

Chapter 1

GENERAL ASSESSMENT OF THE MACROECONOMIC SITUATION

Introduction

For the last five years the global economy has been in a low-growth trap, with growth disappointingly low and stuck at around 3%. Persistent growth shortfalls have weighed on future output expectations and thereby reduced current spending and potential output growth. Global trade and investment have been weak, limiting the advances in labour productivity and wages that are required to support sustainable consumption growth. However, fiscal policies, both implemented and proposed, could, if effective, catalyse private economic activity and push the global economy to a modestly higher growth rate of around 3½ per cent by 2018. Exiting the low-growth trap depends on policy choices, as well as on concerted and effective implementation. If, as assumed in the projections, the incoming US Administration implements a significant and effective fiscal initiative that boosts domestic investment and consumption, global growth could increase by 0.1 percentage point in 2017 and 0.3 percentage point in 2018. If the fiscal stimulus underway in China continues to support demand, this could also bolster global growth by 0.2 percentage points per annum on average over 2017-18. A more robust fiscal easing than currently projected in many other advanced economies, including in the EU, would further support domestic and global activity. OECD analysis of fiscal space indicates that the EU has room for more concerted action.

Against this backdrop of fiscal initiatives, progress on trade policy would help propel the global economy out of the low-growth trap as well as support a revival of productivity. On the other hand, worsening protectionism and the threat of trade retaliation could offset much of the fiscal initiatives' impact on domestic and global growth, leaving countries with a poorer fiscal position as well. With pressures in labour and product markets building only slowly, inflation should remain modest in most economies, although resource pressures could start to emerge in the United States. If expectations of medium and longer-term growth revive, thus allowing monetary policy to move toward a more neutral stance in the United States, it might help to ameliorate some existing distortions in financial markets, such as a lack of term and credit risk premia. However, the risk of a growing divergence in the monetary policy stance in the major economies over the next two years could be a new source of financial market tensions. New challenges have also arisen from the UK vote to leave the European Union, raising the prospect of an extended period of uncertainty until the future scope of trade relationships with the rest of the European Union becomes clear.

In order to ensure the exit from the low-growth equilibrium, there is a need for effective and collective policy efforts to support aggregate demand in the short term and raise potential growth in the longer term. Towards these ends, accommodative monetary policy needs to be complemented by enhanced collective use of fiscal and more ambitious structural policies and avoidance of more widespread trade protectionism. Financial market distortions and prospects for greater volatility imply that there is no scope to expand monetary easing beyond existing plans in the main advanced economies. On the other hand, countries should closely examine fiscal space with lower interest rates

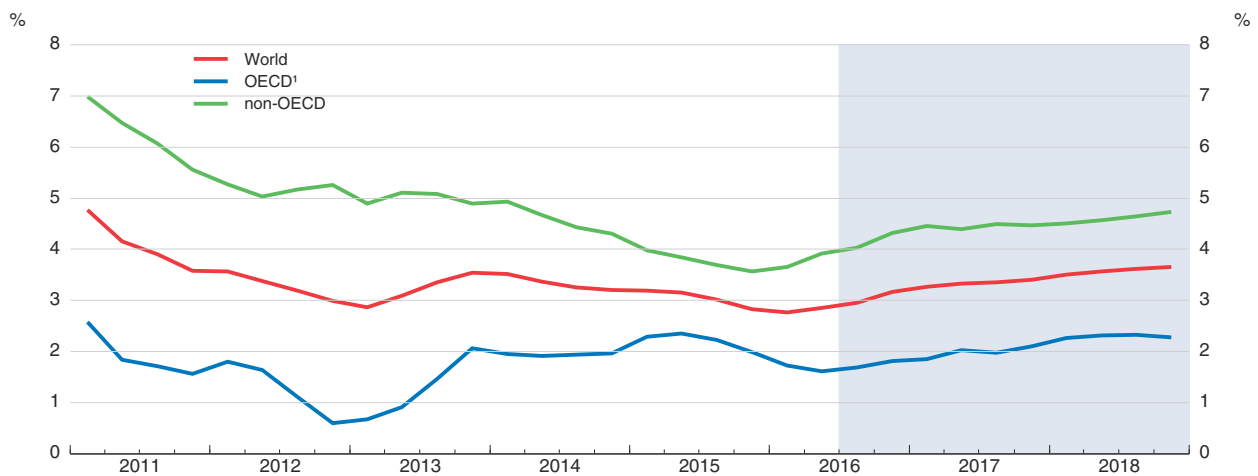
enabling countries to boost hard and soft infrastructure and other growth-enhancing spending for an average of four years while leaving debt-to-GDP ratios unchanged (see Chapter 2). Collective action in this area, including reallocating public spending towards more growth-friendly items, would catalyse business investment and deliver additional output gains from cross-country spillovers. Fiscal choices depend on structural policies, otherwise they will fail to strengthen productivity growth and labour utilisation and will undermine debt sustainability. Given the dramatic slowdown in trade, reversing protectionist measures since the crisis and further expanding the scope for international trade, coupled with measures to better share the gains from trade, are key collective structural policy priorities. A bold and comprehensive use of monetary, fiscal and structural measures should raise growth expectations and reduce risk perceptions, and thereby put the global economy on a sustainable higher-growth path.

The recovery could gain steam depending on policy choices

Prospects for sub-par global growth persist despite the low-interest rate environment (Figure 1.1), reflecting poor underlying supply-side developments, modest aggregate demand and diminished reform efforts. Despite an upturn in the third quarter of 2016, global GDP growth is estimated to have again been around 3% this year, over $\frac{3}{4}$ percentage point weaker than the average in the two decades prior to the crisis. In the absence of action to remedy this persistent shortfall, it will be increasingly difficult for governments to meet all of their implicit future commitments to society, or even meet current expectations for their citizens. While there are signs that output growth has now started to edge up in the emerging and developing economies after a prolonged slowdown, helped by the near-term effects of policy support in China and easing recessions in many commodity producers, the advanced economies have yet to collectively gain much additional momentum.

Figure 1.1. **Global GDP growth is set to rise**


Year-on-year percentage changes



Note: GDP measured using purchasing power parities.

1. With growth in Ireland in 2015 computed using gross value added at constant prices excluding foreign-owned multinational enterprise dominated sectors.

Source: OECD Economic Outlook 100 database.

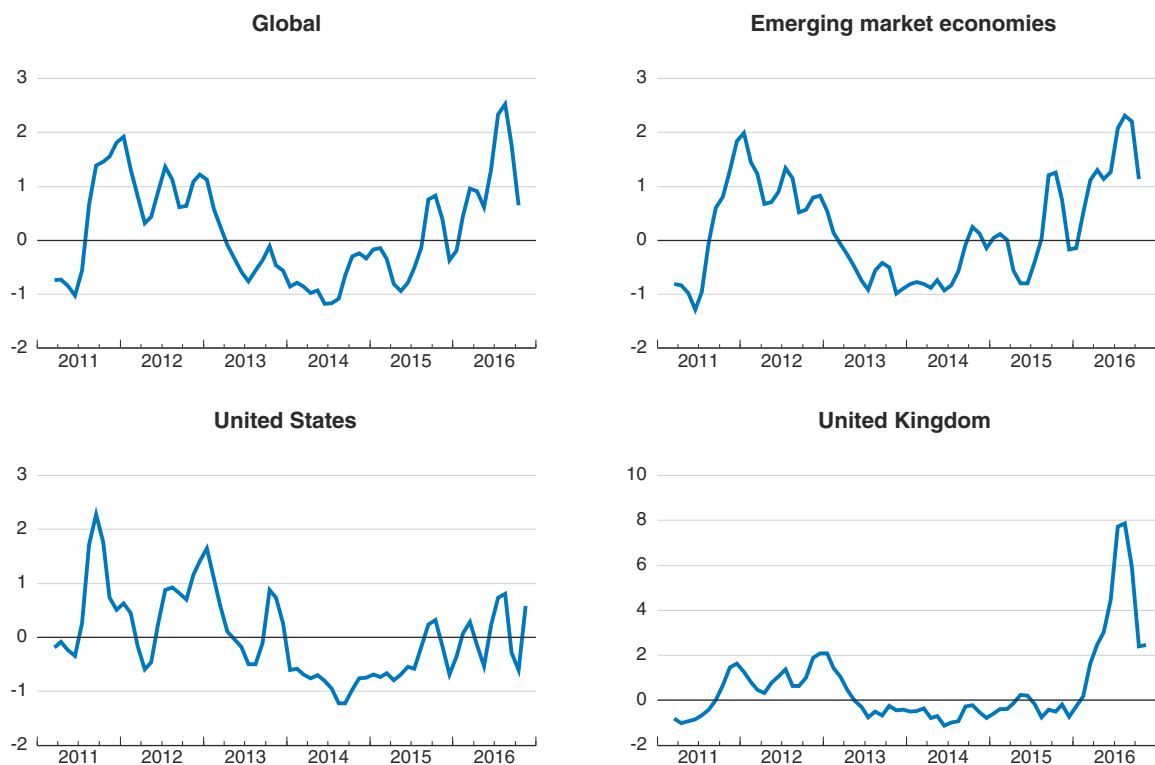
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News-based measures of policy uncertainty remain elevated in a number of countries, and at the global level (Figure 1.2). This adds to downside risks, with likely negative effects on activity if it persists. Despite this, equity market turbulence has eased after sharp initial reactions to the results of the US election and UK referendum, although bond market volatility has risen. Government bond yields have turned up from historic lows in many economies, helped by higher market expectations of future inflation and hence the future pace of policy interest rate rises in the United States.

Global growth could gain some steam through the next two years, albeit only to around 3½ per cent by 2018 and under the assumption of a more supportive fiscal stance in the United States, with associated demand spillovers to other economies (Table 1.1). If these changes in the United States and the estimated impact of projected fiscal easing in China and the euro area fail to materialise, global GDP growth would be around 0.4 percentage point weaker than projected in 2017 and 0.6 percentage point weaker in 2018 (Box 1.1 and Figure 1.3). Even weaker outcomes would result if restrictive trade measures were to be put in place, but the implementation of trade facilitation measures would boost growth (Box 1.3).

Figure 1.2. **Economic policy uncertainty remains elevated in a number of economies**

Policy uncertainty index normalised over 2011-2015, 3-month moving average



Note: The emerging market economies measure is a PPP weighted average of news-based policy uncertainty in China, India, Brazil and Russia. The estimates for the United States and the United Kingdom in November are based on daily data available up to November 21.
Source: PolicyUncertainty.com; and OECD calculations.

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Table 1.1. **The global recovery could gain some steam**

OECD area, unless noted otherwise

	Average 2004-2013	2014	2015	2016	2017	2018	2016 Q4	2017 Q4	2018 Q4
	Per cent								
Real GDP growth¹									
World ²	3.9	3.3	3.1	2.9	3.3	3.6	3.2	3.4	3.7
OECD ^{2,7}	1.6	1.9	2.1	1.7	2.0	2.3	1.8	2.1	2.3
United States	1.6	2.4	2.6	1.5	2.3	3.0	1.8	2.5	2.9
Euro area ⁷	0.8	1.2	1.5	1.7	1.6	1.7	1.6	1.6	1.7
Japan	0.8	0.0	0.6	0.8	1.0	0.8	1.5	0.8	0.9
Non-OECD ²	6.6	4.6	3.8	4.0	4.5	4.6	4.3	4.5	4.7
China	10.3	7.3	6.9	6.7	6.4	6.1	6.8	6.1	6.1
Output gap³	-0.5	-2.1	-1.5	-1.4	-0.9	0.0			
Unemployment rate⁴	7.1	7.4	6.8	6.3	6.1	6.0	6.2	6.1	5.9
Inflation^{1,5}	2.0	1.6	0.7	1.0	1.7	2.1	1.3	1.7	2.3
Fiscal balance⁶	-4.6	-3.5	-3.0	-3.1	-3.0	-2.9			
World real trade growth¹	5.3	3.9	2.6	1.9	2.9	3.2	2.1	2.8	3.5

1. Percentage changes; last three columns show the increase over a year earlier.

2. Moving nominal GDP weights, using purchasing power parities.

3. Per cent of potential GDP.


4. Per cent of labour force.

5. Private consumption deflator.

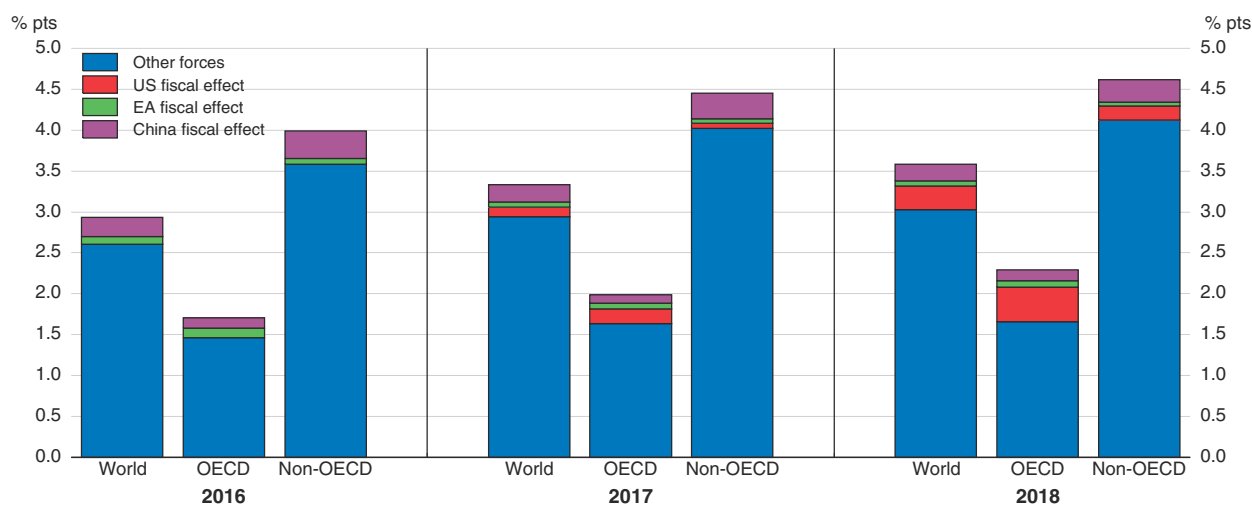
6. Per cent of GDP.

7. With growth in Ireland in 2015 computed using gross value added at constant prices excluding foreign-owned multinational enterprise dominated sectors.

Source: OECD Economic Outlook 100 database.


StatLink  <http://dx.doi.org/10.1787/888933438659>Figure 1.3. **Fiscal stimulus is helping to support GDP growth**

Estimated contribution to annual GDP growth



Note: Based on macro-model simulations of an assumed fiscal stimulus in the United States worth $\frac{3}{4}$ per cent of GDP in 2017 and $1\frac{3}{4}$ per cent of GDP in 2018; actual and projected fiscal stimulus in China of $1\frac{1}{2}$ per cent of GDP in 2016 and 1% of GDP in both 2017 and 2018; and actual and projected fiscal stimulus in the euro area of 0.4% of GDP in 2016, 0.2% of GDP in 2017 and 0.3% of GDP in 2018. The stimulus in China and the euro area is assumed to be implemented through government final expenditure on consumption. Details of the stimulus in the United States are set out in Box 1.1.

Source: OECD Economic Outlook 100 database; and OECD calculations.

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Box 1.1. The short-term impact of fiscal stimulus in the United States

In the aftermath of the US elections, there is widespread expectation of a significant change in direction for macroeconomic policy. The extent to which the fiscal programme set out by the new Administration during the election campaign is implemented will not become clear for some time, as agreement by Congress will be required to introduce necessary legislation and in some areas, notably tax reform, complex legislative changes may be needed. Nonetheless, it seems likely that there will be some easing of fiscal policy over the next two years, with implications for growth prospects and inflation in the United States and other economies.

The stylised scenario set out in this Box provides some illustrative estimates of the possible short-term economic effects that could result from a fiscal expansion in the United States of the form assumed and incorporated in the projections, using the NiGEM global macro model. The fiscal measures incorporated in the scenario are:

- An increase in government consumption and government investment each worth $\frac{1}{4}$ per cent of (baseline) GDP in 2017 and 2018.
- A reform to personal income taxes that reduces tax revenue by around $\frac{1}{2}$ per cent of GDP in 2017 and 2018. In practice this is likely to include some reductions in the number of personal income tax brackets as well as some reduction in marginal rates.
- Reforms to corporate taxes that reduce revenues by around $\frac{3}{4}$ per cent of GDP in 2018. In the simulation this is assumed to arise from a reduction in the baseline effective corporate tax rate of just over 10%, rather than from an expansion in the tax base.

Given that some time will be needed to enact the necessary legislation to achieve these measures, the additional spending is assumed to be implemented from the second quarter of 2017, with the household tax reduction phased in over the course of 2017. The NiGEM model was run in backward-looking mode, reflecting a judgment that in a period characterised by considerable uncertainty, businesses and households would be unlikely to behave as if fiscal measures were known with certainty before they are legislated. Monetary policy was allowed to remain endogenous in the United States, but policy interest rates were kept fixed in other economies. The US budget solvency rule was switched off, so that the additional spending and reduced taxation initially raise the budget deficit.

All told, the combined fiscal measures raise calendar year US GDP growth by around 0.4 percentage points in 2017 and a little over 0.8 percentage points in 2018 (see first figure). Business investment rises relatively rapidly, and is around $5\frac{1}{2}$ per cent above baseline by 2018, adding to productive potential. The unemployment rate declines further, by just under $\frac{1}{2}$ percentage point by 2018, and signs of resource pressures start to emerge, with consumer price inflation rising by 0.1 percentage point in 2017 and 0.4 percentage point in 2018. Stronger growth relative to potential and higher inflation prompt tighter policy interest rates, which rise relative to the very low baseline level by around $\frac{1}{4}$ percentage point in 2017 and $\frac{3}{4}$ percentage point in 2018. This helps to push up long-term interest rates which are around 40 basis points above baseline in 2018.

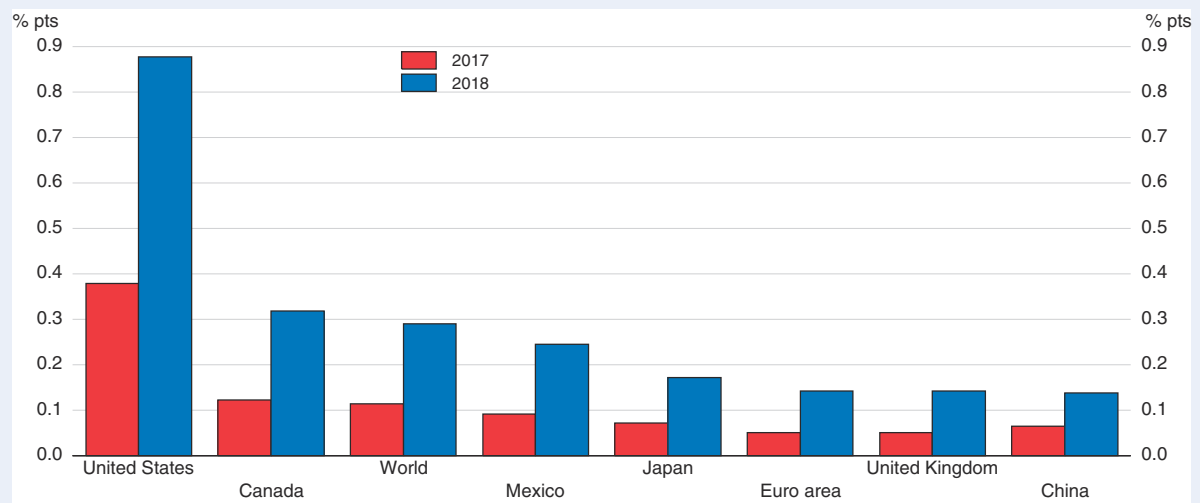
The boost to US final demand also strengthens import growth, with import volumes around 3% above their baseline value in 2018. This has modest positive spillover effects on other economies (see first figure), particularly Canada and Mexico (in the assumed absence of any offsetting trade policy measures). Overall, the stimulus boosts global GDP growth by around 0.1 percentage point in 2017 and 0.3 percentage point in 2018, with world trade growth rising by $\frac{1}{4}$ percentage point and $\frac{1}{2}$ percentage point in 2017 and 2018 respectively. In the absence of the US fiscal stimulus, projected GDP growth in 2018 would be largely unchanged from that in 2017 in most countries (see second figure).

Box 1.1. The short-term impact of fiscal stimulus in the United States (cont.)

The initial ex-ante increase in the US budget deficit from stronger expenditure and lower taxes is offset in part by the favourable fiscal effects of stronger economic activity, so that the actual increase in the budget deficit relative to baseline is around ½ per cent of GDP in 2017 and 1½ per cent of GDP in 2018, as compared with the respective ex-ante rise in the deficit of ¾ per cent of GDP in 2017 and 1¾ per cent of GDP in 2018. The US government debt-to-GDP ratio declines marginally in both years, by around ½ per cent of GDP in 2018, despite the increases in the deficit-to-GDP ratio and long-term government bond yields. This is because the favourable impact of the increase in (nominal) GDP on the debt-to-GDP ratio more than offsets the impact of the higher budget deficit in the near term.

