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G-20 Mutual Assessment Process—Alternative Policy Scenarios

Prepared by Staff of the International Monetary Fund

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G-20 Mutual Assessment Process—Alternative Policy Scenarios
A Report by the IMF Staff
Executive Summary

This report provides Fund staff’s analysis of alternative policy scenarios to achieve strong, sustainable and balanced growth based on G-20 frameworks submitted for the Mutual Assessment Process (MAP). After establishing a baseline scenario on the basis of G-20 submissions and key economic and financial developments thereafter, Fund staff, guided by the G-20, developed two alternative scenarios—an upside and a downside case—to explore the potential benefits of further G-20 policy action to help deliver on their shared objectives of strong, sustainable and balanced growth. Key findings are as follows.

Collective action would yield tangible and material benefit to the G-20 membership and the global economy. An upside scenario of collaborative policy actions would credibly strengthen outcomes and address key weaknesses in G-20 policy frameworks. Specifically:

- Global growth would be appreciably stronger—reducing poverty worldwide. Global GDP would be higher relative to the G-20 baseline by 2½ percent over the medium term (i.e., after 5 years). World output would be higher by over 1½ trillion U.S. dollars.
- Employment gains would be significant across regions. An estimated 8 million more jobs would be created in advanced economies, over 21 million in emerging Asia and rest of the world, and global employment would rise by around 30 million jobs.
- This would lift an estimated 33 million people out of poverty, according to a companion World Bank Report.

Global growth would also be more balanced and thus more sustainable under collective action. In the upside scenario, stronger domestic demand in surplus countries is matched with deficit economies rebuilding saving on the back of stronger external demand. Accordingly, greater rebalancing of demand would be achieved, and external imbalances would narrow appreciably. Specifically:

- Driven by strong and credible consolidation, public finances would be returned onto a sustainable trajectory in G-20 advanced economies. Credible consolidation plans—designed to be “growth friendly”—would mitigate the dampening effect on domestic demand. Monetary policy accommodation could be maintained for a more extended period to help support activity, since inflation would remain contained as fiscal balances are strengthened.
- Alongside fiscal consolidation in the advanced economies, the case for complementary action is strong across G-20 partners. To avoid a global “demand deficit” and slower growth, key structural reforms to boost internal demand in emerging economies with large external surpluses would help them avoid a domestic slowdown and to play a leading role in supporting global growth.
- Exchange rate adjustment is shown to be an integral component of global rebalancing. Overall, global imbalances (sum of absolute current account positions) narrow by one quarter or ¾ percentage points of global GDP.

Collective action would also help mitigate risk—reducing prospects of a downside scenario that could inflict heavy costs. The G-20 “base case” is subject to significant downside risks—particularly, fiscal risks and lower productivity.

- A scenario where these risks materialize suggests that global output could be lower by more than 3 percent (about 2¼ trillion U.S. dollars) over the medium term relative to the refined baseline; around 23 million jobs could be lost, while nearly 60 million people could fall into poverty. Reactive policies in the downside scenario are shown to be less effective.
- Importantly, many of the key policies in the upside would help reduce the risks associated with the downside, reinforcing the case for these collaborative actions. Upside gains and avoidance of downside losses would sum to much larger benefits.

To advance progress toward meeting G-20 objectives of strong, sustainable and balanced growth, policies should be prioritized and tailored to the requirements and conditions of individual members. In accordance with G-20 guidelines, this report indicates key policy actions for broader G-20 groups of countries with similar circumstances:

- Credible fiscal consolidation over the medium term, underpinned by high-quality measures of sufficient magnitude, should be a top priority in *advanced deficit* economies given sovereign debt market stress and other fiscal risks. Substantial budgetary effort would be required to restore fiscal soundness and to rebuild market confidence. In this regard, credible and coherent fiscal plans should be clearly communicated as soon as possible.
- To reduce regulatory uncertainty, *advanced economies* should also accelerate financial repair and reform. Long-awaited progress here is essential to rebuild a well-functioning financial system to provide credit and support growth, while safeguarding financial stability.
- Product and labor market reforms are important in *advanced surplus* economies, particularly in countries hardest hit by the crisis, to repair possibly lower supply potential and reduce persistently high unemployment. Reforms should be friendly to demand, as well as supply.
- In *emerging surplus* economies, policy should aim at enhancing social safety nets, reforming corporate governance, and developing financial markets, supported by greater exchange rate flexibility to facilitate a rebalancing of demand towards domestic sources. This would avoid a slowdown in growth, given softer external demand. Greater infrastructure spending, including in *major oil exporters*, could further address supply bottlenecks in many of these fast-growing economies.
- In *emerging deficit* economies, policies should focus on simplifying product market regulation, improving infrastructure, and increasing efficiency of the formal sector to strengthen growth and employment.

G-20 Mutual Assessment Process (MAP)—Alternative Policy Scenarios A Report by the IMF Staff¹

I. INTRODUCTION

- 1. Fund staff assessment of macroeconomic and policy frameworks submitted by G-20 members identified several economic and policy issues and key risks.** The assessment found that the G-20 “base case” projections, at face value, appear to deliver strong, sustainable and balanced growth. However, when compared with historical evidence relating to recovery from crises and staff’s analysis in the *World Economic Outlook (WEO)*, growth projections appeared optimistic. Moreover, even assuming that the “base case” scenario materialized, the analysis identified some key weaknesses. In particular, fiscal consolidation was assessed to be insufficient to decisively address sustainability issues in a number of advanced economies. Also, rebalancing of global demand was viewed as not being strong enough to sustain high global growth and achieve low unemployment. Finally, it was assessed that stronger efforts to repair and reform the financial system was needed to support G-20 growth objectives, while safeguarding financial stability.
- 2. Based on the findings of this assessment, the G-20 asked Fund staff to explore two alternative scenarios to develop a set of policy actions that would help achieve their shared objectives.** First, an *upside scenario* “...and associated policy requirements, that would accelerate the progress towards achieving stronger, more sustainable and balanced growth, in the areas where this is not achieved in the base case.” Second, a *downside scenario* “... that identifies downside risks to the base case scenario and identifies the policies needed to avoid them.”
- 3. In response to the G-20’s request, this note provides an analysis of alternative scenarios to consider the options for further policy action.** The note is structured as follows. To provide a sensible starting point for the scenario analysis, Section II summarizes staff’s refinement of the “base case” projections to ensure greater multilateral consistency and to reflect recent economic and market developments. This section also summarizes the modeling framework used for the scenarios. Building on the refined baseline, Section III presents an “upside” policy scenario, illustrating the benefits of collective action. Section IV discusses a “downside” scenario and the effectiveness of reactive policies. Section V summarizes the potential benefits of moving across the two scenarios and identifies key policy priorities that would help G-20 members achieve their shared objectives for strong, sustainable and balanced growth.

II. REFINING THE G-20 MAP BASE CASE AND THE MODELING FRAMEWORK

- 4. To better anchor the scenario analysis, refinements were made to the G-20 “base case” to ensure greater consistency and to reflect recent economic and market developments.** These refinements are technical in nature and do not reflect further staff

¹ Prepared by staff of the Research Department of the International Monetary Fund. Analysis of structural reform priorities and scenarios was done in collaboration with OECD staff and has also benefited from ILO inputs.

judgment on the effectiveness of G-20 policies assumed in the baseline. Revisions to the G-20 MAP “base case” are necessary for two reasons—to achieve greater multilateral consistency and to reflect recent developments (see Box 1 for details).

- First, G-20 macroeconomic frameworks exhibit significant differences with respect to the likely output losses following the financial crisis. In particular, the major G-20 advanced economies that experienced a banking crisis project a fairly rapid recovery, under which they recoup most of their crisis-related output losses, while others project a more gradual recovery. Implicitly, the former countries see large output gaps, while the latter do not. Accordingly, staff used a model-based econometric framework to estimate a consistent set of output gaps and to adjust the “base case” as needed.
- Second, submissions by individual G-20 members differed by vintage, with some providing input as early as end-January and others as late as end-March 2010. Since then, important events in financial markets and significant economic developments have occurred. Thus, the “base case” was updated to also reflect recent economic and market developments.

5. **From this refined baseline, alternative scenarios are developed using the IMF’s Global Integrated Monetary and Fiscal (GIMF) model.** *As with any modeling framework, the analysis of policies and their effects is stylized and indicative. The simulation results are subject to uncertainty.* Nonetheless, it is a useful tool to analyze and illustrate the benefits of alternative policy options within a rigorous and consistent analytical structure for the global economy. Given the model’s structure, the stylized simulations are applied to each country or region. In accordance with G-20 guidelines, the policy assessments from the scenarios are then mapped into the broader groupings of G-20 members with similar economic circumstances and policy needs.² More specifically:

- The model contains 5 stylized countries or regions—the United States, euro area, Japan, emerging Asia, and rest of the world (ROW). The simulations are based on these entities or blocks.
- To help differentiate key fiscal and structural policy challenges facing euro area surplus versus euro area deficit countries, the *model was extended to distinguish between Germany and other euro area members.* For the purpose of monetary policy and exchange rate analysis, however, the euro area is naturally treated as a single unit—featuring a common monetary policy and single currency.
- Throughout the scenario analysis, nominal exchange rates are assumed to adjust flexibly between the regions (except, of course, between Germany and the rest of the euro area).

² Thematic G-20 groupings are: *advanced surplus* countries (Canada, France, Germany, Japan, Korea, and the Netherlands); *advanced deficit* countries (Australia, United Kingdom, and United States, and the euro area minus France, Germany, and the Netherlands); *emerging surplus* countries (Argentina, China, and Indonesia); *emerging deficit* countries (Brazil, India, Mexico, South Africa, Turkey, and other EU countries); and *major oil exporters* (Russia and Saudi Arabia).

