# ON INTERNATIONAL POLICY COORDINATION AND THE CORRECTION OF GLOBAL IMBALANCES

Bruno Albuquerque

Cristina Manteu

Please address correspondence to
Bruno Albuquerque
Banco de Portugal, Economics and Research Department
Av. Almirante Reis 71, 1150-012 Lisboa, Portugal;
Tel.: 351 21 313 0798, email: baalbuquerque @bportugal.pt

Banco de Portugal

EUROSYSTEM

On International Policy Coordination and the Correction of Global Imbalances[*]

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Abstract

Global current account imbalances are generally seen as a threat to world growth. Given that they are projected to remain high, in an environment of prevailing downside risks, what could be done to reduce these imbalances? Using NiGEM, a large-scale multi-country model, we build up a global rebalancing scenario by assuming policy coordination at world level. This scenario considers that advanced economies adopt more ambitious fiscal consolidation (Layer 1) and structural reforms to boost potential output (Layer 2), whereas large emerging market surplus economies increase exchange rate flexibility and carry out structural reforms aimed at supporting domestic demand (Layer 3). Our main findings are the following. The global rebalancing scenario would reduce global imbalances by one quarter and world GDP would rise in a five-year period, lending support to the view that multilateral coordinated policy action would imply stronger, more sustainable and balanced growth of the world economy. Nevertheless, and contrary to recent analysis by the IMF, this scenario would carry some costs, specifically for some of the major advanced deficit economies which would experience a fall in GDP relative to the baseline.

Keywords: Global imbalances, Current account adjustment, Model simulations, Global shocks.
JEL Classification: E17, F32, F42, F47

1   Introduction

Global current account imbalances have been a feature of the world economy over the past decade. These imbalances reflect large - by historical standards - and persistent current account deficits in the United States, the United Kingdom and in several euro area countries, counterbalanced by equally large and long-lasting current account surpluses in some advanced economies (Japan, Germany), emerging market economies in Asia (China, in particular) and oil exporting countries in the Middle East and North Africa (Figure 1). These imbalances are seen by many as unsustainable, implying risks of a disorderly adjustment that could prove highly detrimental to global economic activity.[1]

Figure 1: Global imbalances
Current account balances as % of world GDP

Source: IMF.
Note: Advanced Deficit Economies refer to the US, the UK and the euro area excluding Germany. Emerging Asia excludes China.
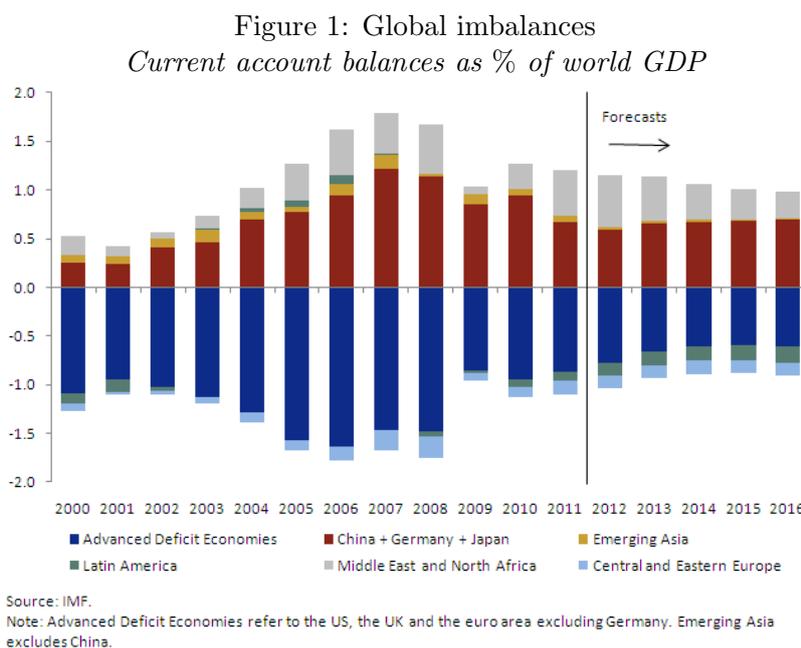
On theoretical grounds, a current account imbalance, regardless of its size, may not be a problem in itself and, in fact, might be even desirable. It basically depends on the factors behind that imbalance. As summarised in Blanchard and Milesi-Ferretti (2009), external imbalances can arise from good or bad reasons. In the first case, they mainly reflect the intertemporal choices of the economy's agents. According to this view, an economy may incur in a "good" deficit if its future growth prospects are perceived as upbeat implying low current savings, or if it has a high marginal product of capital that translates into increased investment. Similarly, an economy may have a "good" external surplus if it reflects limited domestic investment opportunities or if its ageing population is accumulating savings for retirement. In contrast, the bad reasons are basically associated with underlying distortions in the economy, where external imbalances become a sign of other macroeconomic imbalances. For example, a "bad" current account deficit may result from financial regulation failures that lead to a credit boom. In turn, a "bad" surplus may result from inefficient financial intermediation that is associated with low investment or lack of social safety nets that promote excessive private savings. Blanchard and Milesi-Ferretti

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[1]Large and persistent external deficits and surpluses imply an implausible accumulation of foreign liabilities on the deficit countries' side and of assets on the surplus countries' side. These trends raise questions about the willingness of foreign investors to continue to accumulate net claims on deficit countries.

(2009) find that in many cases current account balances reflect underlying domestic distortions. As such, policies to remove those distortions would not only contribute to reducing international imbalances but would also improve outcomes for the countries involved.

In addition, the authors warn that even when the factors behind large external deficits are "good", they may nevertheless carry risks of a "sudden stop" in capital inflows if there is a change in foreign investors' sentiment regarding the country concerned. Furthermore, if the countries with external imbalances are large, there are risks of a disorderly adjustment, encompassing, for instance, sudden and large movements in exchange rates, financial market turbulence, and protectionist pressures, which would imply significant world output losses. The potential negative spillover effects from large current account imbalances explain why multilateral cooperation to reduce those imbalances in the global economy has been at the forefront of the debate and on the agenda of the G20 (IMF (2010b, 2011a)).

According to IMF forecasts, global imbalances are expected to decline somewhat in the near future but will remain substantial. Current account imbalances are therefore expected to remain a risk factor to global growth prospects, which continue to call for international policy coordination to tackle these imbalances. Although there is broad consensus regarding the type of policies to be adopted by the most important economies to correct these imbalances, the literature measuring the impact of combining all those policies on global imbalances is relatively scarce.

In this context, our aim is to provide additional evidence on the implications of policy coordination of the kind being proposed by international organisations on global imbalances and growth outcomes at the world level. We assume that international policy coordination comprises the following policies, which we break down into three layers: more ambitious fiscal consolidation in advanced economies (Layer 1), combined with structural reforms to increase potential output in these economies (Layer 2) and structural reforms and increased exchange rate flexibility in large emerging market surplus economies, using China as the proxy for these economies (Layer 3). We quantitatively assess those impacts by carrying out simulations using the NiGEM model, a large-scale and quite detailed multi-country model. To summarise and quantify the effects of the three layers of the rebalancing scenario on the level of global current account imbalances, we build up an indicator of global imbalances. We take a medium-term perspective by using a five-year span in our simulations.

