Appendix A: Summary of key forecast assumptions by Simon Kirby and Iana Liadze

The forecasts for the world and the UK economy reported in this *Review* are produced using the National Institute's model, NiGEM. The NiGEM model has been in use at NIESR for forecasting and policy analysis since 1987, and is also used by a group of more than 40 model subscribers, mainly in the policy community. Most countries in the OECD are modelled separately,[1] and there are also separate models of China, India, Russia, Brazil, Hong Kong, Taiwan, Indonesia, Singapore, Vietnam, South Africa, Latvia, Lithuania, Romania and Bulgaria. The rest of the world is modelled through regional blocks so that the model is global in scope. All models contain the determinants of domestic demand, export and import volumes, prices, current accounts and net assets. Output is tied down in the long run by factor inputs and technical progress interacting through production functions, but is driven by demand in the short to medium term. Economies are linked through trade, competitiveness and financial markets and are fully simultaneous. Further details on the NiGEM model are available on http://nimodel.niesr. ac.uk/.

The key interest rate and exchange rate assumptions underlying our current forecast are shown in tables A1–A2. Our short-term interest rate assumptions are generally based on current financial market expectations, as implied by the rates of return on treasury bills and government bonds of different maturities. Long-term interest rate assumptions are consistent with forward estimates of short-term interest rates, allowing for a country-specific term premium. Where term premia do exist, we assume they gradually diminish over time, such that long-term interest rates in the long run are simply the forward convolution of short-term interest rates. Policy rates in major advanced economies are expected to remain at extremely low levels, at least throughout 2016.

The Reserve Bank of Australia left its benchmark interest rate unchanged after cutting it by 50 basis points to 2 per cent in two rounds in the first half of 2015. The central bank of New Zealand lowered its policy rate again in March 2016 by 25 basis points, after cutting

it by 100 basis points in four rounds during 2015. The People's Bank of China and the Indian central bank both reduced their interest rates throughout 2015 by a total of 125 basis points each. While the People's Bank of China has kept them unchanged since, the Indian central bank lowered its benchmark rate further by 25 basis points in April 2016. The Bank of Korea reduced its policy rate by 100 basis points in four steps between August 2014 and June 2015 and has left it unchanged since. After cutting its benchmark interest rate by 25 basis points in February 2015, for the first time since 2012, Indonesia's central bank has lowered it again in 2016 in three steps, by a total of 75 basis points. The Central Bank of Turkey has left its policy rate unchanged at 7.5 per cent since February last year, following a spell of reductions around the middle of 2014, where the interest rates were reduced by a cumulative 250 basis points. Since the end of 2014, the Romanian Central Bank has reduced interest rates by 100 basis points in four steps, while the National Bank of Hungary has brought them down by 75 basis points over five rounds. The central banks of Norway and Poland have lowered their policy rates by 50 basis points each in 2015, to 0.75 and 1.5 per cent respectively. While the central bank of Norway cut its benchmark rate further by 25 basis points in March 2016, the central bank of Poland has left them unchanged since. Over the course of last year, the Swedish Riksbank cut its policy rate by 35 basis points in three rounds and has lowered it again by 15 basis points this year. At the time of writing, the Riksbank's policy rate stands at –0.5 per cent. At the turn of 2015 the Swiss National Bank cut its benchmark rate by 25 basis points to –0.75 per cent, while the Central Bank of Denmark reduced them by 15 basis points to just 0.05 per cent. Both central banks have left their main policy rate unchanged since. The Central Bank of Russia has kept its benchmark interest rate unchanged after reducing it, by cumulative 600 basis points, to 11 per cent over five stages in the first seven months of 2015. The Bank of Canada has kept its benchmark interest rate unchanged, at 0.5 per cent, after lowering it by 50 basis points over two rounds last year. These were the first cuts in nominal interest rates by the Bank of Canada since April 2009.