- The model simulation results are translated into policy implications for broader groups by mapping the particular model block to the respective G-20 thematic grouping with similar economic circumstances and policy challenges.

III. UPSIDE SCENARIO—BENEFITS OF COLLECTIVE ACTION

While policy priorities and measures should be tailored to each individual country's economic situation and policy needs, the scenario analysis presented here is “stylized”—applying to groups of countries with similar circumstances. In accordance with G-20 guidelines, the report explores key policy actions only for these broader groups. Thus, the simulation results should be interpreted as “indicative.”

6. **The upside scenario explores policies that could credibly deliver G-20 objectives of strong, sustainable and balanced growth.** The set of policies examined here—specified for G-20 groupings of member countries—go *beyond* what is assumed in G-20 policy frameworks. The analysis is used to explore the benefits of collective action in two key dimensions. First, the scenario explores the extent to which a set of strengthened G-20 policy actions could provide a *sounder basis* for desired G-20 outcomes. Second, the upside scenario explores further policy options to address *key weaknesses* in the G-20 base case, such as persistently high unemployment and possibly lower potential output.

7. **The set of policy options that could strengthen G-20 outcomes would require collaborative action across the membership.** The major policy actions considered across the G-20 include: (i) “growth-friendly” fiscal consolidation in advanced economies; (ii) structural reforms (including strengthening social safety nets) and sustained infrastructure spending in emerging surplus economies, accompanied by increased exchange rate flexibility; and (iii) structural reforms in advanced economies to tackle high unemployment and weaker potential output following the crisis. These policy “layers” can be motivated as follows.

- *There is a pressing need, in general, for fiscal consolidation in G-20 advanced economies.* In the “base case,” fiscal deficits and debt levels in advanced economies are projected to remain large, notwithstanding favorable macroeconomic outcomes. This could weigh on the recovery and further raise market pressure in an environment of elevated uncertainty about sovereign debt risks. Thus, elements of alternative policy scenarios should consider fiscal consolidation, notably in economies with large fiscal and external deficits. Consolidation plans should be strong, credible, and, to the extent possible, supportive of growth. This would seem to require a sufficient scale of adjustment, more efficient redistribution of the tax burden and allocation of spending, as well as clear and effective communication of credible and coherent fiscal consolidation strategies.
- *The second layer involves complementary action in emerging economies, particularly those with large external surpluses, to support global demand.* Policies that are considered aim to strengthen social safety nets and minimize economic distortions to reduce high precautionary saving, increase infrastructure spending, and to allow greater exchange rate flexibility to facilitate the shift to domestic demand. Higher internal demand in surplus economies would support growth both domestically and globally,

helping to offset the global “demand deficit” stemming from fiscal restraint in advanced economies.

- *The third layer addresses supply constraints on G-20 growth, particularly in advanced economies hardest hit by the crisis.* Potential output growth may be low in large advanced countries and could be increased to maintain relatively high living standards. Importantly, structural reform may need to be accelerated in key areas to repair damaged potential and to reduce high unemployment. Such policies should focus on reforming labor, product, and services markets in key areas to increase productivity and lower unemployment. Policies should also be mindful of ways to sufficiently strengthen demand, alongside supply, to avoid building excess capacity. Finally, while not explicitly modeled, financial system regulatory reform and repair of financial intermediation would be crucial to support stronger economic growth over the medium term.

A. FISCAL CONSOLIDATION TO RESTORE SUSTAINABILITY IN ADVANCED ECONOMIES

8. **In the upside scenario, fiscal adjustment is underpinned, to the extent possible, by sound and “growth-friendly” policies, underscoring the role of credibility.** To restore sustainability of public finances, while mitigating the impact on growth, three core elements of fiscal consolidation would be instrumental: (i) *sufficient scale* to improve primary fiscal balances to stabilize public debt at prudent levels, given growth and interest rates; (ii) *growth-friendly composition* of fiscal measures to mitigate the dampening effect on demand, including through entitlement reform; and (iii) *strengthened credibility of fiscal plans*, including through clear and effective communication to market participants, to align market expectations with the authorities’ medium-term consolidation strategy. Key aspects of each component are elaborated below.

9. **To stabilize public debt at prudent levels, the *scale* of fiscal adjustment would need to be sufficiently strong, accounting for country-specific needs.** Major fiscal consolidation is needed in the years ahead in G-20 economies with high public deficits and debt.³ Different economic circumstances and policy needs across advanced economies would determine the timing, magnitude, and composition of consolidation at the individual country level. Reducing public debt to more prudent (e.g., pre-crisis) levels over the medium term is desirable for several reasons, including: (i) a need to rebuild fiscal space to deal with future shocks; (ii) possibly higher interest rates and lower potential growth given high public debt; and (iii) the need to prepare for formidable longer-term challenges on public finances— notably, rising health care costs and aging. Accordingly, the assumed fiscal consolidation in the scenario is broadly in line with stabilizing public debt-to-GDP ratios at pre-crisis levels. Total fiscal adjustment in the upside (including what is already in the baseline from G-20 policy frameworks) amounts to approximately 9½ and 6 percent of GDP in *advanced deficit* and *advanced surplus* economies, respectively.

10. **The first layer of the upside scenario considers the following additional (stylized) budgetary actions** (see Box 2):

³ See IMF “Fiscal Monitor: Navigating the Fiscal challenges Ahead,” Fiscal Affairs Department, May 2010.

- For *advanced deficit countries* (represented by the United States in the model) as well as some advanced surplus countries (represented by Japan in the model) an additional fiscal deficit reduction of 3 percentage points is phased in over 5 years, reflecting lower government consumption by 1 percent of GDP, lower general government transfers by 1½ percent of GDP, and higher tax revenues by ½ percentage point of GDP.⁴
- For *euro area surplus countries* (represented by Germany in the model) fiscal deficits are lowered by 1 percentage point relative to baseline, with components of the fiscal package scaled accordingly relative to the U.S. package. Given more pressing fiscal problems for *euro area deficit countries* (represented by the euro area excluding Germany in the model), greater reduction of fiscal deficits is assumed, i.e., 2½ percentage points of GDP, with the package components also scaled accordingly (the corresponding reduction of fiscal deficit for the euro area overall is about 2 percentage points of GDP).
- For *emerging surplus countries* (represented by emerging Asia in the model), *no* fiscal consolidation is assumed, while remaining countries in the rest of the world pursue fiscal deficit reduction of 1 percentage point of GDP.

11. **To mitigate the dampening effect on demand, the *composition* of fiscal adjustment would be important.** The design of fiscal consolidation plans should be “growth friendly” to the extent possible in terms of its composition. Minimizing tax distortion is a key principle for the design. Within this realm, there are many possible options and an indicative set of policies considered here is as follows. Recognizing that the effect of fiscal consolidation will partly depend on the composition of expenditure and tax instruments, the model examines the impact of: (i) lower taxes on capital and labor; (ii) higher taxes on consumption; and (iii) entitlement reform (through lower transfers) and some cuts in government consumption. Specifically:

- *A shift from payroll to consumption taxes facilitates fiscal consolidation, while increasing medium-term potential output.*⁵ While tax increases may be unavoidable, this should be done in the least distortionary manner possible. For example, a shift from payroll taxes to consumption tax (or VAT depending on country circumstances) facilitates fiscal consolidation by increasing employment and potential output. Other avenues that could be considered (but are outside the model) include eliminating existing tax distortions, including those relating to the treatment of financial leverage or energy consumption.
- *The shift in tax composition—as part of the consolidation—increases overall tax revenues by ½ percent of GDP and is designed as follows* (for the U.S. block in the model): consumption tax revenues increase by 5 percent of GDP (equivalent to an increase in consumption tax rates of about 8 percentage points), while labor and capital

⁴ The latter is the net effect of significant changes in the composition of taxes, marginal rates, and tax revenues from various sources (see ¶11).

⁵ A shift to consumption taxes would reduce overall tax distortions by lowering the tax burden on work. Distributional effects from consumption taxes (or VAT) can be alleviated by keeping its structure broad-based, but with certain key exemptions for items such as food and other basic goods.

income tax revenues decrease by 4½ percent of GDP (equivalent to a cut of 6 percentage points of the underlying effective tax rates).

12. **Finally, *credibility is a critical element for successful fiscal adjustment.*** Credibility is defined in terms of what the private sector believes about a certain policy action. With less-than-full credibility of fiscal plans, private expectations anticipate some reversal or slippage in consolidation. If investors and consumers doubt that the package would be fully implemented, investment and employment responses over the near term would be weaker than otherwise. However, if economic agents gain confidence in fiscal implementation, expectations would closely align with the goals of a (fully-credible) consolidation strategy. Then, the growth-enhancing effects (e.g., through lower interest rates) of the fiscal package would be realized sooner. Clear and effective communication of coherent consolidation plans and strengthening of budgetary institutions and frameworks would help fiscal credibility vis-à-vis the private sector. For the upside scenario:

- *Fiscal policies are assumed to steadily gain credibility over time.* Where applicable, additional consolidation starting in 2011 is assumed relative to the plans in G-20 policy frameworks; all measures are phased in gradually over 5 years, with policies gaining full credibility by the third year of the consolidation plan (i.e., in 2013). Concretely, private expectations in the model align with the authorities' fiscal consolidation objectives from this point onwards.

13. **The scenario shows that fiscal consolidation alone—while supportive of growth in the medium term—in advanced G-20 economies would dampen growth in the short run, including for G-20 partner countries** (Figure 1). For *advanced economies*, the simulated fiscal consolidation lowers real GDP relative to the baseline, primarily reflecting lower disposable income and aggregate demand. Monetary policy mitigates the slowdown by remaining accommodative longer relative to the baseline. As credibility of fiscal policy increases over time, private spending is increasingly “crowded in.” Investment and employment increase and economic activity gains momentum, resulting in higher real GDP relative to the baseline over the medium term. For emerging Asia and ROW, however, real GDP remains lower relative to the baseline over the projection horizon, given their high export dependence. Weaker external demand (relative to the baseline) from advanced partners more than offsets the benefits of lower interest rates globally.