The near-term GDP growth impact of a stylised US fiscal stimulus

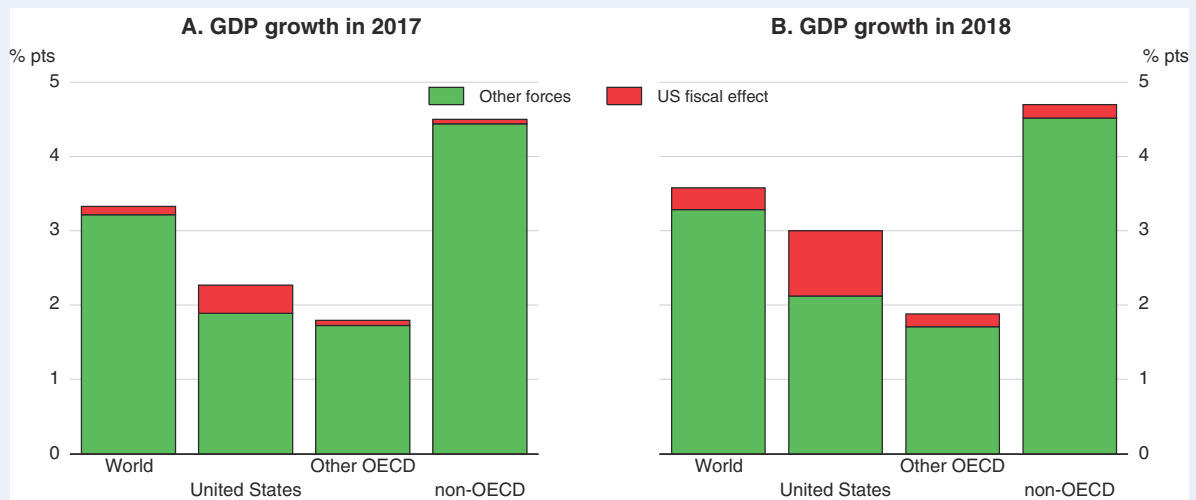
Difference from baseline




Source: OECD Economic Outlook 100 database; and OECD calculations.

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The contribution of US fiscal stimulus to projected GDP growth



Source: OECD Economic Outlook 100 database; and OECD calculations.

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Box 1.1. The short-term impact of fiscal stimulus in the United States (cont.)

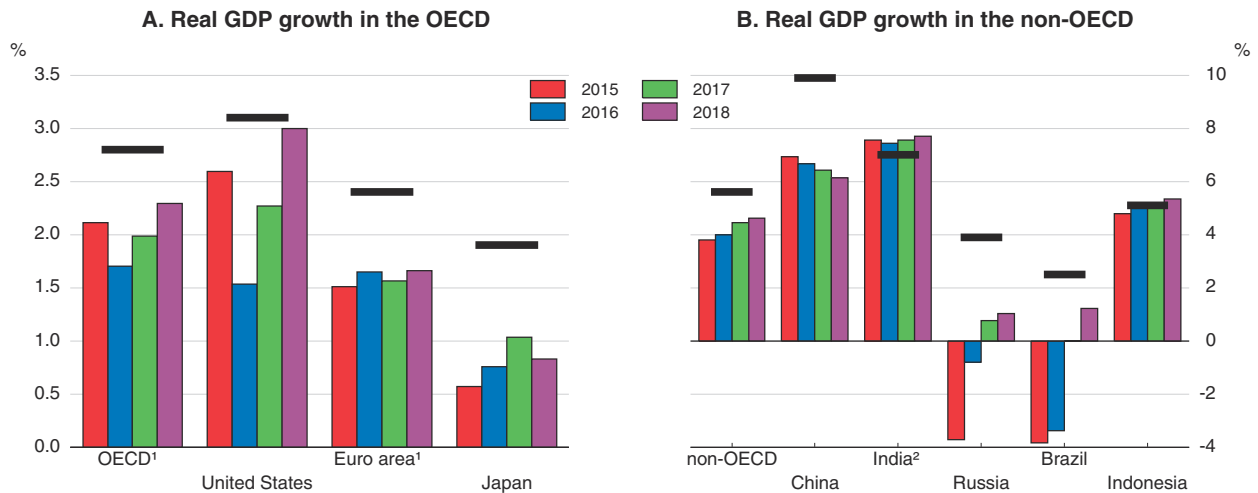
There are a number of factors that could alter the initial output effects of the stimulus from those set out in this analysis:

- Some of the fiscal measures introduced are likely to be permanent, particularly any corporate tax change, with longer-term implications for future fiscal deficits and debt. Knowledge that these may need to be offset in the future by either higher taxation or lower spending could serve to damp the short-term response of private sector demand to the stimulus. The stimulus measures could raise potential output in the longer-term, and thereby help with public debt sustainability, especially if businesses respond to lower corporate taxes by durably raising capital investment rather than by raising dividends or financial investments, but the extent to which this occurs is very uncertain.
- The extent to which tax reductions support demand will depend in practice on distributional issues as well as the size of any overall reduction in revenue. To the extent that higher-income households or cash-rich companies benefit from lower taxes than otherwise, the resulting additional revenue might be saved rather than used to finance additional final expenditure.
- A more aggressive monetary policy response in the United States, and associated larger appreciation of the US dollar, would also damp the short-term growth effects in the United States. However, it could provide some additional support to aggregate demand in other economies whose currencies depreciate, provided it did not add to financial market volatility. A stronger rise in term premia on long-term government bonds as a result of higher expected future government debt would also damp the response to the fiscal stimulus.
- On the other hand, if the stimulus measures succeeded in attracting a number of discouraged workers back into the labour force, or if the corporate investment response was even more forceful than estimated here, productive potential could rise more sharply. This would limit the emergence of inflationary pressures and reduce the need for increases in US policy interest rates.

In the advanced economies, supportive macroeconomic policies and stable commodity prices should continue to underpin activity, but there has yet to be a sustained collective pick-up in wage increases and business investment that is necessary for stronger growth and a sustainable consumption path. OECD GDP growth is projected to pick up to just over 2¼ per cent by 2018 from 1¾ per cent this year (Figure 1.4, Panel A). In the absence of US fiscal support, OECD GDP growth would average under 2% per annum over 2017-18, little different from the outcomes in 2015-16. Emerging market economies (EMEs) are likely to experience mixed outcomes, reflecting differences in policy support, sensitivity to commodity prices, progress in enacting structural reforms, and financial vulnerabilities. Overall, growth is set to pick up slowly in the next two years, driven by a gradual easing of the recessions in Brazil, Russia and other commodity-producing countries (Figure 1.4, Panel B). Key features of the projections for the major economies are summarised in Box 1.2.

Even in the context of policy support for a possibly-brighter global growth outcome, global trade volume growth remains exceptionally weak, slowing to below 2% this year from 2½ per cent in 2015. Only a modest improvement is projected in the next two years, with trade growth recovering to around 3¼ per cent by 2018, broadly in line with global output growth (at market exchange rates). This is much weaker than past trends, suggesting that globalisation, as measured by trade intensity, may now be close to stalling (Figure 1.5). Import volume growth in the emerging and developing economies is particularly weak, even allowing for the declines in import penetration that are persisting

Figure 1.4. **GDP growth projections for the major economies**
Year-on-year percentage changes




Note: Horizontal lines show the average annual growth rate of GDP in the period 1987-2007. Data for Russia are for the average annual growth rate in the period 1994-2007.

1. With growth in Ireland in 2015 computed using gross value added at constant prices excluding foreign-owned multinational enterprise dominated sectors.

2. Fiscal years.

Source: OECD Economic Outlook 100 database.

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Box 1.2. **Growth and inflation projections in the major economies**

In the United States, GDP growth has picked up in the latter half of 2016, driven by continued solid consumption and job growth and fading headwinds from declining energy sector investment. An assumed fiscal easing, via rises in government spending and household and corporate tax reductions, is projected to provide an additional stimulus to domestic demand through the next two years, especially business investment, despite somewhat higher long-term interest rates. Under this scenario, GDP growth is projected to average just over 2½ per cent per annum in 2017-18. In the absence of these additional measures, GDP growth would likely be closer to 2% per annum on average over 2017-18.

In Japan, GDP growth is set to remain modest at between ¾ and 1% per annum over 2017-18, as the effects of the past appreciation of the yen and weak Asian trade on exports moderate, and exports respond to stronger US import demand. A projected modest fiscal easing will also help to support activity next year, but with fiscal headwinds due to intensify again from 2018, the key issue will be the extent to which capacity and labour shortages and strong profits feed through into corporate spending and wages.

In the euro area, growth is projected to remain between 1½ and 1¾ per cent per annum. Despite accommodative monetary policy and a modest fiscal easing over 2016-18, domestic demand remains moderate, held back by soft investment, still-high unemployment and high non-performing loans in some countries. Exports will benefit from stronger US import demand. However, negative effects from weaker demand growth in the United Kingdom and uncertainty about the future course of the European Union are also likely to become apparent over the next two years. A more robust use of fiscal space would improve prospects for both the EU and for the rest of the world, and encourage a sustained exit from the low-growth trap.

Box 1.2. Growth and inflation projections in the major economies (cont.)

Prospects in the United Kingdom are considerably weaker than set out prior to the vote to exit the European Union, with GDP growth projected to average between 1 and 1¼ per cent per annum over 2017-18, despite the additional policy support provided by more accommodative monetary policy and the easing of the sizeable fiscal tightening previously planned in 2017 and 2018. Uncertainty about the future direction of policy, the relationship between the United Kingdom and the European Union, and the reaction of the economy remains high, and is likely to persist even beyond an assumed departure from the European Union in 2019 with trade arrangements based on most favoured nation (MFN) rates. This will weigh on business investment, which is projected to decline sharply over the next two years. Some support to exports will be provided by the large sterling depreciation, but this will also raise inflation and damp real income growth.¹ Spillovers to the global economy are likely to become apparent over the course of the next two years.

In China, growth is projected to continue to ease, to around 6¼ per cent on average over 2017-18, as the support from policy stimulus eases and demand is further rebalanced towards domestic sources. Managing this rebalancing alongside financial system risks remains a key challenge. In India, a large increase in public sector wages and the recent passage of key structural reforms, particularly the goods and services tax, will help to keep GDP growth at a little over 7½ per cent per annum by raising incentives for business investment. In many other Asian economies, including Indonesia, solid domestic demand growth continues, supported by strong government investment in infrastructure or credit expansion, offsetting the drag from weak trade developments in China. In Brazil and Russia, a slow recovery is projected to get underway in the next two years, helped by firmer commodity prices, recent improvements in confidence and monetary policy support as inflation eases.

Against the backdrop for subdued aggregate demand growth, inflationary pressures are projected to remain muted in most economies. Headline consumer price inflation has begun to rise in the major advanced economies, but this largely reflects the recent strengthening of commodity prices. Input prices are also rising in many EMEs, notably China, where producer price inflation is now positive for the first time in four years. Core inflation has remained comparatively stable, at low levels, reflecting persistent economic slack and weak global price pressures, particularly in Japan where the effective exchange rate has appreciated substantially over the past year.

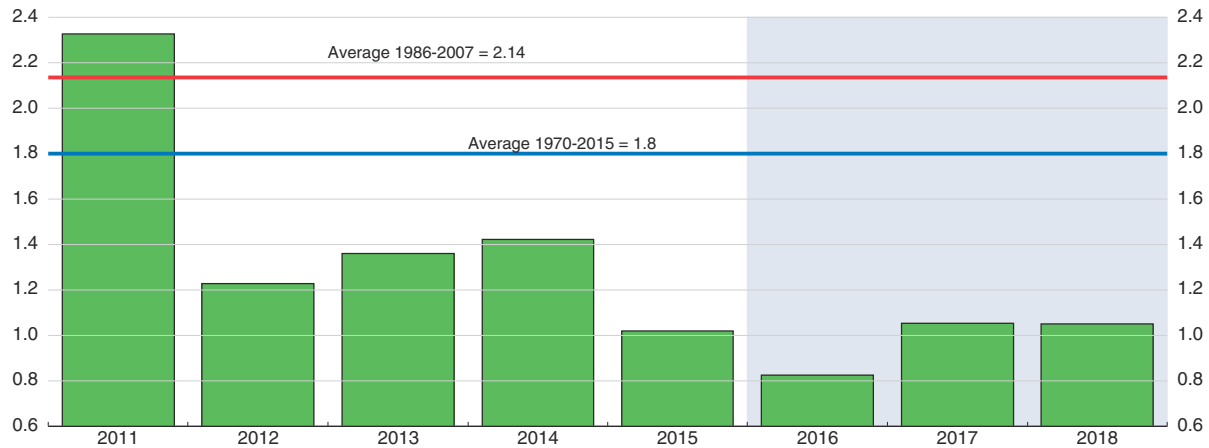
In the absence of significant further moves in commodity prices, exchange rates and inflation expectations, core inflation is projected to edge up slowly over the next two years in the advanced economies, but only to the extent that economic slack, cyclically adjusted, declines. Should demand rebound, investment and the re-entry of discouraged workers would tend to increase supply, easing pressures on resources. Inflation is projected to be around 2½ per cent by the latter part of 2018 in the United States, if fiscal stimulus is implemented as assumed, but to remain under 1¼ per cent and 1½ per cent respectively in Japan and the euro area. Amongst the major EMEs, consumer price inflation is projected to remain low in China and ease slowly in Brazil and Russia, helped by the impact of currency stabilisation. In India, inflationary pressures should also remain contained, although the goods and services tax could result in a one-off rise in the price level.

1. Overall, the projections are broadly consistent with OECD scenarios prior to the referendum (Kierzenkowski et al., 2016). These pointed to a near-term decline of over 3% in the level of UK GDP relative to baseline by 2020 on the assumption of exit from the European Union in 2019.


in China.¹ OECD analysis suggests that structural factors, such as a slowdown of trade liberalisation, new protectionist measures since the crisis and a contraction of global value chains (particularly in China and East Asia) account for a significant proportion of the

1. Excluding China, non-OECD import volumes (goods plus services) are projected to decline by over 1% this year, after falling by over 2½ per cent in 2015. A slow upturn to growth of around 2% per annum is projected in 2017-18.

Figure 1.5. **Global trade is very weak relative to historic norms**
Ratio of global trade growth to global GDP growth



Note: World trade volumes for goods plus services; global GDP at constant prices and market exchange rates. Period averages are the ratio of average annual world trade growth to average annual GDP growth in the period shown.
Source: OECD Economic Outlook 100 database; and OECD calculations.

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moderation in trade growth over the past five years (Haugh et al., 2016). Cyclical factors, including the deep recessions in some commodity producing economies, and the widespread weakness of fixed investment, have compounded structural problems. If fiscal initiatives, both implemented and proposed including infrastructure investment, catalyse business investment, global trade could be stronger than currently projected. Measures to reduce global trade facilitation costs would deliver further benefits (Box 1.3). On the other

Box 1.3. **The impact of changes in global trade costs**

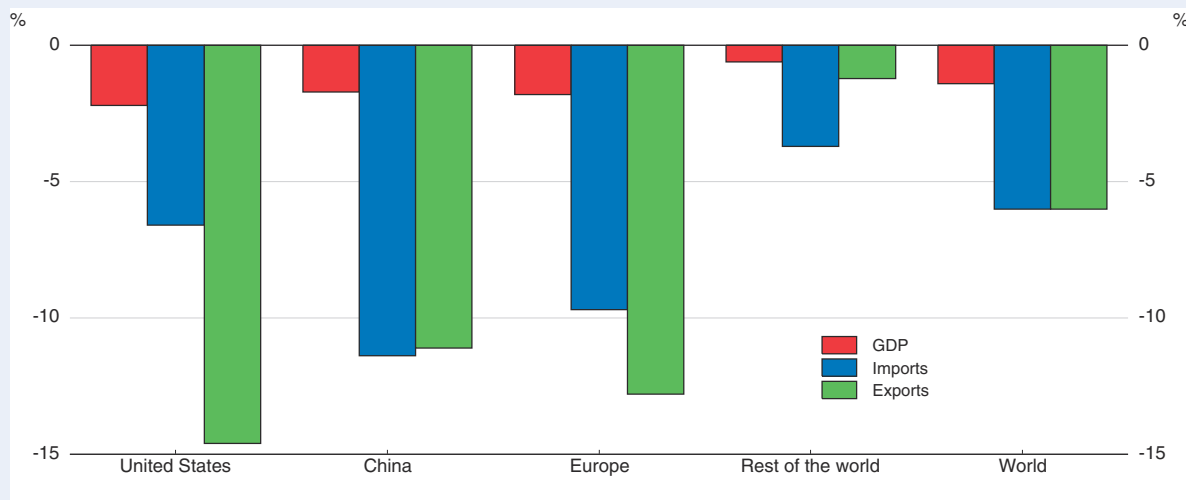
The slowdown in global trade growth is contributing to the low-growth trap. Trade enhances competitive pressures, enables greater specialisation and improved resource allocation, facilitates knowledge transfer and is essential for the functioning of global value chains. Therefore policies which impact on trade will affect output and productivity. With increased fragmentation of production across national borders (with intermediate inputs potentially crossing national borders multiple times), small changes in trade costs can have a sizeable impact on trade because of their cumulative effect. Policies that affect trade are therefore a critical element of responses to the low-growth trap. Stylised scenarios show the benefits of modest trade-enhancing actions versus the costs of policies that would throw sand in the wheels of global value chains.

A first scenario considers the impact of improved trade facilitation arrangements that raise the speed and efficiency of border procedures in all economies. This assumes that trade costs are reduced by 1.3% uniformly across all sectors in all countries. The assumed trade cost reduction is derived from the OECD's Trade Facilitation Indicators (Moisé, 2013).¹ Based on the OECD METRO model (2015a), this would raise world GDP by about 1.5% and world trade by 1.7%. These effects would not occur immediately, but only once there had been full adjustment of demand and factors of production, although part of this might be expected to have been completed within the time horizon covered by the *Economic Outlook*. There would be productivity improvements over a number of years due to the efficiency gains from the lower costs of serving export markets. There could also be a positive but small increase in long-run total factor productivity associated with the increase in trade openness.

Box 1.3. The impact of changes in global trade costs (cont.)

A second scenario, in contrast, examines the potential impact of higher trade barriers in the major global trading economies – Europe, the United States and China – who are assumed to raise trade costs against all partners on all goods (but not services) by 10 percentage points. This magnitude is roughly equivalent to an average increase of tariffs to the bound tariff rates in 2001, the year when the trade negotiations under the Doha Development Round started. The effects would have a major adverse impact on trade and GDP, with those countries that imposed new trade barriers being the most severely affected (see first figure).

The effect of increased trade costs in the United States, China and Europe



Note: Effect of a rise in trade protection by the United States, China and European Union which raises trade costs by 10 percentage points. Europe includes the European Union, Switzerland and Norway. Trade results for Europe exclude intra-European trade. Simulation results on GDP and trade are from the OECD's METRO model, a global computable general equilibrium model of trade with a high degree of sectoral disaggregation (OECD 2015a).

Source: OECD calculations.

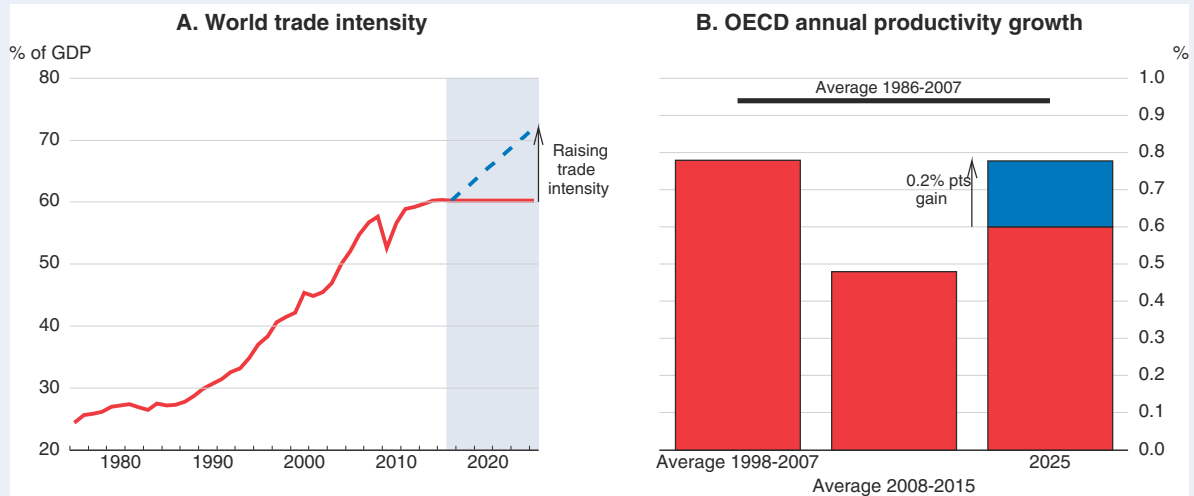
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While the change in protection shown here is illustrative, changes of a different magnitude might be expected to have correspondingly smaller or larger macroeconomic effects, although some likely adverse effects may not be captured here. For example, retaliatory actions could generate additional adverse effects on trade from disruption to global value chains, and the uncertainty introduced by protectionist trade policies would likely result in a slowdown of investment, leading to further drops in incomes and productivity.

