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Global Policy Model Downside risk scenarios as the world economy recovers from the global financial crisis of 2009





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Uncertainties and risks

Even the mild recovery projected in the baseline outlook is subject to high risks and uncertainties, mainly on the downside. Two of the main risks are closely related to how the crisis is being managed (see above discussion) and to the systemic flaws that led to this crisis. The first refers to the risk of a premature "exit" from both the stimulus measures for demand recovery and the interventions to prevent further financial sector fallout. The second relates to the risk of a renewed widening of the global macroeconomic imbalances which were part of the problem in the first instance and which could erode confidence in the United States dollar and become a source of renewed financial instability. A further spread and intensification of the H1N1 influenza pandemic could also hurt economic activity worldwide, but its implications are as yet difficult to foresee. On the upside, there could be further moves towards strengthened international policy coordination and deeper international financial reform, which may succeed in forging greater global financial stability with the promise of more balanced and sustainable growth in the medium run (see the section on policy challenges below for further discussion).

Risk of an early retreat from stimulus measures

A premature withdrawal of policy support poses a significant risk, as both the financial sector and the real economy continue on a fragile path. The stronger-than-expected rebound in equity prices worldwide may belie the fact that problems still remain in the financial sectors of major economies and that these problems continue to constrain credit availability and could lead to more failures of financial institutions in the near future. The rebound in trade and industry during the second and third quarters of 2009 could send a false signal that a strong recovery is on its way. In fact, levels of trade flows and industrial production are still well below pre-crisis peaks and, as analysed above, the rebound is to a large extent related to a turnaround in the global inventory cycle rather than to a recovery of private consumption and investment. These factors could lead to complacency vis-à-vis policy efforts to overcome the crisis.

At the same time, in some major economies, political support for continued massive government stimulus appears to be weakening as public debt has risen steeply and/ or as public discontent increases over perceptions that the massive financial sector bailouts may not have worked well enough to weed out bad banking practices. These factors undermine the belief that the stimulus and financial rescue measures are working and could be a motive for an early reversal in policy stance in the major economies.

However, while mounting public debt could become a drag on growth in the future, immediate concerns should be focused on the continued weakness in financial sectors, persistent large output gaps and continued rising unemployment rates, which signal that the recovery is far from robust. An early phasing-out of stimulus measures could therefore exacerbate these weaknesses in the global economy and abort the nascent recovery.

Simulations using the United Nations Global Policy Model (GPM) suggest that an early withdrawal of the fiscal and monetary stimulus packages in the major economies could cause the world economy to dip into a double recession and sustain increases in public indebtedness. The policy scenario rests on two key assumptions.¹ The first is that current fiscal and monetary stances in major economies will by and large continue in 2010, but will reverse in 2011 over fears of mounting public sector debts and rising inflationary pressures. An unwinding of expansionary policies is assumed to be rapid and to have drastic effect in the developed countries and emerging Asia (except China and India), and to involve a fiscal contraction equivalent (ex ante) to the size of half of the fiscal stimulus to be implemented during 2009-2010. Withdrawal of fiscal stimulus in middle-income developing countries is assumed to be more moderate. In these cases, fiscal consolidation tapers off from 2012. China and India, in contrast, are assumed to shift to a neutral fiscal stance to avoid actual fiscal contraction. Monetary policy is assumed to be fully synchronized, thus leading to consistent rises in policy interest rates. The second major assumption is that current high unemployment and household indebtedness will remain a drag on private consumption and investment demand in the major economies into 2011, when the policy stimuli will be withdrawn. Likewise, deleveraging of financial institutions is assumed to continue in the initial years of the simulation period, keeping the global credit supply tight.

The double-dip recession resulting from this scenario would be most marked for the developed economies and the economies in transition (figure 1a-b). The subsequent recovery would be sub-par and slow. The recession caused by a premature withdrawal of stimuli would affect European countries the most, followed by Japan and the other developed economies. This would be the result not only of relatively stronger efforts towards fiscal consolidation but, even more importantly, of greater sluggishness of private demand in this scenario. Developing countries would be affected even more severely by a doubledip recession than they have already been as a consequence of the present crisis (figure 1c-d). The reason for this is that, under this scenario, the cushion provided by the strong fiscal stimuli of major developing countries (especially China) would no longer be present. This would put a further drag on global aggregate demand, as well as on demand for commodities, and would put downward pressure on commodity prices, thereby affecting many other developing countries (see appendix table A.I.1). The model simulations suggest further that any attempts at fiscal consolidation amidst a recovery that is only nascent would be self-defeating. The double-dip recession would reduce government revenues even more, while the further fall in GDP would continue to push up debt-to-GDP ratios and affect private sector confidence (see appendix table A.I.5).

Risks of widening global imbalances and dollar decline

The global financial crisis and worldwide recession have led to a recessionary adjustment of imbalances in current accounts across deficit countries with steeply falling imports (led by the United States) and a collapse of export earnings in most surplus countries. However, as the financial crisis abates and global growth tentatively recovers, the risk of a substantial further widening of the imbalances also rises. In most surplus countries, especially those in developing Asia, growth continues to rely heavily on exports and high savings rates, leading

¹ There are valid reasons for thinking that the risk of an early withdrawal of policy measures could materialize as early as 2010, particularly in Europe. However, taking into consideration the continued high levels of unemployment expected for 2010 and continued tight credit supply conditions in many developed economies, it seems more plausible to assume that this withdrawal would become effective from 2011 onwards.

Figure 1



Note: For a technical description of the Global Policy Model, see http://www.un.org/esa/policy/publications/ungpm.html. a Data for 2009 are preliminary figures; data for 2010-2015 are simulation results.

to relatively weak domestic demand and high reserve accumulation. In the major deficit countries, particularly the United States, private savings have increased as consumers have become more cautious, but not by a sufficient margin to cover widening fiscal deficits and prevent mounting public indebtedness. The external deficit is therefore expected to widen again.

The large external deficit of the United States narrowed from its peak of \$800 billion in 2006, or more than 6 per cent of GDP, to an estimated \$450 billion in 2009, or about 3 per cent of GDP. Among the original major surplus economies, the euro area has already moved into a deficit which is continuing to widen, while Japan's surplus has dropped since mid-2008 (although it has rebounded recently). The savings surpluses of the oil-exporting countries have also declined substantially, but the surplus in China has remained high, at above \$400 billion in 2009 (figure 2).