14. **Thus, the case for global rebalancing is strong.** More credible fiscal adjustment would mitigate but would *not* likely reverse the decline in domestic demand in those economies undergoing consolidation. Current account deficits would narrow in *advanced deficit* countries, matched by lower external surpluses in *emerging* and *advanced surplus* countries. The euro area current account would be broadly unchanged, but imbalances within the area would narrow. While global imbalances would narrow, global growth would be lower. This reflects insufficient rebalancing of global demand.

15. **Stronger fiscal consolidation would allow monetary accommodation to be maintained for a longer time to help support activity.** Owing to large and credible fiscal consolidation, sovereign risk premia and long-term interest rates decline. Combined with the lower capital income taxes, investment is “crowded in,” and the shift away from labor taxes increases employment, boosting the supply potential significantly. Accordingly, monetary policy in advanced economies could afford to stay accommodative for a more extended

period, since inflation pressures remain contained and inflation expectations are well anchored.

B. STRUCTURAL REFORM TO STRENGTHEN DEMAND IN EMERGING ECONOMIES

16. **To support stronger global growth, steps to strengthen internal demand in emerging economies are also considered.** The next layer in the upside scenario focuses on the multilateral implications of policy measures in emerging economies (particularly, those with large external surpluses) to boost internal demand, given the weaker outlook for external demand from advanced partner countries undergoing consolidation.

17. **Policy measures in emerging economies aiming to reduce high precautionary saving and to eliminate existing economic distortions appear desirable.** While specific structural reform measures would need to be tailored to individual country needs and circumstances, the following (stylized) structural reforms are considered in the model:

- Key reforms for *emerging surplus* economies in the upside are strengthening social safety nets, namely pension and health insurance, together with increased exchange rate flexibility to facilitate the rebalancing of demand towards domestic sources. Higher infrastructure spending in fast-growing economies—including in *major oil exporters* who are grouped in the model with remaining countries in the rest of the world—is also considered to alleviate supply bottlenecks. Other policy areas that are also relevant (but outside the model) include reform of corporate governance and financial market development that could further lessen household precautionary saving by raising capital income and could lower high corporate saving in some emerging economies.
- *Stylized reform policies should be taken as illustrative.* Given differences in economic circumstances among emerging economies, specific policy priorities differ for each country. For a more detailed description of structural policies for each thematic grouping, based on priorities identified by the OECD and Fund staff, see Box 3.

18. **Policies that enhance social safety nets and improve infrastructure in emerging economies would boost their growth and support global activity.** In the upside scenario, a gradual increase of government investment of 2 percent of GDP implemented over 3 years in the emerging Asia region of the model increases domestic demand (notably, investment) relative to the outcome in the first layer of the scenario. In addition, strengthening of safety nets through targeted transfers to the poor (who tend to be borrowing constrained)—amounting to around 2 percent of GDP—further increases domestic demand in emerging Asia. Half of the policy measures are financed through higher deficits given available fiscal space, and the other half through higher consumption taxes. Higher infrastructure spending and enhanced safety nets in emerging Asia also improve growth outcomes in ROW, relative the fiscal consolidation scenario alone (Figure 1).

Figure 1. G-20 Upside Scenario

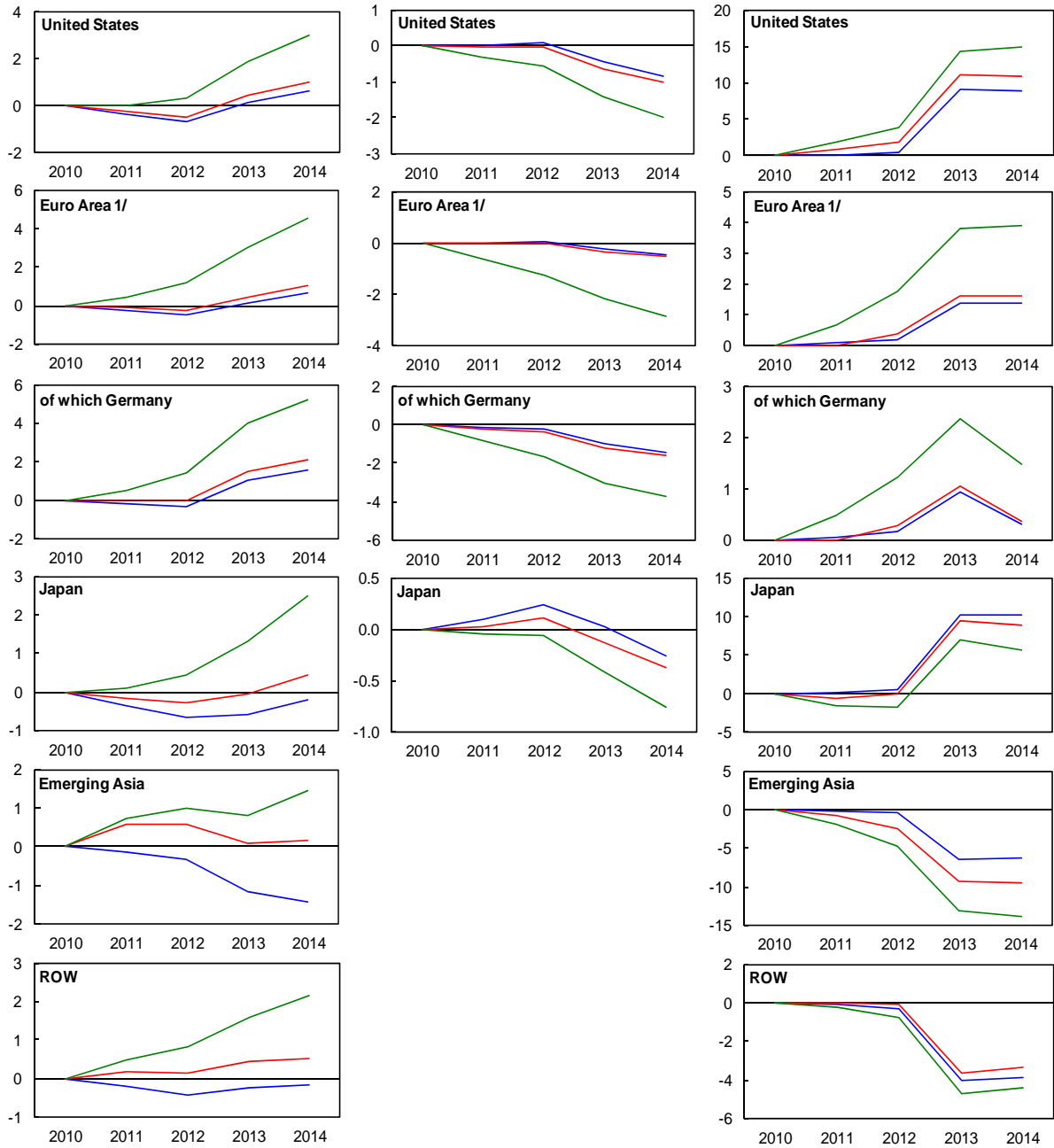
(Deviation from baseline)

Real GDP
(Percent)

Unemployment Rate
(Percentage points)

Real Effective Exchange Rate
(Percentage points; += Depreciation)

- Fiscal consolidation in advanced economies (Layer 1)
- Adding infrastructure and safety net spending in emerging economies (Layer 2)
- Adding labor and product market reforms (Layer 3)



Sources: G-20 authorities and IMF staff estimates.

1/ Based on PPP-weighted average of Germany and the other euro area members.

C. Product and Labor Market Reform to Enhance Potential

19. **The final layer involves key structural policies to repair damage to supply potential after the crisis and reduce high unemployment, particularly in some G-20 advanced economies.** Policies needed to address key supply constraints can be summarized by thematic groups as follows: for *advanced surplus* economies, labor and product market policies should enhance growth and job creation and reduce high unemployment; for *advanced deficit* economies, the focus should also be on implementation of comprehensive financial sector reform (outside the model), in combination with entitlement reform and credible fiscal consolidation. However, policies are likely to differ across countries within each group. Country-specific policies therefore, should be designed with a view of countries' needs and economic circumstances. As an illustration, the following stylized reform measures are introduced in the third layer of upside scenario:

- *Product market reform that strengthen competition in key sectors.* The simulation considers the effects of reducing barriers to competition in network industries, promoting competition in professional services and retail distribution, and simplifying product market regulation.
- *Easing the restrictiveness of product market regulation to appreciably improve productivity.* The effectiveness of such reform is derived from OECD analysis (see Box 4). Specifically, moving toward “best practices” (defined in terms of OECD restrictiveness indices) raises overall productivity growth—particularly, in G-20 *advanced surplus* economies—in the range of $\frac{1}{4}$ to over $\frac{1}{2}$ percentage point per year in the upside, after taking into account what is already achieved by G-20 baseline policies (see Box 5).
- For *emerging deficit* economies, policy efforts are focused on simplifying product market regulation.

20. **Coherent structural reform is also needed to strengthen demand along with supply.** A singular focus on boosting supply potential is too narrow. Reform should also be mindful of not dampening demand. Thus, policies that aim to improve the functioning of labor and product markets, for example, should complement (not contradict) measures that aim to reduce high precautionary saving in some G-20 economies (i.e., reform plans to enhance supply potential should be coherent with other reforms outlined in Section B). This would involve striking the right balance between policies that promote greater market competition or flexibility with those preserving social safety nets that provide income insurance or equity. For instance, as stressed by the ILO, reforms that further encouraged growth of real wages in line with enhanced productivity gains would be essential to ensure that the benefits of structural reform are widely shared. Key design principles that would help achieve these multiple objectives (e.g., both positive supply- and demand-side effects) include *complementary* reforms that can be mutually reinforcing; and *credible* reform that improves income and job prospects. These are elaborated below.

