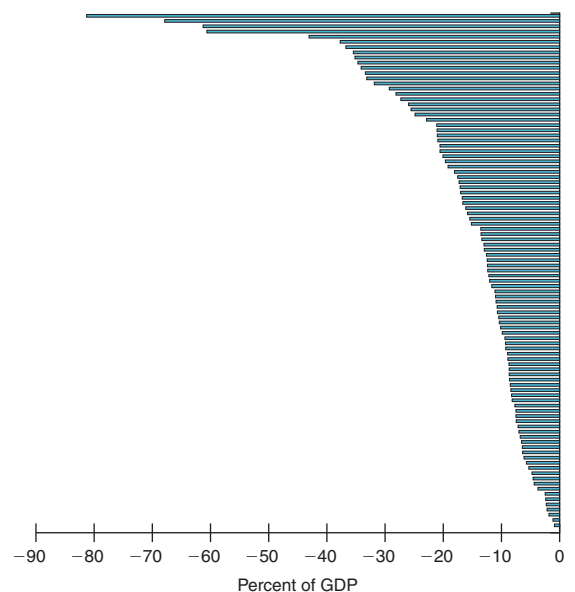
Figure 3.7 External financing needs of developing countries, 1990–2009



Source: World Bank staff estimates.

to expand, while growth is now slowing. The present ratio of financing needs to GDP for the 97 countries is estimated at 7.8 percent, up from 6.2 percent in 2006. External financing needs in 25 of the 98 countries are expected to exceed 20 percent of their GDP (figure 3.8). Overall, external financing needs are projected to decline slightly in constant dollar terms in 2010–11, as developing

Figure 3.8 Estimated external financing needs of 102 developing countries in 2009

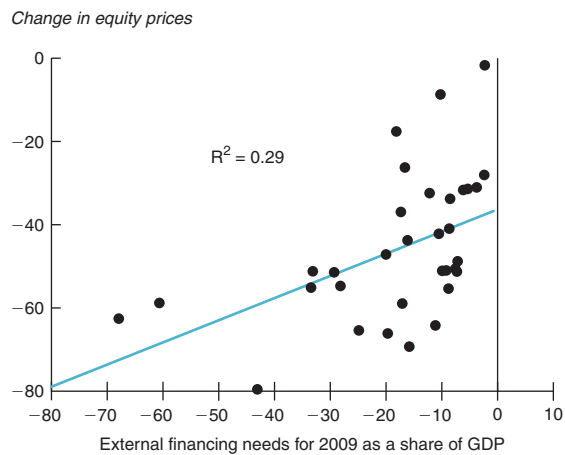


Source: World Bank staff estimates.

countries reduce their current-account deficits and their reliance on short-term debt. Given the anticipated recovery in output, this projection implies that by 2011 external financing needs will fall back to 2006 levels as a share of GDP.

The crisis has had a larger impact on countries with heavy external financing needs
Equity price declines have been larger in countries with heavy external financing (figure 3.9), especially in emerging Europe and Central Asia and other areas where financing gaps loom large. Between August 2008 and February 2009, equity prices (measured in U.S. dollars) fell by around 65 percent in Bulgaria and Latvia, where external financing needs for 2009 are estimated at more than 65 percent of GDP. By contrast, the relationship between equity prices and financing needs is less apparent for countries whose external financing needs are more moderate (less than 20 percent of GDP). Countries that will need a large amount of external financing in 2009 also experienced larger average depreciations in exchange rates in late 2008 (figure 3.10). By contrast, the correlation between external financing needs and the rise in sovereign bond spreads is quite weak (figure 3.11). This illustrates that the financing needs are concentrated in the corporate sector. Sovereign spreads widened the most in countries with impending fiscal pressures or uncertain political situations. For example, sovereign bond spreads

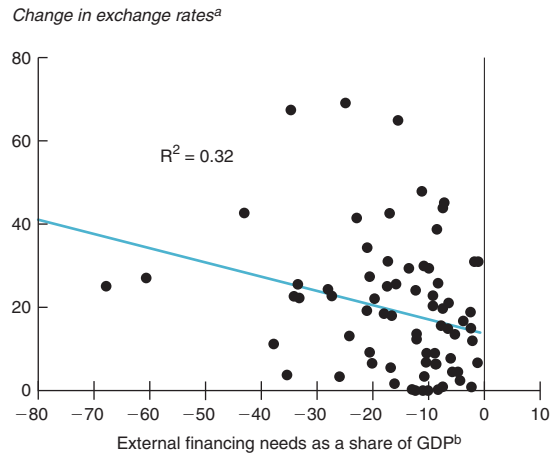
Figure 3.9 Equity price changes versus external financing needs of developing countries, August 2008–February 2009



Sources: MSCI Barra and World Bank staff estimates.

Figure 3.10 Exchange-rate changes and external financing needs in developing countries, August 2008–February 2009

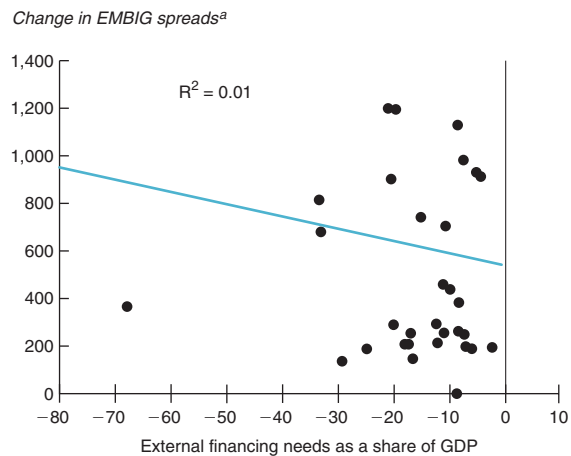
Percentage change in exchange rate against U.S. dollar for period



Sources: Datastream and World Bank staff estimates.

Note: a. Percent change in \$ nominal exchange rates between August 2008 and February 2009; increase reflects depreciation
b. Current account balance projected for 2009 and principal repayments on private debt coming due as a ratio to GDP.

Figure 3.11 Change in sovereign bond spreads and external financing needs of developing countries, August 2008–February 2009



Sources: Datastream and World Bank staff estimates.

Note: a. Change (bps) in EMBIG spread between August 2008 and February 2009.

widened by more than 1,000 basis points in Ecuador, Pakistan, Sri Lanka, and República Bolivariana de Venezuela, where external financing needs are estimated at less than 15 percent of GDP.

Table 3.2 Estimates of developing countries' external financing needs in 2009

\$ billions

	Countries with financing needs	Countries with financing gaps	Countries with no financing gaps
Number of countries	98	59	39
External private debt:	3134	2760	374
Short-term	611	535	76
Medium & long term	2524	2226	298
External financing needs:	-1066	-959	-107
Current account	-224	-217	-7
Principal repayments on private debt	842	742	100
Short-term	611	535	76
Medium & long term	231	207	24
Private sources of external financing:	764	607	157
Net equity flows	169	90	79
Disbursements of private debt	786	691	95
Short-term	562	492	70
Medium & long term	224	199	25
Unidentified outflows	-191	-173	-17
Estimated financing gap:		-352	—

Source: World Bank Debtor Reporting System (DRS) and staff estimates.

Note: n.a. = not applicable.

Many countries will find it very difficult to meet their external financing needs from private sources of capital

Our estimates indicate that equity flows and new disbursements of private debt will not meet external financing needs for 59 of the 98 countries that have such needs, leaving a total financing gap (external finance required after accounting for new loans and investments from private sources) of \$352 billion (column two of table 3.2). The 59 countries with a financing gap have financing needs of \$0.9 trillion, more than half of which is short-term debt (\$535 billion). These 59 countries are projected to receive the bulk of private sources of external financing in 2009 (\$607 billion of the \$764 billion going to all 98 countries), most of which will take the form of new disbursements of short-term debt (\$492 billion). This calculation depends critically on assumptions concerning the rollover rate on private debt coming due (disbursements divided by principal repayments), net equity flows, and unidentified capital outflows. The assumptions underlying the projection are outlined in box 3.2.

We illustrate the sensitivity of our projections to these assumptions by comparing the base- and low-case scenarios outlined in box 3.2. The number of countries with external financing gaps increases

from 59 to 69 in the low-case scenario (table 3.3). The 10 additional countries with external financing gaps in the low case have external financing needs of just \$47 billion. However, net private capital flows to the 69 countries is much lower compared with the base case. According to these estimates, capital flows from private sources will fall short of meeting developing countries' financing needs in 2009 by between \$352 billion to \$635 billion.

Table 3.3 Estimated external financing gap in developing countries, 2009

\$ billions

	Base case	Low case
Number of countries with ext. fin. gaps:	59	69
External financing needs: ^a	-959	-1,005
Private capital flows	607	371
Equity flows ^b	90	70
Principal repayments on private debt	691	520
Short-term	492	380
Long-term	199	141
Unidentified outflows	-173	-219
External financing gap:	-352	-635

Source: World Bank Debtor Reporting System (DRS) and staff estimates.

Note:

a. Current account balances - principal repayments due on private debt.

b. FDI and portfolio equity inflows less outflows.

Box 3.2 Methodology used to estimate external financing gaps

The purpose of this exercise is to estimate the extent to which capital flows from private sources will meet developing countries' external financing needs in 2009. We first estimate developing countries' external financing needs, defined as the current-account deficit (as projected in chapter 1) plus scheduled principal payments on private debt (based on information in the World Bank's Debtor Reporting System). We compare this estimate to a projection of private capital flows, which includes new loans on private debt, net equity flows, and net unidentified capital outflows. The difference between the estimated financing needs and projected private capital flows is the financing gap, which is reported in table 3.2. Projections of private capital flows in 2009 are discussed in chapter 2.

New loans on private debt. Net private debt flows are projected to decline from \$108.5 billion in 2008 to between –\$56 billion and –\$300 billion in the base- and low-case scenarios. Countries with financing gaps are expected to have more difficulty rolling over their debt than those without financing gaps (countries where financing needs are met by net private capital flows). Moreover, we also assume that private creditors will be more willing to refinance sovereign debt and private debt that is publicly guaranteed. Rollover rates (disbursements of new loans/principal repayments maturing in 2009) underlying the projection are reported in the table below.

Net equity flows are projected to decline from \$339 billion in 2008 to between \$303 billion and \$227 billion in the base- and low-case scenarios. These figures include both inflows and outflows of net foreign direct investment and portfolio equity flows.