Figure 2







The narrowing of the current-account deficit in the United States since the eruption of the financial crisis has mainly been driven by a sharp downward adjustment in household consumption and residential and business investment, as well as by an increase in household savings. Consumption expenditure has turned from an average annual growth of about 3 per cent in the years prior to the crisis to a decline of 0.2 and 0.7 per cent in 2008 and 2009, respectively. Housing investment has declined by about 20 per cent annually from 2007 to 2009, and business investment has turned from a growth of about 7 per cent prior to the crisis to no growth in 2008 and to a decline of 17 per cent in 2009. The household saving rate went up from 1.7 per cent in 2007 to about 4 per cent in 2009. On the other hand, the government deficit has increased. With the recession reducing government revenue and the stimulus measures increasing expenditure, the budget deficit of the United States has surged from \$160 billion in 2007, or a little more than 1 per cent of GDP, to an estimated \$1.5 trillion in 2009, or more than 10 per cent of GDP. This is much more than the expected rise in private savings; hence, a substantial widening of the external deficit of the United States is very likely.

The corresponding reduction in the aggregate of the current account balance of major surplus economies has been driven by different factors. The savings surplus of most oil-exporting countries, for example, has dwindled as a consequence of declines in revenues of oil exports as the oil prices plunged, as well as increased government spending in stimulus packages to boost domestic demand. The drop in the exports of manufactured goods in Germany and Japan has been a major factor in the decline in the trading surplus of these countries, accompanied by lower domestic savings as a consequence of a deterioration of government savings and declines in consumption demand that have lagged behind the slump in GDP. In the case of China, where the current-account surplus has continued to rise in terms of level but moderated slightly in terms of a percentage of GDP, the persistent surplus is a reflection of two factors. In the external sector, the large proportion of China's "processing trade", accounting for about 60 per cent of China's total trade, lay at the root of a synchronized decline in China's exports and imports: as the orders for China's exports dropped, China's orders for the imports of raw materials and intermediate goods, which are used as inputs for manufacturing the exports, also dropped. On the domestic front, the large stimulus package enacted as of late 2008 has indeed boosted domestic demand to offset some of the dragging effects from the weakening external demand. However, the stimuli have had more of an effect on boosting fixed investment than household consumption, leaving the household consumption-to-GDP ratio at a low level, below 40 per cent. The budget deficit has nonetheless increased by between 2 and 3 percentage points of GDP from its original near-balanced position.

To add to the situation, the net foreign liability position of the United States has increased substantially over the past two decades, reaching \$2.1 trillion in 2007 (figure 3).² The position worsened further with the global financial crisis in 2008 and surged to \$3.5 trillion by the end of 2008, or 25 per cent of GDP. The increment of about \$1.4 trillion is approximately double the current-account deficit registered in 2008, implying that half of the increase can be explained by a revaluation of assets and liabilities to the disadvantage of United States investors and debt holders.

United States-owned assets abroad increased by \$1.6 trillion to \$19.9 trillion by the end of 2008, while foreign-owned assets in the United States increased by \$2.9



Sources: United States Bureau of Economic Analysis, and Project LINK.

a Estimation by UN/DESA.

Elena L. Nguyen, "The international investment position of the United States at yearend 2008", Survey of Current Business, vol. 89, No. 7 (July 2009), pp. 10-19, available at http://www.bea.gov/ scb/pdf/2009/07%20July/0709_iip.pdf.

trillion to \$23.4 trillion. On both sides of the balance sheet, the increase was mainly on account of acquisitions of financial derivatives, while non-derivatives declined. Because of the plunge in equity prices and the writing off of sub-prime mortgage-related debts, the value of United States-owned overseas assets dropped by about \$2 trillion, while the value of external liabilities declined by \$1.2 trillion. Both the United States and foreign investors lost their appetite for private sector securities as a result of the increased risk aversion caused by the crisis. In contrast, foreign investors substantially increased holdings of United States Treasury bills in the approximate amount of \$834 billion in 2008, reflecting a "flight to safety" into dollar assets in the wake of the crisis.

The deepening of the financial crisis in early 2009 led to a further increase in the net external liability position of the United States to an estimated \$3.8 trillion. With the rebound in equity markets and stabilization of financial markets, the revaluation effects should have moderated, but the steep rise in the United States budget deficit and the much weaker rise in private savings led to a renewed widening of the current-account deficit and a further increase in the net liability position. Consequently, the net foreign investment position of the United States has deteriorated substantially during the crisis.

The abrupt adjustment of the global imbalances and the further worsening of the net foreign investment position of the United States are associated with the volatile and erratic movement of the exchange rate of the United States dollar vis-à-vis other major currencies. The value of the dollar had been on a downward trend since 2002, but rebounded in the second half of 2008 through the first quarter of 2009. This sharp appreciation of the dollar was mainly driven by the flight-to-safety effects as the global financial crisis heightened risk aversion in general and caused a massive move of financial assets worldwide into United States Treasury bills. Since March 2009, however, the dollar has resumed its downturn, as a result of the stabilizing conditions in global financial markets, which moderated the increased demand for dollars associated with the deleveraging process of major financial institutions and the flight to safety by investors; at the same time, investors started to become increasingly concerned about the rise in the budget deficit and the worsening of the net foreign investment position of the United States. The value of the dollar has dropped to the lowest level in history vis-à-vis other major currencies (figure 4).

Further rising external indebtedness of the United States following a renewed widening of the twin deficits will keep downward pressure on the dollar, and the risk of a hard landing of the world's main reserve currency will remain high.