21. **To complement product market reform, key labor market policies would further enhance growth prospects and reduce high unemployment.** Labor market reforms that could increase employment include measures that lower hiring costs, reduce long-term unemployment (by facilitating re-entry), and encourage job search, matching, and mobility. Complementary product market reforms could strengthen the employment effects by

boosting labor demand and real wages (through greater competition and lower mark-ups on prices). Finally, fiscal actions that lower payroll taxes or other non-wage costs (e.g., social security contributions) could also strengthen the employment effect in the upside.⁶

- *Effective labor market reforms—paired with complementary policy actions—would improve growth and employment outcomes in advanced economies, particularly in Europe.* In the model simulations, employment in some *advanced surplus* and *advanced deficit* countries (Germany and the euro area overall)⁷ increases by 3 percent.⁸ Improved labor markets in Europe would have positive spillovers in the upside scenario. In other *advanced deficit* economies and in *the rest of the G-20* (the United States, emerging Asia, and rest of the world), it rises by 1 percent, and in Japan by about ½ percent.
- *Credibility of the effectiveness of structural reforms is also crucial.* In the model, employment and productivity gains from the reforms are gradually built into private agent expectations (i.e., as with fiscal policy, structural reforms steadily gain credibility over time). To the extent that such credibility is missing, some structural reforms could temporarily dampen growth. With higher expected productivity, firms increase investment and payrolls; with higher expected income and better job prospects, consumption also gradually strengthens in the upside. In emerging Asia and ROW, growth improves appreciably due to their own additional product market reforms relative to the first and second layers of the upside, “fiscal consolidation” and “enhanced safety nets”, respectively (Figure 1).

22. **Beyond stronger growth, collective policy action across G-20 members results in more balanced global demand** (Figure 2). Specifically, in *advanced deficit* economies, on the back of higher saving and stronger external demand, current account deficits decline relative to the baseline. In *advanced surplus* economies, current account surpluses fall, as product and labor market reforms boost investment demand and private consumption. Finally, in *emerging surplus* countries, current account surpluses decline, as improved safety nets lower precautionary private saving and together with higher infrastructure spending increase domestic demand. While these effects are significant, the major drivers of current account adjustments are changes in public and private saving rates, most importantly the relative sizes of fiscal consolidations across regions.

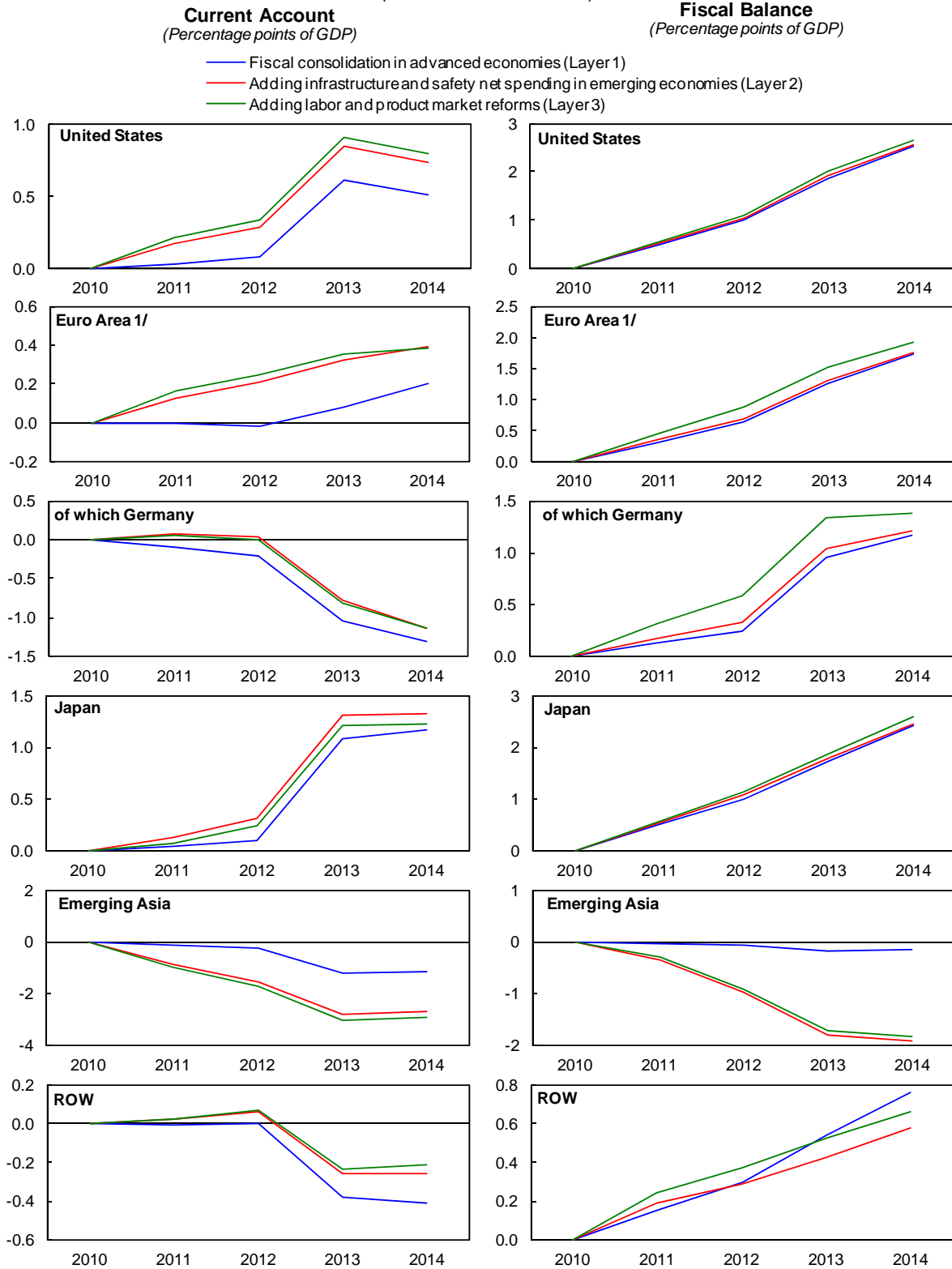
⁶ ILO inputs stress the need for reform proposals—in consultation with social partners—that reduce non-wage costs to support labor demand; maintain unemployment benefits for job seekers; support “up-skilling” and worker mobility; tackle long-term unemployment through measures that facilitate re-entry; and address high youth unemployment through education, vocational training and internships.

⁷ Technically, euro area countries excluding Germany in the model comprise *both* advanced deficit and surplus countries, but structural reform to raise low potential output growth is needed in both groups. In the model, Germany’s relatively larger benefits from product market reform partly reflect larger spillovers from higher productivity in others due to its greater openness.

⁸ A package of labor market policies broadly consistent with achieving the simulated increase in employment would include implementing OECD *Going for Growth* priorities such as reduction in labor tax wedges and increased spending on cost-effective active labor market policies (ALMP), starting in 2012 and phased in gradually.

Figure 2. G-20 Upside Scenario

(Deviation from baseline)



Sources: G-20 authorities and IMF staff estimates.

1/ Based on market-based exchange rate weighted average of Germany and the other euro area members.

23. **Compared to the refined baseline, key gains in the upside are as follows:**

- *Global GDP is around 2½ percent higher over the medium term.* World output would be higher by over 1½ trillion U.S. dollars, lifting an estimated 33 million people out of poverty.⁹ The growth gains (and policy adjustments) relative to the baseline are largest for most advanced economies who suffered the largest damage from the crisis. Output gains in Japan and ROW, while somewhat smaller, are also sizable. In emerging Asia, where GDP effects are smaller, output is nonetheless higher relative to the baseline due to complementary domestic policy action. More importantly, GDP in emerging Asia is significantly higher than in the case with no further policy action across regions (i.e., relative to the “fiscal consolidation in advanced economies” scenario).
- *Unemployment is reduced, ranging from ¾ to 3¾ percentage points across regions.* The reduction is significant in several cases, particularly in *advanced surplus* economies where unemployment has been persistently higher following the crisis.

Accordingly, an estimated 8 million more jobs would be created in advanced economies, and roughly 21 million in emerging Asia and rest of the world, expanding total employment by close to 30 million jobs around the globe. The numbers are credibly supported by ambitious labor market reform, complemented by product market reform, and more efficient taxation policies in advanced economies.

Upside Scenario: Employment and Output Gains
(Relative to the refined baseline in 2014)

	Employment	Unemployment 1/	Real GDP	
	(Millions)	(Percentage points)	(2009 USD billion)	(Percent)
United States	3.1	-2.0	426	3.0
Euro area 2/	4.6	-2.8	563	4.5
of which Germany	1.6	-3.8	174	5.2
Japan	0.5	-0.8	126	2.5
Emerging Asia	13.2	-0.7	128	1.4
Rest of the world	8.2	-1.1	370	2.1
World	29.5	-1.4	1614	2.5

Sources: G-20 authorities and IMF staff estimates.
1/ For emerging Asia and rest of the world, as unemployment is not modeled in GIMF, its response to shocks is calculated using the output response for these blocks and assuming the maximum estimated response of unemployment to output of the other blocks.
2/ Based on PPP-weighted average of Germany and the other euro area members; employment and real GDP level is a sum of Germany and the other euro area members.

24. **The simulations show clear benefits of collective action across all regions.** The main result is that multilateral policy actions appreciably strengthen G-20 outcomes, and on a sounder policy basis, in terms of stronger, more balanced and sustainable growth. Global demand is rebalanced across regions, while robust global growth is maintained. This result is largely achieved due to the stronger growth in surplus countries, driven by higher domestic demand and supported by exchange rate flexibility. This boosts exports in advanced deficit countries, compensating for greater fiscal retrenchment. Another important outcome is lower unemployment over the medium term.