Unidentified capital outflows. A definition of and historical data for “unidentified capital outflows” are provided in chapter 2. Briefly, this is a balancing item that is equal to the difference between the current-account deficit and all identified capital-account transactions, on the one hand, and the change in reserves, on the other. A portion of this balancing item represents private capital transactions that are not reported to the authorities. Another portion represents inconsistencies within the balance-of-payments reporting system. The magnitude of unidentified capital outflows is expected to decline substantially in 2009 as residents of developing countries drawdown foreign assets held abroad. For example, residents of developing countries reduced their deposits at BIS-reporting banks abroad by over \$300 billion (18 percent) over the course of 2008. Many transactions of this nature are not fully recorded. We assume that unidentified capital outflows fall from \$658 billion in 2008 to \$281 billion in the base case scenario and \$340 billion in the low case.

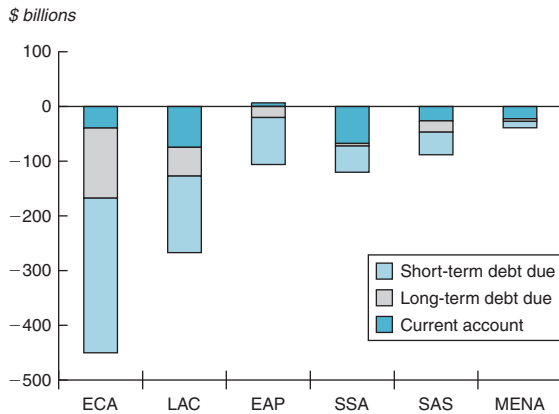
Rollover rates on private debt coming due

Percent

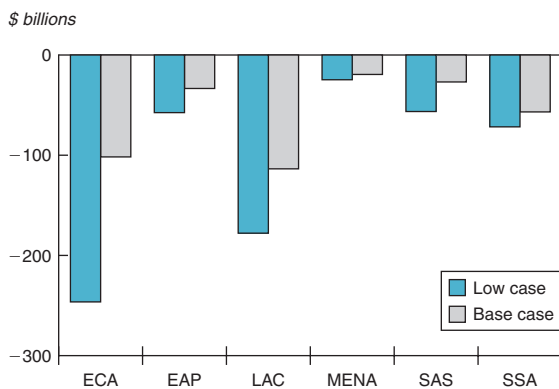
	Base case		Low case	
	Countries with financing gaps	Countries without financing gaps	Countries with financing gaps	Countries without financing gaps
Short-term	92	100	65	100
Medium & long term				
Public and publicly guaranteed (PPG)	129	150	85	100
Private non-guaranteed (PNG)	86	100	55	70

The underlying nature of financing needs varies widely across regions. In Sub-Saharan Africa, current-account deficits are the major item requiring external financing, while in the other regions principal repayments (on short-term debt in particular) account for the bulk of financing needs (figure 3.12). The estimated financing gaps in regions with high volumes of short-term debt coming due (notably Europe and Central Asia and Latin America) are quite sensitive to the different rollover rates assumed in

the two scenarios (figure 3.13). The estimated financing gap for emerging Europe and Central Asia varies by \$145 billion from the base- to low-case scenarios, compared with a variation of just \$15 billion for Sub-Saharan Africa. A similar result holds when the estimated financing gap is broken down by income classification. The estimated financing gap for the upper-middle-income countries varies by \$192 billion, compared with just \$11 billion for low-income countries.

Figure 3.12 External financing needs in 2009, by region


Source: World Bank staff estimates.

Figure 3.13 External financing gaps in 2009, by region and under alternative scenarios


Source: World Bank staff estimates.

Reserves are unlikely to be sufficient to meet financing gaps

Some countries will be able to rely on reserves built up over the past few years to help meet their external financing gap. However, many countries

already have drawn down their reserves significantly, as described later in this chapter. Remaining reserves fall short of the estimated external financing gap for 2009 in 9 countries in the base-case scenario and 13 countries in the low case. Further reductions of reserves in those and other countries could increase the risk of interruptions in international payments.

Financing from official sources is limited

Our estimates of the financing gap do not take into account capital flows from official sources, since the aim of the exercise is to gauge how much financing from official sources would be required to meet countries' external financing needs after taking into account projections of financing from private sources.

Most low-income countries depend heavily on official sources to meet their external financing needs. Our projections indicate that net private capital flows will be insufficient to meet the external financing needs of 30 of the 40 low-income countries for which data are available. If official capital flows to those 30 countries were to remain at the average levels observed in 2007–08, they would cover the entire external financing gap in just two of the 30 countries in the base-case scenario and not a single country in the low case.

Thus many countries will need substantially more official finance to close their financing gap, and the official community is responding. In response to the crisis, net official lending jumped to \$20.4 billion in 2008 (including assistance from the International Monetary Fund, IMF) after five years in which repayments exceeded disbursements (table 3.4). Net lending by official creditors was negative over the past five years because improved financial conditions in developing countries had reduced demand for multilateral lending and facilitated repayments (and prepayments) to the Paris

Table 3.4 Net official flows, 2002–08

	2002	2003	2004	2005	2006	2007	2008 ^e
World Bank	-0.3	-0.5	1.6	2.8	-0.4	4.9	7.1
IMF	14.1	2.5	-14.7	-40.1	-26.7	-5.1	10.9
Other official	-8.7	-13.3	-12.8	-34.0	-43.8	0.2	2.4
Total	5.1	-11.3	-25.9	-71.3	-70.9	0.0	20.4

Source: World Bank Debtor Reporting System; IMF.

Note: e = estimate.

Club. The drop in lending also reflected the growing importance of grants from the International Development Association (IDA), which is not included in the net lending data.⁶ Amortization payments to official creditors (including the IMF) fell from \$130 billion in 2006 to \$55 billion in 2008, while purchases from the IMF jumped to \$14 billion (compared with \$2 billion in 2007 and \$4 billion in 2006). Three-quarters of the purchases came in the fourth quarter in response to the slump in economic activity and the freezing of credit in industrial countries. Developing countries entering into standby arrangements with the IMF in the fourth quarter of 2008 included Hungary (\$15.7 billion), Latvia (\$2.4 billion), Pakistan (\$7.6 billion), Seychelles (\$26 million), and Ukraine (\$16.4 billion). In March 2009, Romania negotiated a \$17.5 billion package from the IMF.

The IMF has overhauled its lending framework, creating a new flexible credit line and doubling access limits for all borrowers. Mexico became the first country to access the new flexible credit line with a \$47 billion precautionary arrangement approved in April 2009. Poland and Colombia have also arranged precautionary credit lines of \$20.5 billion and \$10.4 billion, respectively.

The international community has taken major steps to enhance the lending capacity of the IMF. In April 2009 the G-20 leaders endorsed an expansion of the IMF's lending capacity from \$250 billion to \$750 billion (initially to be financed through

bilateral loans from member countries and later through an expanded and more flexible scheme known as New Arrangements to Borrow), along with an allocation to members of special drawing rights (SDR) equivalent to \$250 billion and urgent ratification of the Fourth Amendment, which would result in an additional SDR allocation of \$34 billion to some members. These SDR measures, if implemented, would enable member countries to draw on their share of the total \$284 billion. Furthermore, the G-20 leaders also pledged to provide resources to finance \$250 billion in trade through 2011.

Since September 2008, multilateral development banks (MDBs, listed in table 3.5) have acted to lessen the impact of the global liquidity crisis on developing countries, especially low-income countries. As of April 2009, the MDBs had collectively committed \$88 billion in funding to developing countries to deal with the fallout from the global financial crisis (table 3.5). The commitments cover a broad range of areas, including development policy loans, trade finance, political insurance, and equity investment funds for bank restructuring in emerging market countries. A substantial portion of the total (or \$73 billion) came in the form of development policy loans aimed at providing liquidity support to emerging market countries. While the total support for trade finance was just \$13 billion, the impact of the resources committed is expected to be much greater. For example, the

Table 3.5 Multilateral development banks' planned 2009–11 financial response to the crisis, as of April 2009

\$ billions

Name of institution	Lending	Equity investment	Trade finance		Political risk insurance	Total
			Guarantee	Liquidity facility		
Asian Development Bank	5.7		0.9			6.6
African Development Bank				1.0		1.0
European Bank for Reconstruction and Development	1.4		1.0			2.4
Inter-American Development Bank	6.0		1.0	6.0		13.0
World Bank Group	60.0	1.0	2.0	1.0	1.0	65.0
IBRD	60.0					60.0
IFC		1.0	2.0	1.0		4.0
MIGA					1.0	1.0
Total MDBs	73.1	1.0	4.9	8.0	1.0	88.0

Sources: World Bank staff estimates based on several sources, including MDBs' press releases.

Note: The amount in this table represents announced increases over the pre-crisis level, and does not include the multiplier or leveraging effects of such new initiatives.

Box 3.3 The response of international financial institutions to the trade finance contraction following the crisis

The World Bank Group responded to alleviate the impact on developing countries of the sudden evaporation of trade finance following the bankruptcy of Lehman Brothers in September 2008. That response, like those of other international financial institutions (IFIs), has been aimed at the global level as well as the country level. At the global level, the IFIs worked closely with the World Trade Organization to address finance issues. The World Bank Group, acting through the International Finance Corporation (IFC), doubled the Global Trade Finance Program (GTFP)^a from \$1.5 billion to \$3 billion. Under the GTFP, IFC guarantees a percentage of the exposure that international banks incur when they confirm letters of credit, book acceptances, or purchase trade-related notes issued or guaranteed by local banks. The liquidity crisis of 2008 has dramatically increased the demand for IFC's facility, as actors in major emerging markets find it increasingly difficult to obtain trade finance from traditional banking sources.

Up to now, IFC has focused on providing guarantees to participating banks (issuing and confirming). However,

in collaboration with other multilateral development banks, bilateral organizations, export credit agencies, and several large banks, in March 2009, IFC created a Global Trade Liquidity Program (GTLP) of up to \$5 billion to meet participating banks' growing demand for liquidity. The GTLP is estimated to be able to support around \$48 billion of developing-country trade over three years.

In addition to IFC, the European Bank for Reconstruction and Development, the Asian Development Bank, and the Inter-American Development Bank have been active in trade facilitation efforts. The EBRD program began in 1999; ADB's was launched in 2003. In addition to providing guarantees to banks, the EBRD extends to banks short-term loans that are on-lent to local companies to provide the working capital necessary to fulfill foreign trade contracts. During this crisis, ADB and IADB have increased the size of their facilities to \$1 billion each. EBRD has increased its facility from €800 million to €1.5 billion.

a. IFC's GTFP became operational in 2005.

new IFC's Global Trade Liquidity Program initiative of \$5.0 billion (including \$4 billion from other MDBs and bilateral agencies) is expected to support up to \$48 billion in trade (box 3.3).