Our study relates closely to the analysis carried out by the IMF - IMF (2010b, 2011a) - in which the impact of policy coordination by several governments aiming at reducing current account imbalances is also undertaken. The policy shocks we simulate are similar in spirit to the ones in the IMF's analysis, allowing for a comparison of results. The IMF used in its simulations the GIMF, the Global Integrated Monetary and Fiscal model. We use a different model thus providing robustness to the evidence regarding the impact of multilateral policies on global imbalances. The NiGEM covers more countries and regions than the GIMF, allowing policy shocks to be applied to a wider set of countries and a more thorough analysis of the implications of those policies. Our work is also related to several contributions studying the macroeconomic impact of adopting some of the proposed policies (layers), such as fiscal consolidation or structural reforms (see the references cited further ahead in the paper). However, this set of studies

focuses mainly on the unilateral adoption of those policies and on their impact on the macroeconomic variables of the country or set of countries concerned. In contrast, our analysis is focused on the impact of coordination of all the policy layers and on the assessment of international spillovers of such coordination.

Our main findings are the following. We provide evidence for a sizeable reduction of global imbalances as a result of a coordinated action across major economies to implement the policies outlined above (the three layers of the global rebalancing scenario). If such a scenario were to materialize, global imbalances would be narrowed by one quarter in five years relative to the baseline, while global growth would rise by 0.5 per cent. This world rebalancing, however, would imply output costs for some economies in a five-year period. In fact, the adjustment in some major advanced deficit countries, such as the United States and the United Kingdom, would translate into lower GDP levels relative to the baseline after five years, as a result of a contraction of domestic demand. These findings are at odds with IMF (2010b, 2011a), where activity in all economies appears to improve with global rebalancing policies. This likely reflects differences in model specification as well as in the assumptions of the scenario. Over the longer term, however, benefits would be shared by all world economies.

The remainder of the paper is organised as follows. In the next section, we briefly introduce the NiGEM model and present our indicator of global imbalances. In Section 3, we build up a policy-oriented scenario aiming at correcting global imbalances, where the three layers comprising the global rebalancing scenario are analysed. Finally, Section 4 concludes.

2   The model and the global imbalances indicator

2.1   The NiGEM model

NiGEM is a multi-country model of the world economy, developed by the National Institute of Economic and Social Research, which uses a "New-Keynesian" framework where agents' choices are assumed to be forward-looking and where nominal rigidities slow the process of adjustment to shocks.[2] A dynamic error-correction structure on the estimated equations is used, allowing the model to adjust gradually towards equilibrium in response to a shock. NiGEM is particularly suited for scenario and policy analysis because it is largely based on estimation using historical data. In addition, the model is quite detailed, allowing for the simulation of a wide range of shocks and policies, ensuring consistency in simulated results and endogenous policy reactions. Its global nature and the interdependence between variables, in particular with respect to international linkages, allow for a comprehensive assessment of the effects of shocks upon a set of international variables.

NiGEM models individually a large number of economies, covering not only advanced economies, such as almost all OECD economies, but also some emerging market economies, like Brazil, Russia, India, China, and the new European Union member states. Countries not modelled separately are integrated into region blocks, which include East Asia, Latin America, Devel-

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[2]For a detailed description of the main properties and equations of the model, see Barrel et al. (2004) and the NIESR website, www.niesr.ac.uk.

oping Europe, CIS, Africa and the Middle East. The economies are linked through trade and competitiveness, financial market interactions and international stock of assets.

The model has a common underlying structure across all economies, which is based upon the national income identity. Each economy has complete demand and supply sides and full asset structures, with detailed equations for international trade, labour market, consumption behaviour, personal income and wealth, financial markets and the public sector. The quantity of output supplied in the medium to longer run in each country depends on the aggregate production function and the equilibrium in the labour market. In the short to medium term, however, actual output may deviate from potential, and is driven by demand.

The NiGEM model allows forward-looking expectations in wages, consumption, exchange rates, bond and equity prices and in monetary-policy making. By default, the model assumes forward-looking behaviour in all cases, except for consumption where the evidence of forward-looking behaviour is less clear. There is a fiscal rule, where personal income taxes are automatically adjusted each time the budget balance deviates from the target, so as to ensure that governments remain solvent in the long run.

As with any other model, NiGEM presents some caveats. Firstly, the model has a limited ability to depict accurately the responses of the financial system, as the financial sector is not modelled explicitly. This may be especially relevant in periods of acute financial sector conditions. Secondly, being a one-sector model, it is not possible to distinguish between the tradable and non-tradable sector. Finally, NiGEM as a linear model, may not capture relationships between macroeconomic variables that may become non-linear during times of heightened macro-financial stress.

2.2 The global imbalances indicator

For the purpose of shedding some light on the potential developments in global imbalances as a consequence of the various model simulations, we build up an indicator to gauge the state of global imbalances. Our indicator corresponds to the difference between the sum of the current account balances of surplus countries and the sum of the current account balances of deficit countries, evaluated as a percentage of world GDP.[3] The countries belonging to either the deficit countries' group or the surplus countries' group are allocated a priori, taking into account the sign of their average current account balances in the last 10 years.[4] The countries in the sample are quite representative, accounting for around 84 per cent of world GDP in 2011 measured in purchasing-power-parity (PPP) terms. The deficit countries represent around 45 per cent of world GDP, whereas the surplus countries account for around 39 per cent of world GDP. Taking into account IMF projections, our indicator of global imbalances stood at 2.3 per cent of world GDP in 2011, and is projected to gradually decline to 1.9 per cent of world GDP

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[3]Alternative indicators to measure global imbalances have been employed by the literature, such as taking the absolute sum or the standard deviation of current account balances. See, for example, OECD (2012), and Lane and Milesi-Ferretti (2011).

[4]The deficit countries' group is composed by: advanced economies (United States, United Kingdom and the euro area excluding Germany), Latin America, and Central and Eastern Europe (based on the IMF's regions). The surplus countries' group is the following: China, Germany and Japan, Emerging Asia excluding China (based on the IMF's region Developing Asia, plus Singapore) and the Middle East and North Africa (corresponding to the IMF's region, plus Israel).

in the next five years (Figure 2). Alternative indicators to measure global imbalances, shown in Figure 2, are in line with ours.

Figure 2: Measuring global imbalances

Source: IMF and authors' calculations.
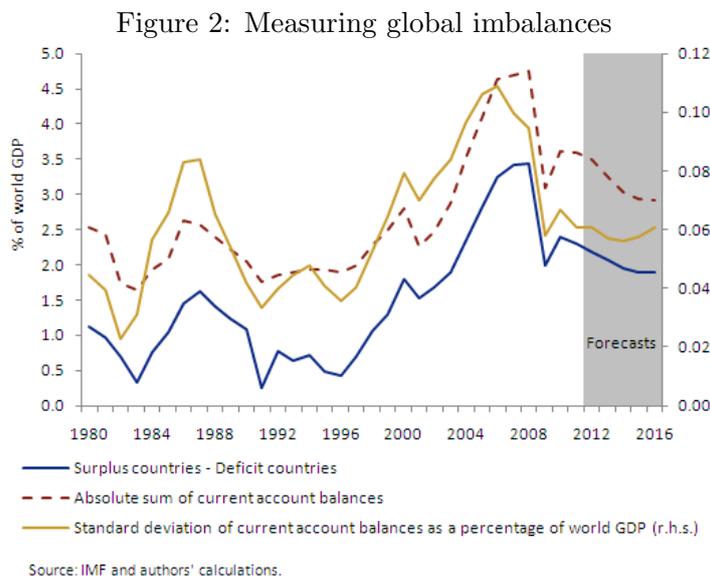
In assessing the results of the simulations, we will look at the deviations of the indicator from its baseline levels. These deviations on an annual basis result from taking the difference between the sum of deviations relative to the baseline of current accounts surpluses and the sum of deviations relative to the baseline of current accounts deficits. Positive (negative) values of the deviations reflect an increase (a reduction) in global imbalances, as the difference between current account surpluses and deficits would widen (narrow).