In contrast, the Central Bank of Brazil and the South African Reserve Bank both increased interest rates in response to inflationary and financial market pressures in 2015. The South African Reserve Bank increased its benchmark rate by 25 basis points in July last year and the Central Bank of Brazil has raised its interest rate by 200 basis points to 14.25 per cent, in a series of steps over the course of 2015. While the Central Bank of Brazil has left its interest rate unchanged since, the South African Reserve Bank increased its rate further by 75 basis points in two rounds this year. To stem downward pressure on the Peso following a rise in the federal funds rate in the US, the central bank of Mexico has increased its interest rate by 75 basis points in three rounds since December 2015. These were the first increases since August 2008.[2]

In December 2016, the Federal Reserve raised the target range for the federal funds rate by 25 basis points to 0.25–0.50 per cent. This action, agreed unanimously by the Federal Open Market Committee (FOMC), was taken seven years after the target range had been lowered close to zero, and six and a half years after the end of the US recession of December 2007–June 2009. The statement accompanying the Fed's decision emphasised that monetary conditions remained accommodative after the

increase; that the timing and size of future adjustments would depend on its assessment of actual and expected economic conditions relative to its objectives, and that it expected that only gradual increases in the rate would be warranted. This message has been reiterated by the FOMC at subsequent meetings. Indeed the FOMC has judged that further interest rates were not warranted in the first third of this year. At the March meeting median expectation of the Committee's participants of target range for the federal funds rate was lowered by 0.5 percentage point in 2016.

The expectation of the first rate change of the Monetary Policy Committee (MPC) of the Bank of England is based on our view of how the economy will evolve over the next few years. At the time of writing, financial markets expect the MPC first to raise rates towards the end of 2019. We think a much earlier move is more likely. Published market expectations are based on the mean of the distribution. This mean that a skew to the downside, possibly reflecting where the perceived risks are weighted towards, weighs on the arithmetic mean as opposed to other measures of central tendency. Indeed, it is 'our modal view' that we discuss here. Our forecast is for a reasonable pace in the growth of demand, while

## Table A1. Interest rates   *Per cent per annum*

		Central bank intervention rates					10–year government bond yields				
		US	Canada	Japan	Euro Area	UK	US	Canada	Japan	Euro Area	UK
2012		0.25	1.00	0.10	0.88	0.50	1.8	1.9	0.8	3.2	1.8
2013		0.25	1.00	0.10	0.56	0.50	2.3	2.3	0.7	2.7	2.4
2014		0.25	1.00	0.10	0.16	0.50	2.5	2.2	0.6	1.9	2.5
2015		0.26	0.65	0.10	0.05	0.50	2.1	1.5	0.4	1.0	1.8
2016		0.54	0.50	–0.12	0.01	0.54	2.0	1.4	0.0	0.8	1.6
2017		1.53	0.76	–0.37	0.00	1.03	2.7	2.2	0.1	1.4	2.3
2018–22		3.21	2.72	–0.28	1.18	2.49	3.7	3.6	0.5	2.9	3.5
2014	Q1	0.25	1.00	0.10	0.25	0.50	2.8	2.5	0.6	2.5	2.8
2014	Q2	0.25	1.00	0.10	0.23	0.50	2.6	2.4	0.6	2.1	2.7
2014	Q3	0.25	1.00	0.10	0.13	0.50	2.5	2.2	0.5	1.7	2.6
2014	Q4	0.25	1.00	0.10	0.05	0.50	2.3	2.0	0.4	1.3	2.1
2015	Q1	0.25	0.81	0.10	0.05	0.50	2.0	1.4	0.3	0.8	1.6
2015	Q2	0.25	0.75	0.10	0.05	0.50	2.2	1.6	0.4	1.0	1.9
2015	Q3	0.25	0.54	0.10	0.05	0.50	2.2	1.5	0.4	1.2	1.9
2015	Q4	0.30	0.50	0.10	0.05	0.50	2.2	1.5	0.3	1.0	1.9
2016	Q1	0.50	0.50	0.00	0.04	0.50	1.9	1.2	0.1	0.8	1.5
2016	Q2	0.50	0.50	–0.10	0.00	0.50	1.7	1.2	0.0	0.6	1.4
2016	Q3	0.50	0.50	–0.16	0.00	0.50	2.0	1.5	0.0	0.8	1.6
2016	Q4	0.67	0.50	–0.20	0.00	0.67	2.2	1.7	0.0	1.0	1.8
2017	Q1	1.01	0.50	–0.29	0.00	0.75	2.4	1.9	0.1	1.2	2.0
2017	Q2	1.36	0.68	–0.34	0.00	0.94	2.6	2.2	0.1	1.3	2.2
2017	Q3	1.70	0.85	–0.40	0.00	1.13	2.8	2.3	0.1	1.5	2.4
2017	Q4	2.04	1.03	–0.46	0.00	1.31	2.9	2.5	0.1	1.6	2.5