A further simulation of such a scenario using the United Nations GPM shows that even a relatively mild dollar crisis could cause a double-dip recession, one that would be less severe but more lasting than in the case of an early withdrawal of policy stimuli. The central assumption is that the stimulus packages and a strong return of consumer and business confidence would lead to a return to the pre-crisis pattern of growth and to a renewed widening of the global imbalances, as discussed above. This, in turn, would lead to a projected rise in the United States current-account deficit of 6.4 per cent of GDP, up from 4.1 per cent in 2009. Such a return to "business as usual" would support a strong recovery of the world economy in 2010, but one that would not have a lasting effect (see figures I.5a-d above). Investor confidence would be affected by further rising public indebtedness and a drastic dollar devaluation. In the United States, public debt would rise to nearly 90 per cent of GDP in 2010, 20 points higher than a year earlier. The dollar would devalue by 28 per cent against the euro and 25 per cent against the yen in 2010, and would decline further in 2011. What happens next is driven largely by endogenous policy reactions as captured in the GPM. Inflation in the United States would accelerate from



less than half of one per cent in 2009 to 4 per cent in 2010. This, in turn, would trigger a tightening of monetary policy, with policy interest rates increasing to 2 per cent in 2010 and further to 5 per cent in 2011. Fiscal consolidation would also follow, albeit with a lag. (see appendix tables A.I.3 and A.I.4). Yet, the continuing devaluation of the dollar would continue to exercise further inflationary pressure, requiring stronger policy responses. The process continues, with inflation reaching about 6.5 per cent despite the drastic policy action and abating only partially thereafter, when the dollar is found to be less than 50 per cent its value against the currencies of other developed economies. Though not explicitly modelled, this could precipitate a crisis of confidence in the dollar causing global financial instability farther down the line. The lead-up to a hard landing of the dollar would be a lasting slowdown of global economic activity. Commodity prices would nonetheless rise because of the dollar devaluation. Developing countries, including those experiencing terms-of-trade improvements, would be hurt by the global slowdown.

Policy challenges

Sustainable global rebalancing

Dealing with these risks will be challenging. Since growth is not expected to be strong enough to reduce unemployment until well into 2010, private consumption demand will remain sluggish. As financial sector fragilities still exist in major economies, the global credit supply may remain tight in the immediate period ahead. In addition, the inventory adjustment which supported the recovery in the second half of 2009 will be a temporary phenomenon. This implies that continued fiscal stimulus will be necessary to keep up global **Source:** United States Federal Reserve Board, rebased by UN/DESA.

The major currencies index contains currencies of most developed countries; the broad index incorporates currencies of emerging economies into the other index. A decline in the index represents a depreciation of the dollar. aggregate demand, and further pressure on financial institutions will be needed to cleanse their balance sheets, resume normal lending and avoid a return to pre-crisis excess.

The immediate challenge for policymakers will be to determine how much longer the fiscal stimulus should continue. Given the risk of a double-dip recession resulting from premature withdrawal, the stimulus should continue at least until there are clearer signals of a more robust recovery. It may be difficult, however, to establish when and whether the recovery has become robust. Substantial improvements in employment conditions and reduction of output gaps will likely be meaningful indicators for determining the turning point.

To avoid a return to the unsustainable pattern of growth that led to the global crisis in the first place, three forms of rebalancing of the global economy would need to take place over time. First, the pressure on Governments to buoy global demand would need to diminish gradually through renewed impulses from private demand. Second, the composition of aggregate demand would need to be rebalanced to lend greater weight to investment in support of future productivity growth, and especially to initiate the transformative investments needed to meet the challenge of climate change. Third, demand across countries will need to be rebalanced. This would involve a shift towards external demand (net exports) in major deficit countries, such as the United States and a few other developing countries, and towards domestic demand in the major surplus countries, especially those in Asia.

These three rebalancing acts will require close policy coordination as they are strongly interdependent. Rebalancing across countries is needed because one of the key drivers of pre-crisis growth, consumer demand in the United States, is expected to remain sluggish in the outlook. From the perspective of global imbalances, it would also be undesirable to have to rely again on this source of growth for the recovery. In any case, United States households have already increased savings to about 3 per cent of GDP during 2009 (from almost zero savings in the years prior to the crisis). Private investments are also expected to remain sluggish in the near future in the United States (as well as in other major developed economies) as rates of capacity utilization are at historic lows. If fiscal stimulus is to be phased out, net exports of the major deficit countries would need to increase. Rising exports by these countries would need to be absorbed by major surplus countries, starting with China and other parts of developing Asia. This could be achieved in part through a further strengthening of domestic demand through fiscal stimulus which, along with improved market access and an orderly devaluation of the United States dollar, would push up import demand in that part of the world. The fiscal stimulus measures that are in place are already supportive of this kind of rebalancing but are as yet not strong enough, and the change will only come gradually. GDP of the countries of emerging Asia is roughly half that of the United States, so they would need to lower their combined current-account surpluses by about 6 per cent of their combined GDP to lower the United States deficit by, say, 3 per cent of its GDP.

But not all of Asia's trade is with the United States and other countries would therefore need to contribute to the rebalancing. Germany and Japan, other major surplus economies, could seek to strengthen domestic investment and productivity growth in their production sectors, while major oil exporters could further step up domestic investment plans to diversify their economies also. Additional financial transfers to developing countries with weak fiscal capacity would be needed to complete the rebalancing process and would enable these countries to increase domestic investment in infrastructure, food production and human development so as to support growth, poverty reduction and sustainable development. They would also encourage global import demand.

Stepping up public and private investment to address climate change could well be an integral part of the process. The recession has led to a notable reduction in global greenhouse gas (GHG) emissions worldwide in 2008-2009 (see annex table A.22). However, as the world economy recovers, demand for energy will also increase, as will GHG emissions. In order to reach the required reductions in CO₂ emissions in a timely manner and avoid a destabilizing rise in global temperatures, large-scale and upfront investments will need to be made. As analysed in a recent United Nations study,³ such investments in energy efficiency and renewable energy generation need to be made now in order to achieve the scale effects needed to lower the cost of green technologies and effectively attain low-emission growth paths. These investments will also be required in developing countries, where energy demand would be expected to increase starkly along with their efforts to reach higher levels of development. By leapfrogging to green technologies, they could contribute to emission reductions while sustaining high-growth development trajectories. Substantial investments will need to be made towards climate change adaptation, especially in developing countries that are already being affected by the adverse effects of global warming. Estimates of the level of investments needed for climate change mitigation and adaptation vary, but there seems to be a growing consensus that they would be substantial but affordable, in the order of about 2 per cent of WGP per annum over the coming two decades.⁴ New investments of this size are large enough to play a role in the required adjustment in the global macroeconomic imbalances. Since developed countries presently possess a comparative advantage in the development of green technologies and related capital goods, the increase in world demand for such products should thus contribute to a reduction in the aggregate external deficit of their economies.