3 Global rebalancing scenario

This scenario is in the spirit of similar simulations produced by the IMF - IMF (2010b, 2011a) - which assesses policies put forward to address the problem of global imbalances. We present one stylised global rebalancing scenario which is made up of three layers: (i) the first layer involves *fiscal consolidation* in advanced economies; (ii) the second one relates to *structural reforms* in advanced economies; and finally, (iii) the last one regards *rebalancing policies in China*. Over the next sub-sections we present the motivation and details of each layer and analyse the simulation results.

3.1 First layer: fiscal consolidation

3.1.1 Description of the first layer

The first layer of the global rebalancing scenario encompasses the implementation of fiscal consolidation measures aiming at reducing fiscal imbalances in advanced economies. These measures are seen as essential to put public finances back on a firm footing and to help reduce external imbalances. Countries with more fragile public finances, subject to elevated market scrutiny, are expected to benefit the most from the announcement and implementation of strong

and credible fiscal consolidation plans. In this context, the adjustment could be underpinned by a reduction in the burden of government interest payments, as market participants would demand lower interest rates on public debt.

According to IMF (2010b), additional fiscal consolidation is desirable for a number of reasons. First of all, there is a need for countries to rebuild fiscal buffers to protect themselves against future shocks, such as a possible shortfall in growth. Secondly, countries with stable and prudent levels of indebtedness would be better prepared in a scenario where interest rates paid on public debt are higher than expected, should financial market tensions prevail. In this scenario, potential output growth could also turn out to be lower than projected. Thirdly, rising health care costs and the burden of soaring pension costs constitute a major long-term challenge on public finances.

The empirical literature suggests that successful fiscal consolidations result mainly from permanent adjustments on the spending side (see, for example, Alesina and Perotti (1995), Alesina and Ardagna (2009), and Blöchliger et al. (2012)). Nevertheless, given the large gap in most advanced economies between the current fiscal deficit and the targeted deficit - required to stabilise public debt as a percentage of GDP - measures on the revenue side are also required. Therefore, in the simulation, the adjustment is assumed to include not only cuts in government spending, but also tax rises, although spending cuts have greater weight.

In our scenario, we assume that authorities in advanced economies adopt additional fiscal consolidation measures to help restore the sustainability of public finances. The reason why we leave out emerging markets is because the fiscal deficit gap is considerably higher in advanced economies, and public debt is also at levels quite above those prevailing in most emerging markets.[5] Fiscal consolidation shocks are phased in over five years, and according to the following division by countries:

- Countries with high budget deficits and large levels of debt, and/or under heightened financial market pressure, reduce budget deficits by an ex-ante 2 per cent of GDP relative to the baseline, with $\frac{3}{4}$ coming from reducing government spending and $\frac{1}{4}$ from raising indirect tax rates - the United States, Japan, Belgium, Italy and Spain;

- The remaining euro area countries and the United Kingdom reduce budget deficits by an ex-ante 1 per cent of GDP relative to the baseline, with $\frac{3}{4}$ coming from reducing government spending and $\frac{1}{4}$ from raising indirect tax rates.

The size and composition of the shocks are purely indicative. i.e., they should not be regarded as an assessment made on a country-by-country basis. Our motivation is to capture the short- and medium-term effects of the implementation of stylised fiscal consolidation measures in advanced economies. Fiscal consolidation should preferably be adjusted to country circumstances, such as the cyclical position and policy needs, which would imply that the timing, magnitude, and composition of the fiscal adjustment should vary between countries. Our scenario does not take into account country circumstances, except for the distinction assumed for those economies with

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[5]The IMF estimates that, on average, advanced economies would need to improve their cyclically adjusted primary balance by 8 per cent of GDP in order to reach a debt ratio of 60 per cent of GDP in 2020 (IMF (2012)). The size of the adjustment for emerging market economies, in contrast, is considerably lower (1.1 per cent of GDP to reach a debt ratio of 40 per cent of GDP).

more fragile public finances, for which a bigger adjustment is assumed.

Given that we are in the presence of a global rebalancing scenario, we assume that China pursues independent monetary policy with a floating exchange rate regime ("2-pillar rule" in NiGEM). This monetary policy regime is maintained throughout the three layers of the global rebalancing scenario.

3.1.2 Simulation results

The implementation of the fiscal consolidation measures in key advanced economies has a dampening effect on global growth over the entire simulation horizon. At the end of the period, world economic growth is lower by 0.6 per cent vis-à-vis the baseline, whereas world trade is reduced by 1.4 per cent (Table 1). This decline in growth hits both advanced economies, where the fiscal adjustment takes place, and emerging market economies (Figure 7 of the appendix).

Table 1: Fiscal consolidation
Deviations from the baseline (in %)

	Y1	Y2	Y3	Y4	Y5
World GDP	-0.1	-0.1	-0.2	-0.4	-0.6
World trade	-0.2	-0.1	-0.5	-0.8	-1.4
Oil prices					
In US dollars	0.2	0.4	0.5	0.4	-0.2
In euros	0.2	0.2	0.1	0.0	-0.4
Food prices	-0.1	0.2	0.3	0.1	-0.6

The economic downturn in advanced economies is caused by two main factors. First, lower government spending, the main part of the consolidation package, transmits automatically into lower aggregate demand, affecting the growth rate of the economy. Second, raising indirect tax rates has a detrimental effect on domestic demand. In the presence of higher taxes, real personal disposable income is lower than otherwise would have been, making households less prone to consume. Moreover, fiscal consolidation in advanced economies carries negative spillovers to the rest of the world. In particular, emerging market economies are affected via slower external demand growth. Our results add to the vast evidence in the literature showing that fiscal tightening measures are indeed recessionary in the short term (see the IMF (2010*a*) findings for a historical analysis of fiscal consolidation episodes in advanced economies). However, our simulations also uncover that fiscal consolidation, by reducing the debt stock over time, induces a fall in real interest rates and thus raises economic activity in the longer run (results not reported; see also the results of NiGEM simulations in Barrel et al. (2012)).

As regards price developments, inflation remains practically unchanged vis-à-vis the baseline in the first three years, and falls thereafter. This trend is the result of two forces of opposite sign. On the one hand, consumer prices are pushed up by higher indirect tax rates included in the fiscal consolidation package. On the other hand, inflation is pushed downwards by the widening of the output gap. From the fourth year on, inflation falls compared to the baseline as the disinflationary effects from declining aggregate demand begin to prevail over the impact of the increase in indirect tax rates. Monetary policy mitigates somewhat the economic slowdown by remaining accommodative for most of the period.