The strong financial position of the International Bank for Reconstruction and Development (IBRD) on the eve of the crisis allowed it to respond quickly and substantially to developing countries' requests for financial assistance. Loan commitments are expected to reach \$35 billion in the current fiscal year (ending June 30, 2009), compared with \$13.5 billion for the previous year. And net lending may rise from near zero over the past few years (mainly reflecting some borrowing countries' decisions to repay IBRD loans earlier than scheduled) to \$15–20 billion over the next three years. Since the last months of 2008 the World Bank Group, of which the IBRD is a part, has taken various steps to assist developing countries in dealing with the global financial crisis. In December 2008, the Bank Group's International Development Association (IDA) launched a \$2 billion Financial Crisis Response Fast-Track Facility to speed up grants and

long-term, interest-free loans to help the world's poorest countries cope with the impact of the global financial crisis. On the private sector front, the International Finance Corporation (IFC) in December 2008 launched a global equity fund to recapitalize distressed banks, with \$1 billion provided by the IFC and \$2 billion by Japan. The IFC also created an infrastructure crisis facility to provide rollover financing to help recapitalize existing, viable, privately funded infrastructure projects facing financial distress, with \$300 million provided by the IFC and \$1.5 billion from other sources. In addition, the IFC took steps through its trade finance facilitation program to ease access to trade credit by developing-country firms. Similarly, the Multilateral Investment Guarantee Agency, another part of the World Bank Group, is providing guarantees of up to \$1 billion to foreign banks to help inject liquidity and bolster confidence in the financial systems of Russia, Ukraine, and Eastern European countries. The response of other development banks is largely synchronized with the actions of the World Bank Group.

Table 3.6 Total assets and equity of the major MDBs, 2007

\$ billions

	Asset	Capital
Asian Development Bank	69.5	14.3
African Development Bank	12.1	4.7
European Bank for Reconstruction and Development	46.1	13.9
Inter-American Development Bank	69.9	20.4
World Bank Group	248.5	53.8
<i>of which</i>		
IBRD	207.9	39.8
IFC	40.6	14.0
Total MDBs	446.1	107.1

Source: Financial statement of each institution in its 2008 Annual Report.

Facing capital constraints, many MDBs have sought capital increases to enable them to respond more effectively to the requirements of their member countries. The participants in the G-20 meeting held in April 2009 committed to review the adequacy of the capital resources of all MDBs to provide appropriate increase in funding to mitigate the impact of the crisis (see table 3.6 for MDBs' capital and assets, as of 2007). The G-20 endorsed a 200 percent general capital increase for the Asian Development Bank (ADB) and agreed to review the need for capital increases at the Inter-American Development Bank, the African Development Bank, and the European Bank for Reconstruction and Development. The ADB's Board of Governors agreed to triple ADB's capital base from \$55 billion to \$165 billion, substantially increasing its support to countries affected by the global downturn. The ADB plans to increase its lending assistance by more than \$10 billion in 2009–10, bringing total ADB assistance for these two years to about \$32 billion, up from about \$22 billion in 2007–08. The ADB will establish—pending approval from its board of directors—a \$3 billion fund (the Countercyclical Support Facility) to support fiscal spending by member countries needed to overcome the crisis. It is crucial for multilateral agencies to be adequately capitalized to increase their ability to respond to this and future crises and to meet the funding requirements of the developing countries.

Despite these efforts, commitments are not yet sufficient to cover developing countries' financing

gaps. Furthermore commitments to an SDR allocation have not historically been followed by swift ratification by national governments. For example, regarding the last SDR issuance dating from 1997, as of April 1, 2009, 131 members representing 77.68 percent of the total voting power had accepted the Fourth Amendment, falling short of the required 85 percent.⁷ Moreover, a third of the pledged money is to come from direct lending from member governments. Some governments already have made this money available, but others have yet to do so. Therefore it is not clear that all of the money will be available immediately. And while the total amount of funds committed would be sufficient to cover our estimate of developing countries' financing gaps in 2009, disbursing all of this money this year would leave nothing available if difficult financing conditions persist into 2010, not an unlikely scenario.

The inability to meet financing needs could have grave economic consequences

The previous discussion has shown that for many developing countries, the availability of reserves, private external finance, and official support is unlikely to be sufficient to cover their current account deficits and principal repayments on outstanding debt. These countries will be faced with a difficult choice. They could postpone debt service payments, either by delaying government debt service or imposing capital control on private borrowers. Alternatively (or in combination), they could impose restrictive fiscal and monetary policies (perhaps in conjunction with capital controls) to the point where the fall in import demand sufficiently reduces external financial requirements.⁸

None of these options is palatable. Efforts to renegotiate external debt service payments, or outright defaults, are likely to impair access to international capital markets for some time to come, and could result in interruptions in payments systems if creditors attempt to attach the country's foreign exchange holdings. Reducing economic activity through higher interest rates or an improved fiscal balance in the midst of a global recession could have grave implications for welfare and poverty reduction. Using capital controls to attain either of these ends has the added disadvantage of impairing the efficiency of production and encouraging corruption. While many developing countries have

controls on capital account transactions, most permit foreign exchange outflows for current account transactions or for the purpose of repaying debt. Extending capital controls to these activities risks gravely undermining both the functioning of the economy and the credibility of government policies. Countries that encounter external financing constraints run the risk of going through an even more painful adjustment process because a further depreciation in the real exchange rate and steeper contraction in growth would be required to bring about an abrupt improvement in the current account. Both channels would be particularly painful at the current juncture, when GDP growth in developing countries with financing needs is already forecast to decline to 1.7 percent in 2009, down sharply from 4.7 percent in 2008, and in many of those countries substantial exchange-rate depreciations have already reduced real purchasing power. In short, many governments will face a difficult choice between imposing credit controls, postponing payments on their external debt, and going through an even more painful economic adjustment process.

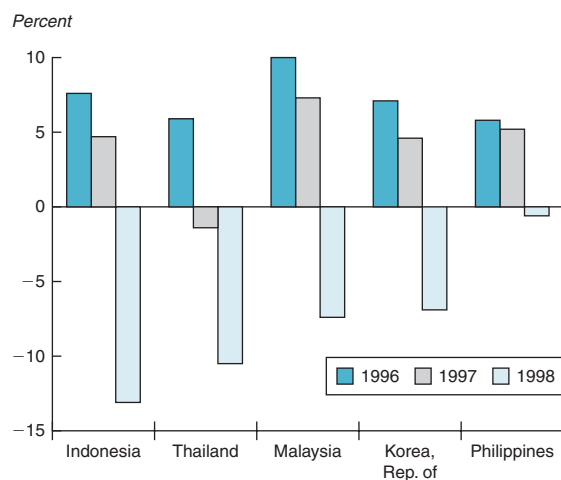
This dilemma is well illustrated by the experience of East Asian economies during the financial crisis of the late 1990s, when high levels of capital flight forced the most affected countries into sharp exchange rate depreciations and restrictive macroeconomic policies to reduce demand, inducing severe recessions (figure 3.14) that reversed some

of the hard-earned gains in poverty reduction attained in earlier years. In the current context of stagnant global export demand and the large overhang of corporate foreign debt, the real economy costs associated with the process of adjustment to external financing gaps would be very high, as would be the costs of large-scale corporate debt insolvency and restructuring. Such costs would vary across countries, depending on their foreign debt exposure, local capital market development, and the exchange rate regime.

Many low-income countries may be unable to meet their external financing needs

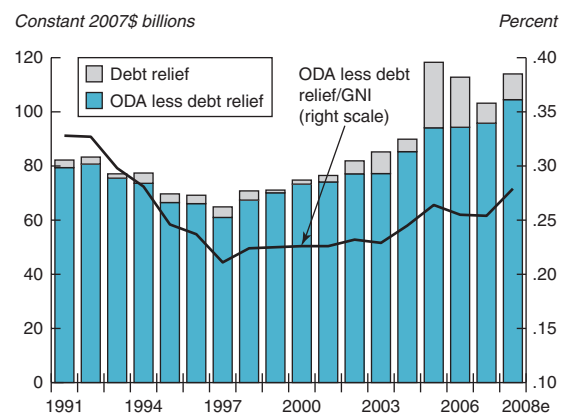
Many low-income countries will face particular difficulties in obtaining sufficient finance. Recognizing this, the G-20 leaders agreed to provide an additional \$6 billion in concessional and flexible IMF financing for low-income countries over the next 2 to 3 years. Nevertheless, their historical reliance on official development assistance (ODA) is likely to be accentuated as export revenues and other sources of capital recede in 2009, while the prospects for substantial, additional ODA are not favorable. ODA disbursements by the 22 member countries of the Development Assistance Committee did rise to \$114 billion last year, up \$10.5 billion (10.2 percent) from 2007 (figure 3.15), but the sharp rise in industrial countries' fiscal deficits is likely to constrain further increases. Recent forecasts from the OECD envision a rise in the

Figure 3.14 Real GDP growth in five Asian countries, 1996–98



Source: World Bank staff estimates.

Figure 3.15 Net ODA disbursements by DAC donors, 1991–2008



Source: OECD Development Assistance Committee.

Note: e = estimate.

aggregate deficit of its member countries from 2.4 percent of GDP in 2008 to about 4 percent in 2009–10. And these forecasts are subject to constant revision, as spending plans remain in flux and revenue estimates extremely uncertain.⁹

It is likely that expenditures not directly connected to domestic growth will come under increasing scrutiny, especially in Greece, Ireland, and Spain, where sharp increases in debt levels have resulted in warnings about bond ratings.¹⁰ The intense pressures stemming from the sharp downturn in global growth will make it politically difficult for donors to meet their ODA commitments, even though such commitments are small relative to their fiscal revenues and expenditures. The 22 DAC member countries would have to enhance their net ODA disbursements by an average annual rate of 7.0 percent in 2009–10 in order to meet their existing commitments. Although such an objective might sound modest, net ODA disbursements were augmented at an average annual rate of only 6.7 percent over the past five years when growth was robust and fiscal pressures were limited.