Table A2. Nominal exchange rates

	Percentage change in effective rate								Bilateral rate per US $			
	US	Canada	Japan	Euro Area	Germany	France	Italy	UK	Canadian $	Yen	Euro	Sterling
2012	3.4	0.9	2.2	−1.9	−2.0	−2.0	−1.6	4.2	0.997	79.8	0.778	0.631
2013	2.9	−3.1	−16.7	2.9	2.8	3.0	3.7	−1.2	1.039	97.6	0.753	0.640
2014	4.1	−5.4	−5.1	1.9	1.8	1.8	3.2	7.8	1.112	105.8	0.754	0.607
2015	13.8	−10.7	−5.6	−5.6	−3.2	−3.2	−2.1	6.6	1.299	121.1	0.902	0.654
2016	3.7	1.3	12.9	4.5	2.5	2.6	3.6	−4.5	1.301	110.2	0.885	0.688
2017	−0.8	1.9	1.9	0.7	0.3	0.4	0.6	0.9	1.273	107.7	0.873	0.675
2014 Q1	1.6	−3.8	−1.5	0.8	0.9	0.7	1.1	2.6	1.111	102.7	0.730	0.604
2014 Q2	−0.9	2.4	0.1	−0.1	−0.2	−0.1	0.2	1.4	1.083	102.1	0.729	0.594
2014 Q3	1.5	−1.0	−1.1	−0.8	−0.8	−0.9	−0.8	1.6	1.100	104.0	0.755	0.599
2014 Q4	4.8	−3.1	−6.6	−0.4	−0.5	−0.7	−0.3	−0.5	1.153	114.6	0.801	0.632
2015 Q1	6.3	−6.9	−0.4	−4.9	−2.5	−2.4	−1.9	2.9	1.262	119.1	0.888	0.660
2015 Q2	0.8	2.4	−1.5	−1.8	−1.2	−0.8	−1.1	2.3	1.237	121.4	0.905	0.652
2015 Q3	3.5	−6.1	1.9	2.5	1.8	1.4	2.1	2.3	1.327	122.2	0.899	0.646
2015 Q4	2.2	−2.5	2.3	0.4	0.3	0.2	0.6	−0.4	1.370	121.5	0.914	0.659
2016 Q1	2.3	0.8	7.0	2.8	1.6	1.6	2.1	−5.3	1.372	115.2	0.906	0.698
2016 Q2	−2.7	6.7	4.2	1.1	0.2	0.6	0.5	−3.1	1.279	108.7	0.878	0.701
2016 Q3	−0.3	0.1	0.0	−0.6	−0.2	−0.3	−0.2	3.7	1.276	108.5	0.878	0.676
2016 Q4	0.0	0.0	−0.1	0.0	0.0	0.0	0.0	0.0	1.276	108.5	0.878	0.676
2017 Q1	0.1	0.1	0.3	0.3	0.1	0.1	0.2	0.0	1.276	108.3	0.877	0.676
2017 Q2	0.0	0.1	0.4	0.3	0.1	0.2	0.2	0.0	1.274	108.0	0.875	0.675
2017 Q3	0.0	0.2	0.5	0.3	0.2	0.2	0.2	0.0	1.272	107.5	0.872	0.675
2017 Q4	−0.1	0.2	0.5	0.4	0.2	0.2	0.3	−0.1	1.269	106.9	0.868	0.674