The fiscal consolidation measures attain the main objective of improving public finances in those countries where the adjustment takes place. Apart from the consolidation measures, public finances' health is also propped up by lower interest payments. In fact, the improvement in the budget balance as a result of the implementation of fiscal consolidation measures implies a reduction in long-term sovereign bond yields, in line with findings from recent empirical research, such as Gruber and Kamin (2010), and Baldacci and Kumar (2010).

Taking stock of this scenario, our global imbalances indicator points to a permanent and significant narrowing of global imbalances, with a reduction of 0.16 p.p. of world GDP at the end of the fifth year (Figure 3). Considering our indicator in levels, global imbalances would be reduced from 1.9 per cent of world GDP (using the IMF baseline projections) to 1.74 per cent, which represents a reduction of more than 8 per cent. Simulations carried out by the IMF with the GIMF model, which entail the tightening of fiscal policy in advanced economies over five years, also point to a reduction of global imbalances (IMF (2010b, 2011a)). Similar results are found by Kerdrain et al. (2010).

Figure 3: Global imbalances indicator - Fiscal consolidation
Deviations from the baseline
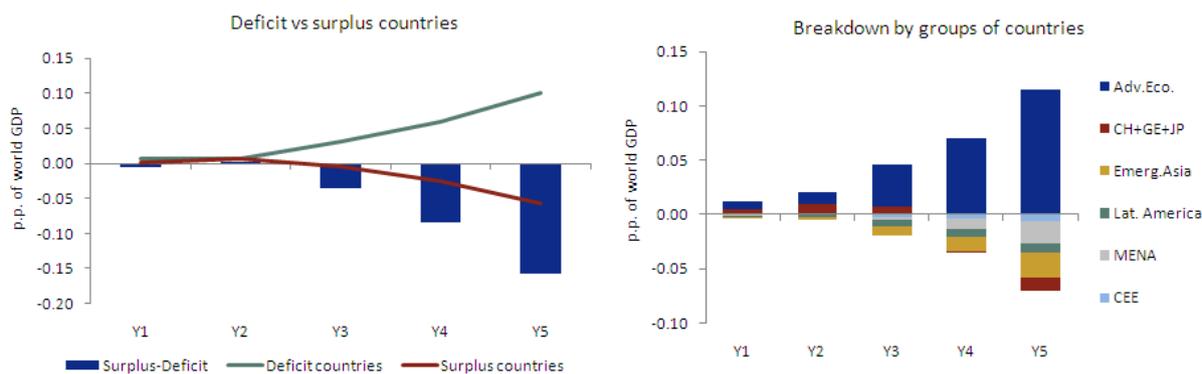
Notes:
Adv.Eco: United States, United Kingdom and the euro area excluding Germany; CH+GE+JP: China, Germany and Japan; Emerg. Asia: Emerging Asia excluding China; MENA: Middle East and North Africa; CEE: Central and Eastern Europe.

We find that surplus economies - China and Emerging Asia, the Middle East and North Africa - record a reduction in their current accounts balances. On the other side of the mirror, the key advanced deficit economies which undergo a five-year period of fiscal adjustment experience an improvement in their current accounts. With fiscal consolidation, there is a decline in domestic economic activity, import demand contracts and unemployment rises, implying a fall in wages and prices, giving rise to competitiveness gains in international markets. The negative correlation between fiscal policy and current accounts is in line with Abbas et al. (2010). For instance, our simulations indicate that the United States and the United Kingdom would see their current account deficits reduced by, respectively, around 0.5 and 1.8 p.p. of GDP vis-à-vis the baseline by year five (Figure 8 of the appendix). Our results are consistent with those of Brook et al. (2004) and OECD (2011b) for the United States, and with Vogel (2011) for the euro area.

Although our scenario allows imbalances in global external accounts to be reduced, implementing fiscal consolidations measures comes at a price, i.e., economic activity deteriorates for the whole

period of the fiscal adjustment. To soften some of the dampening impact on aggregate demand, governments could make fiscal consolidation as much "growth friendly" as possible by, for example, shifting payroll taxes to consumption taxes.

3.2 Second layer: structural reforms

3.2.1 Description of the second layer

The first layer of the global rebalancing scenario showed that, although it helps to reduce global imbalances, fiscal consolidation measures in advanced economies harm output growth in the short to medium term. With fiscal policy being tightened and given the limited scope of monetary policy to mitigate its negative impact on growth, these economies have to find ways to bolster the driving forces of economic growth. Growth-enhancing structural reforms have been put forward as an option to cushion the impact of fiscal adjustment on growth. The OECD report *Going for Growth* (OECD (2011a)) presents evidence on a wide range of structural reforms that governments in advanced economies could implement to address supply constraints and boost potential output, foster job creation and reduce unemployment. These reforms work mainly by increasing labour utilisation and productivity.

In labour markets, policy recommendations by the IMF and OECD include measures to lower hiring costs, to encourage long-term unemployed to job search as well as measures targeted to facilitate reallocation and reattachment of displaced workers (for details, see IMF (2010b, 2011a) and OECD (2011a)). Youth unemployment, which is at extremely high levels and is rising in most advanced economies, might require specific measures targeted to this age group.

Product and service market reforms could also contribute to increasing potential output by enhancing efficiency and total factor productivity. According to the IMF and OECD, the reforms should aim at reducing anti-competitive regulations - such as lowering barriers to competition in network industries, in retail distribution and professional services, and simplifying product market regulation. Reducing distortions and barriers to entry in product and services markets with less competition would lead to higher investment by firms, lower mark-ups and higher labour demand growth. Lower mark-ups on prices and higher labour demand would impact positively on employment, would raise real wages, and stimulate domestic demand. This type of policies that strengthen demand as well as supply are particulary relevant for advanced surplus economies, such as Germany and Japan, as they would help reduce these economies' dependence on foreign demand. Total factor productivity can also benefit from spillovers of sectors where the regulatory burden is lessened to sectors where competition is already high, in the form of, for instance, lower costs in intermediate inputs.

In the second layer of the global rebalancing scenario, we assume that significant progress in structural reforms takes place in advanced economies, in line with the above policy recommendations. In terms of implementation of this scenario, we are nevertheless restricted by the characteristics of the NiGEM model, which lacks detail to model explicitly the type of labour or product market reforms described above. In this context, we take a shortcut based on the available evidence on the effectiveness of such reforms in raising productivity and boosting investment and consumption. Specifically, the scenario assumes:

- a rise in productivity directly via a positive shock on the technological progress variable. The size of our shocks is based on IMF (2010*b*), which in turn is derived from OECD analysis measuring the impact of reducing product market regulation on total factor productivity (Bourlès et al. (2010)).[6] The gains of productivity from product market reforms are phased in over five years in NiGEM, and implemented according to the following distribution:(i) 0.2 p.p. in each year for the United States and United Kingdom;(ii) 0.3 p.p. in each year for euro area countries; (iii) 0.6 p.p. in each year for Japan.

- a shock to domestic demand in key advanced surplus economies, namely Germany and Japan. The idea is that, in these countries, the reforms easing product market regulation in sheltered sectors would also boost investment and consumption, leading to a shift of resources away from production of tradables. The shocks are implemented gradually, reaching the peak in the second year of the simulation. Private consumption maximum deviations from the baseline stand at 0.25 and 0.5 per cent in Japan and Germany, respectively, while those for investment reach 5 and 10 per cent, respectively.

It is worth highlighting that the scenario encompasses structural reforms only in advanced economies. Reforms are also needed in some key emerging market economies, but they are somewhat different and we opted to discuss them separately as part of the final layer of the global rebalancing scenario.