Such a sustainable rebalancing of the world economy will by no means be easy to achieve and will require significantly enhanced international policy coordination. The macroeconomic feasibility of the three types of rebalancing was assessed through additional simulations using the GPM. The results, presented in figures 1.5a-d above as the "international policy coordination" scenario, suggest that a combination of manageable global imbalances, growth convergence between developed and developing countries and greater environmental sustainability is indeed possible. The key assumptions of this scenario are that countries effectively coordinate policies in pursuance of these goals. These policies are initially driven by higher public investments directed at promoting transformative investments in infrastructure and low-carbon emission energy production (including incentives for a crowding-in of private investment in such activity); financial transfers to developing countries to engage in investments in renewable energy; and climate change adaptation and economic diversification. As a result, fiscal policy stances remain expansionary in developing countries, but are phased out gradually in developed countries (see appendix table A.I.4). An additional assumption of the scenario is that developing countries are granted full market access for all their exports (agricultural and non-agricultural). This assumption ("trade not aid") would limit the amount of additional financial transfers that developing countries would need to receive in order to finance the sustainable development strategy,

³ See United Nations, *World Economic and Social Survey 2009: Promoting Development, Saving the Planet* (United Nations publication, Sales No. E.09.II.C.1).

⁴ See, United Nations, ibid., chap. VI; World Bank, World Development Report 2009: Reshaping Economic Geography (Washington, D. C.: The World Bank); and Nicholas Stern, A Blueprint for a Safer Planet: How to Manage Climate Change and Create a New Era of Prosperity (London: The Bodley Head, 2009).

and over time should enable them to finance the investments through export growth and domestic resource mobilization (see appendix table A.I.2).

All countries and regions would reap the benefits of growth in this scenario, not only from the increased multiplier effects of the policy impulses that are internationally coordinated, but also from more stable world commodity prices, as it is assumed that the global investment strategy would lead to a more stable energy supply and therefore greater energy security. More stable energy prices would also spill over to other commodity prices. Rebalanced global growth would narrow current-account surpluses and deficits across countries, and public indebtedness (appendix tables A.I.2 and A.I.3) would also fall over time with a higher growth and greater dynamism of private sector activity.

Naturally, these benign outcomes may not come to pass smoothly and macroeconomic trade-offs could emerge (for instance, in the form of higher inflationary pressures—which could put upward pressure on interest rates) that could then offset some of the growth gains. This will consequently require an adequate platform and framework for global policy coordination.

Appendix

Table A.I.1

Rates of growth of major countries and world regions under three model-based policy scenario simulations,^a 2009–2015

Percentage							
	2009	2010	2011	2012	2013	2014	2015
World							
Early withdrawal of stimuli	_22	24	-0.8	0.8	15	2.0	24
Global imbalances dollar devaluation and inflation	-2.2	4.8	3.0	1.8	21	2.0	2.4
International policy coordination	-2.2	2.4	4.4	5.1	5.2	5.2	5.1
United States	2.2	2.1		5.1	5.2	5.2	
Farly withdrawal of stimuli	-25	21	-04	0.5	10	15	20
Global imbalances, dollar devaluation and inflation	-2.5	5.4	5.5	1.1	2.4	3.9	3.7
International policy coordination	-2.5	2.1	3.4	4.5	5.0	4.9	4.7
Western Europe							
Early withdrawal of stimuli	-4.1	0.5	-2.5	-0.6	0.4	1.0	1.5
Global imbalances, dollar devaluation and inflation	-4.1	2.4	0.6	1.9	1.5	0.8	0.3
International policy coordination	-4.1	0.5	2.5	3.5	3.7	3.5	3.4
Japan							
Farly withdrawal of stimuli	-5.6	0.9	-1.8	-1.5	-1.0	-0.5	-0.3
Global imbalances, dollar devaluation and inflation	-5.6	4.5	0.4	-0.9	-0.2	1.1	1.6
International policy coordination	-5.6	0.9	3.9	3.3	2.3	2.5	2.2
Other developed economies							
Early withdrawal of stimuli	-1.2	2.1	-1.9	0.3	1.8	2.4	2.8
Global imbalances, dollar devaluation and inflation	-1.2	4.0	1.9	0.4	0.5	0.9	1.1
International policy coordination	-1.2	2.1	4.2	5.0	5.4	5.2	5.0
Commonwealth of Independent States							
Early withdrawal of stimuli	-6.7	1.7	-3.4	1.0	2.9	3.0	3.7
Global imbalances, dollar devaluation and inflation	-6.7	1.8	4.0	5.5	4.1	3.6	3.5
International policy coordination	-6.7	1.7	5.2	7.5	7.7	7.6	7.2
Western Asia							
Early withdrawal of stimuli	-1.0	3.6	-0.7	2.4	4.7	4.1	4.6
Global imbalances, dollar devaluation and inflation	-1.0	4.8	2.4	4.9	3.0	3.0	2.9
International policy coordination	-1.0	3.6	5.7	7.2	7.4	7.4	6.6
Newly industrialized East Asia							
Early withdrawal of stimuli	-2.6	3.7	-0.9	0.0	2.2	3.4	4.0
Global imbalances, dollar devaluation and inflation	-2.6	7.0	6.0	1.8	2.2	3.0	3.4
International policy coordination	-2.6	3.7	8.2	6.4	6.0	5.4	5.7
China							
Early withdrawal of stimuli	8.1	8.8	4.7	5.5	5.1	5.0	4.9
Global imbalances, dollar devaluation and inflation	8.1	9.4	5.1	5.4	4.7	4.7	4.2
International policy coordination	8.1	8.8	8.0	8.0	7.6	8.1	7.9
East Asia, middle-income, excluding China							
Early withdrawal of stimuli	-2.4	3.6	-1.8	2.0	3.9	4.6	5.2
Global imbalances, dollar devaluation and inflation	-2.4	4.7	2.1	1.7	2.0	2.7	3.0
International policy coordination	-2.4	3.6	5.0	6.3	6.6	7.3	7.6