25. **Exchange rate adjustment is an integral part of the rebalancing and helps to achieve G-20 growth objectives.** Overall, global GDP growth is higher (by ½ percentage point) and more sustainable, as global imbalances (sum of absolute current account balances) narrow by ¾ percent of global GDP—i.e., a reduction of 25 percent. In the upside scenario, which as mentioned previously is purely illustrative, real effective exchange rate movements associated with collective action are significant in some cases (see Figure 1). This suggests that impediments to nominal exchange rate flexibility would hamper global rebalancing.

⁹ See companion report “G-20 and Global Development,” prepared by the World Bank.

With flexible exchange rates, an estimated 10 percent appreciation of real effective exchange rates in emerging Asia and about 5 percent in the rest of the world is accompanied by stronger domestic demand and higher growth (up 0.3 and 0.4 percentage points, respectively), while current account surpluses are reduced by 3 and 0.4 percentage points of GDP, respectively. Similarly, real effective depreciation between 5 and 15 percent in advanced deficit economies is associated with about 1 percentage point of GDP lower current account deficits, while growth is about ½ percentage points higher.

IV. DOWNSIDE SCENARIO—COSTS AND REACTIVE POLICIES

26. **The downside scenario explores the implications of key risks for the G-20, if they were to materialize.** The initial analysis identified several key risks. Notably, potential output may be appreciably lower after the financial crisis and could be hurt by further delays in repair of the financial system. Also, given recent events in sovereign debt markets, market concerns about public debt sustainability pose risks of higher interest rates and tighter financial conditions. This scenario analyzes both the consequences for G-20 outcomes and the attendant policy actions that would be required under more stressful circumstances. The analysis explores the mitigation of risks to help avoid downside losses (or policies to achieve better outcomes if risks were to materialize) and how they depend crucially on the strength, commitment, and quality of the policy action. Reactive policies forced into damage control, on the other hand, could be less effective than those implemented under more favorable circumstances.

27. **Risks surrounding fiscal sustainability and heightened market concerns have moved front and center.** Against the backdrop of recent market developments, higher sovereign interest rate risk premia are a key risk belonging to the downside scenario. Insufficiently credible adjustment plans may result in sharp increases of these risk premia—dampening growth in the affected economies, with an impact on public debt (both directly and indirectly). Moreover, the credibility of (forced) fiscal adjustment would likely be lower in a downside scenario, likely affecting the impact on private spending.

- *Furthermore, fiscal risks in advanced economies could create adverse spillovers for financial markets and for emerging economies.* Higher sovereign spreads would have implications for the banking sector, through mark-to-market losses and higher funding costs. Higher sovereign risks (and benchmark interest rates) could also raise borrowing costs for firms. Emerging economies are vulnerable to swings in interest rates (currently at low levels) and may be affected by related swings in capital flows, as they may cause boom-bust cycles, increased volatility, and lower domestic growth over the medium term.

28. **Another key risk is that supply potential is considerably lower in the aftermath of the crisis.** In particular, for advanced economies at the epicenter of the crisis, potential may be lower than assumed in the G-20 MAP frameworks. Key issues are as follows:

- *Uncertainty about regulatory reform and the lending capacity of the financial system poses non-negligible risks to growth.* Further delays in repair of the financial system would lead to a less efficient allocation of credit, weaker overall credit provision, hurting economic activity, and, thus, greater risks of adverse macro-financial feedback loops. This should be weighed against certain financial sector reforms such as tightening regulatory standards and prudential norms (e.g., minimum capital requirements)—beyond what is internalized in the G-20 “base case”—that could themselves limit credit supply.

- *Weaker potential output would have adverse implication for fiscal positions.* In advanced economies, lower growth than projected in the MAP would result in lower tax revenues, higher-than-projected fiscal deficits, and rising public debt burdens (already at high levels). This could reinforce market concerns about debt sustainability. These two elements constitute key elements of the downside scenario.

29. **If downside risks were to materialize, large output and unemployment losses would be sustained** (Figure 3). A plausible simulation suggests that cumulative output and

job losses of about 2 to 6 percent and around ½ to over 1½ percentage points (in terms of the unemployment rate), respectively, relative to the refined baseline in 2014. To put this in some perspective and to better appreciate the benefits of collective action, note that global GDP would be a dramatic 5¾ percentage points lower in the downside scenario relative the upside scenario.

Downside Scenario: Employment and Output Losses
(Relative to the refined baseline in 2014)

	Employment	Unemployment 1/	Real GDP	
	(Millions)	(Percentage points)	(2009 USD billion)	(Percent)
United States	1.6	1.0	765	5.4
Euro area 2/	2.1	1.3	705	5.6
of which Germany	0.7	1.6	192	5.7
Japan	1.0	1.5	244	4.8
Emerging Asia	11.3	0.6	109	1.2
Rest of the world	6.6	0.9	301	1.7
World	22.7	0.9	2124	3.1

Sources: G-20 authorities and IMF staff estimates.

1/ For emerging Asia and rest of the world, as unemployment is not modeled in GIMF, its response to shocks is calculated using the output response for these blocks and assuming the maximum estimated response of unemployment to output of the other blocks.

2/ Based on PPP-weighted average of Germany and the other euro area members; employment and real GDP level is a sum of Germany and the other euro area members.

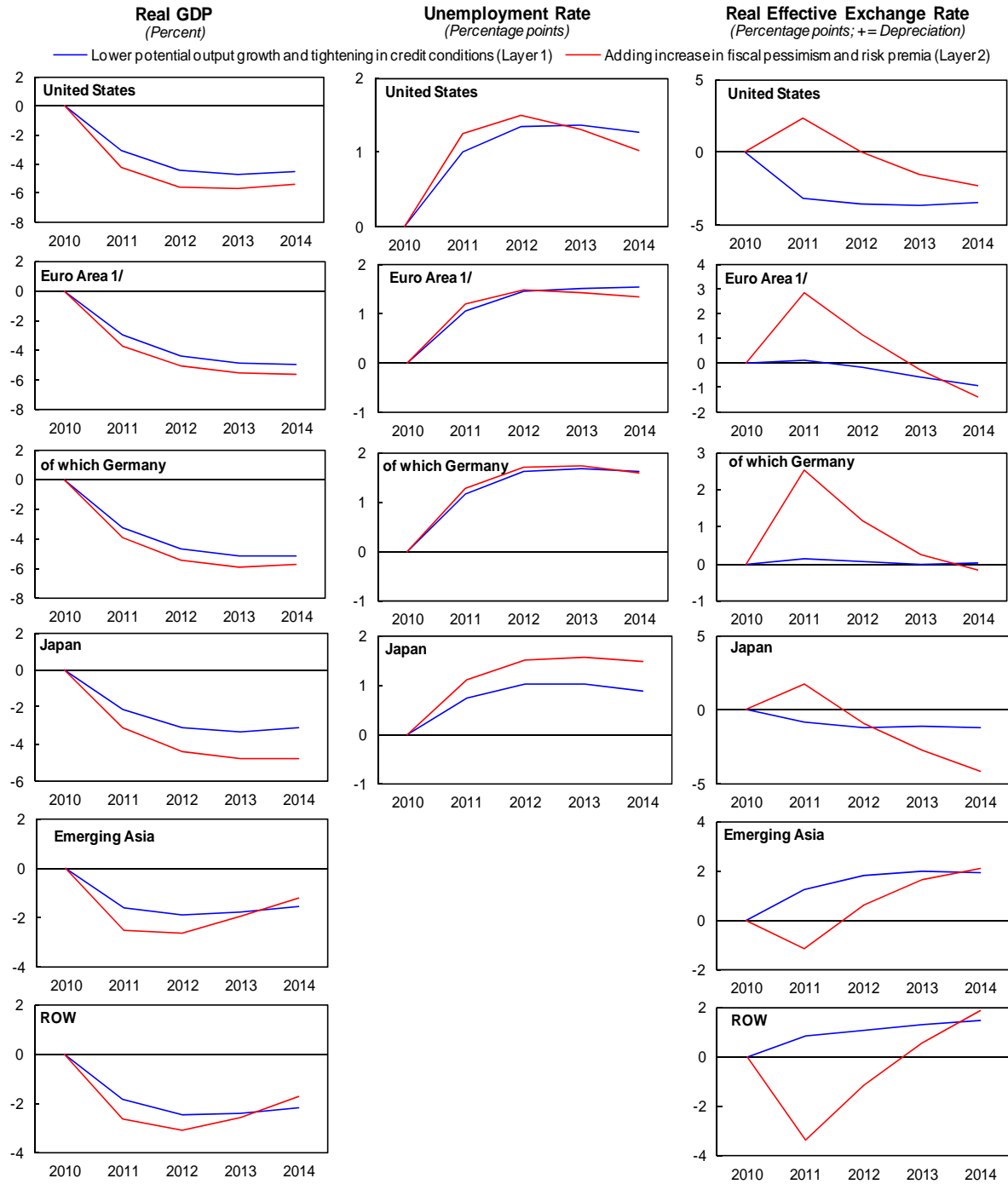
30. **In the downside scenario, policies would be forced into a reactive stance and may not be as effective** (Figure 4). Key reasons are market expectations and political economy constraints.

- *Fiscal consolidation in the event of deteriorating market sentiment and lower potential output would need to be stronger and more front-loaded to try to reassure markets.* On the back of lower potential, public finances would worsen given lower tax revenues and automatic stabilizers, pushing up interest rates with likely adverse feedback effects on growth and confidence.
- *In such an environment, effectiveness of fiscal adjustment would likely be significantly reduced.* Compared to the upside scenario, much larger fiscal consolidation would be needed to ensure the sustainability of public finances. Moreover, credibility would be lacking if fiscal adjustment were forced by adverse market reaction, reinforcing (rather than mitigating) negative demand effects.¹⁰
- *Moreover, many structural reforms may not be politically feasible in the downside.* Stronger policy responses would be needed in the downside generally. However, key entitlement reform (to raise retirement ages in line with life expectancy), relaxing employment restrictions (to lower hiring costs), or lowering unemployment benefits or duration (to encourage job search) would likely be out of reach politically.