3.2.2 Simulation results

Structural reforms described above would increase GDP in the world economy from the first year of the simulation on. At the end of the simulation horizon, world GDP stands 0.4 per cent above the baseline (Table 2). Rising world economic activity is accompanied by greater transactions between borders, with the volume of world trade standing 1.0 per cent above the baseline after five years.

Table 2: Structural reforms
Deviations from the baseline (in %)

	Y1	Y2	Y3	Y4	Y5
World GDP	0.2	0.2	0.3	0.3	0.4
World trade	0.7	0.8	0.8	0.9	1.0
Oil prices					
In US dollars	0.4	0.4	0.4	0.2	0.0
In euros	-0.4	-0.2	-0.1	0.0	0.0
Food prices	0.5	0.7	0.5	0.3	0.1

Those advanced economies which experience a shock to productivity and shocks to domestic demand are noticeably the ones that benefit the most in terms of output growth. According to our simulations, GDP in the United States, United Kingdom and the euro area stands between 0.5 and 0.8 per cent above the baseline after five years, while Japan, which has the largest

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[6]The main idea is that structural reforms that involve adopting best practices in the manufacturing and services sectors lead to higher overall productivity growth. Best practices are defined as the average of the three levels of less restrictive regulation of competition in the 20 sectors of 15 OECD countries covered in the OECD study.

productivity shock and also experiences a domestic demand shock, sees its GDP rise by 1.7 per cent vis-à-vis the baseline. In this context of rising economic activity in advanced economies, there are positive spillovers to the rest of the world, particularly to those countries more export-oriented. China's GDP, for instance, benefits from an increase in world trade, standing 0.2 per cent above the baseline at the end of the simulation period. Supply-side policies that raise productivity, and thus potential output, tend to reduce inflation. This is what our simulation results show for almost all major world economies, although the effect is relatively small.

Our results suggest that the implementation of structural reforms would imply output gains even in the short-term. This results basically from the way we implemented the shocks, which do not allow for costly and timely reallocations of resources. The idea that some structural reforms can be expansionary even in the short run has, however, been gaining some support, as evidenced by recent research by Bouis et al. (2012) and Cacciatore et al. (2012). Based on an empirical analysis of reforms implemented in OECD countries in the past 30 years, Bouis et al. (2012) find that structural reforms in the labour and product market were rarely associated with economic costs in the short term. Using a DGE model, Cacciatore et al. (2012) reach a similar conclusion: structural reforms have a short-term expansionary effect on economic activity, although they may come at the expense of a temporary rise in unemployment (in the case of labour market reforms) or a transitory decline in consumption (in the case of product market reforms).

The implementation of the referred structural reforms, however, is not sufficient for all of the advanced economies to make up for the loss in GDP induced by fiscal consolidation measures described in the first layer. In fact, although Figure 7 of the appendix shows that GDP is well above the baseline in Germany and slightly above in the euro area as a whole, output levels in other major advanced economies still remain below the baseline at the end of the five-year period, after taking into account the fiscal consolidation shocks. The dashed lines in Figure 7 refer to the cumulative deviation relative to the baseline of fiscal consolidation (Layer 1 corresponds to the solid lines) plus structural reforms (Layer 2). For instance, GDP in the United States still remains 0.7 per cent below the baseline in the fifth year.

Moving on to the assessment of global imbalances, we find that the discrepancy between those countries with current account surpluses and those with deficits would be narrowed, by around 0.1 p.p. of world GDP, relative to the baseline, after five years (Figure 4). This would represent a correction in global imbalances of around 5 per cent relative to the IMF baseline projections. Firstly, those advanced economies running current account surpluses experience a reduction in their current account surplus (Figure 8 of the appendix). This effect basically reflects the behavior of consumption and investment in Germany and Japan. Secondly, deficit countries, especially the major advanced deficit countries, reduce their external deficit after five years, relative to the baseline. These economies benefit from a gain in external competitiveness, with the real effective exchange rate falling relative to the baseline, brought about by higher productivity.

Our findings are in line with those of Vogel (2011) and Gomes et al. (2011). The first paper assesses the impacts of labour and product market reforms in the euro area on external balances, revealing that structural reforms imply a permanent improvement in price competitiveness and

in the current account in the short to medium term. However, in the longer term, growth enhancing reforms also imply a rise in import demand, which narrow the initial improvement in external accounts. A similar conclusion is found in Gomes et al. (2011). Considering the two layers pooled together, fiscal consolidation and structural reforms, our simulations indicate that global imbalances would be reduced by 0.25 p.p. of world GDP in the five-year period, which corresponds to a narrowing of roughly 13 per cent. This is in line with Kerdrain et al. (2010), which suggest that if countries were to implement fiscal consolidation measures and structural reforms, global imbalances would be narrowed by one-third over a period of 15 years.

Figure 4: Global imbalances indicator - Structural reforms
Deviations from the baseline
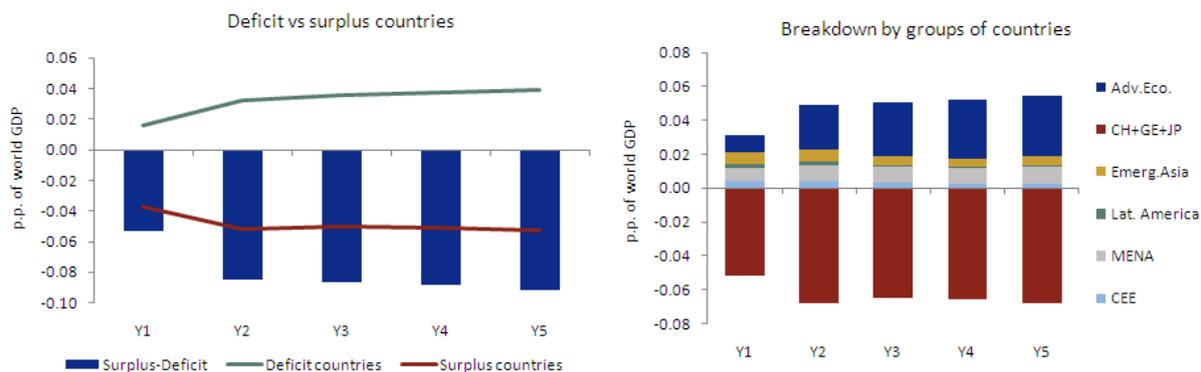
Notes:
Adv.Eco: United States, United Kingdom and the euro area excluding Germany; CH+GE+JP: China, Germany and Japan; Emerg. Asia: Emerging Asia excluding China; MENA: Middle East and North Africa; CEE: Central and Eastern Europe.

3.3 Third layer: rebalancing policies in China

3.3.1 Description of the third layer

The third layer of the rebalancing scenario weighs up the multilateral implications of adopting rebalancing policies in China. While we concentrate on China, the proposed policies are to a large extent also relevant to other Asian emerging market economies running large and persistent current account surpluses.[7] The main aim of these policies is to increase domestic absorption. This is needed not only for reducing external imbalances but also to offset weaker demand in the advanced economies and thus support world growth.

Moving away from export-led growth towards growth based on domestic demand in China is expected to result from addressing underlying distortions behind high positive savings-investment balances. In China, one of the major distortions is the undervalued exchange rate.[8] Therefore,

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[7]The main reason for not having extended the analysis to these other economies is that, to a large extent, they are not individually modeled in NiGEM. This makes it difficult to consider and tailor policies to these countries' individual circumstances.