Table A.I.1 (cont′d)							
	2009	2010	2011	2012	2013	2014	2015
India							
Farly withdrawal of stimuli	59	65	29	3.8	44	46	48
Global imbalances, dollar devaluation and inflation	5.9	7.0	6.4	3.7	3.8	3.7	3.8
International policy coordination	5.9	6.5	10.2	10.4	10.8	10.6	10.5
South Asia, excluding India							
Early withdrawal of stimuli	4.8	2.3	0.6	2.9	4.0	4.4	4.8
Global imbalances, dollar devaluation and inflation	4.8	3.7	2.8	2.5	2.9	3.3	3.5
International policy coordination	4.8	2.3	6.8	8.0	8.7	8.7	8.7
East Asia, low-income							
Early withdrawal of stimuli	3.9	4.8	0.8	4.1	4.7	5.0	5.2
Global imbalances, dollar devaluation and inflation	3.9	4.8	3.9	2.1	1.9	2.1	2.0
International policy coordination	3.9	4.8	8.7	8.9	9.2	8.9	8.4
Mexico, Central America and the Caribbean							
Early withdrawal of stimuli	-6.4	2.9	-2.1	1.7	2.9	3.4	4.0
Global imbalances, dollar devaluation and inflation	-6.4	5.6	0.6	1.1	1.6	2.2	2.6
International policy coordination	-6.4	2.9	4.9	7.1	7.6	7.4	7.2
South America							
Early withdrawal of stimuli	-0.2	3.8	-1.0	1.5	2.0	2.1	2.5
Global imbalances, dollar devaluation and inflation	-0.2	4.6	0.9	1.4	1.4	1.5	1.5
International policy coordination	-0.2	3.2	4.8	5.5	5.9	6.1	5.8
Africa, middle-income							
Early withdrawal of stimuli	1.3	3.6	1.0	4.5	5.0	5.3	5.7
Global imbalances, dollar devaluation and inflation	1.3	5.3	3.5	4.4	4.0	4.0	3.9
International policy coordination	1.3	3.6	8.0	8.5	8.6	8.8	8.0
Africa, low-income							
Early withdrawal of stimuli	1.9	4.6	1.8	5.1	4.8	5.2	5.6
Global imbalances, dollar devaluation and inflation	1.9	7.0	2.5	4.2	3.5	3.6	3.6
International policy coordination	1.9	4.6	10.0	10.4	10.9	11.5	10.7
Memorandum items:							
Oil price, world average, USD per barrel							
Early withdrawal of stimuli	61.0	80.1	67.8	73.5	81.6	89.1	96.8
Global imbalances, dollar devaluation and inflation	61.0	95.7	109.5	126.5	147.5	167.5	178.2
International policy coordination	61.0	80.1	82.0	82.0	83.1	92.6	97.9
Primary commodity prices, world average, USD-denomin	ated index						
Early withdrawal of stimuli	76.4	76.0	66.2	63.3	63.1	64.4	66.2
Global imbalances, dollar devaluation and inflation	76.4	82.6	96.0	105.6	112.9	118.3	118.8
International policy coordination	76.4	76.0	80.0	85.7	92.2	99.4	104.4
Growth of volume of world merchandise exports							
Early withdrawal of stimuli	-12.6	5.5	1.4	4.5	6.6	6.8	6.9
Global imbalances, dollar devaluation and inflation	-12.6	4.0	7.2	8.8	9.5	9.7	9.5
International policy coordination	-12.6	5.5	7.9	8.8	9.2	8.8	9.0

a See text for the assumptions underlying each scenario.

Table A.I.2

Current account of major countries and world regions under three model-based policy scenario simulations,^a 2009-2015

Percentage of each country or region's GDP									
	2009	2010	2011	2012	2013	2014	2015		
United States									
Early withdrawal of stimuli	-4.1	-4.8	-4.2	-4.5	-4.9	-5.2	-5.4		
Global imbalances, dollar devaluation and inflation	-4.1	-6.4	-5.3	-3.7	-2.2	-1.0	0.1		
International policy coordination	-4.1	-4.8	-4.8	-4.5	-4.2	-4.1	-3.9		
Western Europe									
Early withdrawal of stimuli	-0.6	-0.5	0.0	-0.1	-0.2	-0.3	-0.3		
Global imbalances, dollar devaluation and inflation	-0.6	0.2	0.1	-0.5	-1.0	-1.4	-1.7		
International policy coordination	-0.6	-0.5	-0.4	-0.2	0.0	0.1	0.4		
Japan									
Early withdrawal of stimuli	2.1	1.5	1.5	1.5	1.8	2.3	2.7		
Global imbalances, dollar devaluation and inflation	2.1	2.0	0.8	0.1	-0.2	-0.2	0.0		
International policy coordination	2.1	1.5	1.3	1.2	1.2	1.4	1.6		
Other developed economies									
Early withdrawal of stimuli	-2.7	-2.5	-3.7	-3.7	-3.4	-3.2	-3.0		
Global imbalances, dollar devaluation and inflation	-2.7	-2.1	-2.7	-3.3	-3.7	-4.1	-4.4		
International policy coordination	-2.7	-2.5	-2.5	-2.3	-2.0	-1.7	-1.4		
Commonwealth of Independent States									
Early withdrawal of stimuli	3.5	6.1	4.4	5.7	6.5	6.7	6.7		
Global imbalances, dollar devaluation and inflation	3.5	8.5	6.9	5.7	5.4	5.4	5.0		
International policy coordination	3.5	6.1	6.0	4.8	3.5	3.1	2.4		
Western Asia									
Early withdrawal of stimuli	1.5	5.2	3.1	4.6	5.3	5.5	5.5		
Global imbalances, dollar devaluation and inflation	1.5	7.5	6.1	5.0	4.9	4.8	4.2		
International policy coordination	1.5	5.2	5.1	4.0	2.7	2.6	2.0		
Newly industrialized East Asia									
Early withdrawal of stimuli	7.1	4.8	7.2	7.9	7.9	7.3	6.4		
Global imbalances, dollar devaluation and inflation	7.1	5.5	4.6	4.0	3.0	1.9	1.2		
International policy coordination	7.1	4.8	4.3	4.4	4.4	4.1	3.9		
China									
Early withdrawal of stimuli	10.8	10.7	9.4	7.9	6.6	5.5	4.6		
Global imbalances, dollar devaluation and inflation	10.8	9.3	8.1	7.0	6.2	5.5	4.9		
International policy coordination	10.8	10.7	9.6	8.2	6.7	5.3	3.9		
East Asia, middle-income, excluding China									
Early withdrawal of stimuli	9.0	8.7	7.5	6.8	6.5	6.3	6.2		
Global imbalances, dollar devaluation and inflation	9.0	8.2	7.8	7.0	6.1	5.3	4.6		
International policy coordination	9.0	8.7	7.8	6.8	5.7	4.7	3.9		
India									
Early withdrawal of stimuli	-3.4	-4.1	-3.5	-3.9	-4.1	-4.2	-4.1		
Global imbalances, dollar devaluation and inflation	-3.4	-5.1	-4.8	-4.6	-4.7	-4.8	-4.8		
International policy coordination	-3.4	-4.1	-3.8	-2.9	-1.8	-1.3	-0.7		