A final scenario is designed to isolate the benefits of increasing openness for productivity growth. If collective trade policy helped global and OECD trade intensity to rise at the average pace observed over the two decades prior to the crisis, instead of remaining broadly unchanged, total factor productivity growth could be boosted by 0.2 percentage point per annum in the medium term, drawing on estimates about the link between trade openness and productivity growth in Égert and Gal (2016). This would raise annual TFP growth in the OECD economies by around one-third (see second figure).


Box 1.3. The impact of changes in global trade costs (cont.)

Raising trade intensity would boost productivity growth



Note: Scenario in which world and OECD trade intensity (exports plus imports as a share of GDP at market exchange rates) increases by 1.3 percentage points per annum (the average over 1986-2007) from 2017 onwards.

Source: Haugh et al. (2016), "Cardiac Arrest or Dizzy Spell: Why is World Trade So Weak and What can Policy Do About It?", OECD Economic Policy Papers, No. 18; and OECD calculations.

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1. For further details on the OECD Trade Facilitation Indicators, see also <http://www.oecd.org/tad/facilitation/indicators.htm>.

hand, if additional protectionist measures were introduced over the next two years in the major economies, global trade growth would be softer still, with negative consequences for productivity growth.

How would fiscal policy help to exit the low growth trap?

Weak growth holds back investment and productivity

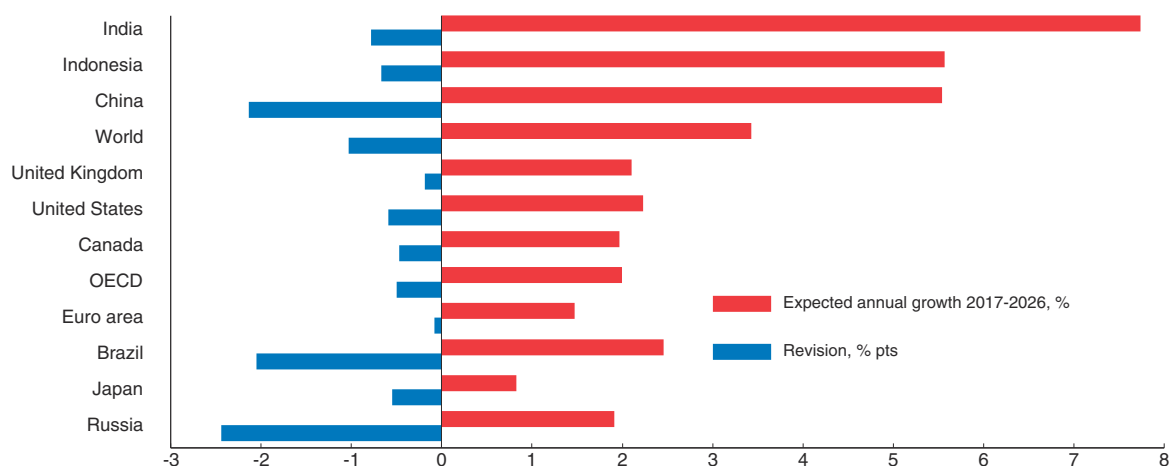
A prolonged period of weak demand is being reflected increasingly in adverse supply-side developments, undermining the longer-term capacity of an economy to deliver higher living standards for its citizens. Estimates of potential output per capita growth have been revised down repeatedly in the aftermath of the crisis, reflecting a slowdown in trend labour productivity growth due to weak investment and slower growth of total factor productivity, along with demographic effects in some countries (Ollivaud et al., 2016). For the OECD as a whole, per capita trend output growth is estimated at 0.9% in 2016-18, unchanged from the average growth rate since 2009, but 1¼ percentage points below the average achieved in the 1980s and 1990s. Potential output growth in the BRICS on a per capita basis has also been revised down in recent years, by over 1¾ percentage points in China since 2011 and 1 percentage point in the remaining economies.

Additional evidence of the longer-term implications of persistent weak demand growth is provided by the decline in consensus projections of expected long-term GDP

growth in almost all economies over the past five years (Figure 1.6).² Expectations of future investment growth have fallen especially sharply.³ The declines in expected GDP growth have typically been more pronounced in those economies in which actual GDP growth has fallen short of expectations in recent years, consistent with what might be expected in a self-fulfilling low-growth trap (Figure 1.7). In the absence of policy measures to strengthen demand and longer-term growth prospects, this trap is likely to deepen, with negative longer-run consequences for jobs, incomes and inclusiveness. On the other hand, effective fiscal policy, implemented now during the window of low interest rates and in conjunction with country-appropriate structural and trade policies, could change expectations, thus generating a positive feedback loop between expectations and actual GDP growth.


The persistent weakness of capital accumulation since the crisis largely reflects weak domestic and global demand, greater uncertainty and financial constraints arising from impaired banking sectors in some economies (OECD, 2015b). Fiscal consolidation has also constrained new and remedial infrastructure investments in many countries. The decline in expected future growth has also reduced incentives to invest for a given cost of capital.⁴ Little improvement is projected in the next two years, with OECD aggregate business fixed investment growth projected to rise by a little over 2½ per cent per annum over 2017-18,

Figure 1.6. **Long-term GDP growth expectations have declined over the past five years**

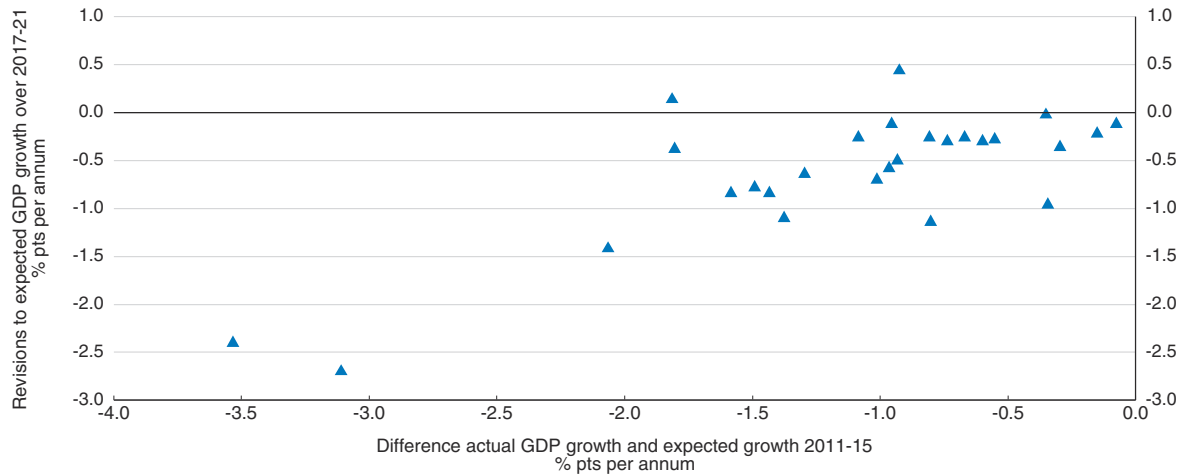


Note: The revision is the difference between April 2011 projections of average annual GDP growth over 2012-2021 and April 2016 projections of average annual GDP growth over 2017-2026. OECD and World estimates based on weighted average of available countries, using 2015 PPP shares.

Source: Consensus Forecasts; and OECD calculations.


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2. Very low real long-term bond yields may indicate that financial market participants expect significantly lower growth rates than survey measures of expected long-term GDP growth.
3. The expected annual rate of growth of fixed investment spending over the next ten years declined by 1½ percentage points between 2011 and 2016, to 3% per annum, based on a weighted average of the consensus forecasts available for OECD member states. During the same period, the expected annual rate of growth of private consumption over the next ten years declined by 0.3 percentage point to 2% per annum.
4. There is also some evidence that weak investment reflects an underlying inertia in the adjustment of corporate hurdle rates for fixed investment to the low interest rate environment (Lane and Rosewall, 2015; Poloz, 2016).

Figure 1.7. **Growth expectations have fallen in countries with past growth shortfalls**

Note: Series shown are the difference between April 2016 and April 2011 consensus projections of average annual GDP growth over 2017-2021 and the difference between average annual GDP growth over 2011-2015 and April 2011 consensus projections of average annual GDP growth over the same period.

Source: Consensus Forecasts; IMF; and OECD calculations.

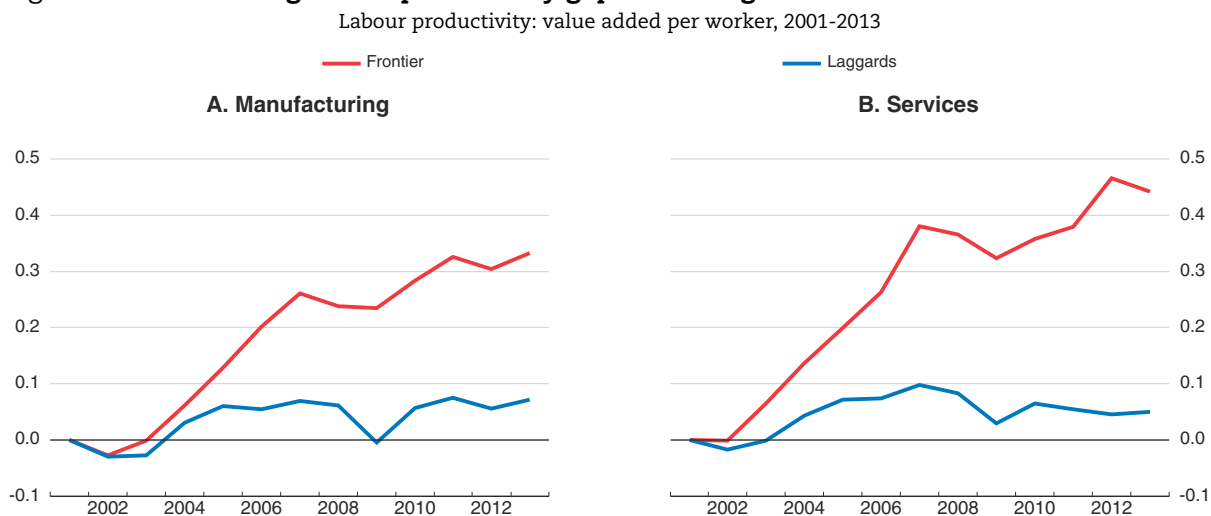
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from around $\frac{3}{4}$ per cent per annum over 2015-16. The pick-up is stronger in the United States than elsewhere, reflecting a lower cost of capital due to the assumed reduction in the corporate tax rate. In the OECD excluding the United States, business investment is projected to rise by less than $1\frac{1}{2}$ per cent per annum during the next two years.

The slowdown in total factor productivity growth has occurred in a period during which the gap between global frontier and laggard firms has widened, pointing to a slowdown in the pace at which new innovations are diffused. Firms at the global productivity frontier have continued to innovate, even after the crisis (Andrews et al., 2016; Figure 1.8), although there are some signs that their rate of productivity growth has begun to moderate. In contrast, productivity growth in non-frontier firms has been very soft.⁵ Weak capital investment, the trade slowdown, and reduced structural policy ambition have all contributed by slowing the diffusion of new technology embodied in new equipment.


Structural policy measures to strengthen product market dynamism and competitive pressures could help to improve the incentives to start new firms, to invest to grow, and to diffuse new technologies (Alesina et al., 2005; OECD, 2015b; Adalet McGowan et al., 2015; Andrews et al., 2016). Very accommodative monetary policy and the pressures on the business models of financial institutions (see below) may also be raising bank forbearance. Consequently, some failing firms could be kept in business, hampering the reallocation of resources towards more productive activities (Adalet McGowan et al., 2016). At the same time, product market reforms have been limited in many sectors, especially retail trade and professional services.

5. Between 2001 and 2013, average labour productivity at the global productivity frontier is estimated to have grown at an average annual rate of 2.8% in the manufacturing sector and 3.6% in the market services sector (Andrews et al., 2016). The corresponding growth rate of all other firms was around 0.5% in both sectors.

Figure 1.8. **A widening labour productivity gap between global frontier firms and other firms**

Note: The global frontier is measured by the average of log labour productivity for the top 5% of companies with the highest productivity levels within each 2-digit industry. Laggards capture the average log productivity of all the other firms. Unweighted averages across 2-digit industries are shown for manufacturing and services, normalised to 0 in the starting year. The time period is 2001-2013. The vertical axes represent log-differences from the starting year: for instance, the frontier in manufacturing has a value of about 0.3 in the final year, which corresponds to approximately 30% higher productivity in 2013 compared to 2001. Services refer to non-financial business sector services. Calculations based on the recent update of the OECD-Orbis productivity database (Gal, 2013).

Source: Andrews et al. (2016), "The global productivity slowdown, technology divergence and public policy: A firm level perspective" *Brookings Institution Hutchins Center Working Paper*, No. 24.

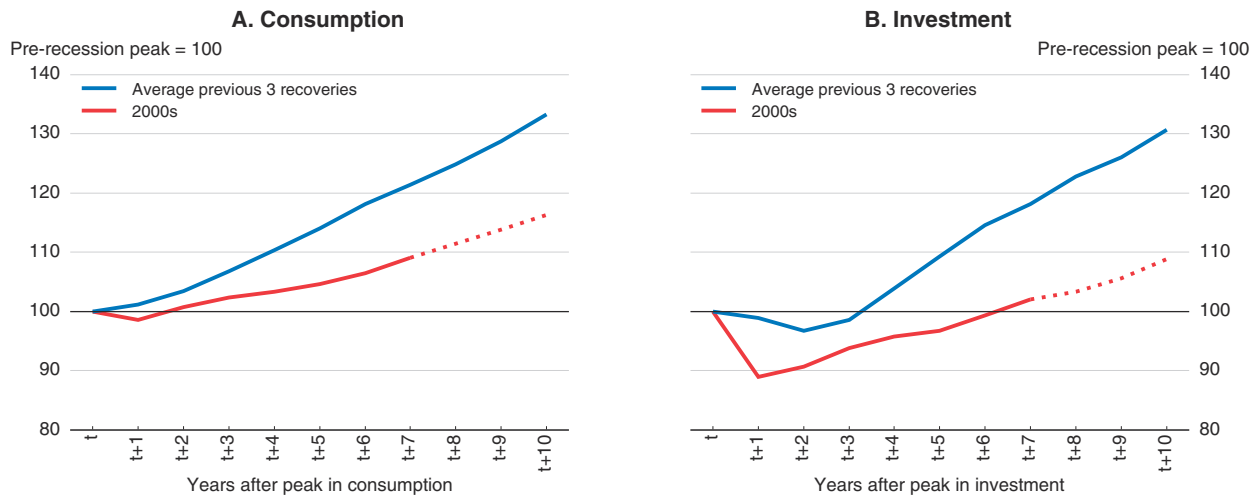
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Significant new product market reforms could offer a substantial boost to investment even in the short term. Firm-level evidence in Gal and Hijzen (2016) suggests that major product market reforms to lower regulatory barriers can boost investment by around 4% after two years, with the main benefits occurring in network industries and the retail sector and from firms that do not have high debt ratios.⁶ Steps to better match skills to jobs and to ensure that skills are used fully could also boost productivity by enabling new innovations and technologies to be used effectively (OECD, 2016a).

The low growth trap limits consumption growth


The recovery from the crisis has not only been sluggish but its quality has disappointed. Growth in the advanced economies has been unbalanced, both in terms of developments across economies and in terms of the composition of expenditure. Consumers' expenditure and fixed investment have both been persistently weaker than in past recoveries from recessions, but investment has failed to keep pace even with the modest rise in consumption, in contrast to earlier recoveries (Figure 1.9). In the near term, the gentle upturn in household demand can be met from existing capacity, but this cannot be sustained indefinitely without generating imbalances, inequalities and vulnerabilities. Stronger policy measures to support final demand are necessary to mitigate such outcomes.

6. A major pro-competitive reform is defined as a change in regulation corresponding to the 5% largest annual changes across different sectors over 1998-2013.

Figure 1.9. **The post-crisis recovery has been weak and unbalanced in the advanced economies**

Note: Aggregate data for the OECD economies. Consumption is total consumers' expenditure and investment is total gross fixed capital formation. The average of the past three recoveries is an unweighted average of developments after 1973Q4, 1980Q1 and 1990Q3. Series scaled to equal 100 in these quarters and 2008Q1. All data are at constant prices.

Source: OECD Economic Outlook 100 database.

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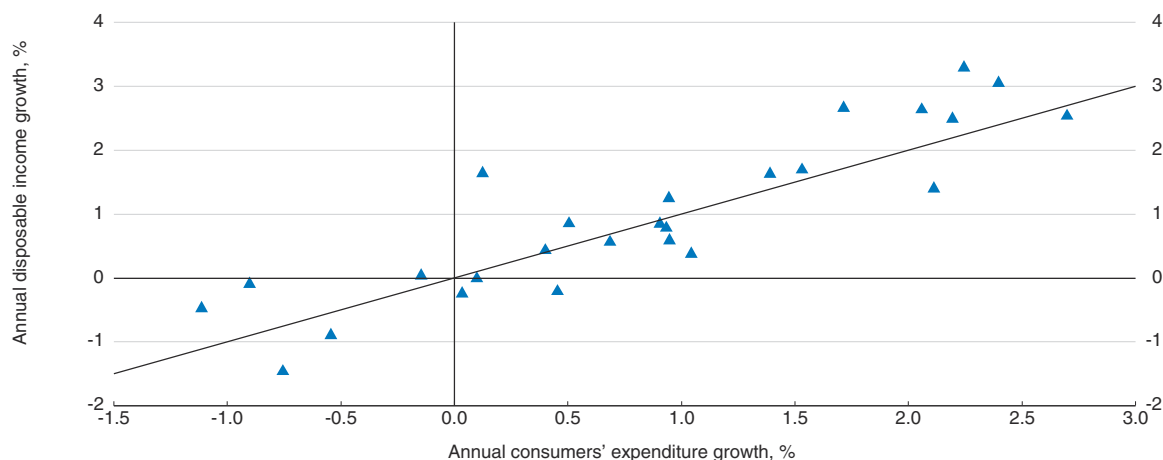
In the two decades prior to the crisis, OECD-wide consumers' expenditure rose at an average annual rate of just under 3%, with the household saving rate declining by over 5½ percentage points between 1987 and 2007. The financial crisis and the slow recovery have seen these trends reverse, with consumers' expenditure rising by just over 1% per annum on average over 2008-2015, and the household saving rate rising by around 1½ percentage points.⁷ Only small changes are projected in the coming two years, with OECD-wide consumers' expenditure rising by a little over 2% per annum in 2017-18, with household saving rates remaining broadly unchanged in the majority of economies.

Cross-country differences in the behaviour of consumption since the crisis are closely associated with differences in real income growth (Figure 1.10). Consumption growth has outpaced income growth in a number of countries, including in the euro area as a whole, but this has mainly occurred in economies with particularly weak income growth, with a lower saving rate being used to help limit the decline in consumer spending.

The key underpinnings of sustainable consumption growth are employment and wage dynamics, with both dependent on private investment behaviour. Currently, employment conditions in countries vary widely (Figure 1.11). In some countries (including the United States, Germany and Japan) prospects for more robust job and consumption growth are limited by policies that undermine labour force participation by key segments of the potential work force. Elsewhere, including many euro area countries hardest hit by the crisis and by fiscal consolidation, considerable labour market slack remains. These differences are reflected in the growth of real compensation per employee, which is projected to pick up to around 1¼ and 1½ per cent per annum respectively in the United

7. In the median OECD economy, the annual rates of growth of consumers' expenditure and real disposable income were 3.5% and 2.9% respectively over 1997-2007. In the period from 2007 to 2015, the annual rate of growth of spending and income in the median economy slowed to 0.8% and 0.9% respectively.

Figure 1.10. **Differences in consumption growth largely reflect differences in income growth**
Average growth per annum 2008-2015



Note: Based on average annual growth of consumers' expenditure and household real disposable income over 2008-2015. Disposable income is on a gross basis in the euro area, France, Portugal and the United Kingdom and on a net basis in other countries.

Source: OECD Economic Outlook 100 database.