¹⁰ To model this, the downside scenario assumes little or no credibility for reactive fiscal consolidation. Specifically, private sector expectations anticipate rising (not falling) budget deficits.

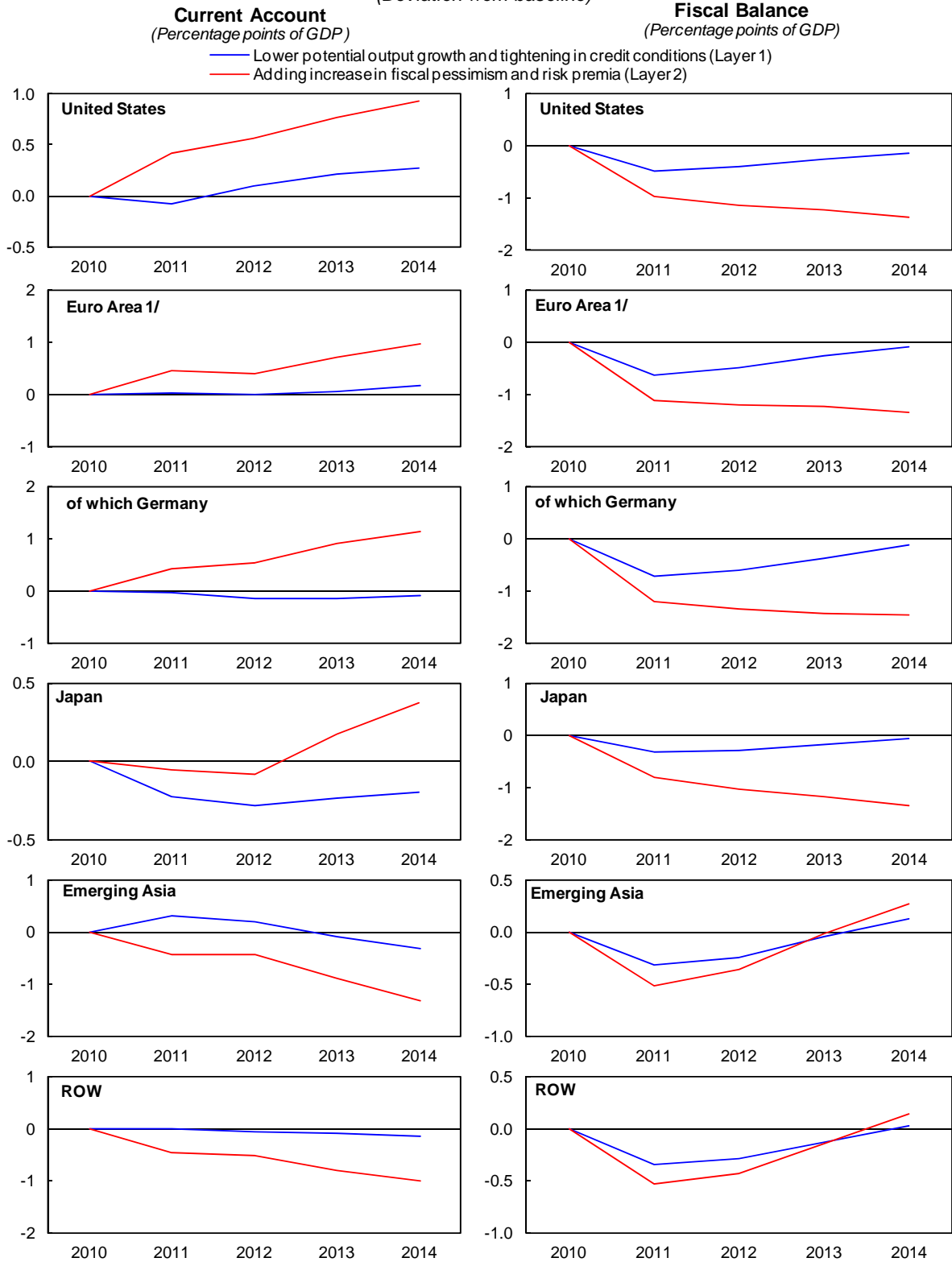
Figure 3. G-20 Downside Scenario

(Deviation from baseline)



Sources: G-20 authorities and IMF staff estimates.
 1/ Based on PPP-weighted average of Germany and the other euro area members.

Figure 4. G-20 Downside Scenario
(Deviation from baseline)



Sources: G-20 authorities and IMF staff estimates.

1/ Based on market-based exchange rate weighted average of Germany and the other euro area members.

V. BENEFITS AND PRIORITIES OF COLLECTIVE POLICY ACTION

31. **Collective action by the G-20 would entail substantial benefit to the membership by strengthening growth and reducing risk.** Policies that advance progress toward the growth objectives of the G-20 are also the best option toward mitigating downside risk. In other words, strengthened policy actions associated with the upside scenario also would help *avoid* the adverse dynamics attached to the downside scenario. Comparing the differences in outcomes between these two scenarios point to much larger potential benefits. Accordingly, policies associated with the upside should be pursued whether or not signs of the downside emerge.

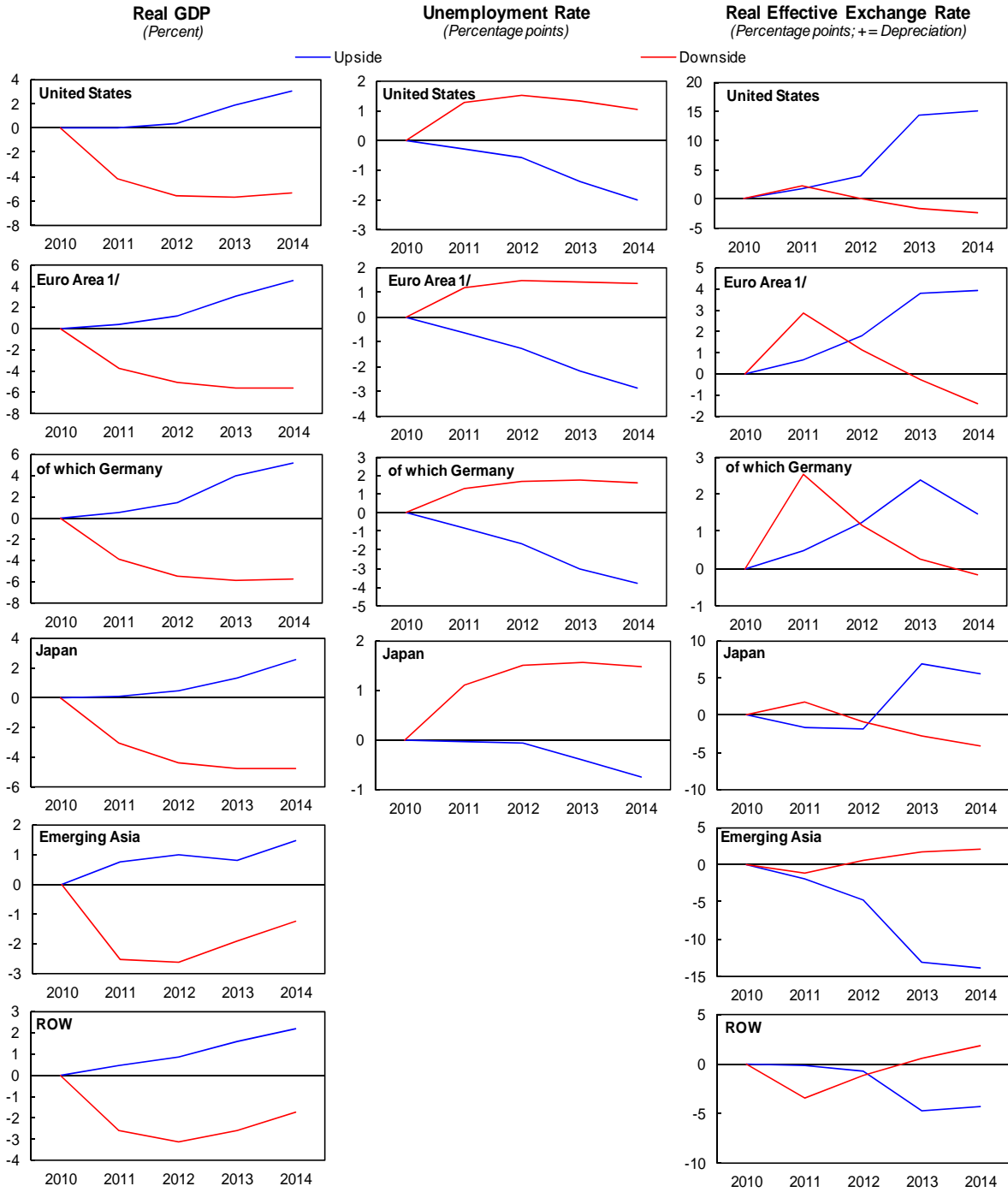
- Comparing the outcome of the two scenarios (Figures 5 and 6), the sum of upside gains and the avoidance of downside losses would yield nearly 4 trillion dollars or 5¾ percent higher global GDP. The number of jobs that would be created (or saved) globally would total an estimated 52 million. These gains would favorably change the balance of people living in poverty by more than 90 million persons across the two scenarios.

32. **G-20 policies should be prioritized to maximize the global benefit.** The list of policy options to credibly strengthen outcomes and mitigate risks is broad ranging across the entire membership, but key priorities stand out that the G-20 should consider toward achieving their shared objectives.