Table A.I.2 (cont'd)										
	2009	2010	2011	2012	2013	2014	2015			
South Asia, excluding India										
Early withdrawal of stimuli	-2.9	-3.3	-2.8	-3.0	-3.2	-3.1	-3.1			
Global imbalances, dollar devaluation and inflation	-2.9	-4.2	-3.4	-3.0	-3.0	-3.0	-3.0			
International policy coordination	-2.9	-3.3	-3.0	-2.3	-1.5	-1.2	-0.8			
East Asia, low-income										
Early withdrawal of stimuli	-1.3	-1.7	-2.9	-2.4	-1.3	-0.2	0.8			
Global imbalances, dollar devaluation and inflation	-1.3	-1.0	-1.3	-1.1	-0.4	0.2	0.6			
International policy coordination	-1.3	-1.7	-1.7	-1.3	-0.7	0.1	0.6			
Mexico, Central America and the Caribbean										
Early withdrawal of stimuli	-2.6	-2.7	-2.4	-2.0	-1.6	-1.5	-1.4			
Global imbalances, dollar devaluation and inflation	-2.6	-2.7	-2.3	-2.7	-3.1	-3.6	-4.0			
International policy coordination	-2.6	-2.7	-1.8	-1.3	-0.9	-0.9	-0.8			
South America										
Early withdrawal of stimuli	-0.5	-0.3	-1.2	-1.0	-0.6	-0.1	0.3			
Global imbalances, dollar devaluation and inflation	-0.5	0.2	-0.1	-0.4	-0.6	-0.6	-0.8			
International policy coordination	-0.5	-0.3	-0.2	0.0	0.1	0.3	0.4			
Africa, middle-income										
Early withdrawal of stimuli	-2.8	-2.6	-3.5	-1.9	-0.3	1.1	2.1			
Global imbalances, dollar devaluation and inflation	-2.8	-1.5	-1.7	-1.2	-0.2	0.7	1.3			
International policy coordination	-2.8	-2.6	-2.4	-2.2	-1.7	-0.7	0.0			
Africa, low-income										
Early withdrawal of stimuli	-3.3	-0.5	-2.2	-1.1	0.3	1.3	2.1			
Global imbalances, dollar devaluation and inflation	-3.3	1.4	0.5	0.2	0.6	1.1	1.2			
International policy coordination	-3.3	-0.5	-0.9	-1.6	-2.1	-1.9	-2.0			

a See text for the assumptions underlying each scenario.

Table A.I.3

Changes in policy interest rates,^a by country or region, under three model-based policy scenario simulations,^b 2010-2015

Basis points, difference over previous year						
	2010	2011	2012	2013	2014	2015
United States						
Early withdrawal of stimuli	19	193	101	-17	-64	-22
Global imbalances, dollar devaluation and inflation	202	275	111	60	41	-53
International policy coordination	19	103	175	232	150	32
Western Europe						
Early withdrawal of stimuli	15	214	68	-6	-11	39
Global imbalances, dollar devaluation and inflation	198	-71	25	96	105	0
International policy coordination	15	123	157	230	188	70
Japan						
Early withdrawal of stimuli	36	146	23	-29	-108	-49
Global imbalances, dollar devaluation and inflation	219	-111	-42	-12	14	-40
International policy coordination	36	116	154	95	86	-35
Other developed economies						
Early withdrawal of stimuli	20	209	39	-32	-40	32
Global imbalances, dollar devaluation and inflation	110	-21	-25	-4	11	-16
International policy coordination	20	120	174	229	149	53
Commonwealth of Independent States						
Early withdrawal of stimuli	139	-161	-468	63	104	124
Global imbalances, dollar devaluation and inflation	-378	-233	189	230	276	81
International policy coordination	139	280	-227	-14	94	-36
Western Asia						
Early withdrawal of stimuli	134	281	-90	-5	54	73
Global imbalances, dollar devaluation and inflation	68	204	47	57	72	-17
International policy coordination	134	72	179	199	127	52
Newly industrialized East Asia						
Early withdrawal of stimuli	15	221	24	-49	-78	16
Global imbalances, dollar devaluation and inflation	137	-16	11	27	19	-64
International policy coordination	15	86	172	221	114	-44
China						
Early withdrawal of stimuli	284	188	-41	18	-109	-5
Global imbalances, dollar devaluation and inflation	262	-100	92	73	49	29
International policy coordination	284	19	11	40	44	30
East Asia, middle-income, excluding China						
Early withdrawal of stimuli	-3	150	-67	-135	-109	8
Global imbalances, dollar devaluation and inflation	-78	-190	-120	-32	35	-3
International policy coordination	-3	-76	43	166	161	7
India						
Early withdrawal of stimuli	112	105	-55	-212	-238	-92
Global imbalances, dollar devaluation and inflation	146	-127	-130	-118	-96	-97
International policy coordination	112	-24	71	139	97	1