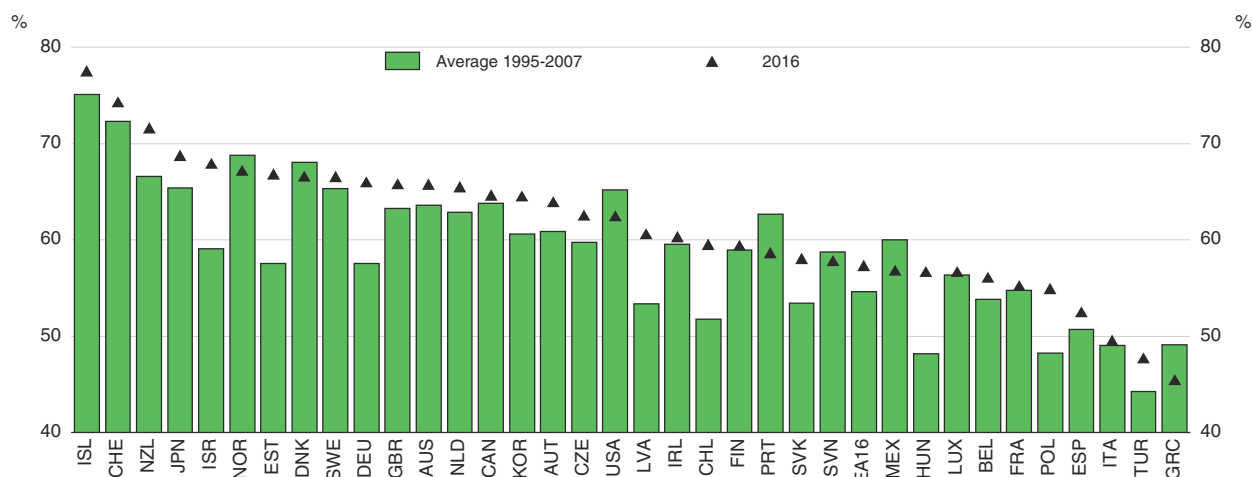
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Figure 1.11. **Employment rates differ widely across the OECD economies**

Ratio of total employment to the population aged 15-74 years

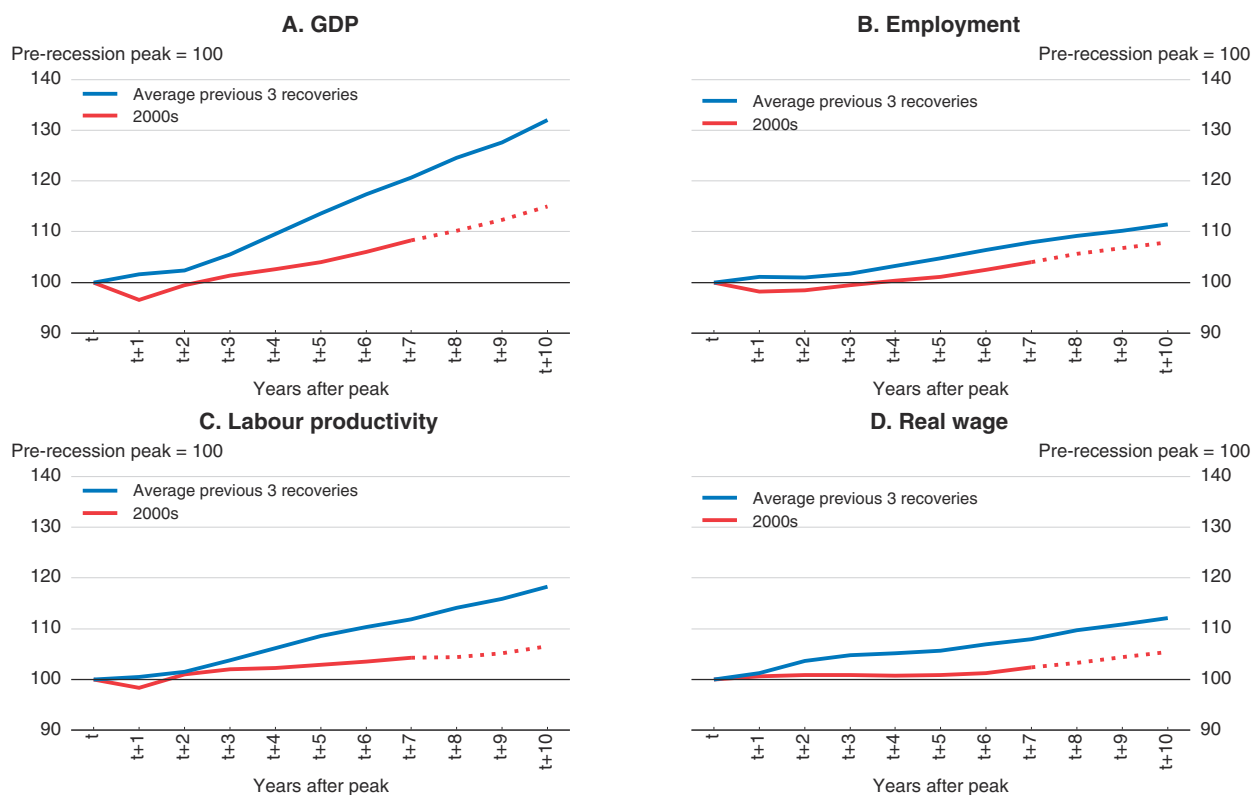


Source: OECD Economic Outlook 100 database.

StatLink  <http://dx.doi.org/10.1787/888933437241>


States and Germany over 2017-18, but remain subdued, given weaker productivity growth, at around $\frac{3}{4}$ per cent per annum in Japan and $\frac{1}{2}$ per cent per annum in the rest of the euro area.

Persistent weakness in household income growth after the crisis in the advanced economies stems largely from the soft growth of labour incomes. Real wages have barely risen, reflecting weak productivity (Figure 1.12). As the labour market tightens, income growth will slow in the absence of an upturn in productivity and real wages, or reforms to strengthen labour force participation and employment, or fiscal measures to strengthen household incomes.

Figure 1.12. **Weak wage growth and subdued employment are holding back household incomes**

Note: Aggregate data for the OECD economies. All series scaled to equal 100 at pre-recession peak. The average of the past three recoveries is an unweighted average of developments after 1973Q4, 1980Q1 and 1990Q3. Labour productivity is measured as output per worker and real wages are measured as compensation per employee adjusted for the consumers' expenditure deflator.

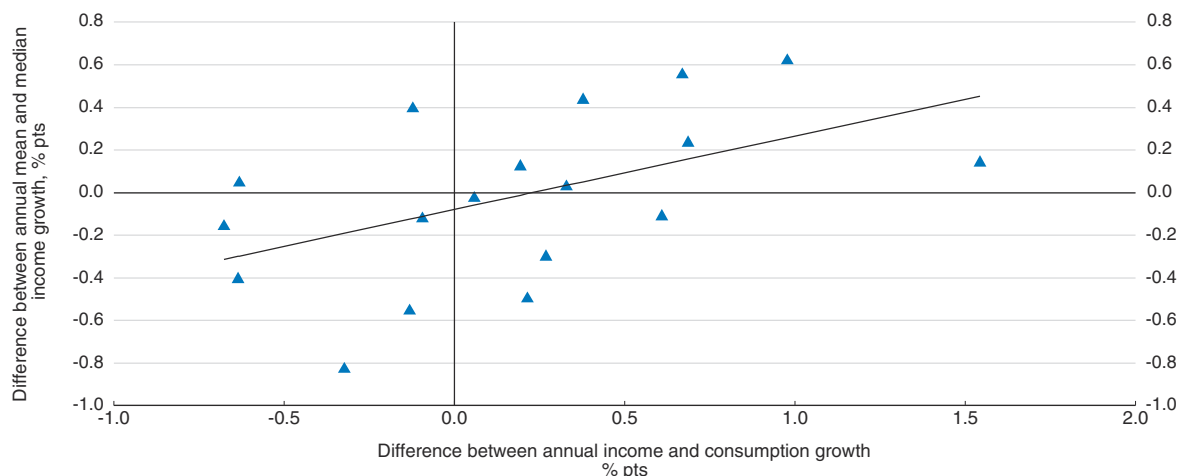
Source: OECD Economic Outlook 100 database.

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The overall drag on spending exerted by weak income growth has been compounded by the continued rise in income inequality since the onset of the financial crisis in countries where income growth has been relatively concentrated in higher-income households, who typically have a lower marginal propensity to consume (Carroll et al., 2014; Alichì et al., 2016). In such countries, real mean income growth outpaced real median income growth, including in some of euro area economies heavily affected by the crisis where real income declines occurred across a broad range of households. Across countries, there is a positive correlation between the difference in mean and median income growth since the mid-2000s and the difference between annual income and consumption growth, although the relationship is not especially strong (Figure 1.13). Nonetheless, it suggests that income inequality may have contributed to the persistently higher saving rate and sluggish consumption growth in some countries after the crisis.


After a sharp initial rise at the onset of the financial crisis, saving rates have changed only slowly in many countries, despite sharp increases in asset prices boosted by the effects of very accommodative monetary policy, and overall improvements in household financial balance sheets. At the end of 2015, household financial balance sheets in most of the advanced economies were stronger (in net terms) relative to disposable income than before the crisis, even though household debt levels had fallen in only a few economies (most notably the United States). However, household saving was on average higher in

Figure 1.13. **Household saving has risen in countries with higher income inequality since the onset of the crisis**



Note: Data for aggregate household disposable income and consumption are average annual growth rates over 2008-2015. The average annual changes in mean and median real disposable incomes are calculated over different years for each economy, reflecting data availability: 2006-2011 for Korea, 2006-2012 for Japan; 2008-2013 for France, Germany, Italy and Sweden; 2008-2014 for Australia, the Netherlands and the United States; 2009-2013 for Switzerland; and 2007-2013 for all other countries. Household mean and median disposable incomes have been deflated by the consumer price index.

Source: OECD Income Distribution Database; OECD Economic Outlook 100 database; and OECD calculations.

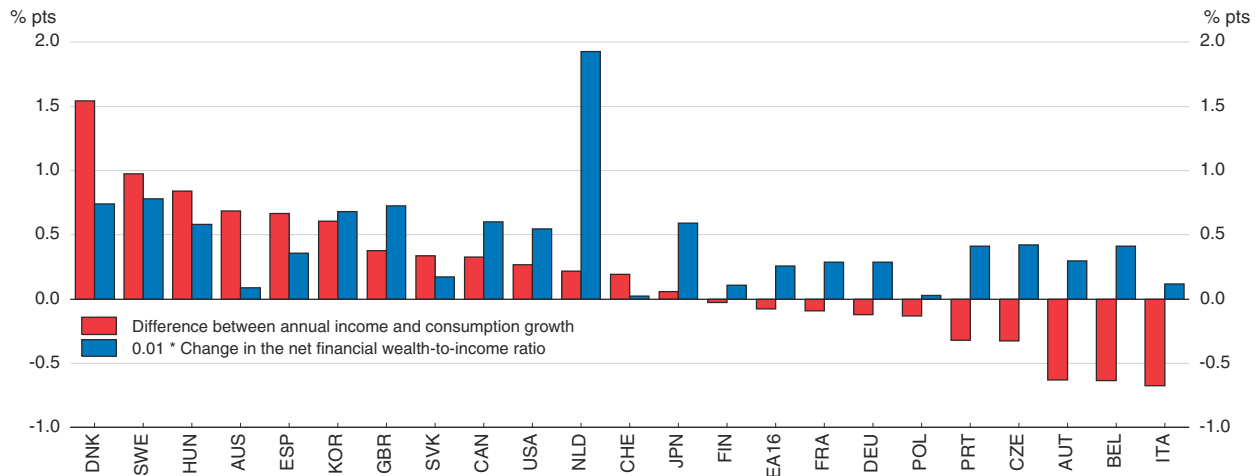
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those economies that experienced the largest balance sheet improvements (Figure 1.14).⁸ This may reflect high or rising financial wealth inequality (O'Farrell et al., 2016), with the largest financial balance sheet improvements occurring in countries (on average) with the highest share of wealth owned by the richest individuals (Figure 1.15).

The relationship between house price growth and the propensity to consume also now appears to be weaker than in the pre-crisis period. In the decade prior to the financial crisis, there was a strong positive association between house price growth and the extent to which consumption growth outpaced income growth in most advanced economies (Figure 1.16). The relationship has become far more heterogeneous since the crisis, with house price developments appearing to have little consistent relationship with spending and saving. Indeed, some of the countries with comparatively strong house price growth in recent years, including Australia, Canada, Sweden and Switzerland, are amongst those countries in which income growth has exceeded consumption growth (on average) over the past eight years. The changing influence of house prices could reflect changes in financial regulations and credit standards in recent years, reducing the ability of households to use rising housing values as collateral for additional borrowing to fund current spending. Lower loan-to-value ratios, in part reflecting tighter prudential supervision, might also have increased the need for households to save in order to undertake housing purchases. All told, relative to the pre-crisis period, there are comparatively few signs of a build-up of vulnerabilities stemming from strong household spending growth being driven by rising leverage and inflated asset prices.

8. There is no clear relationship across countries between household saving and changes in the household financial liabilities-to-income ratio over the period 2007-2015.

Figure 1.14. **Household saving has risen in many countries with strong improvements in household financial balance sheets**

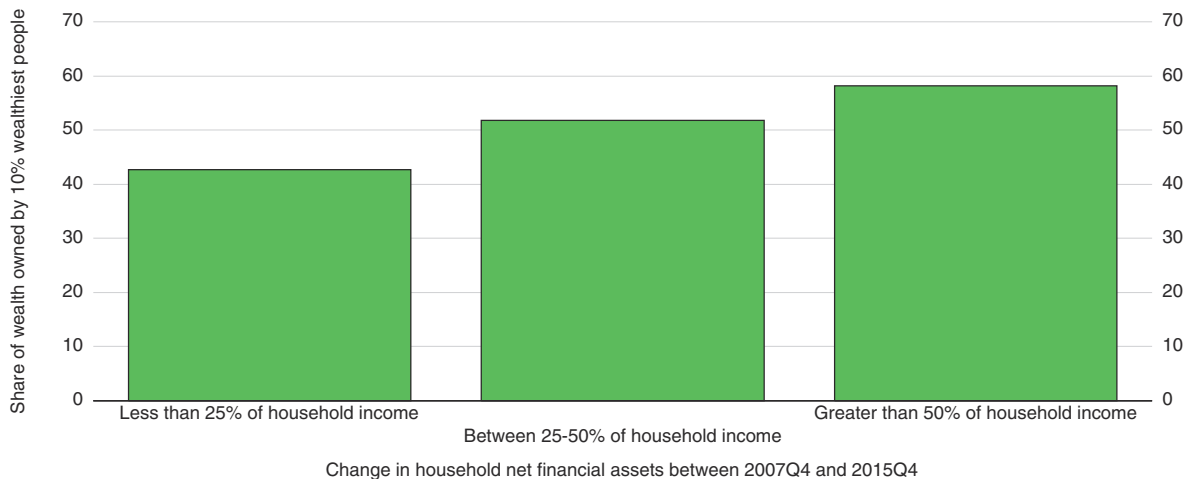


Note: Data for aggregate household disposable income and consumption are average annual growth rates over 2008-2015. The change in the wealth-to-income ratio is the difference between the ratio of household net financial assets to household disposable income at the end of 2015 to that at the end of 2007, with income given by the average of household disposable incomes in the fourth quarter of the respective year and the first quarter of the following year.

Source: OECD Financial Accounts; OECD Economic Outlook 100 database; and OECD calculations.

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Figure 1.15. **The largest gains in financial balance sheets have occurred in countries with a relatively concentrated wealth distribution**

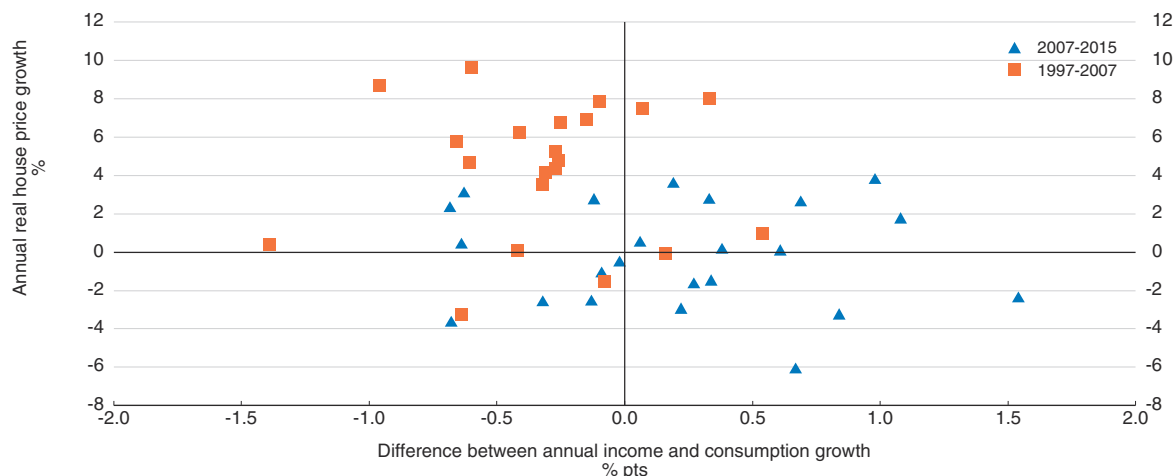


Note: The change in household net financial assets is the difference between the ratio of household net financial assets to household disposable income at the end of 2015 to that at the end of 2007, with income given by the average of household disposable incomes in the fourth quarter of the respective year and the first quarter of the following year. Data for 17 OECD countries. The wealth share data are for 2010 or 2012.

Source: OECD Wealth Distribution Database; OECD Financial Accounts; OECD Economic Outlook 100 database; and OECD calculations.


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Figure 1.16. **The association between house prices and household saving has weakened in recent years**



Note: Average annual growth of real house prices, consumers' expenditure and household disposable income over the sub-periods shown.

Source: OECD Analytical House Price database; OECD Economic Outlook 100 database; and OECD calculations.

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On the other hand, this suggests that very accommodative monetary policy is not being transmitted fully into private consumption via the wealth and credit channels. Necessary reforms to strengthen bank balance sheets and improve financial supervision and regulation also damp the balance sheet channel of monetary policy by lowering the extent to which households can use rising asset values as collateral for additional borrowing.⁹ Moreover, as discussed below, the pressures being placed on the business models of many life insurance companies and pension funds by an extended period of very low interest rates may also be encouraging households to save in response to reduced expected future returns. Such concerns are heightened in the current context by the ongoing demographic changes in many economies with continued increases in old-age dependency ratios.¹⁰

Distortions and risks in financial markets

A persistent low-interest rate environment magnifies distortions and risks in financial markets

Sovereign bond yields have risen from their historical lows reached last summer, with a particularly sharp increase after the US elections. However, they still remain low by historic standards, especially in the euro area and Japan. The decline in bond yields in recent years reflected persistent weak growth after the financial crisis with associated excess savings by businesses and households. Sovereign bond yields have also been

9. High wealth inequality may also be reducing the effective support to private consumption from monetary policy stimulus, although such effects are estimated to be small in recent years once account is taken of the support to house prices and employment (Bernanke, 2015; O'Farrell et al., 2016).

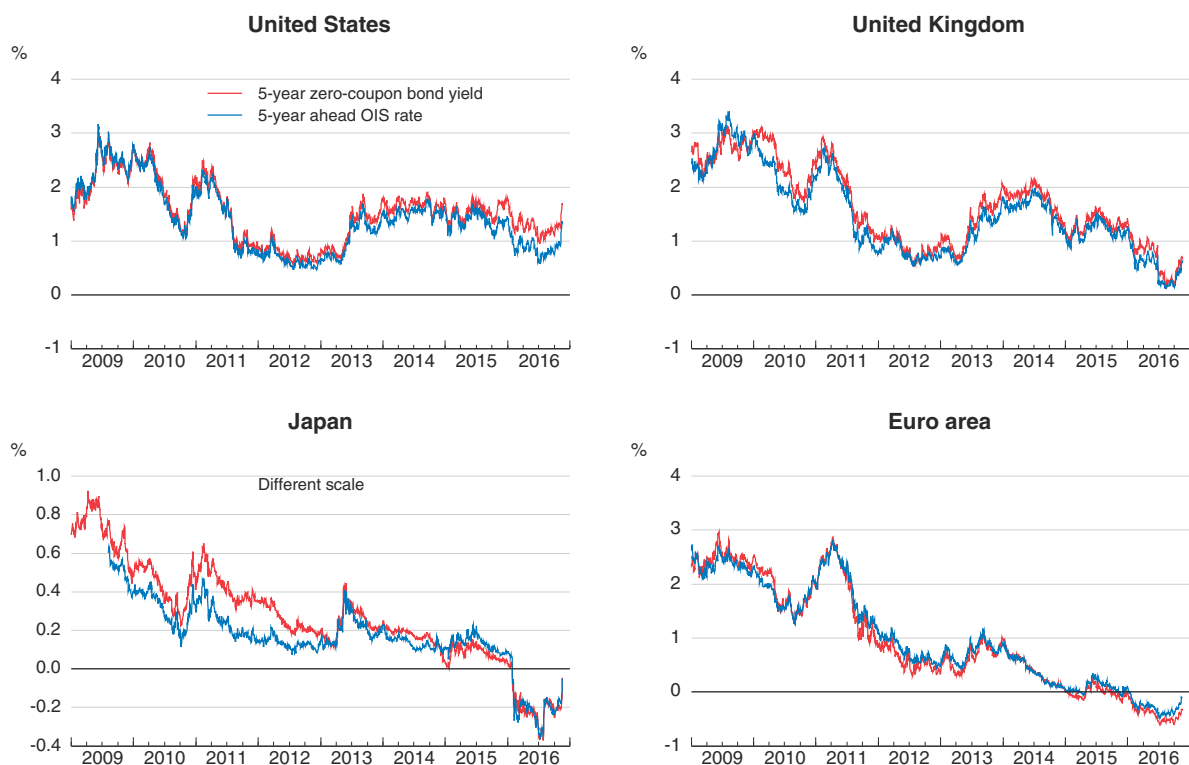
10. Life-cycle models of consumption suggest that individuals save less during retirement. Empirical evidence from the pre-crisis period suggested that this factor was already a significant influence on household saving in the United States and Japan (Hüfner and Koske, 2010).

pushed lower by higher demand for safe assets, at a time when the supply of such assets from the private sector has been reduced, with certain private asset classes losing their investment-grade status after the crisis (Caballero and Farhi, 2013). Before the US elections, disappointing GDP growth outcomes fuelled expectations of sustained and stronger monetary policy intervention in the markets in the main advanced economies. Indeed, the fall in expected market overnight interest rates (proxies of policy rates) over the next five years largely corresponds to the decline in 5-year sovereign bond yields in Europe, Japan and the United States (Figure 1.17). Even after the post-US-election snapback in bond yields in mid-November, bond valuations remain particularly extreme in Europe and Japan, where the share of sovereign bonds trading at negative yields is estimated to be above 50% in several countries (Figure 1.18). Consequently, around USD 12 trillion of government bonds, representing around 31% of OECD government debt, are estimated to have negative yields currently.