- *With continuing sovereign debt market stress, fiscal consolidation in advanced economies, based on high-quality measures of sufficient magnitude to restore debt ratios to prudent levels, should be a priority.* In the downside, reactive policy action would be less effective and unable to access the full benefits associated with the upside. Thus, avoiding the downside scenario would be crucial.
- *Also, advanced economies need to accelerate financial sector repair and reform.* Long-awaited progress in this area is instrumental for reducing regulatory uncertainty and building a stronger financial system, supporting credit provision, and fostering a more rapid return to robust and sustainable growth.
- *Complementary structural reforms in advanced surplus economies would raise their supply potential, while taking pressure off public finances.* Action to reform labor and product markets, paired with fiscal action that also reduced non-wage costs, would strengthen growth and employment. Such reforms would boost demand along with supply.
- *Finally, structural reforms in emerging surplus economies would help rebalance global demand.* Combined with more flexible exchange rates, reforms that enhanced social safety nets, developed financial markets, reformed corporate governance and minimized key economic distortions would allow for stronger internal demand and more sustainable growth in these countries, given external conditions.

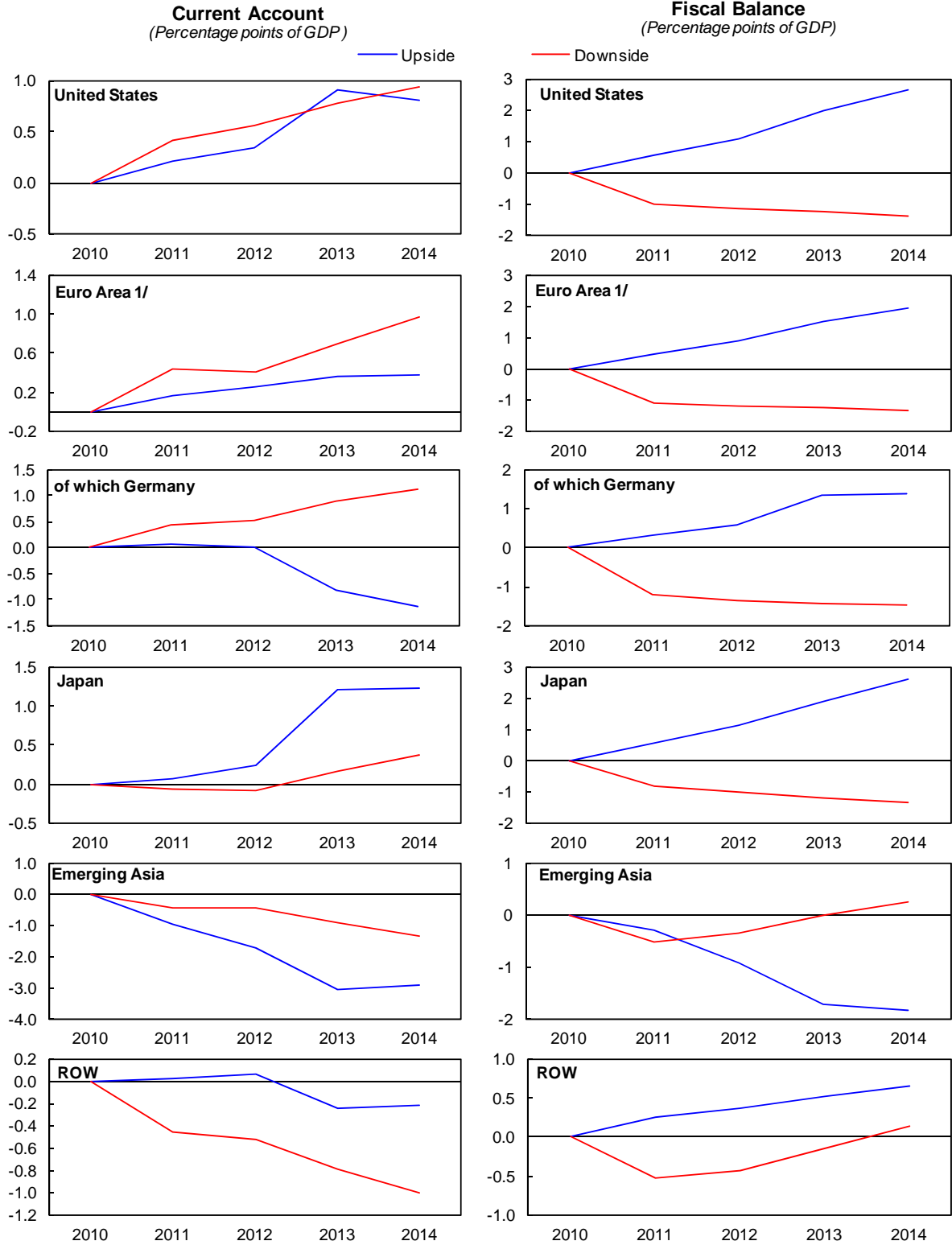
Figure 5. G-20 Upside versus Downside Scenario

(Deviation from baseline)



Sources: G-20 authorities and IMF staff estimates.
 1/ Based on PPP-weighted average of Germany and the other euro area members.

Figure 6. G-20 Upside versus Downside Scenario
(Deviation from baseline)



Sources: G-20 authorities and IMF staff estimates.

1/ Based on market-based exchange rate weighted average of Germany and the other euro area members.

Box 1. G-20 “Base Case” and Technical Adjustments for the Refined Baseline

The “base case” scenario was derived from the completed “raw” submissions by G-20 members. First, after receiving the “raw” inputs from the G-20, Fund staff assessed the internal consistency of the submissions. Second, to address consistency across the G-20 members, staff used the completed “raw” submissions to construct common global assumptions consistent with G-20 inputs. This included external assumptions for oil prices (taken as the average from G-20 “raw” inputs), partner country growth (consistent with G-20 “raw” inputs for domestic growth), partner country inflation, and so on. Finally, harmonizing on this set of global assumptions and making (mechanical) adjustments where needed to the “raw” submissions, a G-20 “base case” scenario was constructed.

The “base case” was further refined to resolve two technical issues. The refinements were done first, to impose greater multilateral consistency of output gaps and to better anchor simulations for the alternative scenarios simulations; and, second, to reflect recent market and economic developments.

The analytical framework used to ensure greater multilateral consistency in the refined MAP baseline draws from the IMF’s Global Projection Model (GPM).¹¹ GPM is a theory-based macroeconomic model with trade and financial linkages, featuring nominal and real rigidities in the short run and real business cycle properties in the long run. A particularly useful feature of model in the context of the G-20 MAP is that it produces multilaterally and model-consistent measures of key unobservable variables such as the output gap or the unemployment gap.

Notwithstanding growing downside risks from financial markets, the G-20 MAP “base case” was adjusted upwards over the near term, reflecting better-than-expected developments in the real economy over the past several months. In particular, in the United States 2010Q1 real GDP growth turned out stronger and labor markets and financial conditions improved more than earlier envisaged. At the same time, in the euro area industrial production expanded rapidly; in Japan GDP growth in 2010Q1 was strong, driven by exports and rebounding investment, while consumption growth was moderate; and emerging Asia continues on a path of strong and sustained recovery.

However, the “base case” was adjusted downwards over the medium term, reflecting more conservative estimates of potential output for the advanced countries at the epicenter of the financial crisis. These estimates are in line with recent empirical findings that show large potential output losses in the aftermath of severe financial crises.¹²

Accordingly, real GDP growth in advanced deficit countries at the epicenter of the financial crisis was marked down, bringing it more in line with growth of advanced economies further away from the crisis. As a result, accounting for trade linkages, real GDP growth in the euro area, and Japan, emerging Asia, and rest of the world was also scaled down.

Refined MAP Projections of Real GDP Growth 1/						
	2010	2011	2012	2013	2014	2010 - 2014 Average
	<i>Difference from “base case” (percentage points)</i>					
World	0.5	-0.1	-0.2	-0.7	-0.8	-0.2
United States (20.7)	0.5	-0.3	-1.1	-1.9	-1.5	-0.8
Euro Area (15.4)	-0.0	0.0	0.1	-0.3	-0.8	-0.2
Japan (6.2)	1.0	-0.1	0.3	-0.0	-0.5	0.1
Emerging Asia (23.7) 2/	0.3	-0.2	0.1	-0.3	-0.2	-0.1
Rest of World (34.0)	0.7	0.0	-0.1	-0.5	-0.8	-0.1
Memorandum	<i>Refined baseline (percent)</i>					
World	4.5	4.7	4.8	4.4	4.3	4.5

Sources: G-20 authorities and IMF staff estimates.

1/ Share of world GDP by PPP in parenthesis (2007 - 2010 average, percent).

2/ Includes: China, Hong Kong SAR, India, Indonesia, South Korea, Malaysia, Philippines, Singapore, Taiwan Province of China, Thailand.

¹¹ For a description of the model see Clinton, K., Garcia-Saltos, R., Johnson M., Kamenik O., and Laxton D., “International deflation risks under alternative macroeconomic policies,” *Journal of the Japanese and International Economies*, 2010, and references therein.

¹² *World Economic Outlook*, Chapter 4, International Monetary Fund, October 2009.

Box 2. Growth-Supportive Fiscal Consolidation

This box discusses a stylized package of fiscal policies designed to achieve fiscal consolidation, while supporting growth over the medium term. The upside scenario explores the role of three core elements of the fiscal consolidation package. In particular: (i) sufficient scale; (ii) growth-friendly composition; and, (iii) strengthened credibility of fiscal plans, along the following lines.