[8]According to IMF staff, the renminbi remains substantially below the level consistent with medium-term fundamentals (see IMF (2011b)). Cline and Williamson (2012) judge China's currency to be undervalued by about 3 percent in real effective terms and around 8 per cent against the dollar. The authors´calculations take into account the most recent IMF's figures for China's future current account surpluses, which have considerably been revised down. The authors note that it is conceivable that the IMF has overadjusted for its past errors on China and that the needed exchange rate changes are in fact larger than their estimates.

the rebalancing of economic growth should be helped by allowing for greater appreciation of the Chinese currency in a context of more exchange rate flexibility. This enhanced flexibility may have other advantages, such as helping to contain inflationary pressures and enabling a better management of capital inflows attracted by favourable growth and interest rate differentials.

Greater exchange rate flexibility should be combined with structural reforms to boost domestic demand. In China, inadequate social protection schemes are perceived as an important contributing factor to high national savings. Alleviating these distortions through an expansion in social safety nets - by improving pension, healthcare and education systems, for example - can be expected to lower precautionary savings and boost private consumption. Financial sector reform is also needed in China, to reduce distortions for firms and provide greater access to credit for liquidity-constrained households, which would help boost consumption and reduce inefficient investment. Finally, reforms that encourage growth in the non-tradable sector are also desirable, in particular, those raising both output and demand for services. The rebalancing policies described above are implemented in NiGEM by assuming:

- Direct positive shocks to domestic demand in China, which are meant to capture the effects of the structural reforms listed above. The shocks are assumed to last for the whole simulation period and amount on average to 0.6 per cent;

- A permanent 15 per cent appreciation of the Chinese renminbi vis-à-vis the US dollar.

3.3.2 Simulation results

The adoption of rebalancing policies by China would improve growth outcomes for all major world economies, implying an increase in world GDP of 0.7 per cent relative to the baseline, in the last year of the simulation (Table 3). This scenario would also translate into increased international trade flows, by 2.0 per cent relative to the baseline.

Table 3: Rebalancing policies in China
Deviations from the baseline (in %)

	Y1	Y2	Y3	Y4	Y5
World GDP	-0.1	-0.1	0.1	0.4	0.7
World trade	0.5	0.4	1.0	1.6	2.0
Oil prices					
In US dollars	1.6	1.3	0.4	-0.1	-0.1
In euros	1.4	0.8	0.0	-0.3	-0.1
Food prices	0.5	1.3	1.7	1.4	1.0

China experiences the largest gains in terms of output, 2.4 per cent relative to the baseline by the end of the simulation period, reflecting a larger contribution from domestic demand to growth which more than offsets a lower net external demand contribution (Figure 7 of the appendix). Both the real appreciation of the Chinese currency and the demand shock contribute to a much faster growth of imports compared to that of exports, inducing a large reduction in the current account surplus (Figure 8 of the appendix). As regards output in the other large world economies, the United States, United Kingdom and the euro area would grow by 0.1 per cent relative to the baseline after five years, whereas Japan would pick up by 0.4 per cent.

Regarding inflation outcomes, the main trading partners of China would have more inflation on impact, as a result of higher import prices. Afterwards, the impact of the renminbi appreciation fades away and by the end of the simulation period inflation is practically unchanged vis-à-vis the baseline in major advanced economies. In turn, in China, the appreciation of the currency induces a substantial reduction in inflation, which reaches a peak in the second year of the simulation period, but gradually dissipates thereafter.

The implementation of rebalancing policies in China implies a reduction of global imbalances of 0.24 p.p. of world GDP relative to the baseline in the last year of the simulation (Figure 5). This improvement reflects a reduction of external surpluses (-0.15 p.p.), namely that of China, as well as of external deficits (-0.09 p.p.), particularly those of the United States and European countries.

Figure 5: Global imbalances indicator - Rebalancing policies in China
Deviations from the baseline
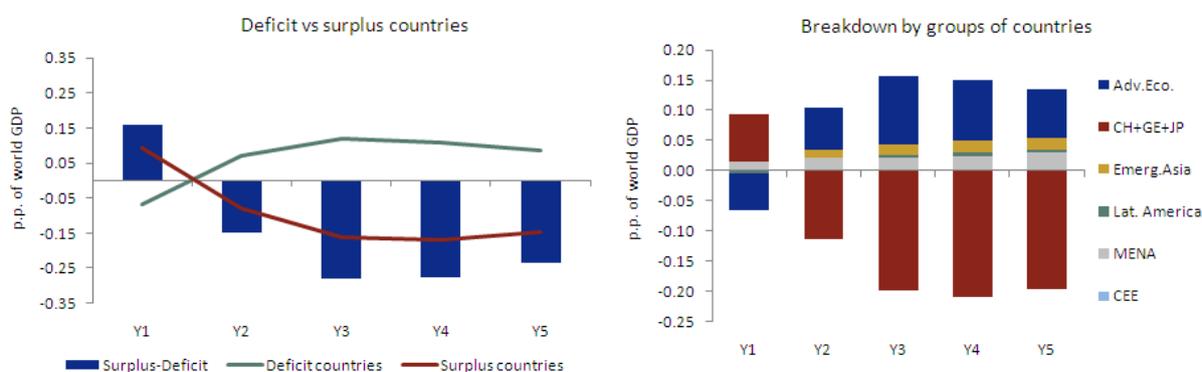
Notes:
Adv.Eco: United States, United Kingdom and the euro area excluding Germany; CH+GE+JP: China, Germany and Japan; Emerg. Asia: Emerging Asia excluding China; MENA: Middle East and North Africa; CEE: Central and Eastern Europe.

The implementation of the three policy layers comprising the global rebalancing scenario boosts global output by 0.5 per cent above the baseline in the medium term. This is achieved mainly as a result of stronger growth in surplus countries. China and Germany, in particular, experience the biggest output gains, driven by higher domestic demand following the adoption of structural reforms and supported also, in the case of the former, by greater exchange rate flexibility. The dotted lines in Figures 7 and 8 of the appendix refer to the cumulative deviation relative to the baseline, after considering the individual effects of fiscal consolidation (the solid line), the implementation of structural reforms in advanced economies (the dashed line) and the adoption of rebalancing policies in China. Output in Japan is barely unchanged vis-à-vis the baseline, as the positive effects of structural reforms and Chinese rebalancing policies are neutralised by the negative impact of fiscal consolidation. In the case of the United States and the United Kingdom, fiscal retrenchment effects predominate and output levels, after taking into account all layers, still remain below the baseline at the end of the five-year period. Thus, not all economies seem to benefit to the same extent from the global rebalancing scenario. This contrasts with the results presented in IMF (2010*b*, 2011*a*) considering similar policy experiments, which show economic activity in all major world economies benefitting from a global rebalancing scenario. This probably reflects different assumptions in the design of the policy scenarios besides differences

resulting from using different models. The major difference in the results derives from the scenario of structural reforms in advanced economies, in which the IMF reports much higher output impacts, which might suggest that the shocks assumed were significantly larger than the ones considered in our analysis. Nevertheless, over the longer term, our simulations (results not reported here) show that the combination of these three types of policies generate output levels above the baseline for all major world economies.