Low government bond yields have boosted the prices of riskier assets such as corporate bonds, equities and real estate:

- In several advanced economies, corporate bond yields have declined by even more than government bond yields, with risk spreads falling notably for sub-investment corporates in the euro area and the United States (Figure 1.19). This helped to push corporate bond issuance to record levels. Although corporate bond spreads have been above their

Figure 1.17. **Sovereign bond yields have declined in tandem with expected overnight interest rates**



Source: Bloomberg; and OECD calculations.


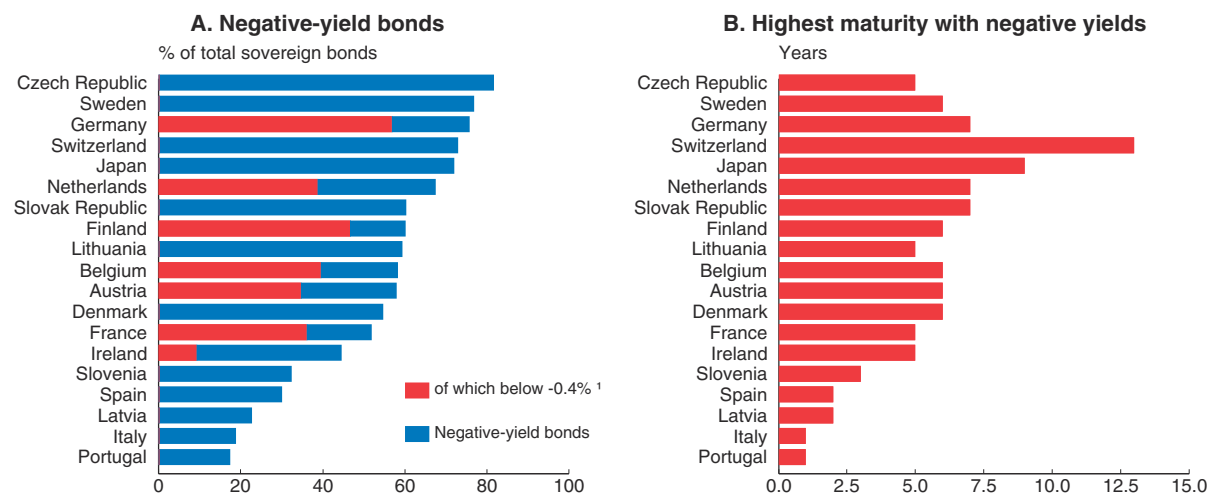
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Figure 1.18. **Negative-yield sovereign bonds are dominant in Europe and Japan**



Note: Estimated based on benchmark sovereign bond yields as of 16 November 2016.

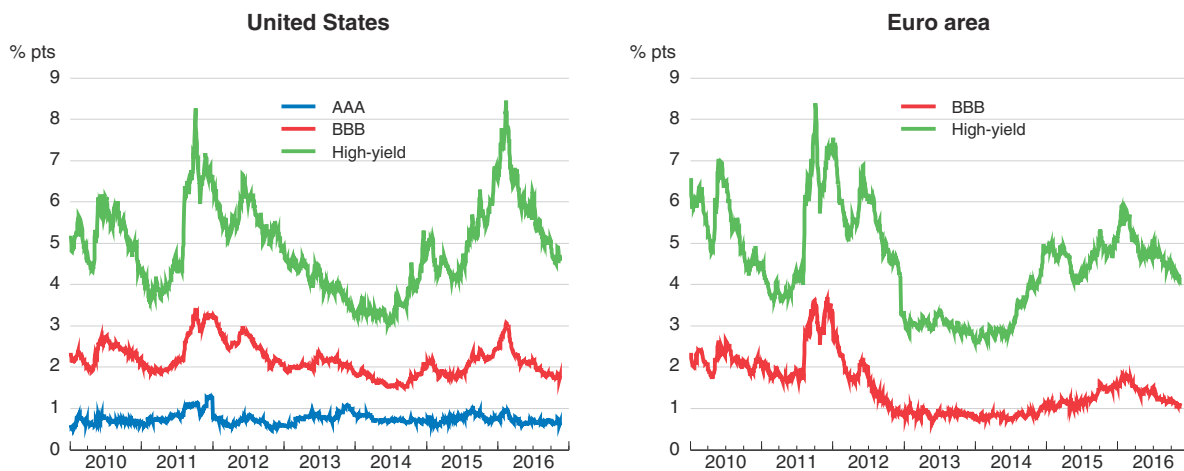
1. Only for euro area countries.

Source: Thomson Reuters; Bloomberg; and OECD calculations.

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Figure 1.19. **Corporate bond yield spreads have declined**

Difference in yields between corporate and sovereign bonds



Source: Thomson Reuters.

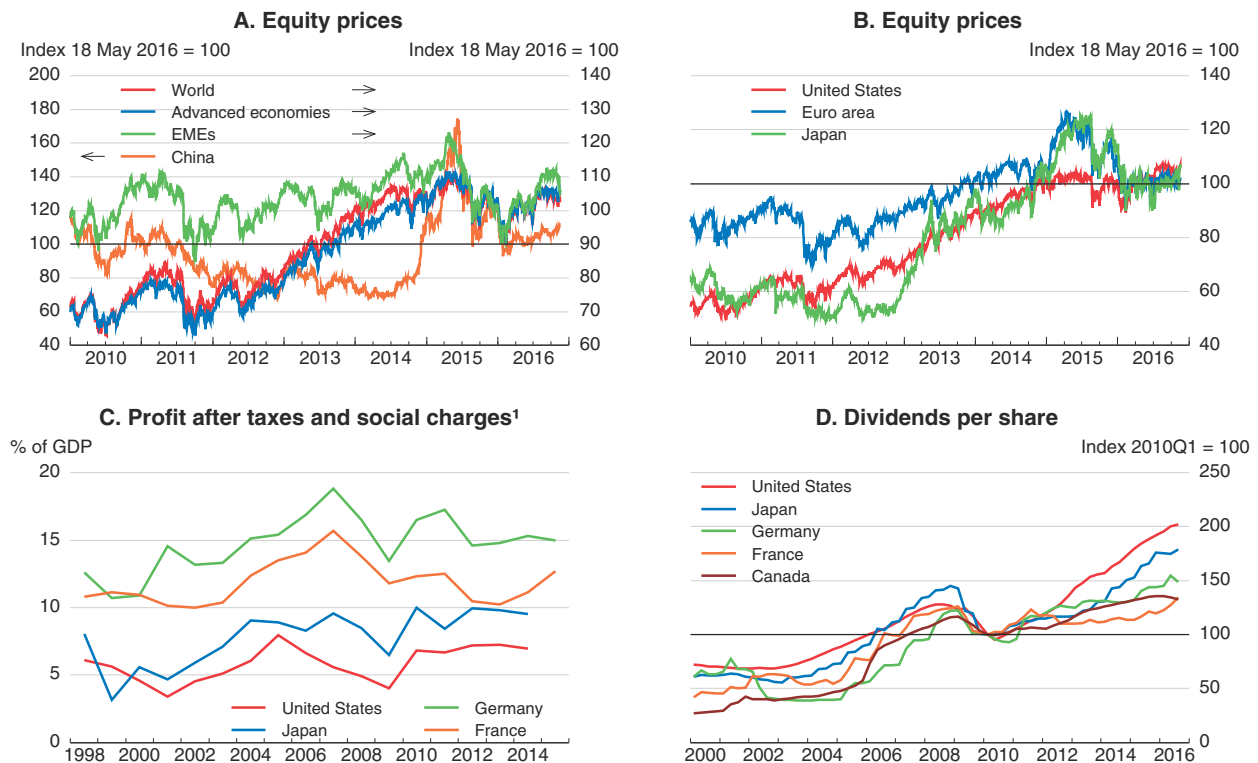
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2013-14 lows, increased risk-taking has shown up in a greater issuance of bonds with lower ratings (OECD, 2016b) and light covenants.¹¹

- In the United States, following the elections, equity prices have attained their all-time peak, while, in the euro area and Japan, they have changed little since the beginning of the year and remain below highs reached in 2015 (Figure 1.20). Current prices seem to


11. According to Moody's, the percentage of newly issued global bonds with light covenants has risen to 75% this year from 46% in 2013. According to S&P Capital IQ, among the bonds sold to institutional investors in Europe, the percentage rose to around 50% last year from 0% in 2011.

Figure 1.20. Equity prices point to a disconnect between real prospects and financial yields



1. Profits of non-financial corporations are calculated as gross operating surplus + net property income + dividend and withdrawals from the income of quasi-corporations + reinvested earnings on foreign direct investment + net capital transfers - consumption of fixed capital + changes in inventories. Taxes and social charges include current taxes on income and wealth, and net social contributions and benefits.

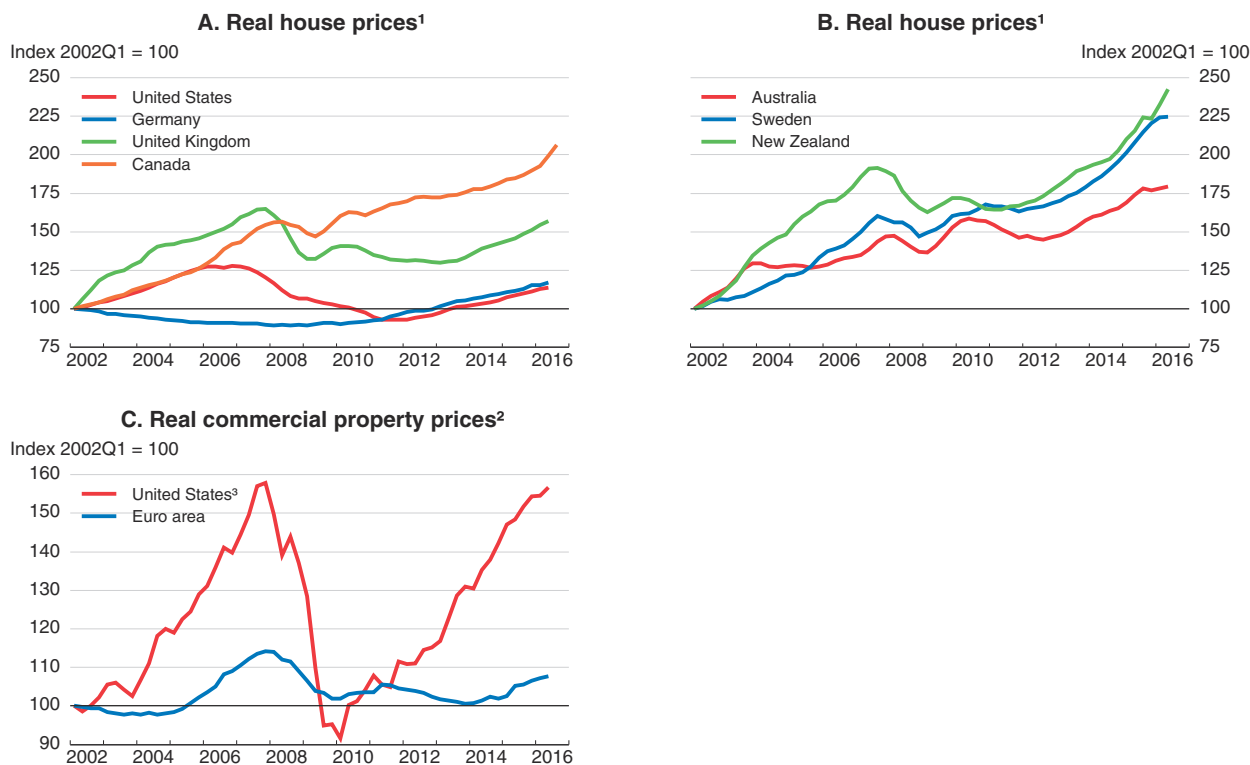
Source: Bloomberg; Thomson Reuters; OECD National accounts; and OECD calculations.

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reflect several abnormal conditions.¹² An extended period of low interest rates has induced portfolio rebalancing towards equities and raised the present value of expected future profits. By stimulating corporate borrowing, it has also contributed to large-scale share buybacks (OECD, 2016b), high dividend payouts per share and relative to net income (Figure 1.20) and strong merger and acquisition activity. All of these have pushed up equity prices. They have also been boosted by strong profit growth over recent years, with modest wage growth and other cost-cutting measures outweighing very weak productivity growth. There are, however, limits to such profit gains if weak nominal output growth is sustained.

- Over recent years, real house prices have been growing robustly in Australia, Canada, Germany, New Zealand, Sweden, the United Kingdom and the United States; in many of them approaching the pace observed prior to the crisis (Figure 1.21). The rise in real

12. If current share prices are boosted by low discount rates or expectations of high future profits, the cyclically-adjusted price-to-earnings ratio (CAPE), a ratio of current share prices adjusted for inflation to the 10-year average of real earnings, should go up. While CAPE ratios have increased in the United States and the United Kingdom since early 2016, they have declined in Japan and in large euro area countries. In all areas, they have, however, remained below country-specific historical averages from the early 1980s.


Figure 1.21. **Growth in real estate prices has been strong in some advanced economies**

1. Deflated with private consumption deflator.

2. Deflated with GDP deflator.

3. The Federal Reserve Board index. Most recently, it is based on the CoStar Commercial Repeat Sale Index.

Source: OECD Economic Outlook 100 database; OECD Analytical House Price database; European Central Bank; and Federal Reserve.

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estate prices has pushed up price-to-rent ratios to record highs in one-third of OECD member states, including Canada and several European countries. In the United States, commercial property prices corrected for GDP inflation have also gone up, approaching the pre-crisis peak. So far, appreciating property prices have not been accompanied by a rapid increase in household debt, reflecting moderate growth in household mortgage debt, in contrast to the period before the crisis. However, in a number of countries, including Australia, Canada, Sweden and the United Kingdom, debt in relation to household income has remained high.

A normalisation of asset prices is desirable, but it may involve financial turbulence. Despite relatively low perceived uncertainty based on financial market indicators, a reassessment of the future monetary policy stance and indeed an actual move,¹³ regardless of how well communicated, is likely to prompt a snapback in bond yields. This has already happened after the US elections and during the so-called taper tantrum in 2013. The initial price correction could be magnified by fire-sales. This might occur if investors have been betting on continued price gains due to monetary policy support, and

13. Expected policy interest rates are abnormally low, especially in Japan and the euro area at more distant horizons, even if they have increased since summer. Such expectations appear inconsistent with current consensus projections of low but positive nominal GDP growth of around 2½ to 3½ per cent on average over the next ten years in most major advanced economies.

if liquidity were to dry up, as it has tended to do in recent times when there has been market stress. Reduced liquidity in bond markets under stress reflects a decline in the capacity and willingness of dealers to engage in market-making, the rise of algorithmic trading (BIS, 2016a) and the increase in government bond holdings of central banks. The snapback in bond yields would lead to a fall in other asset prices, due to a higher discount rate and risk aversion, and to exchange rate moves.

The low-interest rate and low-growth environment poses challenges for financial institutions

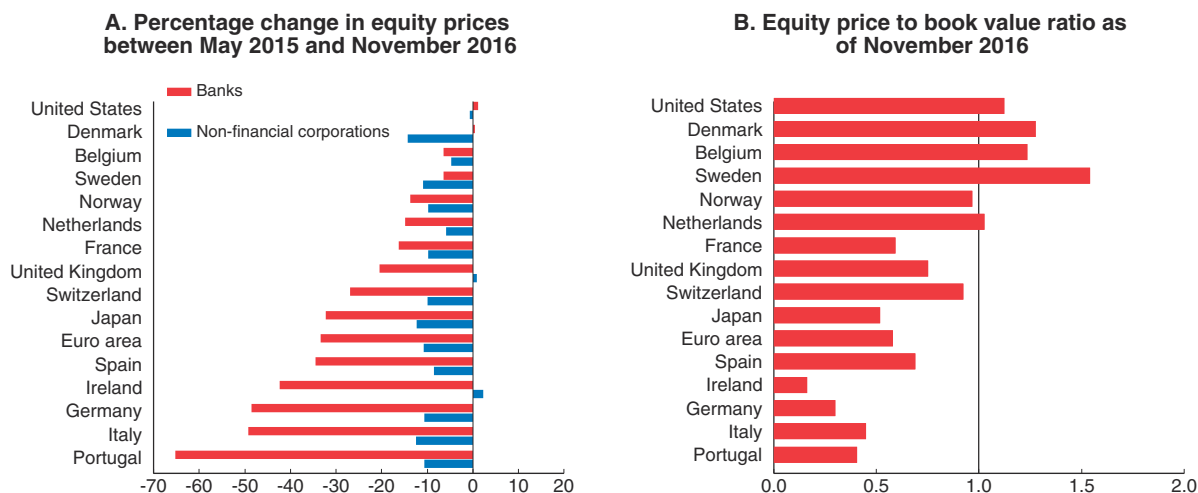
The financial health of banks, pension funds and insurance companies is crucial for financial stability, the transmission of monetary policy and ultimately economic growth. The prolonged period of low growth and interest rates has challenged the business models of financial institutions. Persistent low profitability restrains banks' capital accumulation and may, in turn, reduce financial intermediation or raise the cost of bank credit. Insufficient capital buffers could also discourage banks from recognising losses from NPLs. Weakened solvency of pension funds and insurance companies could have negative effects on other parts of the financial sector and undermine overall confidence. These institutions are closely interconnected with banks and asset managers, and are important investors in corporate bonds.

Banks' profitability has declined

Despite the recent improvement in the performance of banks in the main OECD areas, concerns about their profitability persist. Banks have increased the level and quality of capital and liquidity.¹⁴ Moreover, the results of recent stress tests in the euro area, Japan and the United States generally indicate improved resilience to significant negative shocks, with higher initial capital ratios, and capital falling below the required minimum in fewer banks than in previous tests (European Bank Authority, 2016; Board of Governors of the Federal Reserve System, 2016; Bank of Japan, 2016). US bank equity prices have increased since the beginning of the year, especially after the US elections, boosting the equity price to book ratio to well above one. In contrast, despite their recent increase in the euro area and Japan, bank equity prices still remain between 30% and 65% below mid-2015 levels, underperforming non-financial companies (Figure 1.22). Consequently, the ratio of banks' equity price to book value is still close to levels last seen during the financial market turbulence in 2009 and 2012. This implies that financial markets view the quality of assets as much weaker than recorded in banks' balance sheets.


The low stock market valuation of banks in the euro area and Japan this year is related to concerns about profitability in the low-interest rate and low-growth environment. Over recent years, returns on assets have been below the pre-crisis levels in the main OECD areas, with such returns significantly lower in the euro area and Japan than in the United States (IMF, 2016). In the euro area, although the estimated average return on equity for significant banks has picked up since the turn of the year, it is still subdued and remains significantly below the estimated cost of capital (Constâncio, 2016). Returns on equity of many banks are also below the estimated cost of equity in Japan (IMF, 2016). Several factors

14. Common equity Tier-1 ratios for euro area significant banks and for Japanese internationally active banks almost doubled between 2008 and 2015, reaching 13%, even after applying the more demanding measurement of risk assets under the Basel III rulebook. In the United States, the increase was smaller but the ratio has been at a similar level.

Figure 1.22. **Investors have been pessimistic about the health of the banking sector in many advanced economies**

Note: November figures are computed as the average of the daily data up to 16 November 2016.

Source: Thomson Reuters.