Table A.I.3 (cont'd)											
	2010	2011	2012	2013	2014	2015					
South Asia, excluding India	South Asia, excluding India										
Early withdrawal of stimuli	4	94	-13	-136	-169	-27					
Global imbalances, dollar devaluation and inflation	14	-167	-116	-60	-27	-12					
International policy coordination	4	-32	77	159	113	37					
East Asia, low-income											
Early withdrawal of stimuli	10	215	17	-85	-97	35					
Global imbalances, dollar devaluation and inflation	-10	-25	-67	-71	-36	-17					
International policy coordination	10	-5	147	137	109	47					
Mexico, Central America and the Caribbean											
Early withdrawal of stimuli	46	103	-42	-106	-92	-30					
Global imbalances, dollar devaluation and inflation	-86	-136	-90	-5	56	-35					
International policy coordination	46	-92	94	267	247	28					
South America											
Early withdrawal of stimuli	-42	125	-57	-85	-44	4					
Global imbalances, dollar devaluation and inflation	110	-42	-233	-151	-61	-76					
International policy coordination	-42	69	118	192	63	7					
Africa, middle-income											
Early withdrawal of stimuli	-1	297	-33	-151	-171	-33					
Global imbalances, dollar devaluation and inflation	3	19	-75	-51	-28	-54					
International policy coordination	-1	71	141	200	99	3					
Africa, low-income											
Early withdrawal of stimuli	66	257	-6	-35	-37	80					
Global imbalances, dollar devaluation and inflation	60	-23	-75	14	66	50					
International policy coordination	66	-100	207	191	29	12					

a Regional rates are weighted by GDP.

b See text for the assumptions underlying each scenario.

Table A.I.4

Ex ante fiscal stimuli, by major country or region, under three model-based policy scenario simulations,^a 2008-2015

Percentage of GDP						
	Estimated effective					
	stimuli 2008-2010	2011	2012	2013	2014	2015
United States	· · · ·					
Early withdrawal of stimuli	5.4	-2.3	-1.7	-1.2	-0.9	-0.7
Global imbalances, dollar devaluation and inflation	5.6	0.2	-1.7	-1.8	-1.4	-1.2
International policy coordination	5.4	0.3	0.2	0.1	0.0	0.0
Western Europe						
Early withdrawal of stimuli	2.1	-1.7	-1.3	-1.0	-0.7	-0.5
Global imbalances, dollar devaluation and inflation	2.2	0.2	0.1	-0.1	-0.7	-1.1
International policy coordination	2.1	0.3	0.1	0.1	0.0	0.0
Japan						
Early withdrawal of stimuli	4.0	-1.6	-1.2	-0.9	-0.7	-0.5
Global imbalances, dollar devaluation and inflation	4.0	0.2	0.1	0.0	0.0	0.0
International policy coordination	4.0	0.2	0.1	0.0	0.0	0.0
Other developed economies						
Early withdrawal of stimuli	2.6	-2.1	-1.5	-1.2	-0.9	-0.6
Global imbalances, dollar devaluation and inflation	2.6	0.3	0.2	0.1	0.0	0.0
International policy coordination	2.6	0.3	0.2	0.1	0.0	0.0
Commonwealth of Independent States						
Early withdrawal of stimuli	2.5	-1.3	-1.0	-0.8	-0.6	-0.4
Global imbalances, dollar devaluation and inflation	2.5	0.4	0.2	0.1	0.0	0.0
International policy coordination	2.5	0.6	0.5	0.6	0.7	0.7
Western Asia						
Early withdrawal of stimuli	3.6	-0.4	-0.3	-0.2	-0.2	-0.1
Global imbalances, dollar devaluation and inflation	3.6	0.2	0.1	0.0	0.0	0.0
International policy coordination	3.6	0.5	0.6	0.6	0.6	0.6
Newly industrialized East Asia						
Early withdrawal of stimuli	3.7	-2.1	-1.6	-1.2	-0.9	-0.7
Global imbalances, dollar devaluation and inflation	3.7	0.5	0.0	0.1	0.0	0.0
International policy coordination	3.7	0.5	0.0	0.1	0.0	0.0
China						
Early withdrawal of stimuli	9.3	0.0	0.0	0.0	0.0	0.0
Global imbalances, dollar devaluation and inflation	9.3	0.8	0.4	0.2	0.0	0.0
International policy coordination	9.3	0.8	0.4	0.2	0.0	0.0
East Asia, middle-income, excluding China						
Early withdrawal of stimuli	3.1	-1.6	-1.2	-0.9	-0.7	-0.5
Global imbalances, dollar devaluation and inflation	3.1	0.4	0.2	0.1	0.0	0.0
International policy coordination	3.1	1.0	1.0	1.2	1.2	1.3
India						
Early withdrawal of stimuli	6.4	0.0	0.0	0.0	0.0	0.0
Global imbalances, dollar devaluation and inflation	6.4	0.7	0.4	0.2	0.0	0.0
International policy coordination	6.4	1.0	1.1	1.1	1.1	1.1

Table A.I.4 (cont'd)						
	Estimated effective stimuli 2008-2010	2011	2012	2013	2014	2015
South Asia, excluding India						
Early withdrawal of stimuli	0.9	0.0	0.0	0.0	0.0	0.0
Global imbalances, dollar devaluation and inflation	0.9	0.0	0.0	0.0	0.0	0.0
International policy coordination	0.9	1.3	1.3	1.4	1.5	1.5
East Asia, low-income						
Early withdrawal of stimuli	1.4	-0.1	-0.1	-0.1	-0.1	0.0
Global imbalances, dollar devaluation and inflation	1.4	0.0	0.0	0.0	0.0	0.0
International policy coordination	1.4	1.2	1.3	1.3	1.2	1.2
Mexico, Central America and the Caribbean						
Early withdrawal of stimuli	1.3	-0.9	-0.7	-0.5	-0.4	-0.3
Global imbalances, dollar devaluation and inflation	1.3	0.0	0.0	0.0	0.0	0.0
International policy coordination	1.3	0.7	0.7	0.8	0.9	0.8
South America						
Early withdrawal of stimuli	0.8	-0.5	-0.4	-0.3	-0.2	-0.2
Global imbalances, dollar devaluation and inflation	0.8	0.0	0.0	0.0	0.0	0.0
International policy coordination	0.8	0.7	0.7	0.8	0.8	0.8
Africa, middle-income						
Early withdrawal of stimuli	0.9	0.0	0.0	0.0	0.0	0.0
Global imbalances, dollar devaluation and inflation	0.9	0.0	0.0	0.0	0.0	0.0
International policy coordination	0.9	1.0	1.0	1.0	1.0	1.0
Africa, low-income						
Early withdrawal of stimuli	0.9	0.0	0.0	0.0	0.0	0.0
Global imbalances, dollar devaluation and inflation	0.9	0.0	0.0	0.0	0.0	0.0
International policy coordination	0.9	1.3	1.4	1.5	1.4	1.5

a See text for the assumptions underlying each scenario.