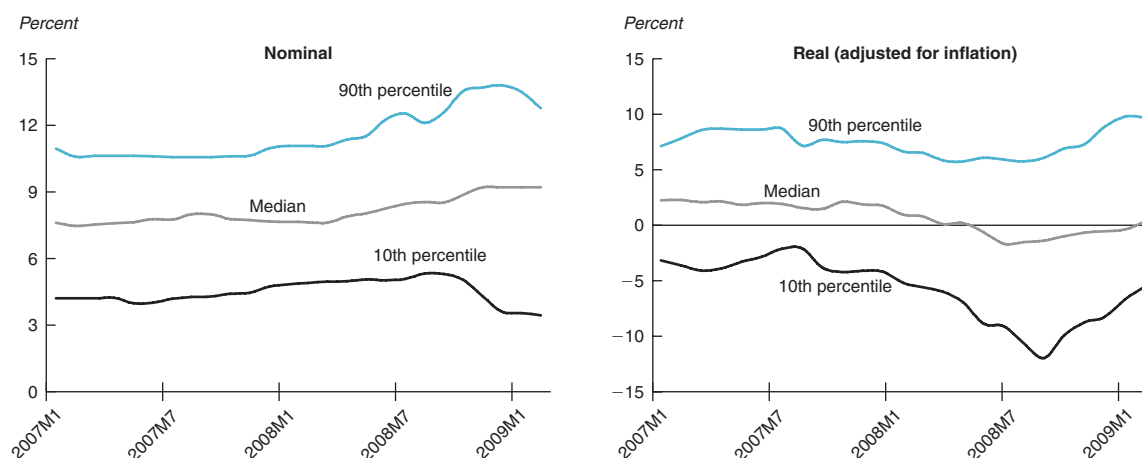
The potential for expansionary policies varies significantly among developing countries

Policy responses in several developing countries have focused on short-term measures to support demand, including an easing of monetary

conditions, drawdowns of reserves, and expansionary fiscal policies. However, developing countries differ greatly in their ability to use such policies to support demand. As noted in the previous section, the many countries with large financing gaps may find themselves compelled to suppress demand further to meet their external obligations, or risk the difficult-to-estimate but potentially severe consequences of default. Other countries, by contrast, retain some space for expansionary policies to compensate for the reduction in external demand and in private external finance.

Monetary policy. There is some evidence that monetary policy is easing in many developing countries. The median policy interest rate for 22 major developing countries increased over the course of 2008 in response to rising inflation and in the context of a generalized belief that developing economies would remain largely decoupled from the crisis unfolding in mature markets. Nevertheless, in most countries policy rates did not rise as fast as inflation, indicating some easing of monetary conditions. The perceptions of partial immunity from the crisis were dispelled by the sharp decline in global economic activity in late 2008. Now, about half of the 22 developing countries are well into an easing cycle aimed at supporting aggregate demand (figure 3.16). For example, policy rates in China, India, and Turkey declined by more than 2 percentage points from August 2008 to February 2009. Some countries—essentially those experiencing severe balance-of-payments

Figure 3.16 Policy interest rates in developing countries, January 2007–March 2009



Source: Datastream.

Note: Policy interest rates minus year-on-year change in headline consumer price index.

outflows and exchange-rate pressures—have raised policy rates, including Russia (2 percentage points), Pakistan (1.25 percentage points), and Hungary (1 percentage point).

The challenges of monetary policy vary widely across developing countries. In their decisions to limit interest-rate reductions, various central banks have cited the potential for additional currency weakness, greater inflation, and rising inflationary expectations. Several of these countries may have space remaining for additional monetary easing, in part because inflationary expectations are declining in many countries in Latin America and Asia. But monetary policy can have only a limited and temporary effect on real exchange rates relative to underlying fundamentals such as declines in export demand and in the terms of trade, which clearly have been the main drivers of exchange-rate depreciation in most emerging markets.

A more acute dilemma faces many central banks in Central Europe and the countries of the former Soviet Union. There, financing gaps tend to be wide, and support for aggregate demand (through lower policy rates) needs to be balanced against the risks of capital outflows and the resulting damage to the balance sheets of banks, firms, and households. Heavy external borrowing earlier in the decade has created significant currency mismatches in the region, with the result that further exchange rate depreciation could threaten the solvency of many financial institutions and corporate borrowers whose earnings come in local currency. This perspective suggests that, despite weakening aggregate demand, this group of countries has very little room for rate cuts. In some cases, rate increases may be needed to stem capital outflows.

For countries with fixed or quasi-fixed exchange-rate regimes, the scope for independent monetary policy depends on the degree to which the capital account has been liberalized (in practice as well as on paper). For countries running current surpluses or maintaining large reserves, some easing of monetary policy would be appropriate. However, for those experiencing unsustainable declines in reserves, such easing would not be appropriate. Here, too, rate hikes might be necessary. These countries may need to consider introducing more flexibility into their exchange-rate regimes in order to gain more freedom for monetary policy.

Where this path is taken, it will be necessary to establish a credible medium-term monetary policy anchor to replace the fixed exchange rate.

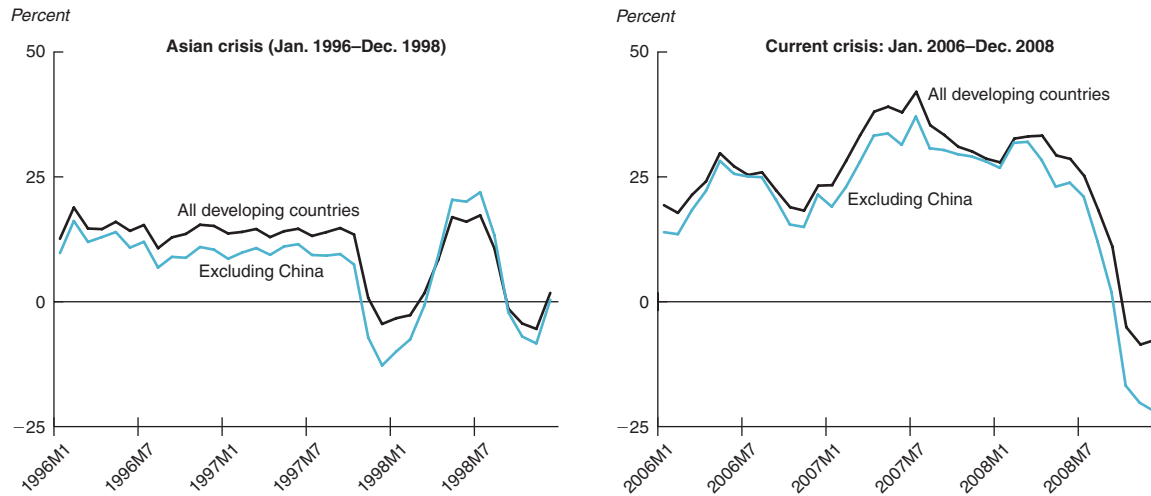
Like many industrial countries, a few developing countries have taken extraordinary financial steps to support credit markets. For example, Mexico and Russia have provided guarantees of bank debt to maintain credit market access; Indonesia and Russia have expanded deposit guarantees to avoid runs; central banks in Brazil, Indonesia, and Mexico have provided new liquidity facilities; and Brazil, the Republic of Korea and Mexico have entered into swap lines with the U.S. Federal Reserve to relieve pressures that emerged in settling cross-border claims. These liabilities will need to be carefully managed, and steps to unwind some of these actions may be necessary as economies recover.

Drawdowns of reserves. Several developing countries (Belarus, Ecuador, Malaysia, Pakistan, Poland, and Russia) have drawn down their foreign reserve holdings to mitigate the impact of the current crisis. Until the crisis intensified in late 2008, developing countries' reserves had expanded rapidly, growing at an average rate of more than 25 percent (figure 3.17). But reserve holdings dropped sharply in late 2008, declining by 8 percent over the latter half of the year (or by 22 percent if one excludes China, which accounts for more than 40 percent of all reserves held by developing countries).

A reduction in foreign reserves on this scale is unprecedented. Reserve growth averaged around 14 percent until the Asian crisis began in mid-1997, declining to -4.5 percent by the end of the year. Reserve growth subsequently recovered to more than 15 percent by mid-1998, only to decline to -5.5 percent by year's end in the wake of the Russian debt crisis in August 1998. Furthermore, the current wave of reserve depletion has been more widespread than in previous episodes. Over the latter half of 2008, reserves fell by more than 10 percent in one-third of developing countries, with declines exceeding 25 percent in the six countries listed above. During the Asian crisis, reserves fell more than 10 percent in just one in eight developing countries, with declines exceeding 25 percent in just two countries.

The appreciation of the dollar against other major currencies has been an important reason for the decline in reserve holdings measured in U.S. dollars. The importance for each country of the reduction in the dollar value of its reserve holdings

Figure 3.17 Growth of foreign reserves in developing countries, 1996–98 and 2006–08



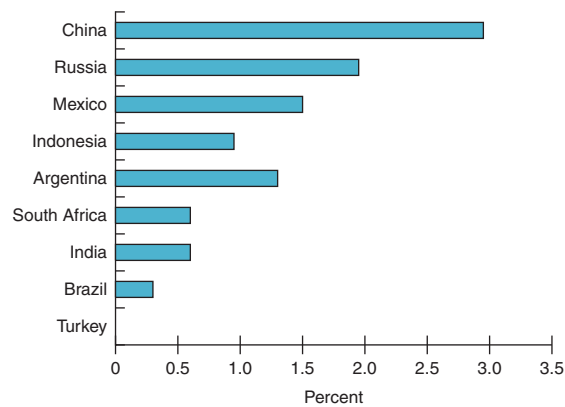
Source: IMF International Financial Statistics.

is affected by the share of its foreign exchange liabilities that are denominated in dollars.

Fiscal stimulus. Several developing-country governments have announced plans to support aggregate demand and reduce job losses through fiscal stimulus. The IMF has evaluated the impact of such measures on the fiscal accounts of developing countries that are members of the G-20. These estimates, based on announcements as of mid-February 2009, cover 2009–10, because expenditures programmed in this year may not be disbursed until one or two years down the road (IMF 2009a). As a proportion of GDP, the largest packages to date (calculated by averaging the ratio of fiscal stimulus to GDP over 2009–10) are those of China (2.9 percent), Russia (2.0 percent), and Mexico (1.5 percent), with the smallest measures among the G-20 developing countries being taken by India (0.5 percent), Brazil (0.3 percent), and Turkey (0 percent) (figure 3.18).¹¹

The factors that explain these differences include the extent of automatic stabilizers and the amount of “fiscal space” available in each country, both of which vary widely from one country to another. For example, China’s relatively low deficit, low level of public debt, and low interest rates before the onset of the crisis leave it in a comparatively favorable position to increase the nation’s fiscal deficit. But other countries are saddled with higher levels of public debt (India) or higher interest rates (Brazil and Turkey), making it more difficult for them to finance larger deficits.

Figure 3.18 Fiscal stimulus measures by G-20 developing countries
Average percent of GDP, 2009–10

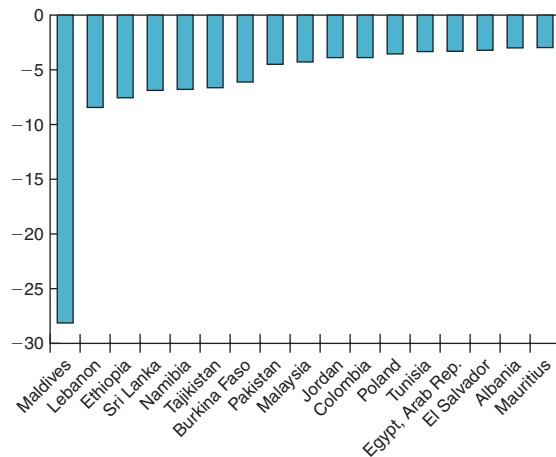


Source: IMF, Global Economic Update, March 26, 2009.