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have challenged bank profitability, with their relative importance appearing to be country specific.¹⁵ Some euro area countries, notably Italy, have still high non-performing loans (NPLs) (Table 1.A2.1 in Annex 1.A2). NPLs require higher provisions, which in turn reduce net income, and they generally do not generate income (Aiyar et al., 2015). The ensuing deterioration of banks' balance sheet positions can also raise borrowing costs for banks and reduce profitability even further. Moreover, high NPLs may slow the reallocation of resources and thus productivity growth (Adelet McGowan et al., 2016), with a possible negative feedback on the economy and the banking sector.

Pension funds and insurance companies face new solvency challenges

Prolonged low and negative interest rates also pose challenges for pension funds and financial institutions offering life insurance policies that promise pre-crisis or fixed nominal returns (Box 1.4; OECD, 2015c). A fall in the discount rate increases the present value of the liabilities of defined-benefit (DB) pension funds¹⁶ and life insurance companies, undermining their solvency. The impact will be bigger, the higher the amount of liabilities with fixed returns or fixed benefits, the more difficult it is to renegotiate contracts, and the higher the share of fixed income investments in total investment portfolios. The adverse effects of low interest rates for pension funds are greater for funds that already had unfunded liabilities before the crisis.

Life insurance companies have been under market pressure, with their equity prices falling relative to overall indices and credit default swap spreads rising. In Europe, the return on assets in the pension fund sector declined substantially in 2015 (EIOPA, 2016),

15. They include flattening of the yield curve (Borio et al., 2015; Claessens et al., 2016); negative returns on government securities and on reserves held at central banks in many European countries and Japan (Box 1.2 in OECD, 2016c); changing bank regulation (IMF, 2016); and fines and penalties for misdeeds in the past.

16. In Europe, traditional defined benefit plans account for 75% of the pension fund sector's total assets (EIOPA, 2016).

and in Japan one major insurance firm has lost around 20% of its embedded value due to the fall in long-term interest rates. Pension funds' funding gaps have risen since the crisis and now stand at around 30% of total assets in the United Kingdom and the United States (Figure 1.23), aggravating challenges stemming from gains in longevity.¹⁷

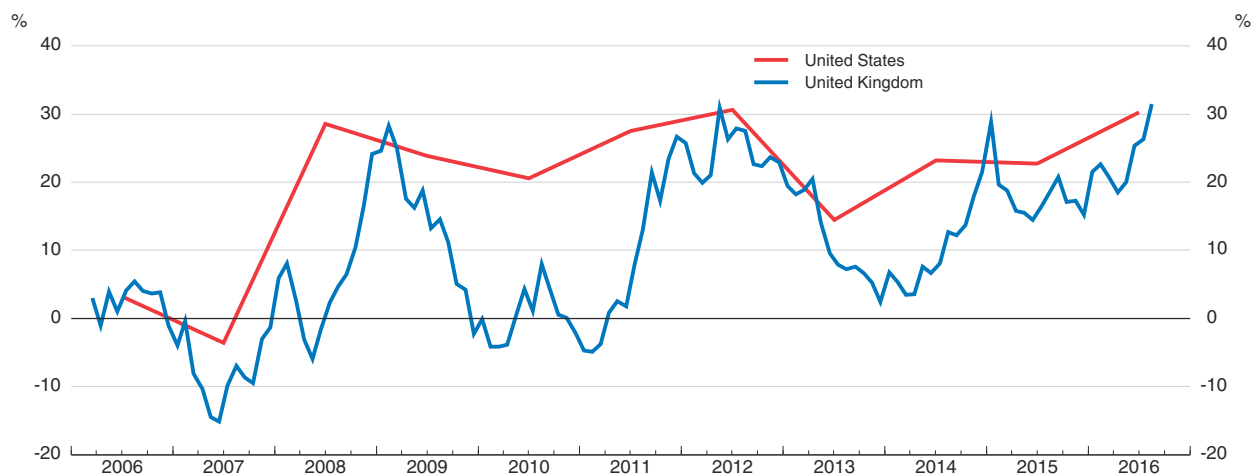
The current challenges for pension arrangements raise a number of policy questions. A central dilemma is how to strengthen the sustainability of pensions without at the same time raising saving and demand for risk-free assets, thereby worsening the underlying problem of low interest rates and low growth. This may lead to a tension between the individual interest of the pension scheme and the stability of the financial system. Strengthening near and long-term GDP growth prospects, leading to higher interest rates, would help to ease this tension.

For pay-as-you-go pensions, the policies needed to restore sound financing include lowering promises and raising contribution rates or effective retirement ages. In many countries, gradually raising the effective retirement age in line with gains in life expectancy – which would also increase GDP – should be a key part of the solution.


For DB schemes, it is essential to adjust the promises in new contracts and to future retirees to reflect the fact that interest rates are unlikely to return fully to past norms, which may necessitate raising contributions and premia. The adjustment of retirement promises also needs to reflect changes in other actuarial parameters such as life expectancy. It may also be necessary to modify contracts and conditions for existing retirees. Several countries, including the Netherlands, have already given pension funds some discretion over the level of indexation of pension promises. In some cases this allows

Figure 1.23. **Funding gaps of defined benefit pension funds have widened**

Net funding deficit as a per cent of total assets



Source: International Monetary Fund (2016), *Global Financial Stability Report. Fostering Stability in a Low-Growth, Low-Rate Era*, October, Figure 1.21.

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17. Data on current aggregate pension gaps are limited and the situation varies considerably across countries and between different plans in the same country. The extent of these funding gaps can be difficult to discern given regulatory and accounting conventions, including the continued use of assumed rates of return far in excess of current market returns and the discount rates used to calculate liabilities.

them to adjust accrued benefits. In exceptional circumstances, insurers and pension funds may need to renegotiate or adjust existing contracts and promises. Additionally, in the case of DB pension funds, pension-plan sponsors – and where relevant, plan members – could increase contributions to the pension fund to compensate for any shortfall.

Supervisors of DB pensions should step up monitoring. Policymakers face a difficult balance between putting excessive pressure on institutions to correct funding deficits, which could aggravate the low growth and low interest rate environment at a time of market weakness, and regulatory forbearance. Requirements to maintain certain funding ratios, as well as the marking-to-market of asset values, may force pension funds to reduce risk at the wrong time and become pro-cyclical. Several countries have already allowed pension funds to have flexibility in meeting funding requirements (e.g. the Netherlands, Ireland, Norway, Finland, the United Kingdom and the United States). The new OECD Core Principles on Private Pension Regulation provides a framework to address these issues.

Policymakers need to assess these risks carefully because there are potentially large consequences for future retirement incomes, pension funds and insurers, and ultimately public finances. The United Kingdom and the United States have government arrangements to protect pension funds, but pension challenges could also require government actions in other countries as well. It is also important to maintain public confidence in pension systems to encourage saving for old age and the stability of the institutions. In countries where defined-contribution arrangements are the main source for financing retirement (e.g. Australia, Chile, Mexico and New Zealand), concerns about the sustainability and adequacy of promised retirement income may lead to doubts about the design of current pension systems.

Box 1.4. The impact of low interest rates and low economic growth on pensions

Low interest rates and low rates of GDP growth present significant challenges to pension providers, governments and current and future pensioners. Through different channels, these factors affect the range of public and private pension provision across the OECD and could lead to financial stability problems, calling for measures to address these challenges.

The impact of low interest rates and growth depends on the design of pension arrangements

Pay-as-you-go (PAYG) pension schemes, where funds from today's contributors are used to pay current pensioners, are widely used in OECD countries, particularly for social security or public sector pensions. Low growth of GDP and wages translates into low growth in the financial resources available to fulfil pension promises. In practice, PAYG pension promises tend to be expressed in terms of replacement rates, the percentage of the wages that workers will receive when they retire. This implies that lower wage growth does not necessarily undermine the PAYG system as both revenues into the system and benefits paid out are reduced. By contrast, lower employment growth would weaken the system by reducing the number of workers paying in relative to the number of pensioners. Some systems have mechanisms to adjust the replacement rate depending on these factors.

For funded pensions, the impact of low interest rates and low growth is more direct (OECD, 2015c). For defined contribution (DC) pensions, prolonged low interest rates reduce long-term returns. DC pensions do not have fixed liabilities, so the effect is limited to reducing the amount of assets accumulated and annuity providers will increase their premia. While this does not affect the sustainability of the pension funds, it does reduce the amount of assets accumulated and retirement income that the same pot of money can buy (OECD, 2016d).

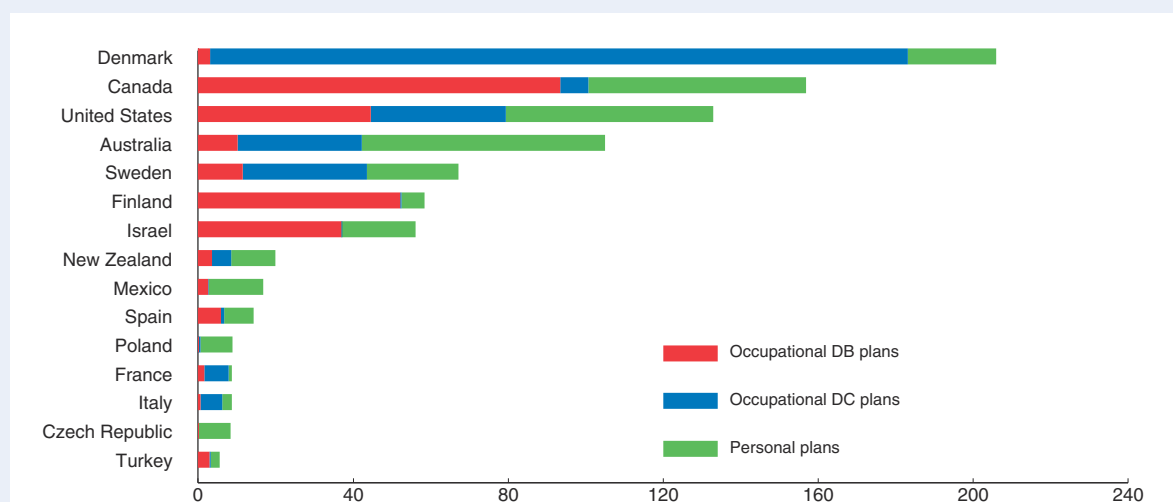
Box 1.4. The impact of low interest rates and low economic growth on pensions (cont.)

Defined benefit (DB) pension funds promise retirement income to pensioners, backed by a pool of funds. On the asset side, lower interest rates raise the current value of assets, but those bonds will mature and need to be replaced with bonds with lower yields. At the same time, low interest rates tend to increase the value of funds' liabilities. As with PAYG schemes, occupational pensions often target a given replacement rate and so depend also on the evolution of wages. A further difficulty is that the duration of fund liabilities tends to be larger than for assets, so lower interest rates increase liabilities more than assets. The adverse effect of low interest rates is higher when the liabilities consist of promised fixed investment returns, such as annuities. If DB funds are backed by corporate sponsors or governments, lower interest rates can increase their exposures.

The extent to which different individuals, institutions and countries are affected by these factors depends on their reliance on the various pension arrangements (figure below). It also depends on how long interest rates will remain low and developments in wages and employment. These additional pressures add to long standing challenges across many types of pension arrangements related to rising longevity and associated risks. A lower income environment reduces the room for manoeuvre to address these issues.

Pension arrangements vary widely across countries

Private pension assets as a percentage of GDP, 2015 or latest available



Source: OECD Global Pension Statistics.

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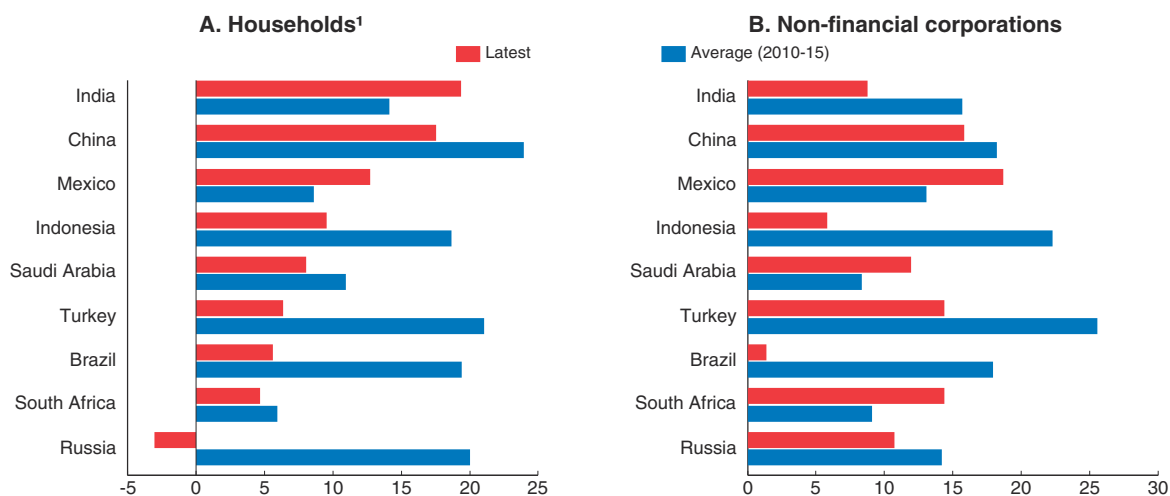
Unlike banks, pension funds are not exposed to runs as the value of assets accumulated cannot be redeemed except in exceptional circumstances. With their long-term outlook, pension funds tend to act as market stabilisers (Bikker et al., 2010; Bank of England, 2014). However, pension funds may become less stabilising through herd-like behaviour to address the challenge of low returns. One risk is that, while searching for yields, they acquire illiquid assets that could be more prone to negative shocks and fire-sales. Pension funds already had exposures to alternative investments of more than \$6 trillion, i.e. around 25% of total assets, as of end-2015 (OECD, 2016d).

Rapid debt accumulation risks instability in EMEs

In China, high and rising private debt, covering state-owned enterprises, continues to pose risks to financial stability. The credit-to-GDP ratio relative to trend is now the highest among 43 advanced and emerging market economies and has reached levels observed in countries that experienced financial crises in the past (BIS, 2016b). The high pace of debt accumulation was sustained despite weaker domestic demand growth. This raises concerns about the underlying quality of new credit, disorderly corporate defaults and the possible extent to which it has been used to support financial asset prices. Residential property prices in some of the largest cities have risen by over 30% year-on-year, although price growth in smaller cities has been much more modest. The price gains have been partly driven by loose monetary policy and ample credit availability as well as reduced land supply. Non-financial corporations, with debt equal to 166% of GDP, face increasing challenges in servicing debt amid slowing growth, weak producer price inflation and overcapacity in several sectors. While the recent programme of debt-for-equity swaps will reduce the leverage of non-financial corporations, the banking sector will be burdened with the costs, undermining their profitability, at a time when NPLs are already rising.

In many other EMEs, private credit has also grown rapidly, with risks to financial stability and economic growth, though it has moderated recently (Figure 1.24). Credit growth has been fuelled by favourable financial conditions amid low interest rates in advanced economies. Overall, capital inflows have diminished over the past two years in many EMEs, especially portfolio capital, but they still remain sizeable and are estimated to have risen considerably during the third quarter of 2016. Consequently, private debt-to-GDP ratios have reached high levels. At the beginning of 2016, credit to the non-financial private sector was above 70% of GDP in Brazil, Russia, South Africa and Turkey, and above 137% of GDP in Malaysia. Rapid private credit growth is one of the key factors raising the risks of recessions, as are large foreign capital debt inflows (de Serres and Gori, forthcoming).


Figure 1.24. **Credit growth has remained robust despite its recent weakening in a few EMEs**
Year-on-year percentage changes in credit



Note: Credit from all sectors (including banks).

1. Including non-profit institutions serving households.

Source: Bank for International Settlements; and OECD calculations.

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More determined and comprehensive policy efforts are needed

Given the high costs for current and future generations of a persistent low-growth trap, and the multiple and interlinked causes of the trap, a comprehensive and collective policy response is needed. Countries should fully use the scope available for monetary, fiscal and structural policies to support demand and to generate expectations of higher future growth. The policy mix should reflect country and region-specific cyclical conditions, accounting for global and regional spillovers and recent measures taken. Greater use should be made of fiscal and structural policies as monetary policy on its own has become overburdened.

Monetary policy has reached its effective limits in many advanced economies

Since May 2016, the accommodative monetary policy stance has remained unchanged in the euro area and the United States. Japan has introduced a new policy framework with stronger forward guidance. In contrast, monetary policy has been eased in the United Kingdom in response to the Brexit vote. Conditional on the assumption of additional fiscal measures being implemented in the United States, the US policy interest rate is assumed to rise from 0.5% at present to 2% by end-2018 with a somewhat greater increase in 10-year bond yields. Policy rates are assumed to remain unchanged at current levels in Japan and the euro area. This also applies to 10-year bond yields on the assumptions that the new policy in Japan of targeting the 10-year yield is successful and that quantitative easing continues in the euro area.

Given a heavy and prolonged reliance on monetary policy in recent years to support demand and raise inflation, distortions and associated risks have risen. Consequently, the effective scope for additional monetary policy stimulus, without forceful support from fiscal and structural policies, is exhausted.

The implementation of announced monetary policy in Japan and the euro area is likely to be particularly challenging.

- The Bank of Japan's new policy framework involves yield curve control and an inflation-overshooting commitment so as to strengthen inflation expectations.¹⁸ The Bank of Japan presently expects to continue to buy government bonds broadly in line with the current pace of about 80 trillion yen (16% of GDP) per year. It remains to be seen if the renewed efforts to raise inflation expectations to achieve the inflation target will be successful, with earlier similar attempts having muted effects despite the supportive yen depreciation at the time. Also, with the sustained guidance on the amount of bond purchases, targeting the 10-year government bond yield could be complicated in practice.
- In the euro area, government bond purchases, if continued beyond March 2017, may be constrained by the ECB's self-imposed limits (i.e. not to acquire more than 33% of a given bond issue, 33% of bonds of one issuer, and bonds yielding less than the ECB deposit rate). For instance, in mid-November, the share of government debt yielding less than -0.4% is estimated to be above 50% in Germany and 30-45% in five other euro area countries (Figure 1.18 above). Adjusting the limits should be considered.

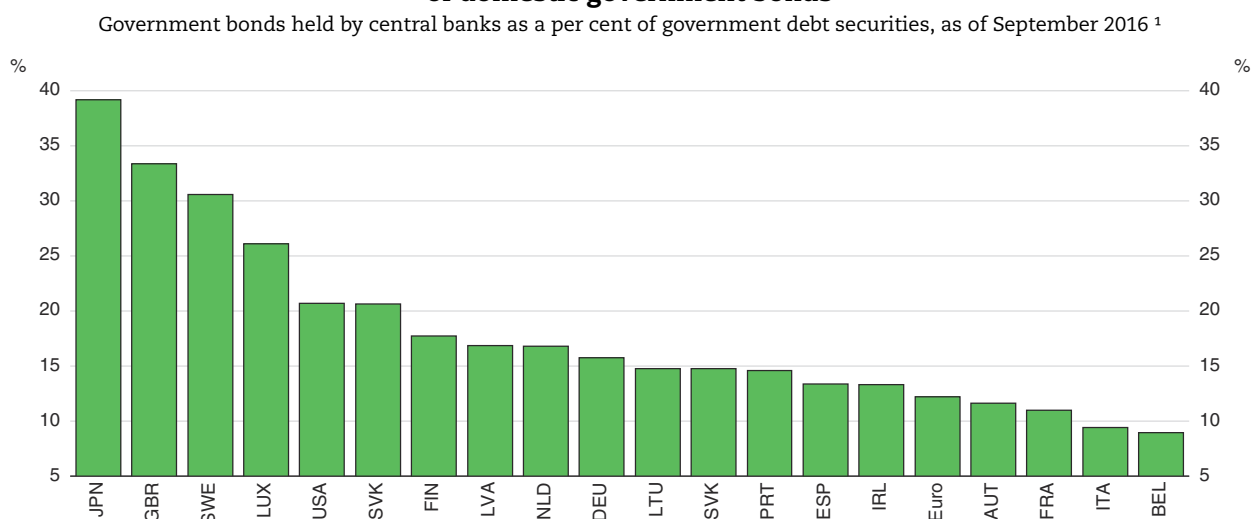
18. The Bank of Japan has promised to continue expanding the monetary base until CPI inflation (excluding fresh food) exceeds the price stability target of 2% and stays above the target in a stable manner.

- With past and current purchases of government bonds, central banks have become dominant holders and buyers of sovereign debt (Figure 1.25), driving bond prices higher and inducing speculative investment. In the euro area and Japan, central bank holdings of government bonds will increase significantly under current monetary policy plans. In Japan, the share of bonds held by the Bank of Japan in total outstanding government bonds is likely to rise to around 60% by March 2019, if the bank sustains purchases of 80 trillion yen per year. To alleviate these effects, central banks could expand purchases of private bonds and equities. However, this would likely involve higher risks and raise equality concerns, given likely higher benefits to large private companies and the wealthiest individuals, and over time could lead to similar price distortions.