As for inflation, the implementation of all three policy layers would have a downward impact on inflation in almost all major world economies by the end of the simulation period. Simulation results also point towards a more sustainable growth path for the world economy, with lower government deficits and debt levels as well as smaller external imbalances vis-à-vis the baseline.

The simulations show a rebalancing of global demand across regions. Overall, our indicator suggests that global imbalances would be significantly narrowed by half a percentage point of world GDP relative to the baseline over five years. As we have seen before, all three layers of the global rebalancing scenario contribute to this reduction, although to different degrees (Figure 6). The last policy layer of the rebalancing scenario plays the main role (contribution of -0.24 p.p.), followed by the fiscal consolidation layer (-0.16 p.p). The improvement in global imbalances reflects a narrowing of both external deficits and surpluses. On the surplus countries' side, there is a sizeable reduction in the current account surpluses of China and Germany vis-à-vis the baseline. In the first case, the reduction is the result of fiscal consolidation undertaken by advanced economies in the first layer and, to a larger extent, of the Chinese rebalancing policies implemented in the third layer. In contrast, structural reforms explain the whole reduction in Germany's surplus. In Japan, the other large world economy traditionally presenting a significant current account surplus, there is no correction at all: the reduction brought about by the structural reforms' layer is more than offset by a widening in the other two layers. Among deficit countries, the narrowing in the external deficits of the United States and United Kingdom is helped by all policy layers. This attest to the benefits of combining the three policy layers to attain more sustainable and balanced growth at the world level.

Figure 6: Global imbalances indicator - 3 layers of the global rebalancing scenario
Deviations from the baseline
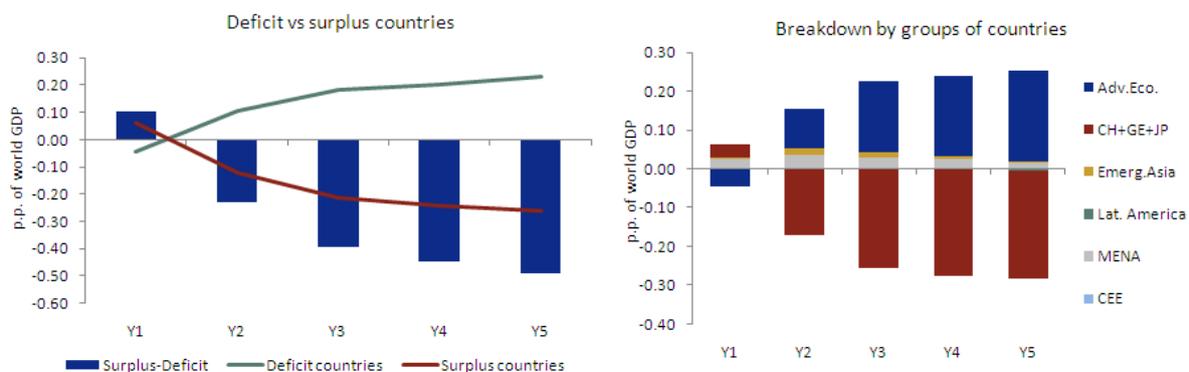
Notes:
Adv.Eco: United States, United Kingdom and the euro area excluding Germany; CH+GE+JP: China, Germany and Japan; Emerg. Asia: Emerging Asia excluding China; MENA: Middle East and North Africa; CEE: Central and Eastern Europe.

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4 Concluding remarks

Global current account imbalances are expected to decline somewhat but will remain at relatively high levels in the forecasting horizon. These imbalances are generally seen as a threat to a still fragile recovery of the world economy, where risks to the global growth outlook are mainly assessed to be on the downside. Only with deliberate multilateral policy action aimed at rebalancing global demand, can global imbalances be adjusted on a significant scale. This is what we show with our work, where coordinated policy action directed to tackle these imbalances is implemented in key economies around the world. The scenario assumed three policy layers. Advanced economies implement additional fiscal consolidation measures to reduce fiscal vulnerabilities (Layer 1) and structural reforms in the labour and product markets to boost productivity and potential output (Layer 2), whereas China adopts rebalancing policies, namely currency appreciation and implementation of structural reforms aimed at supporting domestic demand (Layer 3). The simulation results show that the combination of these three policy layers would lead to a significant reduction of global imbalances, by roughly half of a percentage point of world GDP relative to the baseline in a five-year period. Considering what is currently embedded in the latest IMF projections, the level of global imbalances would be reduced by one quarter in five years. The rebalancing would reflect a narrowing of current account imbalances in both deficit and surplus countries.

The simulations also indicate that the implementation of the three policy layers would raise world GDP levels by about 0.5 per cent relative to the baseline. The benefits of this global rebalancing scenario would also translate into increased job creation and lower inflation. Public finances would improve, particularly in advanced economies, creating much needed fiscal space to deal with future shocks and longer-term fiscal challenges. In this context, our results lend support to the view that, should similar policies be adopted, the world economy would be expected to grow at stronger and more sustainable rates and in a more balanced way.

Not every economy, however, would experience output gains in a five-year period. This applies especially to some major advanced deficit countries, such as the United States and the United Kingdom, where GDP levels would stand slightly below the baseline after five years. These findings are at odds with the results from IMF (2010b, 2011a), where activity in all economies appears to improve with global rebalancing policies. This likely reflects not only differences in model specification, but also different assumptions in the design of the scenario, such as in the size and duration of the policy shocks. Although our results suggest that global rebalancing policies may imply short- to medium-term costs in terms of output in some major countries, over the longer run benefits would be shared by all world economies.

Our scenario design is highly stylised and the resulting simulations, as with any other modelling framework, are subject to uncertainty. Hence, the impact of the proposed policies should be seen as indicative. Considering these usual caveats, our results give support to the idea that coordinated action to implement policies such as those considered in the global rebalancing scenario would help reduce the risks connected to global imbalances and yield benefits for the world economy as a whole. It is also possible that these benefits could be higher than predicted by the model, as these policies could be expected to impact positively on consumer and business confidence which, in turn, would prop up world growth.