The financial crisis also will lead to a deterioration of developing countries’ fiscal accounts through several channels over which governments lack immediate control—chief among them automatic stabilizers, reductions in tax revenues (driven by declines in equity prices, housing prices, and financial sector profits), decreased revenues from commodity sales, and rising risk premiums on government debt. The IMF estimates that fiscal deficits in the G-20 developing countries from these nondiscretionary channels will be about 3 percent of GDP in 2009 (IMF 2009a).

Figure 3.19 Developing countries with fiscal deficits exceeding 3 percent of GDP at the onset of the financial crisis

Percentage of GDP; most recent value



Source: World Bank.

The lack of fiscal space poses a particularly serious challenge for many developing countries, including many small low-income countries that lack significant local capital markets and where the monetization of large fiscal deficits could lead to inflation and capital outflows. Either of those results would exacerbate, rather than ameliorate, economic weakness. Seventeen developing countries were running relatively large fiscal deficits at the onset of the financial crisis (figure 3.19)—they are not likely to be able to undertake further fiscal measures to support demand.

Unless further external assistance is provided from official sources, those emerging market and developing countries that have cramped fiscal space will have to carefully prioritize their spending so that they achieve an appropriate balance between protecting vulnerable groups while preserving the components of government spending that are likely to have the greatest direct and indirect effect on growth, and poverty reduction.

The financial crisis has increased the importance of policy coordination

The breadth and severity of the financial crisis underline the importance of cooperative efforts by both high-income and developing countries to foster recovery and establish a more

efficient international framework to support long-term growth. Opportunities for cooperation should be sought in four broad categories:

- Fiscal and monetary policies
- Stronger international financial regulations to improve transparency and avoid excessive risks that threaten stability
- Greater resources for supranational financial institutions
- A more substantial role for developing countries in shaping the global financial order.

Coordination of fiscal and monetary policy in advanced countries will continue to play a prominent role in the short term

Since the onset of the crisis, central banks in the industrial countries have worked in concert to support economic activity through massive lending and sharp reductions in interest rates. By April 2009, the Federal Reserve's interest rate target had been lowered to a range of 0–0.25 percent, and the Bank of Canada's and the Bank of England's to 0.5 percent. The European Central Bank's rate stood at 1.0 percent. With the zero bound on interest rates fast approaching, central banks have turned to “quantitative easing”—expanding the money supply directly through purchases of various securities—to provide further monetary stimulus. The Federal Reserve increased swap facilities for other central banks whose commercial banks needed access to dollar liquidity, extended the term of existing facilities, widened the scope of acceptable collateral, and broadened the scope of institutions (including investment banks) that could access Federal Reserve lending. Other central banks—including the Bank of Canada, the Bank of England, the European Central Bank, and the Swiss National Bank—also expanded their liquidity provisions and coordinated their announcements of the extended facilities. To support commercial banks, governments have purchased impaired assets, expanded guarantees, and injected capital. Most recently, the Bank of England and the Federal Reserve purchased long-term government bonds in an attempt to lower long-term rates and encourage purchases of corporate bonds.

In a few instances, the absence of further coordination has led to problems. When Ireland initially guaranteed the deposits of domestic banks

only, the move provoked runs on branches of foreign banks operating in the country. Ireland later extended the guarantee to all banks operating in Ireland, and other European countries also widened the scope of their deposit insurance.

These policy measures have begun to ease liquidity conditions in global interbank markets, with the LIBOR (London interbank offered rate) and other key lending rates declining since late-September (although they are still hovering well above pre-crisis levels). The same policies, however, will present a significant challenge over the medium term. The Bank of England and the Federal Reserve have greatly expanded their balance sheets, taking on exposure to a wide range of risky assets. This exposure will present the monetary authorities with a delicate balancing act once signs of a recovery are confirmed. Withdrawing liquidity from the financial system prematurely runs the risk of stalling the recovery before it gets fully engaged; waiting too long runs the risk that the excess liquidity could ignite inflationary pressures. The implications of explicit sovereign guarantees of commercial banks' assets and liabilities, and the potential for substantial contingent liabilities associated with corporations deemed "too big to fail," have yet to be fully appreciated and assessed. Government commitments will have to be financed, if not through taxation, then through the issuance of debt obligations. As the fiscal implications of such commitments are factored in, interest-rate expectations will adjust upward, raising the cost of capital for all borrowers, including those in developing countries. Also, the extensive state intervention in virtually all aspects of banking—including funding, loan portfolio, and compensation and dividend policies—will need to be managed effectively to avoid impairing these institutions' efficiency.

In addition to monetary action, several countries also have undertaken fiscal expansion to spur recovery (see the previous section of this chapter and chapter 1). While the case for fiscal policy coordination is weak in normal times—because countries normally face very different challenges and priorities—it is called for today, because all countries are facing the same prospect of inadequate global demand. Stimulating aggregate demand through fiscal expansion is in everyone's interest at the moment, but each country will be reluctant to undertake it on the necessary scale

because some of the expansionary effects will spill over to other countries, and because any one country acting alone—even the United States—may reasonably fear that increases in government debt will cause investors to lose confidence in that country's fiscal sustainability and so withdraw financing. These constraints can be lessened only by a firm and credible commitment to global coordination of fiscal expansion.

Governments' willingness to coordinate their policies also can help reestablish confidence by ruling out beggar-thy-neighbor responses to the crisis. The danger that special interests will use trade policy to protect particular industries is especially acute in a downturn. In this context, recent proposals in the United States and elsewhere to require that funds appropriated for fiscal stimulus must be spent exclusively on domestically produced goods and services are extremely worrisome. A joint international commitment to maintaining open markets for goods and services, such as that highlighted at the G-20 Leaders' Summit in April 2009, must be a central feature of governments' policy responses.

Reform of the international financial system is a top priority over the medium term

The financial crisis and ensuing global economic downturn have raised fundamental questions about the role of financial markets in the global economy and triggered demands for equally fundamental structural reforms to prevent a crisis of such severity from recurring (see box 3.4 for a discussion of the link between the financial origins of the crisis and the economic downturn).¹² But significant reform of the global financial system is inconceivable without policy coordination. Although globalization of markets and industries has multiplied the policy links among countries, the institutional mechanisms for coordinating those policies have not kept pace. Those institutional mechanisms will now have to catch up fast.

At their April summit, the G-20 leaders announced an ambitious reform agenda aimed at preventing the excesses that characterized the latest period of overlending and excessive risk taking, along with several concrete initiatives designed to strengthen the international financial system. A durable revival of economic activity

Box 3.4 The origins of the financial crisis

Over the past six years, the global economy has witnessed a classic boom-and-bust cycle, with asset prices far outstripping fundamental values in the boom and then crashing, ushering in the most severe global recession since the 1930s.

The boom. The collapse of financial markets and the global recession had their roots in the 2003–07 boom, when global growth averaged about 5 percent (its highest sustained rate since the 1970s) and equity markets and commodity prices surged. The decline in risk-free interest rates (the U.S. Federal funds rate fell from 6 percent in early 2001 to 1 percent by mid-2003) precipitated a search for yield that sharply increased the demand for more risky assets. For example, one-year adjustable U.S. mortgage rates fell from 7.25 percent in late 2000 to 3.5 percent in mid-2004, while capital flows to developing countries reached record levels and spreads on emerging-market bonds narrowed sharply (see chapter 2). The boom was facilitated by financial innovations, including the explosion in securitized instruments and structured financial products (particularly collateralized debt obligations), and was marked by a sharp increase in leverage throughout major financial systems.

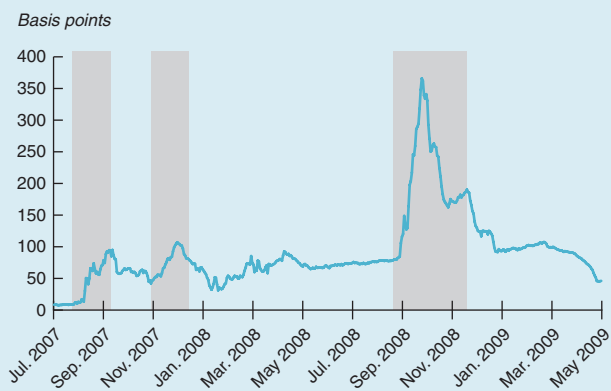
Monetary authorities were initially reluctant to reduce asset-price inflation through tighter credit for fear of choking off the economic recovery. At the same time, regulators failed to rein in the rise in financial sector leverage, for several reasons. Rising asset prices and opaque derivative instruments masked the risks confronting banks' capital positions. A growing share of maturity transformation (formerly dominated by banks) was undertaken by the "shadow banking system" through banks' off-balance-sheet transactions or by institutions (such as investment banks) that were not subject to the same level of regulation as deposit-holding institutions. Moreover, regulators had increased their reliance on banks' own evaluation of their capital positions, which often failed to adequately reflect systemic risks.

The financial meltdown. The first crack in rising global asset prices came in the U.S. housing sector. The Case-Shiller index of U.S. housing prices nearly doubled from the first quarter of 2000 to the second quarter of 2006, fed by the growing involvement of purchasers with

low credit scores and by increasing levels of debt finance predicated on ever-increasing prices. As housing prices turned downwards in 2006, the most over-extended borrowers defaulted on their loans and/or unloaded their houses on the market, further depressing prices and leading to more sales and foreclosures, in a downward spiral that has reduced U.S. housing prices by more than a third from the peak.

While the decline in U.S. housing prices had been anticipated (see, for example, Shiller 2006), the financial consequences were surprising. A number of financial institutions in major financial centers (notably the United States, the United Kingdom, Germany, France, the Netherlands, Australia, and Canada) reported large losses on U.S. subprime mortgage assets, sparking a sell-off of assets to meet margin calls and redemption orders in the case of some hedge funds. Write-downs on credit losses prompted individual banks to sell assets to restore capital ratios, which in the aggregate further reduced asset values and thus worsened capital ratios. Investors became more concerned over both the likely extent of losses on high-risk investments and the exposure of financial institutions, resulting in a flight to safety (U.S. Treasuries and bank deposits subject to expanded guarantees) that severely depressed equity

Spread between U.S. dollar London Interbank Offer Rate and the overnight index swap rate



now hinges on working out detailed financial reforms in the following areas:

- Governments must widen the scope of financial regulation and supervision across institutions and financial instruments. The origination and propagation of complex financial instruments

must be monitored and regulated; markets for those instruments must be transparent.