The likely increasing divergence in monetary policy stances across the main advanced economies will involve spillovers via exchange and interest rates, impacting the conduct of monetary policy around the world.

- An appreciation of the US dollar against other currencies would redistribute global demand from the United States to weaker economies. However, the strength of this mechanism may be weaker than prior to the crisis. The recent impact of real exchange rate movements on trade volumes appears to have been muted in the major advanced economies, once account is taken of changes in demand, consistent with recent empirical evidence of the declining sensitivity of trade volumes to changes in competitiveness (Ollivaud and Schweltnus, 2015).


Figure 1.25. **Several central banks have become dominant holders of domestic government bonds**



Note: For the United States, marketable treasury securities, excluding treasury bills, held by the Federal Reserve as a share of outstanding marketable treasury securities excluding treasury bills at market value. For the United Kingdom, Asset Purchase Facility holdings as a share of outstanding gilts (conventional and index-linked), at market value. For Japan, government bonds held by the Bank of Japan as a share of outstanding treasury securities, excluding treasury discount bills and including FILP bonds, at market value. For the euro area countries, cumulative net purchases of government bonds in the Eurosystem Public Sector Purchase Programme at book value as a share of outstanding general government bonds at face value. For the euro area, the numerator and the denominator of the share are sums of respective values for all euro area countries. For Sweden, the planned purchases of government bonds (245 billion SEK by end 2016) as a share of the outstanding government bonds issued in national currency in September 2016, at face value.

1. For Japan, the United Kingdom and the United States, as of June 2016.

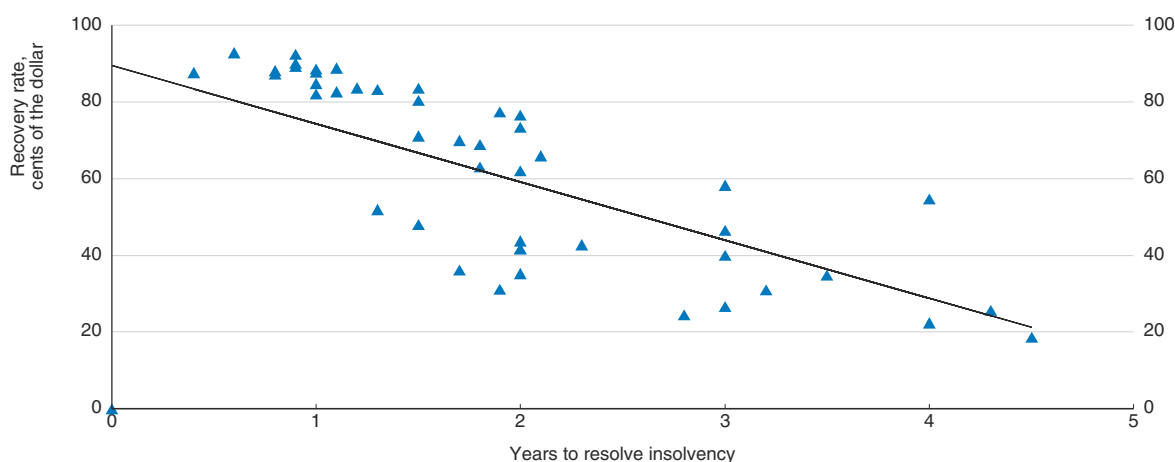
Source: Board of Governors of the Federal Reserve System; Bank of Japan; Sveriges Riksbank; UK Debt Management Office; European Central Bank; and OECD calculations.

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- A US dollar appreciation would also temporarily slow US inflation and raise inflation elsewhere. To the extent that this effect is expected to be temporary and expected inflation is below or slightly above target, monetary authorities could look through these changes.
- However, a stronger US dollar would imply increased servicing costs on dollar-denominated foreign liabilities. There also could be spillovers to market interest rates from the United States, leading to tighter financial conditions. Given the build-up of vulnerabilities in EMEs discussed above, EMEs need to strengthen regulatory measures to increase resilience to such spillovers.

To strengthen the transmission of monetary policy in the euro area, a faster restructuring of NPLs is needed through stronger bank supervision and insolvency frameworks (OECD, 2016e). This could involve raising capital surcharges for long-standing NPLs. The resolution will be also facilitated by a development of a market for such assets and an establishment of asset management companies (AMCs), possibly at the European level. Under current regulation, selling non-performing assets above market price to a state-supported AMC is regarded as state aid and triggers the bailing-in of creditors, including retail customers who own bank bonds. Since this hinders restructuring of NPLs, an EU-wide agreement should be sought either not to trigger the bail-in procedure or to adopt a more lenient definition of market price levels that trigger state aid in those countries where NPLs are high and create a serious economic disturbance. An alternative strategy that would quickly clean balance sheets is to allow low-priced asset sales to private AMCs with options sold to the state to take advantage of the upside potential of such fire-sales. Regardless, insolvency procedures, which are unduly long in many countries, should be shortened, for instance, by resorting to out-of-court procedures. In view of international experience, this would reduce the costs of restructuring (Figure 1.26).

Figure 1.26. **Shortening insolvency procedures increases recovery rates**



Source: World Bank (2015), *Doing Business 2015. Going Beyond Efficiency*.

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Fiscal space should be used efficiently in conjunction with stronger structural reforms

With little scope for monetary policy to provide additional stimulus in most economies, more active fiscal policy, in conjunction with enhanced structural reforms, is needed to support aggregate demand and boost potential output. As discussed in

Chapter 2, there is a window of opportunity at present to provide a temporary fiscal stimulus with beneficial effects on growth and long-term supply, and without compromising debt sustainability:

- The fall in interest rates has reduced estimated debt servicing costs, amounting to between 0.6% and 3.5% of GDP over 2015-17 in the major advanced economies, by lowering the interest rates on newly issued debt.¹⁹ With the fall in market interest rates exceeding the fall in potential output growth between 2014-16, the estimated debt limits at which governments lose market access have also risen, by more than 20% of GDP in some countries.
- This fiscal space should be used to permanently increase government spending on hard, soft and remedial infrastructure investment and other measures that add to demand and enhance supply. Such spending amounting to ½ per cent of GDP, could be deficit-financed for 3-4 years on average in OECD countries, and should boost growth by 0.4-0.6 percentage point in the first year, with positive long-term output gains and no long-term impact on debt-to-GDP ratios. Additional output gains would ensue from cross-country spillovers if countries collectively use fiscal resources for projects with a high growth impact.
- With or without fiscal expansion, most countries have room to restructure their spending and tax policies towards a more growth and equity-friendly mix (Cournède et al., 2014, Fournier and Johansson, 2016).

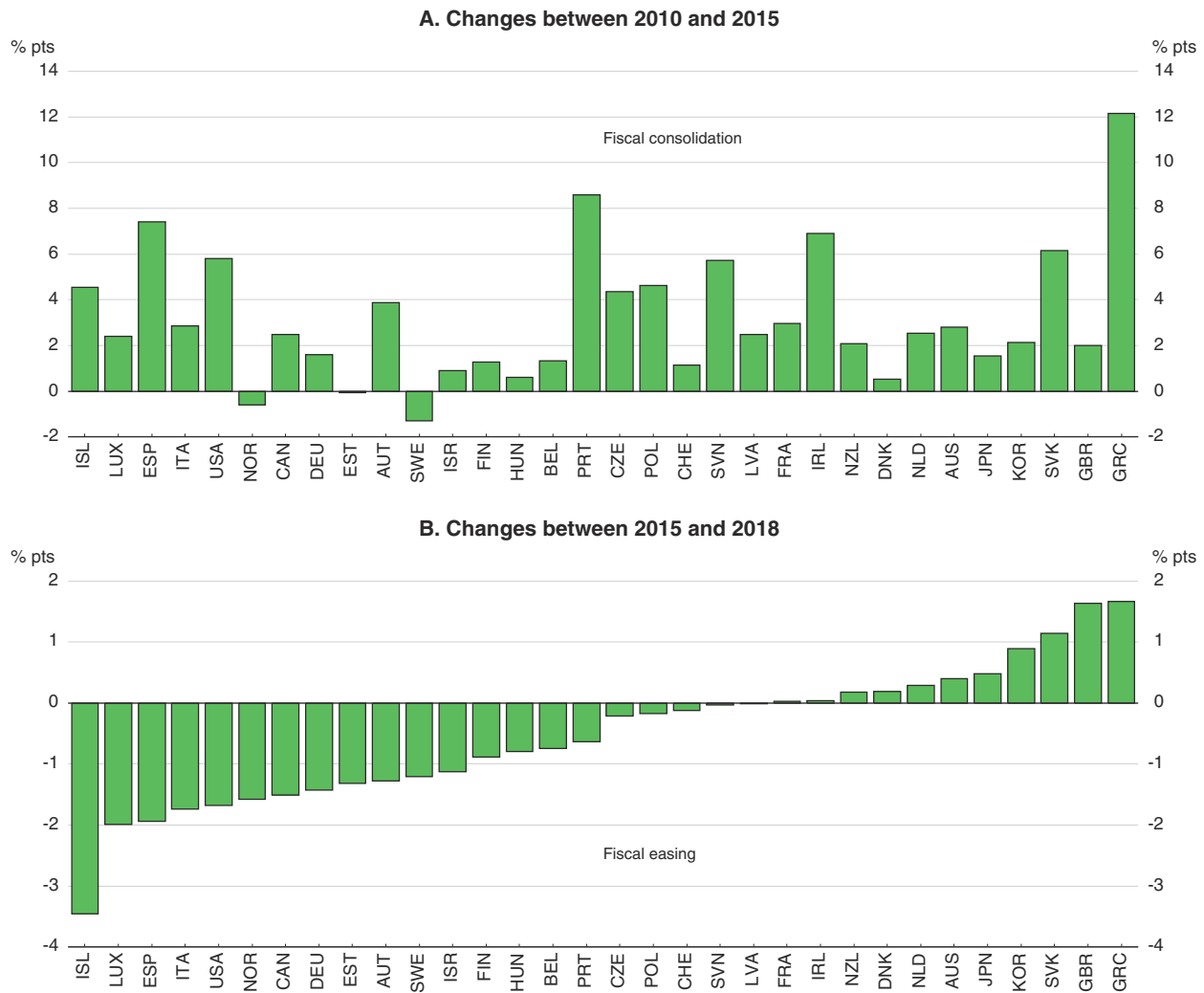
Fiscal policy is already being adjusted in a number of advanced economies to support growth or to ease planned consolidation, in marked contrast to the fiscal tightening in earlier years (Figure 1.27). The underlying primary balance for the OECD area as a whole is estimated to have already eased by 0.2% of GDP in 2016.

- In the United States, the incoming Administration is likely to ease the fiscal policy stance. The assumed increase in the underlying primary deficit of 1½ per cent of potential GDP in 2017-18 will boost demand significantly, with spending measures having a stronger multiplier than tax measures. While infrastructure spending will also raise potential output, as might corporate tax reductions if they durably boost business investment, increases in current spending and household tax cuts may have only limited effects on productive potential.
- Outside the United States, the planned fiscal easing and compositional changes in budgets are collectively insufficient to provide a significant boost to growth in the near term and potential output in the longer term in many economies. Hence more ambition is needed (Table 2.4 in Chapter 2). The underlying primary balance for the OECD area excluding the United States is projected to ease by only 0.2% of potential GDP in 2017-18, with 13 countries likely to ease their fiscal stance at least by ½ per cent of potential GDP over the period and six countries planning a tightening of at least ½ per cent of potential


19. In countries where central banks have bought large quantities of government bonds, the savings have been even larger, as the interest income earned on the bonds by central banks has been transferred back to governments. With very low remuneration of central bank liabilities, interest earned on government bonds has boosted central bank profits which are usually transmitted to the government. Over recent years, the Federal Reserve has returned almost all of its gross interest income to the US government, accounting for just below ¼ of total central government interest expenses. In the United Kingdom, almost all of the 24.1 billion pounds that the Asset Purchase Facility Fund accumulated from interest income was transferred to the UK government in 2014 (around 9% of government interest expenses since 2009; 1.5% of 2014 GDP).

Figure 1.27. **The fiscal stance has started to be loosened only recently**

Cumulative change in the underlying primary balance as per cent of GDP



Source: OECD Economic Outlook 100 database.

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GDP. Only a few countries (Australia, Greece, Norway and, to a smaller extent, Canada) are planning to increase public investment as a share of GDP in the 2016-18 period. This ratio is set to fall somewhat in Denmark, Finland, Iceland, Japan, Korea and New Zealand.

More ambitious structural reforms and a faster implementation of announced measures are also needed to complement the impact of additional fiscal stimulus on output growth and to make sure that the benefits of higher growth are shared broadly. Renewed efforts are needed across a wide range of reform areas after the slowdown in the pace of structural reforms in both advanced and emerging market economies in recent years. It is particularly important to ensure that reform efforts are coherent; otherwise they will not yield improved outcomes. For example, relaxing labour regulations in an environment of rigid product markets may only reduce employment and wages. In

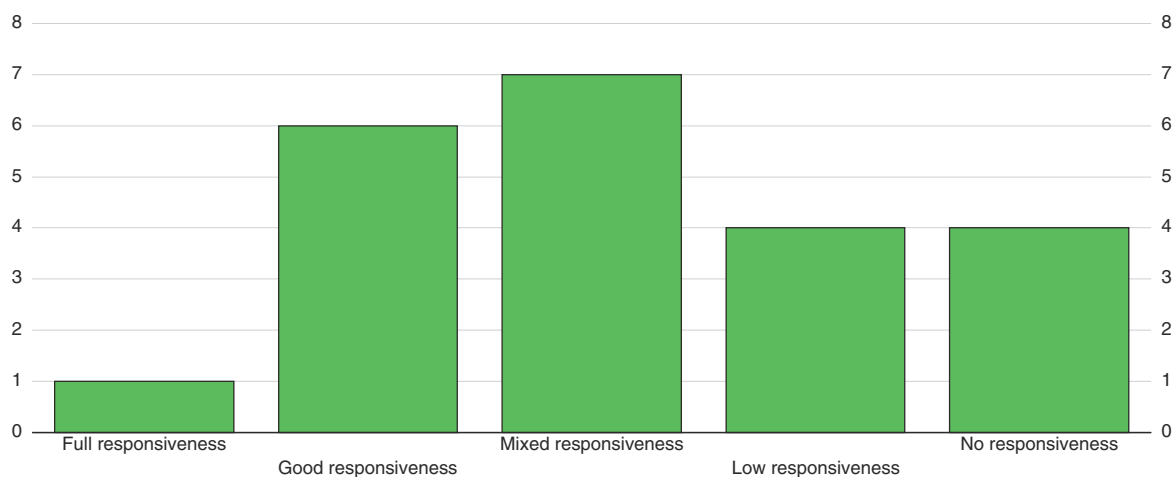
contrast, deregulating the business environment at the same time enhances the likelihood that businesses will compete for workers. However, the recent implementation of recommended reform packages has been uneven; reforms have been undertaken in either labour or product markets, but infrequently undertaken in both areas (Figure 1.28). Better coordination of reforms would facilitate implementation and maximise their impact in terms of growth and job-creation.

As discussed above, possible reform packages could include measures to enhance product market competition, particularly in services sectors with pent-up demand (Gal and Hijzen, 2016), reforms to housing policies and job-search assistance to facilitate geographic and job mobility, and reallocation-friendly banking sector and insolvency regime reforms that could ease the exit of failing firms (Adalet McGowan et al., 2016).

Trade policies should be viewed as an integral part of the policy packages. An enhanced collective focus on trade policies would help trade growth to recover from the anaemic rates experienced in recent years, with a resulting positive impact on competition and productivity (Box 1.3). A first set of trade policy priorities is to avoid new trade protectionist measures that reduce market access, alongside steps to roll back the protectionist measures introduced since the crisis. All advanced and emerging market economies could also boost trade and productivity by reducing unnecessary trade costs through improvements to border and customs procedures, removing tariff and non-tariff barriers, removing regulatory restrictions on trade in services, particularly logistics, and harmonising costly regulations between countries. Tackling impediments and distortions to cross border investment, including in the euro area (Fournier, 2015) would also contribute to trade by encouraging FDI and a better integration into global value chains.


Figure 1.28. **Implementation of structural reform packages has been uneven**

Number of countries categorised based on reform implementation rates 2015-2016



Note: The horizontal axis shows the responsiveness rate in 2015-16 to OECD recommended reform packages that include a mix of recommended product market reforms (including FDI and trade) and labour market reforms. Full responsiveness refers to a value of 1, indicating that all recommendations have been undertaken. Good responsiveness refers to a responsiveness rate at or above 0.5 for both product and labour market reforms. Mixed responsiveness refers to a responsiveness rate above 0.5 for either product or labour market reforms. Low responsiveness refers to a responsiveness rate between 0.5 and 0 for both sets of reforms.

Source: OECD (2017); and OECD calculations.

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ANNEX 1.A1

Policy and other assumptions underlying the projections

Fiscal policy settings for 2016 through 2018 are based as closely as possible on legislated tax and spending provisions and are consistent with growth, inflation and wage projections. Where government plans have been announced but not legislated, they are incorporated if it is deemed clear that they will be implemented in a shape close to that announced. For the United States, with the fiscal programme of the incoming Administration yet to be announced, the projections assume an increase in the underlying primary deficit of $\frac{1}{4}$ per cent of GDP in 2017 and $1\frac{1}{4}$ per cent in 2018, primarily due to reduced taxes. Elsewhere, where there is insufficient information to determine budget outcomes, the underlying primary balances are kept unchanged, implying no discretionary change in the fiscal stance; in euro area countries, the stated targets in Stability Programmes are also used.

Regarding **monetary policy**, the assumed path of policy interest rates represents the most likely outcome, conditional upon the OECD projections of activity and inflation, which may differ from those of the monetary authorities.

- In the United States, the upper bound of the target federal funds rate is assumed to be raised gradually to reach 2% in December 2018 up from the current level of 0.5%.
- In Japan, the overnight interest rate is assumed to be kept at -0.1% for the entire projection period.
- In the euro area, the main refinancing rate is assumed to be kept at 0% until the end of 2018.
- In the United Kingdom, the Bank rate is assumed to be kept unchanged at 0.25% until the end of 2018.
- In China, it is assumed that the policy rate will be increased from the current level of 4.35% to 4.5%, targeted instruments will be used to provide liquidity to the agriculture, SMEs and other selected sectors, and that the reserve requirement ratio will remain unchanged.
- In India, the repo rate is assumed to be cut from the current level of 6.25% to 5.75% by September 2017 and then kept unchanged until the end of 2018.
- In Brazil, the policy rate is assumed to be cut gradually from the current level of 14% to 10% by the end of 2018.

Although their impact is difficult to assess, the following quantitative easing measures are assumed to be taken over the projection period, implicitly affecting long-term interest rates. In the United States, the stock of assets purchased by the Federal

Reserve is assumed to be maintained unchanged until the end of projection horizon. In Japan, the Bank of Japan's asset purchases and yield curve control are assumed to last until the end of 2018, maintaining the 10-year government bond yield at 0%. In the euro area, the ECB's asset purchases are assumed to be extended, but not expanded, through the projection period, keeping long-term interest rates constant. In the United Kingdom, long-term government bond yields are assumed to gradually edge up to 1.7%, reflecting higher inflation over the projection horizon which is only partly offset by the increase in asset purchases by the Bank of England to GBP 435 billion.

Structural reforms that have been implemented or announced for the projection period are taken into account, but no further reforms are assumed to take place.

The projections assume unchanged **exchange rates** from those prevailing on 11 November 2016: one US dollar equals JPY 106.69, EUR 0.92 (or equivalently one euro equals USD 1.09) and 6.81 renminbi.

The **price of a barrel of Brent crude oil** is assumed to remain constant at 45 US dollars throughout the projection period. Non-oil commodity prices are assumed to be constant over the projection period at their levels as of mid-November 2016.

The cut-off date for information used in the projections is 25 November 2016.

ANNEX 1.A2

Indicators of potential financial vulnerabilities

The following tables show the position of OECD and selected non-OECD countries on a number of indicators that could reveal potential exposure to financial turbulence. The main focus of Table 1.A2.1 is on domestic vulnerabilities of the OECD and BRIICS countries, that of Table 1.A2.2 on financial account vulnerabilities of the OECD and non-OECD G-20 countries. The presented variables are a subset of over 70 vulnerability indicators identified as useful in monitoring risks of a costly crisis in OECD economies (Röhn et al., 2015).

Table 1.A2.1 presents indicators typically associated with financial vulnerabilities arising primarily from the domestic economy, in four broad categories: the real economy, the non-financial sector, the financial sector and public finances (International Monetary Fund, 2012; European Commission, 2012; Hermansen and Röhn, 2015). Possible weaknesses in the real economy are captured by the difference between the potential and the actual GDP growth rate, the difference between the actual unemployment rate and the sustainable rate of unemployment (or NAIRU), the current account deficit and the evolution of relative unit labour costs. Indicators of financial market excesses related to the non-financial sector are the debt of households and non-financial corporations and real house price growth. An aggregated ratio of core Tier-1 capital to total assets (i.e. the leverage ratio) for selected banks in each country,²⁰ non-performing loans, and financial corporations' debt are included to account for the direct risk exposure of the financial sector. Vulnerabilities stemming from the public sector are quantified along three dimensions: government net borrowing, gross government debt and the difference between 10-year real sovereign bond yields and the potential real GDP growth rate. Higher values, with the exception of the leverage ratio, indicate a larger vulnerability. Table 1.A2.1 also includes the current sovereign credit ratings issued by Standard and Poor's.