The scale and composition of the package should take into account country-specific circumstances. The timing and magnitude of consolidation should be tied to country circumstances. For the purpose of the upside scenario, based on Fund staff assessment of fiscal consolidation needs in each country or region, the (stylized) fiscal package is constructed as follows:

- *For the United States.* The fiscal deficit is reduced by 3 percentage points of GDP. To lessen the contractionary effect of the deficit reduction, part of it is financed through a growth-supporting shift in the composition of taxation from income to consumption. Specifically, a reduction in labor and capital income taxes by 4.5 percent of GDP (approximately 6 percentage points cuts in the effective tax rates, each) is more than offset by a 5 percent of GDP increase in consumption tax revenue (i.e., an increase of consumption tax rate by 8 percentage points). The rest of the deficit reduction is financed by cutting government consumption and general government transfers by 1 percent of GDP and 1½ percent of GDP, respectively.
- *For the rest of the countries or regions.* The above fiscal package is scaled as follows: In *Japan* the size of the package is as in the U.S.; in the *euro area excluding Germany*, it is slightly over 80 percent of the size in the U.S.; in *Germany* and *rest of the world* it is 1/3 of the size in the U.S., while in *emerging Asia*, no adjustment is assumed.

Credibility is a critical element for successful fiscal adjustment. Credibility is defined in terms of what the private sector believes about the fiscal policy action. Under partial credibility, markets anticipate some reversal or slippage in consolidation and thus, investment and employment responses over the near term would be weaker than otherwise. However, if economic agents have full credibility in fiscal plans, then, the growth-enhancing effects (e.g., through lower interest rates) of the fiscal package would be realized sooner. In the upside scenario, fiscal policies are assumed to steadily gain credibility over time. Where applicable, starting in 2011 additional consolidation is assumed relative to the plans in G-20 policy frameworks; all measures are phased in gradually over 5 years, with policies gaining full credibility by the third year of the consolidation plan (i.e., from 2013 onwards private expectations in the model are aligned with the authorities' fiscal consolidation objectives in each country).

The motivation behind the above fiscal package is to support growth over the medium term. In the near term growth declines slightly relative to the refined baseline due to negative multiplier effects of lower government spending and an initial lack of credibility. However, the policy measures boost growth significantly over the medium term for two reasons. First, lower deficits increase saving and thus, reduce real interest rates over time. Second, with the supply of labor and capital relatively elastic over the longer term, while consumption demand is relatively inelastic, a shift of the tax burden towards consumption reduces distortions, and, therefore boosts output.

Box 3. Stylized Structural Reform Package by Thematic Grouping

The choice of stylized package of structural reforms for each thematic grouping is cross-checked with the OECD findings. OECD *Going for Growth* reports identify actions that could boost long-term growth. While structural reform priorities vary by country, some generalization is possible for the thematic groupings identified in the initial assessment report. However, the degree of specificity varies within the thematic groupings and not all priorities are equally applicable to all countries in a thematic group. All countries however, should resist protectionist pressures and aim for a successful completion of the Doha round of the WTO trade negotiations. Combining the OECD findings with Fund staff recommendations results in the following structural reform priorities across groupings:

- For ***advanced deficit*** economies priorities include: for *labor markets*, reforming disability benefit schemes; maintaining a flexible wage bargaining system; improving fiscal incentives for work force participation; reducing wage indexation, and reforming the employment insurance system. For *product markets*, strengthening competition in network industries, reducing restrictions on retail trade, professional services, and rental market, and retail distribution sector, and improving and streamlining financial regulation. *Other reforms* include, restraining health care costs and improving educational outcomes and public infrastructure.
- For ***advanced surplus*** economies priorities include:
 - For *labor markets*, reforming the employment insurance system; reducing the minimum cost of labor; lowering hiring costs; reducing implicit taxes on continued work at older ages; reducing average tax wedges on labor income; reducing fiscal impediments to full-time female labor force participation; decentralizing wage bargaining; raising labor mobility within the EU; reforming disability benefit schemes; removing financial disincentives to work, and, limiting the extent of administrative extension of collective agreements.
 - For *product markets*, reducing barriers to competition in network industries; further reducing barriers to foreign ownership and to competition in professional services; reducing public ownership; and, strengthening competition in the retail distribution sector.
 - *Other reforms* include, improving education outcomes, strengthening innovation system, and removing restrictions on foreign investment.
- For ***emerging deficit*** economies priorities include: for *labor markets*, increasing efficiency of the formal sector, and for *product markets*, plans to reform and simplify product market regulation. *Other reform* areas include, improving educational efficiency, improving infrastructure, fostering private sector participation in infrastructure projects, pension reform, reallocation of some current spending to public investment, and policy enforcement.
- For ***emerging surplus*** economies priorities include: for *labor markets*, reduction of restrictions on labor mobility and moderation of the minimum wage, and for *product markets*, reforming product market regulation, reducing FDI restrictions, and further financial and banking reforms. *Other reform* priorities, including for ***major oil exporters*** are: improving investment climate, pension reform, improving efficiency of budgetary spending, strengthening the legal system, reducing state control over economic activity, and improving secondary and tertiary education.

Box 4. Productivity Gains from Product Market Regulation Reform

Easing product market regulation (PMR) can enhance total factor productivity (TFP).

This can occur not only in sectors where such regulation is applied, but also in more competitive industries that rely on intermediate inputs from those sectors. For example, easing regulation in upstream (non-manufacturing) sectors could increase TFP growth in both upstream and downstream (manufacturing) sectors and could have an appreciable economy-wide impact, although estimates vary.

OECD analysis finds positive effects of reducing PMR restrictions on TFP growth in manufacturing and non-manufacturing sectors.¹ The simulated impact of moving various OECD countries toward “best practice” in the area of PMR from their 2007 levels is shown in the table. Specifically, the table shows the average increase in TFP growth in 2011-15 for various sectors, if reform is implemented over 10 years starting in 2010. Best practice is defined as the average of the three levels of regulation least restrictive of competition in each of several specific areas including energy, transport, communication, retail distribution, professional services, and banking. The estimates take into account country-specific degree of regulation, industrial structure, and distance from the technological frontier.

Gains in TFP growth for the period 2011-2015 from reforms implemented over a ten year period starting in 2010

(Annual average, in percentage points)

	Manufacturing sectors (15-37)	Non-manufacturing sectors (40-74)	Business sectors* (15-74)	Whole economy** (01-99)
Euro area ***	0.7	0.3	0.4	0.3
Euro area excluding Germany ***	0.6	0.3	0.4	0.3
Germany	0.7	0.3	0.4	0.3
Australia	0.4	0.3	0.3	0.2
Canada	0.7	0.4	0.5	0.3
Japan	1.3	0.6	0.8	0.6
Korea	0.7	0.3	0.4	0.3
Mexico	0.6	0.2	0.3	0.2
United Kingdom	0.5	0.2	0.3	0.2
United States	0.5	0.2	0.3	0.2

Source: OECD estimates.

* Excluding the farm sector and the mining and quarrying industries; this field corresponds to the sum of the two previous columns.

** The calculations for the whole economy assume that reforms to upstream sectors have no effect on the farm sector, the mining and quarrying industries and the non-business sectors.

*** Aggregation done using 2010 PPP weights; excludes Cyprus, Ireland, Luxembourg, Malta, Slovak Republic and Slovenia due to data unavailability.

The OECD has identified concrete policy actions associated with these productivity gains. Examples of product market reform, as suggested by OECD’s *Going for Growth* report, include reducing barriers to competition in network industries, promoting competition in retail distribution services, and simplifying product market regulation (see Box 3).

¹ R. Bourlès, G. Cette, J. Lopez, J. Mairesse and G. Nicoletti (2010) "Do Product Market Regulations in Upstream Sector Curb Productivity Growth? Panel Data Evidence for OECD Countries", *OECD Economics Department Working Papers* (forthcoming) and *Banque de France Documents de Travail No. 283* (June 2010).

Box 5. Scaling the Impact of Stylized PMR Reform on Productivity

In collaboration with OECD staff and based on their analysis, Fund staff incorporated the estimates of product market reforms into the scenario analysis. In the upside scenario, G-20 economies were assumed to implement more far-reaching PMR reforms than incorporated in the baseline, over the course of 10 years starting in 2010 (see Box 4). Expected productivity gains for advanced G-20 economies were drawn from the OECD estimates, after accounting for gains implicit in the MAP baseline—depending on how well baseline product market reform policies align with priority areas. Specifically:

- In the cases where country plans were judged by Fund staff to be “well aligned” with OECD structural reform priorities listed in their *Going for Growth* publications, the OECD growth paths were scaled by a factor of $\frac{1}{2}$, assuming the other half is already in the baseline. Where the authorities’ intentions were “broadly aligned,” the scaling factor of $\frac{3}{4}$ was applied. For best-practice economies (two OECD economies for which *Going for Growth* does not list any PMR reform priorities) to provide a more realistic upside scenario, the OECD paths were scaled by a factor of $\frac{1}{4}$.
- For most emerging economies, sufficient information was not available to perform a similar disaggregated exercise. Instead, expected productivity gains were based on a simple relation between improving the overall product market environment, as measured by the OECD economy-wide PMR index (which is available for all G-20 economies except Argentina and Saudi Arabia) and the productivity gains found in the OECD analysis.

The estimates of PMR reform impact on productivity are subject to several caveats:

- OECD simulations are based on the 2007 indices of PMR in network industries, retail trade and professional services. To the extent that some reform has occurred between then and now, the upside potential of further reform may be overestimated. On the other hand, the “best practice” frontier may have moved as well, with an offsetting effect. Realistically, PMR reforms tend to be rather slow, so not much is likely to have occurred over the last two years—particularly given those were crisis years.
- The scaling to adjust for current reform plans is obviously judgmental, and structural reform plans in the MAP submissions are not detailed enough to make a more technical calculation.
- The correspondence between broad PMR indices and specific restrictions used in OECD simulations is far from perfect. Hence, both the mapping from broad PMR indices into potential reform gains (for non-OECD countries) and the mapping of reform plans (presented in broad strokes) into scaling factors should be seen as approximate.