- All institutions—banks and nonbanks alike—whose failure would compromise the functioning of the entire financial system must be regulated. None should be able to avoid regulation through affiliates or off-balance-sheet

prices and raised yields on most investments. High-yield corporate bond issues plummeted, the asset-backed commercial paper market collapsed, and short-term money markets experienced massive outflows.

The collapse in asset values was greater and more destructive than expected. The mathematical models used to evaluate highly complex derivative instruments tended not to reflect low-probability events, such as the systemic collapse that actually occurred. Moreover, financial innovations had increased the procyclical nature of asset price changes.^a The asset-price collapse had a severe impact on banks because (contrary to one theory about the virtues of securitization) they had failed to offload much of the risks of securitized transactions, or for reputational reasons felt compelled to reabsorb distressed Structured Investment Vehicles onto their balance sheets as the crisis worsened.

The size of market disruptions can be seen in the unprecedented rise in the spread between the London Interbank Offer Rate and the overnight index swap rate, an indicator of market liquidity and risk. (See box figure, in particular the shaded sections, which reflect the initial realization of large losses on U.S. subprime mortgage assets, the suspension of redemptions on some investment funds by Bear Stearns and BNP Paribas, and the U.K. rescue of Northern Rock in the summer of 2007; the announcement of large write-downs by UBS and Lehman Brothers in December 2007; and the extreme financial turbulence initiated by the collapse of Lehman, U. S. government conservatorship of Fannie Mae and Freddie Mac, and government intervention in the American International Group in the fall of 2008.)

The impact. The crisis in financial markets, coupled with self-reinforcing cyclical adjustments, precipitated a sharp decline in economic activity in industrial countries.

a. This occurred because of increased participation by institutions with fixed rules for asset sales based on changes in credit ratings (e.g., insurance companies), increased reliance on market value or credit ratings to trigger asset sales (e.g., provisions for the sale of junior classes of SIV holders to protect senior classes), and arrangements that increased collateral requirements as the credit ratings of counterparties fell (FSA 2009).

Firms that had traditionally relied on commercial paper and money markets to finance working capital experienced a sharp decline in access to finance. While bank lending did not decline markedly, credit generated by the shadow banking system collapsed. The impact of the initial credit crunch was exacerbated by cutbacks by firms determined to avoid massive losses in an uncertain environment. As time went on, falling demand reduced profits and employment throughout high-income economies. And households faced with massive wealth losses (on the order of \$15 trillion in the U.S. housing and financial markets alone-Weller and Lynch 2009) and uncertain employment prospects sharply increased savings, further depressing economic activity. The severity of the ensuing recession is discussed in chapter 1.

Initially, many emerging markets appeared to enjoy some measure of insulation from the crisis in industrial countries, owing to improved policies that limited foreign currency borrowing, encouraged the development of local bond markets, reduced inflation and fiscal deficits, and increased international reserves. However, over time the serious implications of the crisis for growth in developing countries have become clear. The crisis has been transmitted to developing countries through several channels: the value of developing countries' overseas financial assets have declined, in part through private-sector losses on derivative transactions; developing countries' access to foreign bank lending, international capital markets, and foreign direct investment has deteriorated markedly; and the volumes and prices of their exports have plunged. Those likely to suffer the greatest impact are low-income countries that are dependent on commodity exports, countries with large current account deficits, and countries that have built up large stocks of foreign currency debt.

holdings. In keeping with the widening of the financial safety net in the United States from commercial banks to broker-dealers and investment banks, all of the latter must also come under the regulatory umbrella.

- Incentives must be revised to diminish short-run risk taking. In particular, regulators should revise the Basel II capital requirements to better reflect underlying risks and to minimize the procyclicality of regulation.¹³ Banks also must be required to maintain adequate liquidity. The

originators of complex instruments should retain some exposure to them, so that they have a continuing incentive to monitor the underlying risks. Without necessarily becoming the object of regulation, the compensation paid by financial-sector firms should be based on longer-term performance, not just the current year's return.

- Regulators also need to strengthen the reporting requirements applicable to institutions that are deemed not to be systemically important

(hedge funds, for example) and to scrutinize the activities of the agencies that rate the creditworthiness of firms and governments.

The measures that need to be taken vary from country to country, because not all countries experienced various regulatory failures to the same extent. Clearly, the initial problems related to subprime mortgage markets and their securitizations arose in the United States, and some of the needed reforms are specific to that country, including reforms related to the coordination of regulatory responsibilities at the federal level and between the states and various federal agencies. However, other countries also experienced a housing bubble and overlending by their banks, and lax regulation helped permit their purchases of U.S. mortgage-backed securities without adequately accounting for risks.

In the current era of globalized financial markets, national regulation can become ineffective if not backed up by international policy coordination. At present, inadequate regulation in one country can have major repercussions in others. Lack of coordination on minimum standards may lead to “regulatory arbitrage,” as banks shift activities to the country where regulation is most accommodating. The prospect of such arbitrage may induce each country to avoid imposing a competitive disadvantage on its own banks through too-stringent regulation. By contrast, an agreement by all financial center countries to impose minimum standards would offset the incentive to adopt regulatory laxity. And the increased confidence that may be expected from financial reform may be further enhanced by evidence that countries share the same perspective on the required changes. A first step in this direction was taken at the G-20 summit in London. Moreover, the increased scope of central bank regulation and supervision, along with the expansion of the lender-of-last-resort function to global nonbank financial institutions, will require increased cooperation.¹⁴

Although the task of designing and implementing reforms to strengthen financial markets and regulatory regimes cannot end with national regulators, it must begin with them. The actions of national regulators, which have the best access to information on their own financial institutions, must be strengthened and harmonized—and not superseded by a shifting of responsibility to an

international body. Shoring up the roles of the Bank for International Settlements and the Financial Stability Forum in sharing information and identifying international best practice would be a useful way of supporting more effective national regulation.

The willingness to harmonize regulatory reform is likely to be influenced by the stage of the financial crisis. While the present state of the financial arena provides a keen incentive for harmonization, regulatory cooperation is resisted in normal times as countries seek to protect or advance the competitive advantage of the financial firms located within their territory. However, the incentive for cooperation among national regulators changes with shifts in the tradeoff that regulators face between safeguarding national competitiveness and promoting financial stability. A downward shock to confidence in financial stability makes increased regulation desirable and provides an incentive for regulators to harmonize, because only by doing so can they avoid jeopardizing the international competitiveness of their financial sectors. The most propitious time for action is during a crisis.

Annex 3A provides a formal model of regulatory coordination, in which policy is chosen optimally by each country to maximize an objective function that includes both maintaining competitiveness and promoting financial stability. The model suggests that the gains from coordination may be largest when there is a large common shock to confidence. Thus, it may be important to seize the initiative while the current crisis prevails, because a return to normal times may remove the incentives to regulate adequately at the national level and to coordinate regulation optimally at the international level. In the limiting case where financial stability is a global public good that is not differentiated across countries, each country will want others to take action—each will want to be a free rider. In these circumstances it will be especially important to put in place global mechanisms to strengthen regulation, because otherwise no country will provide adequate regulation. In the past, agreement among the hosts of the major financial centers—principally the United States and the United Kingdom, with the support of Japan—has ensured some measure of global regulation (Masson and Pattison 2009), but the dispersion and globalization of financial centers have weakened this discipline.

Recent initiatives adopted by the G-20 countries to strengthen international frameworks for prudential regulation are unlikely to have a major impact on the short-term prospects for capital flows to developing countries. The G-20 leaders agreed to leave the international standard for minimum capital adequacy unchanged until recovery is assured. Guidelines for harmonization of the definition of capital are to be produced by the end of 2009, and the Basel Committee on Banking Supervision is expected to make recommendations on capital adequacy levels in 2010. The recommendations are likely to include raising minimum regulatory levels for capital, enhancing the overall quality of capital reserves, and developing a global framework for promoting stronger liquidity buffers. Regulatory changes along such lines, however necessary and desirable they may be, will temporarily reduce the lending capacity of international financial institutions—until the new requirements are fully absorbed by the system. This means that cross-border bank lending may be more subdued during the recovery phase, compared with previous episodes.

There is also a risk that measures undertaken to promote standardization of credit derivatives markets, and to increase their resilience, could shrink the investor base for some segments of the emerging market asset class. Requiring all transactions to be channeled through central clearing exchanges could make it more difficult for investors to purchase less-liquid derivative contracts, such as credit default

swaps for sovereign and corporate debt that is not widely traded. Over-the-counter derivative contracts are more suitable for thinly traded assets, but they carry the cost of higher counterparty risk.

Measures taken to recapitalize commercial banks with public funds have introduced pressures to force banks to concentrate their lending in the domestic market at the expense of cross-border lending—the so-called home bias in lending practices. Given the severity of present economic conditions, political pressures along these lines could spread widely throughout the financial system, curtailing the supply of private debt flows to developing countries.

Confidence in the international financial system must be restored

On a final note, it is important to recognize how the severity of the current crisis has undermined confidence in the international financial system (annex 3B). Many economic and financial indicators have exhibited unprecedented declines, moving us into uncharted territory in several respects. Uncertainty surrounding the outlook remains at an all-time high, suggesting that a nascent global recovery will be vulnerable to after-shocks of the present crisis and may not survive any marked deterioration in financial conditions. The ability of the international community to take cooperative action in a timely manner and to make meaningful progress on the key areas outlined above would go a long way in restoring confidence.

Annex 3A: Modeling the benefits of a coordinated regulatory response to common shocks to confidence

This annex develops a formal model of regulatory coordination, in which policy is chosen optimally by each country to maximize an objective function that includes both maintaining competitiveness and promoting financial stability. The model suggests that the gains from coordination may be largest when there is a large common shock to confidence.

Technically, let us consider a formal model patterned after the informal discussion of these issues by Singer (2001), in which the objective function of national regulators depends on improving the competitiveness of the country's financial firms as well as promoting financial stability (which Singer calls "confidence"). We will assume that the stringency of regulation, R , affects both variables: in a two-country world, competitiveness C is proportional to the difference in regulation, while stability S in both countries depends directly on the country's own regulation but also on the other country's (but with a weight less than one). Formally, for countries $i = 1, 2$, (and $j = 2, 1$, the foreign country):

$$C_i = \alpha (R_j - R_i) \tag{3.1}$$

$$S_i = R_i + \gamma R_j - u_i \tag{3.2}$$

$$U_i = C_i - \beta (S_i - S^*)^2 \tag{3.3}$$

where S^* is some target level of financial stability that is subject to a (negative) confidence shock. The regulator's utility function, equation 3.3, is linear in competitiveness, but quadratic in financial stability because the regulator internalizes the inefficiencies that result from overregulation: there is an optimal amount of stability. The justification for the coefficient γ in equation 3.2, with $0 < \gamma < 1$, is that a country's regulation has a comparative advantage in furthering its own country financial stability, presumably because some financial services are not traded. A perfectly globalized world

for finance, which we consider later below, would set $\gamma = 1$.