Table 1.A2.2 displays financial-accounts-related risk factors for financial stability in the OECD and non-OECD G-20 countries based on previous OECD empirical analysis (Ahrend and Goujard, 2012a, 2012b). The analysis shows that:

- Greater (short-term) borrowing from external banks, or a skew in external liabilities towards debt, increases the risk of a financial crisis substantially (external bank debt being defined as debt to a foreign bank).

20. The calculations of the country leverage ratios are based on over 1200 commercial banks, including 915 in the United States, 197 in the OECD euro area countries, 23 in the United Kingdom, 11 in Canada and 7 in Japan.

- A larger share of FDI in gross external liabilities decreases the chances of a financial crisis.
- Shorter maturity of banks' debt raises the risk of a crisis, mainly by increasing exposure to financial contagion.
- The size of foreign reserve holdings reduces the probability of a crisis.
- Total external assets (excluding reserves) or liabilities are found not to affect the crisis risk for countries with small and moderate levels of assets and liabilities. However, external assets reduce, and external liabilities increase, crisis risk when they are large.

Table 1.A2.2 shows for each of the 8 selected indicators: i) the position of each country in 2016Q1 (or the latest available) along various dimensions of its financial account structure, and ii) the country-specific change, from 2007 to 2016Q1 (or the latest available). For some of the variables, the numbers need to be interpreted with care, since the relevance of the variable may differ across countries. For example, the foreign currency reserves of the United States are the lowest relative to GDP in the OECD area, but this does not signify a weakness as the US dollar is a reserve currency; the same applies to low currency reserves in individual euro area countries.

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Table 1.A2.1. Indicators of potential financial vulnerabilities

	Real economy				Non-financial sector		
	Potential GDP growth rate-actual GDP growth rate differential ¹	Actual unemployment rate-NAIRU differential	Current account deficit ^{1,2}	Real effective exchange rate ³	Household gross debt ^{4,5}	Non-financial corporation gross debt ^{2,5}	Real house prices
	2016	2016Q2	2016	% change 2000Q1-16Q2	2015 or latest available	2015 or latest available	% change 2000Q1-16Q2
United States	0.0	-0.1	2.5	-7.6	107.3	116.7	25.8
Japan	-0.5	-0.4	-3.8	-43.0	..	..	-17.2
Germany	-0.7	-0.6	-9.2	-11.2	92.9	69.9	13.1
France	0.0	0.6	1.0	1.5	108.3	104.8	72.6
Italy	-0.9	2.3	-3.0	12.0	76.4	88.5	9.0
United Kingdom	-0.3	-0.4	5.4	-15.7	150.7	129.2	86.8
Canada	0.2	0.5	3.5	23.1	171.9	155.3	113.4
Australia	-0.2	-0.1	3.5	33.7	211.5	90.8	110.2
Austria	-0.5	1.7	-2.7	0.2	93.5	87.8	35.1
Belgium	0.0	0.2	-0.8	3.4	113.5	120.9	53.0
Chile	1.0	0.0	1.4	18.8	85.3	156.2	..
Czech Republic	-0.3	-1.8	-2.3	38.1	68.5	58.7	..
Denmark	0.2	-0.1	-8.8	13.0	292.3	116.1	44.2
Estonia	0.4	-1.7	-0.9	47.3	80.9	98.1	..
Finland	-0.6	1.4	0.7	1.2	130.1	98.2	25.9
Greece	-0.3	6.0	1.0	10.7	115.1	70.5	-12.1
Hungary	0.0	-3.5	-6.8	23.0	47.4	76.5	..
Iceland	-2.6	-1.3	-3.5	-4.4	..	265.8	..
Ireland	-1.5	-2.2	-9.5	-12.3	179.2	309.3	12.5
Israel	-0.1	-0.9	-4.0	-8.0	..	73.9	51.8
Korea	0.4	0.2	-7.1	5.8	169.9	164.5	31.1
Latvia	1.0	-0.5	-0.7	22.0	49.4	96.9	..
Luxembourg	-0.8	0.0	-4.5	22.8	167.3	316.5	..
Mexico	0.6	-0.8	3.5	-18.6	..	70.7	..
Netherlands	-1.0	0.8	-8.1	-1.7	273.5	129.9	5.8
New Zealand	-0.9	-0.4	2.8	49.9	..	..	141.8
Norway ⁶	1.4	1.4	-4.6	31.5	221.7	114.3	95.8
Poland	0.5	-1.5	0.6	-11.1	64.3	60.7	..
Portugal	-1.3	-0.3	-0.1	0.0	135.4	139.7	-22.2
Slovak Republic	-0.7	-0.8	1.4	30.0	68.0	80.4	..
Slovenia	-0.9	0.2	-7.5	-3.0	56.7	79.6	..
Spain	-2.7	4.3	-2.1	5.3	121.8	96.9	30.8
Sweden	-1.0	-0.7	-4.8	-4.0	177.3	124.2	151.7
Switzerland	0.0	0.4	-9.2	32.9	202.5	..	53.3
Turkey	1.2	0.9	4.6	-25.3	..	152.0	..
Brazil	5.0	2.9	1.1	6.2	..	..	..
China	0.1	..	-2.4	97.6	..	..	..
Colombia	1.4	-0.4	4.8	2.4	..	..	84.1
Costa Rica	-0.9	0.3	2.6	-59.9	..	..	..
India	-0.4	..	0.6	-44.7	..	..	..
Indonesia	0.4	..	1.8	-12.9	..	..	..
Lithuania	0.2	-2.6	0.2	19.0	54.0	52.5	..
Russia	1.0	0.2	-3.0	175.9	..	..	..
South Africa	1.9	1.3	4.0	-12.2	..	..	111.8

1. OECD projections.

2. In per cent of GDP.

3. Based on unit labour costs.

4. In per cent of gross household disposable income.

5. Gross debt is defined as liabilities less financial derivatives and shares and other equity. Based on consolidated data for most countries.

6. In per cent of total (unweighted) assets.

7. Rating for sovereign debt in foreign currency.

8. Mainland (potential) GDP is used instead of total (potential) GDP where applicable.

Source: OECD National Accounts database; IMF Financial Soundness Indicators database; European Central Bank (ECB); European Commission; OECD Analytical Housing Price database; Standards & Poors; OECD Economic Outlook 100 database; and OECD calculations.

Table 1.A2.1. **Indicators of potential financial vulnerabilities** (cont.)

Financial sector			Public finance			Sovereign credit rating	
Core Tier-1 leverage ratio ⁶	Non-performing loans to total loans	Financial corporation gross debt ^{2,5}	Headline government budget deficit ^{1,2}	Gross government debt ^{1,2}	Real 10-year sovereign bond yield-potential GDP growth rate differential	S&P ⁷	
Latest available	Latest available	2015 or latest available	2016	2016	2016Q2 or latest available	Latest	
6.3	1.4	338.2	5.0	115.6	-1.1	AA+	United States
4.5	1.5	..	5.2	233.7	-1.8	..	Japan
4.0	2.3	294.7	-0.5	74.7	-2.7	AAA	Germany
3.7	3.9	308.1	3.3	122.7	-1.4	AA	France
5.4	18.1	211.8	2.4	159.3	0.8	BBB-	Italy
4.2	1.0	649.4	3.3	112.5	-1.4	AAA	United Kingdom
3.8	0.6	381.0	2.2	100.4	-0.5	AAA	Canada
4.3	1.0	296.9	2.6	45.4	-0.1	AAA	Australia
6.6	3.2	221.4	1.5	106.0	-2.4	AA+	Austria
4.8	3.4	332.9	3.0	127.0	-1.7	AA	Belgium
..	1.9	218.5	..	..	-2.7	AA-	Chile
..	5.0	131.5	0.2	52.3	-3.1	AA-	Czech Republic
4.4	3.4	380.8	0.7	53.7	-1.4	AAA	Denmark
..	1.0	124.8	-0.4	12.4	..	..	Estonia
4.7	..	224.5	2.7	78.0	-1.6	AA+	Finland
10.9	37.0	188.3	2.0	185.7	9.5	..	Greece
..	10.0	113.8	1.6	97.5	0.2	..	Hungary
..	..	756.7	-16.6	64.4	-1.4	..	Iceland
6.6	15.0	806.9	0.9	91.0	6.0	A+	Ireland
..	1.7	206.1	2.5	62.7	-3.3	A+	Israel
..	0.5	358.8	-1.9	44.2	-3.1	AA-	Korea
..	3.8	154.5	1.0	46.2	-2.2	..	Latvia
..	0.2	7018.6	-1.7	30.7	-3.1	AAA	Luxembourg
..	2.3	69.7	-0.1	..	-0.6	BBB+	Mexico
4.4	2.5	773.3	1.4	76.1	-1.0	AAA	Netherlands
..	..	..	0.2	39.9	-1.7	AA	New Zealand
6.9	1.2	227.8	-3.0	41.7	0.4	AAA	Norway ⁸
..	4.4	98.8	2.4	67.5	-0.5	..	Poland
6.0	12.7	271.2	2.5	151.0	1.6	BB+	Portugal
..	4.8	128.5	2.1	59.2	-2.0	A+	Slovak Republic
..	8.0	119.2	2.4	99.4	-0.5	A-	Slovenia
5.7	5.8	222.6	4.6	118.4	0.7	BBB+	Spain
3.7	1.1	305.0	-0.2	52.9	-3.3	AAA	Sweden
4.9	0.8	..	-1.5	43.1	-1.4	..	Switzerland
..	3.2	127.5	..	..	-2.2	..	Turkey
..	3.8	..	10.2	..	9.2	..	Brazil
..	1.7	..	1.8	..	-3.9	..	China
..	3.2	..	3.3	..	1.5	..	Colombia
..	1.6	..	..	..	..	..	Costa Rica
..	7.6	..	7.1	..	-2.2	..	India
..	3.0	..	2.6	..	1.7	..	Indonesia
..	5.5	86.5	0.7	54.0	-1.5	..	Lithuania
..	9.7	..	3.5	..	..	..	Russia
..	3.2	..	3.7	..	5.3	..	South Africa

1. OECD projections.

2. In per cent of GDP.

3. Based on unit labour costs.

4. In per cent of gross household disposable income.

5. Gross debt is defined as liabilities less financial derivatives and shares and other equity. Based on consolidated data for most countries.

6. In per cent of total (unweighted) assets.

7. Rating for sovereign debt in foreign currency.

8. Mainland (potential) GDP is used instead of total (potential) GDP where applicable.

Source: OECD National Accounts database; IMF Financial Soundness Indicators database; European Central Bank (ECB); European Commission; OECD Analytical Housing Price database; Standards & Poors; OECD Economic Outlook 100 database; and OECD calculations.

Table 1.A2.2. **Financial-accounts-related risk factors to financial stability**

Latest available (in per cent)

	External debt ¹	External bank debt ²	Short-term external bank debt ²	Short-term external bank debt ³	External liabilities ²	External assets ²	Foreign exchange reserves ²	FDI liabilities ¹
	Higher values indicate higher financial stability risk					Higher values indicate lower financial stability risk		
United States	50.0	15.0	5.6	37.3	176.2	132.6	0.7	21.3
Japan	57.7	21.4	17.4	81.5	122.8	191.2	29.3	4.0
Germany	59.9	29.9	15.3	51.2	213.0	261.8	1.9	19.2
France	62.3	56.5	31.7	56.0	318.0	298.7	2.3	13.4
Italy	71.8	24.7	10.6	42.9	162.8	143.8	2.6	15.5
United Kingdom	51.0	61.3	40.7	66.3	539.0	536.2	4.7	11.6
Canada	51.8	25.8	10.1	39.1	187.1	194.5	5.4	33.8
Australia	53.4	24.9	8.0	31.9	191.6	132.5	4.0	25.7
Austria	62.3	42.8	12.0	28.0	255.9	258.8	3.5	31.2
Belgium	44.3	42.8	18.6	43.6	431.2	485.7	3.4	49.1
Chile	28.5	20.6	10.4	50.6	154.9	134.2	16.3	63.7
Czech Republic	40.9	22.2	6.2	27.8	130.0	103.6	38.0	55.3
Denmark	55.2	58.9	34.9	59.2	251.2	292.3	21.2	17.9
Estonia	42.6	5.3	2.4	45.5	176.6	137.5	2.0	55.2
Finland	57.1	43.6	14.5	33.3	336.7	338.6	3.8	15.0
Greece	90.3	24.6	11.6	47.1	265.5	134.2	1.5	5.3
Hungary	24.6	21.2	6.5	30.7	288.2	231.4	22.0	71.5
Iceland	45.0	36.2	6.2	17.1	172.7	171.7	29.1	52.3
Ireland	28.6	108.0	45.5	42.1	1944.7	1748.6	0.7	24.0
Israel	28.6	5.1	2.7	52.3	86.5	113.3	30.4	39.1
Korea	39.4	11.5	6.9	60.2	68.6	85.3	26.1	18.8
Latvia	69.1	8.5	3.7	42.9	193.1	133.9	11.6	29.5
Luxembourg	19.7	831.4	259.2	31.2	18494.1	18519.1	1.6	44.5
Mexico	48.2	11.8	4.1	34.4	93.7	55.2	16.5	38.0
Netherlands	34.3	99.3	40.3	40.6	1062.3	1136.8	2.1	52.8
New Zealand	54.9	19.8	7.7	38.6	157.2	93.4	8.9	28.7
Norway	65.2	35.9	12.9	35.9	200.1	381.8	14.8	25.1
Poland	48.3	22.7	6.2	27.4	109.0	48.2	19.3	43.2
Portugal	68.1	32.0	12.1	37.8	281.9	178.9	3.4	25.3
Slovak Republic	50.2	28.6	11.7	41.0	132.3	68.0	2.0	48.9
Slovenia	72.9	17.5	4.5	25.7	140.0	103.2	1.6	24.9
Spain	61.2	30.5	12.2	40.1	238.5	152.8	3.9	24.4
Sweden	52.5	46.2	21.6	46.8	275.0	283.9	10.5	27.2
Switzerland	34.8	61.3	41.7	68.1	542.0	657.9	94.4	35.6
Turkey	67.2	29.3	15.5	52.9	88.0	32.5	13.7	25.0
Argentina	52.4	2.4	1.5	63.5	34.9	43.2	3.7	41.7
Brazil	33.3	11.7	6.2	52.6	81.9	44.4	20.6	52.5
China	24.7	6.5	4.6	69.6	41.6	56.6	28.9	62.6
Colombia	40.6	12.5	6.0	48.0	103.4	54.6	16.3	54.0
Costa Rica	35.1	20.3	6.6	32.3	93.4	46.8	14.2	64.8
India	52.2	8.6	4.7	55.0	42.2	25.5	16.0	32.2
Indonesia	46.7	12.7	6.2	48.7	67.0	24.6	12.0	38.6
Lithuania	65.1	9.6	2.7	28.3	111.3	65.0	5.3	33.9
Russia	45.5	7.9	2.6	33.0	62.7	88.6	24.2	41.1
Saudi Arabia	17.5	11.1	6.6	59.4	44.3	152.0	94.4	77.4
South Africa	29.0	11.4	4.6	40.4	112.2	125.1	13.2	35.5

1. As per cent of external liabilities.

2. As per cent of GDP.

3. As per cent of external bank debt.

Source: Bank for International Settlements (BIS); International Monetary Fund (IMF); World Bank; and OECD calculations.

Table 1.A2.2. **Financial-accounts-related risk factors to financial stability** (cont.)

Change from 2007 (in percentage points)

External debt ¹	External bank debt ²	Short-term external bank debt ²	Short-term external bank debt ³	External liabilities ²	External assets ²	Foreign exchange reserves ²	FDI liabilities ¹	
Positive values indicate an increase in the financial stability risk					Positive values indicate a decrease in the financial stability risk			
-5.1	-5.5	-3.2	-5.5	21.7	-12.9	0.1	2.5	United States
2.8	8.3	8.3	11.7	49.3	66.6	7.2	-0.4	Japan
-9.1	-20.3	-12.6	-4.4	-1.7	25.8	0.4	1.4	Germany
2.3	-10.8	-11.9	-8.7	15.7	6.0	0.3	0.3	France
0.3	-26.5	-7.8	7.0	3.9	11.9	1.1	0.6	Italy
-11.8	-50.9	-43.2	-8.4	-14.0	-7.4	3.0	1.9	United Kingdom
17.2	2.6	-4.5	-23.8	14.2	35.7	2.3	-13.2	Canada
5.3	-7.0	-4.2	-6.2	9.1	15.0	1.1	-1.3	Australia
-1.2	-29.2	-14.7	-9.1	-67.4	-53.4	0.4	4.6	Austria
-17.6	-72.2	-70.2	-33.7	-86.3	-63.6	1.0	15.1	Belgium
-3.9	2.4	0.9	-2.0	53.7	32.5	5.9	3.1	Chile
7.3	-0.5	-2.7	-11.3	18.8	37.0	18.3	-2.2	Czech Republic
-12.6	-12.3	-1.9	7.5	-1.1	46.5	10.4	-3.4	Denmark
-6.7	-99.3	-21.6	22.6	-31.2	13.3	-14.0	10.3	Estonia
17.7	3.6	1.9	1.7	53.9	86.9	0.8	-3.9	Finland
16.8	-34.5	-5.4	18.4	59.0	35.4	1.2	-3.6	Greece
-6.8	-43.0	-11.4	2.8	-25.9	17.5	3.7	7.5	Hungary
-34.3	-258.3	-121.3	-26.2	-566.5	-446.7	15.3	37.3	Iceland
-24.9	-161.3	-105.1	-13.8	518.9	343.7	0.4	9.6	Ireland
-16.2	-3.4	-1.3	6.3	-32.0	-4.6	13.4	14.0	Israel
-3.4	-5.4	-3.5	-1.5	-4.0	30.1	1.8	3.2	Korea
-5.7	-72.1	-29.8	1.4	13.8	39.4	-8.9	5.3	Latvia
-10.0	-309.6	-241.6	-12.7	5177.8	5224.1	1.3	20.3	Luxembourg
15.6	3.9	1.7	4.1	25.0	25.4	7.8	-7.0	Mexico
-6.2	-35.9	-26.9	-9.1	89.7	181.7	0.6	4.8	Netherlands
-3.5	-5.6	-5.2	-12.2	-22.6	-1.1	-5.1	-3.8	New Zealand
1.3	-25.6	-27.6	-30.0	-24.8	94.6	-1.9	5.3	Norway
2.7	-1.7	0.2	2.6	3.0	4.5	2.9	-2.7	Poland
-1.8	-43.0	-15.7	0.7	-23.0	-24.8	2.6	6.2	Portugal
9.2	-3.2	-0.5	2.4	-1.0	2.0	-24.1	-8.5	Slovak Republic
1.3	-30.9	-8.6	-1.3	-2.7	-14.4	-0.6	-0.2	Slovenia
-1.4	-28.9	-6.7	8.3	3.2	9.0	3.0	2.6	Spain
2.9	-7.8	-10.7	-13.1	-7.6	0.1	4.6	-4.8	Sweden
-15.6	-111.3	-83.5	-4.5	-48.5	-75.9	84.2	15.1	Switzerland
12.5	10.4	7.1	8.6	4.9	3.3	1.0	-7.0	Turkey
-1.7	-5.5	-2.4	13.2	-31.0	-35.7	-13.4	2.4	Argentina
9.2	4.1	2.6	5.5	10.3	12.7	6.2	17.7	Brazil
-7.5	0.6	1.3	14.4	3.5	-18.6	-18.7	5.3	China
-3.9	5.3	1.7	-11.4	47.0	24.0	5.1	0.1	Colombia
-4.9	-4.5	-4.7	-12.9	18.3	4.9	-2.3	4.8	Costa Rica
2.6	-2.9	-1.3	2.9	1.1	-8.1	-10.8	6.5	India
-6.4	2.0	0.5	-4.4	5.7	1.2	-0.3	6.9	Indonesia
2.5	-33.9	-9.3	0.7	-12.2	7.0	-16.0	-1.7	Lithuania
9.9	-5.3	-3.7	-14.8	-40.6	-2.3	-14.6	1.6	Russia
-19.0	2.0	0.9	-3.0	13.7	20.7	13.3	13.8	Saudi Arabia
9.2	-0.1	-0.6	-4.7	-1.5	44.9	2.5	-5.8	South Africa

1. As per cent of external liabilities.

2. As per cent of GDP.

3. As per cent of external bank debt.

Source: Bank for International Settlements (BIS); International Monetary Fund (IMF); World Bank; and OECD calculations.