Appendix

Figure 7: Global rebalancing scenario
Deviations from the baseline
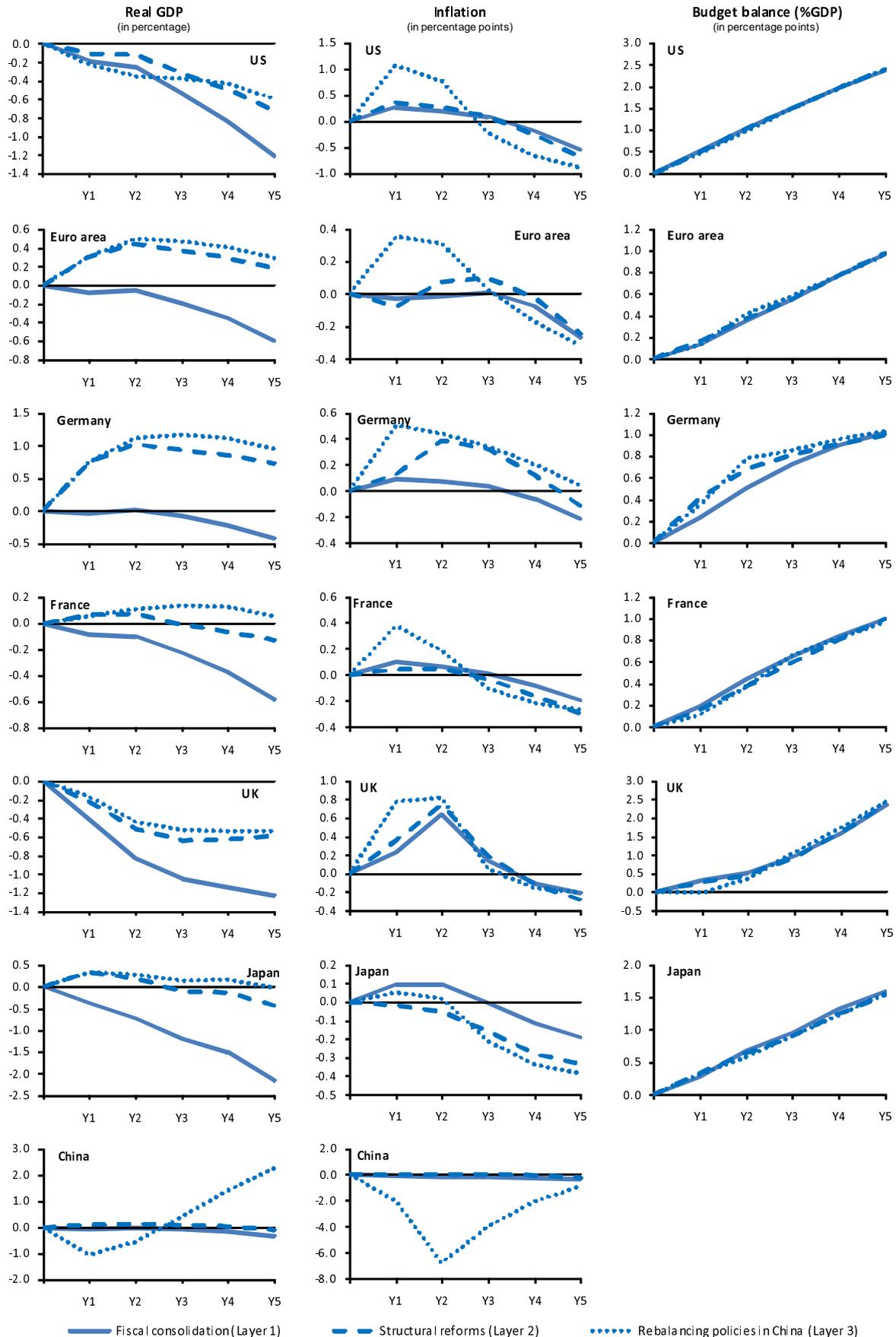
Notes: The solid line (Layer 1) refers to the deviation relative to the baseline of fiscal consolidation. The dashed line (Layer 2) refers to the deviation relative to the baseline of fiscal consolidation and structural reforms. The dotted line (Layer 3) adds rebalancing policies in China. Individual effects are obtained by subtraction of lines.

Figure 8: Global rebalancing scenario
Deviations from the baseline
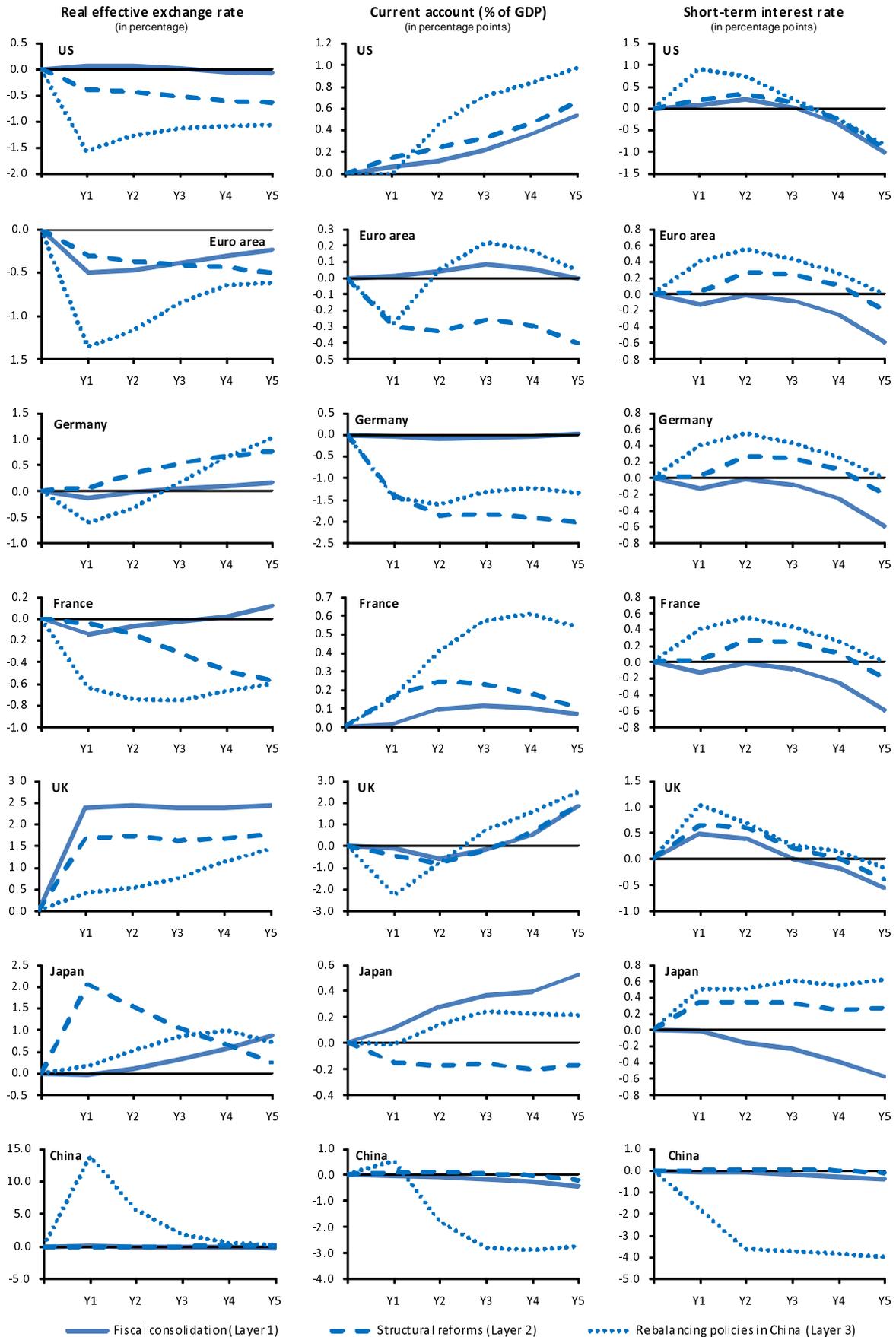
Real effective exchange rate
(in percentage)

Current account (% of GDP)
(in percentage points)

Short-term interest rate
(in percentage points)

Fiscal consolidation (Layer 1) — — Structural reforms (Layer 2) ······ Rebalancing policies in China (Layer 3)

Notes: The solid line (Layer 1) refers to the deviation relative to the baseline of fiscal consolidation. The dashed line (Layer 2) refers to the deviation relative to the baseline of fiscal consolidation and structural reforms. The dotted line (Layer 3) adds rebalancing policies in China. Individual effects are obtained by subtraction of lines.

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