Let us consider the optimal amount of regulation for each economy, first when each economy chooses it independently (that is, under a Nash equilibrium) and second when all economies cooperate in choosing a common level of regulation to maximize joint utility.

The Nash equilibrium: independent regulation

Here, each country maximizes equation 3.3 subject to equations 3.1 and 3.2. The first-order conditions yield

$$R_i = -\gamma R_j + u_i + S^* - \frac{\alpha}{\beta} \tag{3.4}$$

Solving the two countries' reaction functions together gives

$$R_i = \frac{1}{1 + \gamma} (S^* - \frac{\alpha}{\beta}) + \frac{1}{1 - \gamma^2} (u_i - \gamma u_j) \tag{3.5}$$

Note that if the two countries' confidence shocks are equal, $u_i = u_j = u$, then equation 3.5 simplifies to

$$R_i = \frac{1}{1 + \gamma} (S^* - \frac{\alpha}{\beta} + u) \tag{3.6}$$

It can be seen that regulation is lower by an amount that depends on the negative effect of regulation on competitiveness (α) and inversely on the weight of stability in the objective function (β), while also being affected by the impact of foreign regulation on stability (γ).

The cooperative equilibrium: joint decision making

Suppose instead that the two countries collaborate and jointly choose regulation to maximize an equally weighted average of their two utility functions. In this case, they maximize utility U with

respect to both countries' regulation $R = R_1 = R_2$ where utility is given by

$$U = U_1 + U_2 = C_1 + C_2 - \beta(S_1 - S^*)^2 - \beta(S_2 - S^*)^2 \quad (3.7)$$

Solving for R gives an expression for optimal regulation:

$$R = \frac{1}{1 + \gamma} S^* + \frac{1}{1 + \gamma} \frac{u_1 + u_2}{2} \quad (3.8)$$

Note that equation 3.8 is very similar to equation 3.5, but it is not reduced by the objective of gaining a competitive advantage over the other country and it depends on the average shock to confidence. The cooperative equilibrium leads to *greater* regulation on average, because each country knows that it need not worry about the other country's attempt to become more competitive.

Let us consider in some detail the case of identical shocks. If the two countries' confidence shocks are the same, then 3.8 simplifies to

$$R = \frac{1}{1 + \gamma} (S^* + u) \quad (3.9)$$

which again is similar to equation 3.6 but with the omission of a negative term that reduces the amount of regulation in both countries. Thus, a Nash equilibrium results in a suboptimal amount of regulation. The cooperative equilibrium produces higher welfare in both countries by providing greater regulation—if the two countries can agree to cooperate and not to try to gain a competitive advantage over the other. Doing so is self-defeating, because in the Nash equilibrium both countries adopt the same policies, with the result that neither succeeds in becoming more competitive relative to the other. The gain in utility from cooperation can be written as $\Delta U_i = U_i^C - U_i^N$, where U_i^C

and U_i^N are the utilities of country i evaluated at Nash and cooperative equilibriums. When $u_i = u_j$

$$\Delta U_i = \frac{\alpha^2}{4\beta} \quad (3.10)$$

Thus, when the shocks to confidence are identical, the gains from coordination are always positive and are independent of the shock itself. The shock is completely offset by the coordinated policies, which achieve the goal S^* for financial stability as well as maintaining equal competitive positions. For the general case when $u_i \neq u_j$ the solution is ambiguous (Dailami and Masson 2009).

Globalization

The case of increased globalization can be studied by letting $\gamma \rightarrow 1$. In the limiting case, with a common shock u to confidence, the first-order conditions become indeterminate. In the case of independent (Nash) policies, the first-order conditions are given by

$$R_1 = -R_2 + u + S^* - \left(\frac{\alpha}{\beta}\right) \quad (3.11)$$

and

$$R_2 = -R_1 + u + S^* - \left(\frac{\alpha}{\beta}\right) \quad (3.12)$$

These two equations cannot be solved for individual values of R_1 , R_2 , only for their sum. Doing so implies that the total of regulation $R_1 + R_2$ is set optimally at a point that trades off financial stability for competitiveness. But this can be done through any arbitrary sharing of the regulatory burden. Given this indeterminacy, countries would no doubt prefer that the other country did the regulating. In these circumstances, harmonization would be necessary to rule out a downward spiral of deregulation.

Annex 3B: A framework for measuring investor confidence

Restoring confidence is a crucial step in repairing financial markets and lifting the global economy out of recession. How to measure confidence, however, and how to go about restoring it, are complex. This annex describes a framework for gauging changes in investor confidence that have potentially important market consequences. Confidence in markets, institutions, and financial strategies depends on investors' beliefs about the trends and dynamics of market expectations, the effect of policy on economic fundamentals (including the paths of employment, trade, housing prices, and industrial production), and fallible human judgment.

Drawing on insights from three strands of literature—behavioral finance (Thaler 1985, 1987; Loewenstein and Elster 1992; Nisbett and Ross 1980), investor sentiment (Barberis, Shleifer, and Vishny 1997; Froot, O'Connell, and Seasholes 2001; Froot and Ramadorai 2008), and market reaction to macroeconomic news (Balduzzi 2001;

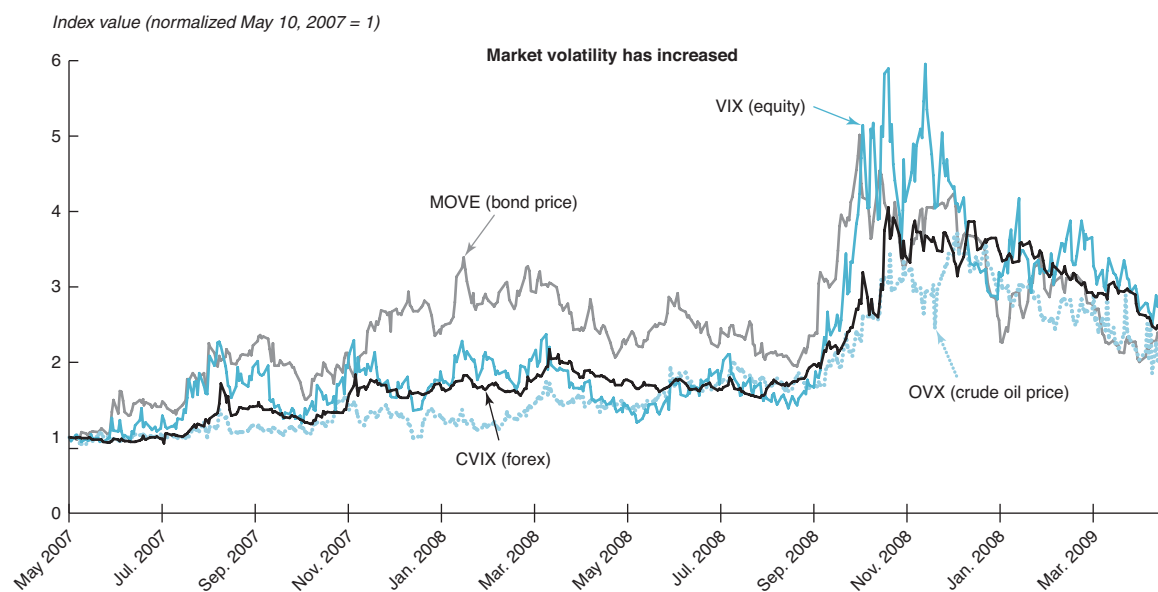
Brandt and Kavajecz 2004; Goldberg and Leonard 2003)—we postulate four dimensions of investor confidence: *market volatility*, *market performance*, *macroeconomic news*, and *government responses*. We deal with each in turn.

Volatility. First, investor sentiment is strongly influenced by abnormal volatility in the marketplace, particularly when it spans several asset classes, signaling an overall climate of uncertainty and risk aversion. In recent months, global equity, credit, commodity, and foreign exchange markets all have shown record volatility (figure 3A.1).

Investment performance. Second, investors' confidence is related to the performance of their investments, as measured by wealth creation or destruction. The contraction of financial wealth that has occurred during the current crisis is greater than any since the Great Depression.

Macroeconomic indicators. Third, investors and traders typically look at a broad array of macroeconomic reports that provide insights into

Figure 3A.1 Record volatility in the global equity, credit, commodity, and foreign exchange markets, May 2007–April 2009



Source: Bloomberg.

economic fundamentals and shape perceptions of the future state of the economy. Relevant data series include monthly payrolls, industrial production, sales and trade data, personal income, and housing starts. These data typically lag behind the financial data, but throughout 2008 and into 2009 the one-sided stream of negative economic news had a dramatic impact on confidence.

Government policy pronouncements. Fourth, market participants and traders pay close attention to the stance of government policy makers and continually assess the credibility of their words and actions. Governments can influence investors' confidence in many ways: through macroeconomic policy (for example, by easing monetary policy or providing fiscal stimulus), through regulatory policy, and through other legislative actions that can strengthen transparency and enhance corporate financial disclosure and integrity (for example, actions taken by the U.S. government in the aftermath of the Enron and Worldcom accounting scandals).

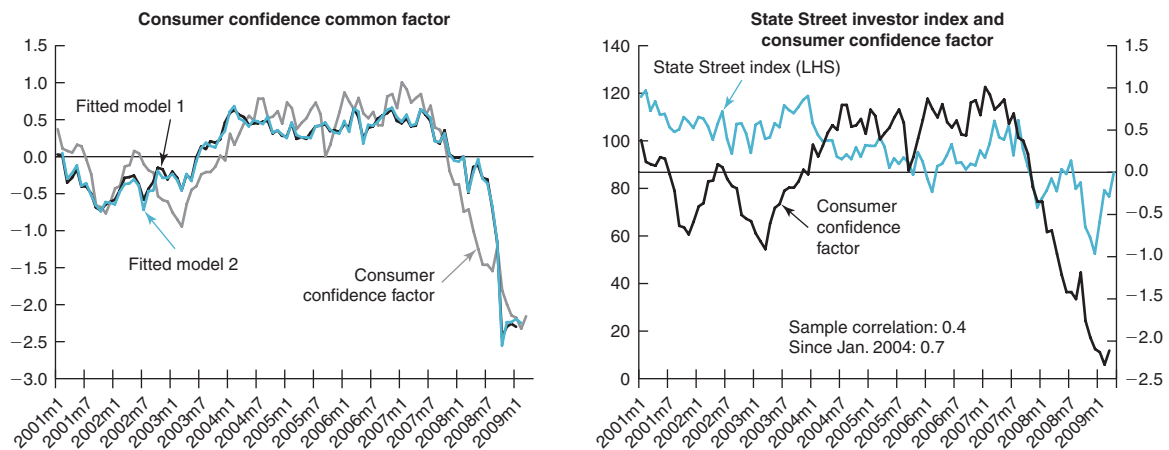
A variety of market- and survey-based indicators are used to track and report consumer confidence, investor sentiment, and business confidence concerning the future course of markets and the economy at large. A well-established market-based index of investor confidence is provided by State Street Global Markets. It is based on measurements of institutional investors' holdings of risky

assets, particularly equities (www.statestreet.com/investorconfidenceindex). The more investors are willing to allocate assets to equities, the theory goes, the greater their risk appetite and confidence. An alternative proxy for confidence used in the literature (Qiu and Welch 2004) is a measure of consumer sentiment or confidence. It provides a survey-based measure of sentiment and has the additional advantage of offering comparable data on a regular basis for several countries.