Table A.I.5

Estimated government^a debt of major countries and world regions under three model-based policy scenario simulations,^a 2009-2015

Percentage of each country or region's GDP							
	2009	2010	2011	2012	2013	2014	2015
United States							
Early withdrawal of stimuli	71.0	80.9	89.5	95.1	98.5	99.5	99.0
Global imbalances dollar devaluation and inflation	71.0	79.0	81.1	81.1	79.3	76.0	72.0
International policy coordination	71.0	80.9	87.4	89.0	86.5	81.9	77.2
Western Europe							
Farly withdrawal of stimuli	70.5	80.7	91.9	100.9	107.5	110.6	111.6
Global imbalances, dollar devaluation and inflation	70.5	79.2	83.3	85.5	86.5	86.9	88.2
International policy coordination	70.5	80.7	87.9	90.5	89.0	85.3	81.7
Japan	II						
Early withdrawal of stimuli	171.8	179.6	185.8	192.4	199.5	204.7	209.7
Global imbalances, dollar devaluation and inflation	171.8	172.5	159.8	155.3	156.3	158.2	160.6
International policy coordination	171.8	179.6	177.2	170.6	162.4	153.8	147.7
Other developed economies							
Early withdrawal of stimuli	55.7	57.7	62.2	65.7	67.7	67.6	66.4
Global imbalances, dollar devaluation and inflation	55.7	55.9	53.3	52.7	53.7	55.6	58.3
International policy coordination	55.7	57.7	58.6	57.4	54.3	50.3	46.6
Commonwealth of Independent States							
Early withdrawal of stimuli	17.0	18.6	21.8	26.3	30.3	32.4	33.1
Global imbalances, dollar devaluation and inflation	17.0	18.9	23.6	27.5	29.5	29.8	29.3
International policy coordination	17.0	18.6	20.8	22.7	23.7	23.4	22.6
Western Asia							
Early withdrawal of stimuli	28.0	27.7	30.9	33.5	34.3	34.1	33.6
Global imbalances, dollar devaluation and inflation	28.0	26.3	23.9	22.7	22.3	22.5	23.6
International policy coordination	28.0	27.7	28.4	28.4	28.3	27.8	27.9
Newly industrialized East Asia							
Early withdrawal of stimuli	12.8	12.7	12.8	13.2	13.9	14.5	15.2
Global imbalances, dollar devaluation and inflation	12.8	12.5	11.5	10.7	11.8	13.9	16.0
International policy coordination	12.8	12.7	12.7	12.2	11.7	11.3	11.1
China							
Early withdrawal of stimuli	17.5	22.3	28.0	33.3	37.9	41.7	45.0
Global imbalances, dollar devaluation and inflation	17.5	22.1	26.3	31.0	35.8	40.5	45.3
International policy coordination	17.5	22.3	27.2	31.2	33.9	35.2	35.7
East Asia, middle-income, excluding China							
Early withdrawal of stimuli	34.3	37.2	42.9	48.0	51.3	52.6	52.6
Global imbalances, dollar devaluation and inflation	34.3	36.1	35.6	37.2	39.9	42.9	46.3
International policy coordination	34.3	37.2	39.7	41.2	41.6	41.0	40.5
India							
Early withdrawal of stimuli	54.6	56.5	62.1	68.5	74.2	78.4	81.3
Global imbalances, dollar devaluation and inflation	54.6	55.7	52.0	52.1	54.4	57.9	62.1
International policy coordination	54.6	56.5	57.7	57.4	55.1	51.9	49.0

Table A.I.5 (cont'd)										
	2009	2010	2011	2012	2013	2014	2015			
South Asia, excluding India										
Early withdrawal of stimuli	47.7	47.3	49.4	52.4	55.2	57.3	58.9			
Global imbalances, dollar devaluation and inflation	47.7	46.7	39.5	35.8	34.5	34.7	36.0			
International policy coordination	47.7	47.3	46.4	45.0	42.6	39.9	37.8			
East Asia, low-income										
Early withdrawal of stimuli	19.5	17.1	15.4	13.9	12.1	9.9	7.5			
Global imbalances, dollar devaluation and inflation	19.5	16.6	12.0	9.0	7.0	5.4	4.2			
International policy coordination	19.5	17.1	14.1	10.8	7.8	5.2	3.1			
Mexico, Central America and the Caribbean										
Early withdrawal of stimuli	26.9	29.3	33.8	37.6	40.2	41.3	41.8			
Global imbalances, dollar devaluation and inflation	26.9	27.9	26.3	26.2	27.1	28.5	30.6			
International policy coordination	26.9	29.3	31.2	31.2	29.8	27.6	26.0			
South America										
Early withdrawal of stimuli	31.2	30.8	33.1	35.4	37.2	38.1	38.5			
Global imbalances, dollar devaluation and inflation	31.2	29.8	27.5	26.8	27.2	28.0	29.2			
International policy coordination	31.2	30.8	30.9	30.6	29.7	28.4	27.3			
Africa, middle-income										
Early withdrawal of stimuli	24.8	22.5	22.6	23.9	24.6	24.8	24.6			
Global imbalances, dollar devaluation and inflation	24.8	21.6	19.0	17.6	16.7	16.0	15.6			
International policy coordination	24.8	22.5	21.3	20.8	20.0	19.0	18.2			
Africa, low-income										
Early withdrawal of stimuli	46.8	46.8	50.2	52.1	52.2	50.6	48.0			
Global imbalances, dollar devaluation and inflation	46.8	44.0	37.2	33.6	31.4	30.1	29.7			
International policy coordination	46.8	46.8	45.9	43.5	41.5	38.5	36.7			

a Refers to the stock of gross government debt, not taking into account adjustments owing to the exchange-rate and other revaluation effects. Historical data on government accounts in the Global Policy Model are based on IMF Government Finance Statistics, supplemented by OECD and Eurostat sources. National currency data have been converted to United States dollars. In some cases, missing data for recent years had to be extrapolated and may not coincide with the latest releases of data from national or international sources.

b See text for the assumptions underlying each scenario.