We use both market- and survey-based proxies to gauge investors' confidence, combining them with measures of consumer confidence in Canada, Germany, Japan, the United Kingdom, and the United States to extract a common global index, using the well-established method of principal component analysis. This composite index is closely correlated with State Street's index of investor confidence (figure 3A.2), revealing that generally optimistic or pessimistic views about the economy translate into views on equity market conditions, and vice versa.

The two approaches to measuring confidence generally confirm that investors care about market volatility, the macroeconomic environment, and the performance of equity markets, as vindicated by the econometric results reported in table 3A.1. They also suggest that restoring investor confidence is a prerequisite for consumer sentiment and a change in aggregate demand.

Figure 3A.2 Correlation of authors' composite global index of consumer confidence with State Street index of investor confidence



Source: Dailami and Masson 2009.

Table 3A.1 Evidence that investors' confidence is shaped by a combination of factors

Dependent variable: consumer confidence factor
 $CC = \alpha + \beta_1 \times \text{Volatility} + \beta_2 \times \text{Macro} + \beta_3 \times \text{Equities}$

	Model 1	Model 2
Volatility factor	-0.273*** (0.056)	-0.301*** (0.059)
Macro environment factor	0.233*** (0.056)	
Macro environment factor (t - 1)		0.237*** (0.051)
MSCI Developed World	0.012*** (0.003)	0.013*** (0.003)
Constant	-0.050 (0.042)	-0.069* (0.040)
Observations	97	97
R-squared	0.72	0.75

Source: World Bank staff.

Note: The dependent variable in the table is a common factor of consumer confidence indexes from Canada, Germany, Japan, the United Kingdom, and the United States. Volatility is the monthly average of the predicted daily common volatility of eight variables: VIX, US\$/euro, US\$/yen, US\$/sterling, agriculture commodities price index, energy price index, industrial metals price index, and the TED spread. The macroeconomic environment factor is the predicted common factor across industrial production, employment, and export growth rates (year-on-year) in Germany, Japan, the United Kingdom, and the United States. Equity market growth is represented by the change (year-on-year) in the MSCI for developed economies. The estimation sample covers the period from January 2001 to January 2009.

Notes

1. This calculation is based on data from the World Bank Debtor Reporting System (DRS) comparing private nonguaranteed debt and public and publicly-guaranteed debt. For a more detailed discussion of the globalization of corporate financing in developing countries see World Bank (2007).

2. The JP Morgan index (CEMBI-Global) includes corporate bond spreads in 20 emerging market economies, four of which are high-income countries: Hong Kong, Israel, Singapore, and Taiwan (China).

3. Carry trades are transactions where investors borrow in low-yielding currencies—mainly the Japanese yen, U.S. dollar, or Swiss franc—and invest the proceeds, often enhanced by leverage, into high-yielding currencies such as Australian and New Zealand dollars, the British pound, the Korean won, the Indonesian rupee, the Brazilian real, the Mexican peso, or the South African rand.

4. Comprehensive data on domestic bond markets are not available for most developing countries. The BIS reports data on domestic debt securities in just 20 developing countries.

5. Current-account surpluses exceed principal repayments on maturing debt in the other 11 countries for which data are available.

6. IDA is the part of the World Bank that assists the poorest countries.

7. Legislation containing the Fourth Amendment is currently under consideration in the U.S. Congress.

8. Capital controls could reduce the effective demand for imports by imposing government rationing of foreign exchange.

9. For example, in March the U.S. Congressional Budget Office estimated the deficit for fiscal 2009 (October to September) at about \$1.8 trillion, or 13 percent of U.S. GDP much greater than the December OECD forecast of less than 7 percent. The \$1 trillion toxic asset removal plan announced on March 23 by the Obama administration will further increase the deficit for 2009 and beyond.

10. ODA expenditures that are tied to domestic producers may boost the demand for local products and thus be more favored than general ODA.

11. China and South Africa introduced stimulus measures in 2008.

12. Several wide-ranging studies have argued that the laxity of financial regulation and inadequacies in the management of financial institutions were major contributors to the crisis. See, for instance, IIF (2008), the Group of Thirty (2009), and Brunnermeier and others (2009).

13. Capital requirements tend not to be binding in an upturn, because asset valuations are high and risk assessments optimistic, with the opposite occurring in a downturn. However, regulation should be more stringent in the upturn than in the downturn.

14. Buiter (2007) characterizes this expanded central bank role as “market maker of last resort.” Pervasive securitization implies that stability in bank-based lending is not sufficient to ensure even the basic functioning of the financial system.

References

- Balduzzi, P., E. Elton, and T. Green. 2001. “Economic News and Bond Prices: Evidence from the U.S. Treasury Market.” *Journal of Financial and Quantitative Analysis* 36 (4): 523–43.
- Barberis, Nicholas, Andrei Shleifer, and Robert W. Vishny. 1997. “A Model of Investor Sentiment.” NBER Working Papers 5926, National Bureau of Economic Research.
- Basu, Sankarshan, and Bappaditya Mukhopadhyay. 2006. “Derivatives in Asia-Pacific Markets.” *Journal of Emerging Market Finance* 5 (3): 207–15.
- Brandt, Michael W., and Kenneth A. Kavajecz. 2004. “Price Discovery in the U.S. Treasury Market: The Impact of Orderflow and Liquidity on the Yield Curve.” *Journal of Finance* 59 (6): 2623–54.
- Brunnermeier, Markus, Andrew Crockett, Charles Goodhart, Avinash D. Persaud, and Hyun Shin. 2009. “Fundamental Principles of Financial Regulation.” Geneva Reports on the World Economy 11, Preliminary conference draft, January.
- Buiter, Willem H. 2008. “Central Banks and Financial Crises,” Paper presented at the Federal Reserve Bank of Kansas City’s symposium on “Maintaining Stability in a Changing Financial System,” Jackson Hole, Wyoming, August 21–23.

- Cull, Robert, Martinez Peria, and Maria Soledad. 2007. "Foreign Bank Participation and Crises in Developing Countries." Policy Research Working Paper Series 4128, World Bank, Washington, DC.
- Dailami, Mansoor, and Paul Masson. 2009. "Using Macroeconomic and Financial Indicators to Gauge Investor Confidence." Unpublished World Bank paper.
- Froot, K. A., P. G. J. O'Connell, and M. S. Seasholes. 2001. "The Portfolio Flows of International Investors." *Journal of Financial Economics* 59 (2): 151–93.
- Froot, Kenneth A., and Tarun Ramadorai. 2008. "Institutional Portfolio Flows and International Investments." *Review of Financial Studies*, Oxford University Press for Society for Financial Studies, 21(2) (April): 937–71.
- FSA. 2009. "The Turner Review: A Regulatory Response to the Global Banking Crisis." Financial Services Authority, the United Kingdom.
- Goldberg, Linda, and Deborah Leonard. 2003. "What Moves Sovereign Bond Markets? The Effects of Economic News on U.S. and German Yields." *Current Issues* (Federal Reserve Bank of New York) 9 (9).
- Group of Thirty. 2009. "Financial Reform: A Framework for Financial Stability." Washington, DC. January 15.
- G-20 (Group of Twenty). 2009. "The Global Plan for Recovery and Reform." London, April 2.
- IIF (Institute of International Finance). 2008. "Final Report of the IIF Committee on Market Best Practices." Washington, DC. July.
- . 2009. "Capital Flows to Emerging Markets." Institute of International Finance. January 27.
- IMF (International Monetary Fund). 2009a. "The State of Public Finances: Outlook and Medium-Term Policies after the 2008 Crisis." Washington, DC. March 6.
- . 2009b. *World Economic Outlook*. International Monetary Fund. Washington, DC.
- . 2009c. *Global Financial Stability Report*. International Monetary Fund. Washington, DC.
- Kahler, Miles. 1992. "Multilateralism with Small and Large Numbers." *International Organization* 46(3): 681–708.
- Loewenstein, G., and J. Elster, eds. 1992. *Choice over Time*. New York: Russell Sage Foundation.
- Masson, Paul R., and John Pattison. 2009. *International Financial Policy Reform and Options for Canada: Think Globally, Act Locally*. Ottawa: Conference Board of Canada.
- Marques, Ana Luisa, and Paulo Moutinho. 2008. "Real Loses a Fifth of Its Value against the Euro." *Jornal de Negocios*, October 16.
- Nanto, Dick K. 2009. "The Global Financial Crisis: Analysis and Policy Implications." U.S. Congressional Research Service. April 3.
- Nisbett, R. E., and L. D. Ross. 1980. *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Qiu, Lily, and Ivo Welch. 2004. "Investor Sentiment Measures." NBER working paper 10794.
- Saxena, Sweta, and Agustin Villar. 2008. "Hedging Instruments in Emerging Market Economies." Bank for International Settlements Papers 44. Basel.
- Sen, Sunanda. 2008. "Global Financial Crisis: A Classic 'Ponzi' Affair?" ISID Working Paper 2008/12. Institute for Studies in Industrial Development, New Delhi.
- Shiller, R. J. 2006. *Irrational Exuberance* (2nd Ed.). New York: Random House.
- Singer, David Andrew. 2004. "Capital Rules: The Domestic Politics of International Regulatory Harmonization." *International Organization* 58 (3): 531–65.
- Thaler, Richard. 1985. "Mental Accounting and Consumer Choice." *Marketing Science* 4(3): 199–214.
- Thaler, Richard H. 1987. "The Psychology of Choice and the Assumptions of Economics." In A. E. Roth, *Laboratory Experimentation in Economics: Six Points of View*, pp. 99–130. Cambridge, New York and Sydney: Cambridge University Press.
- Weller, Christian E., and Jessica Lynch. 2009. "Household Wealth in Freefall." Center for American Progress. http://www.americanprogress.org/issues/2009/04/household_wealth.html.
- World Bank. 2007. *Global Development Finance 2007*. Washington, DC: World Bank.