Figure A1. 10-year government bond yields
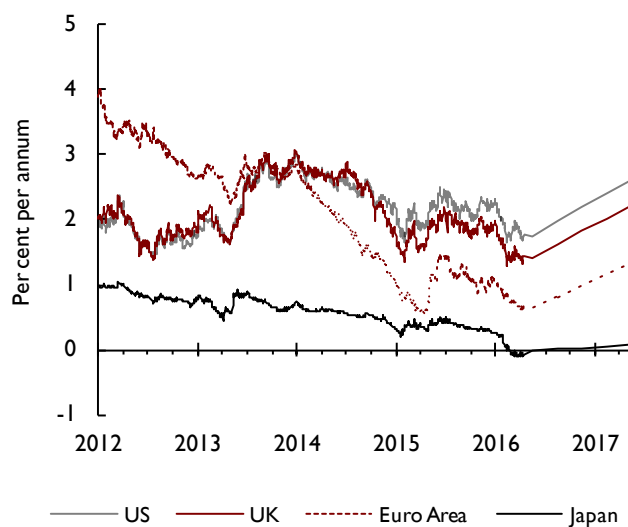
Source: Datastream and NIESR projections.

Figure A2. Spreads over 10-year German government bond yields
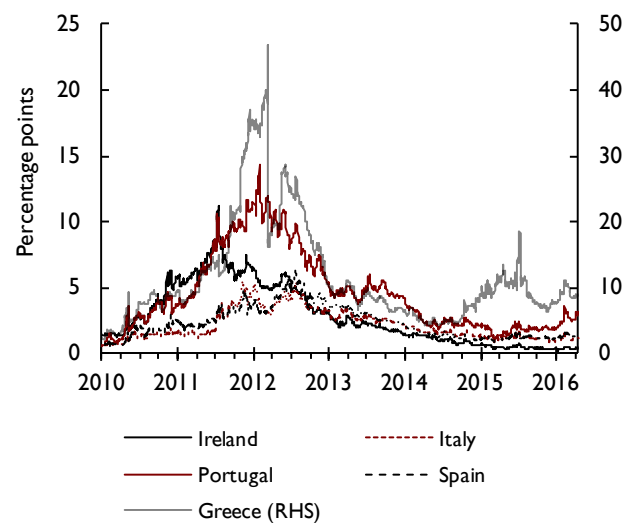
Source: Derived from Datastream series.

the rate of CPI inflation is projected to be marginally above target in 2018. These factors suggest to us that a modest increase in the third quarter of 2016 would be consistent with the modal outlook for reasonable economic performance and consumer price inflation being close to the target rate.

The central banks of the Euro Area (ECB) and Japan (BoJ)

Table A3. Government revenue assumptions

	Average income tax rate (per cent)[a]			Effective corporate tax rate (per cent)			Gov't revenue (% of GDP)[b]		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
Australia	14.8	14.9	14.9	25.7	25.7	25.7	32.8	32.8	32.8
Austria	32.0	32.6	33.1	21.8	21.8	21.8	42.3	42.5	42.7
Belgium	35.2	35.2	35.2	21.7	21.7	21.7	43.2	42.3	42.2
Canada	20.5	20.6	20.9	20.8	20.8	20.8	35.9	35.9	35.6
Denmark	42.4	38.3	36.5	17.9	17.9	17.9	49.0	49.1	46.8
Finland	33.3	33.3	33.1	23.1	23.1	23.1	46.3	46.5	46.1
France	30.3	29.6	29.7	32.7	32.7	32.7	45.6	45.5	45.8
Germany	29.5	29.6	29.6	19.4	19.4	19.4	41.3	40.8	41.1
Greece	24.2	24.1	24.1	13.5	13.5	13.5	36.9	38.1	37.6
Ireland	26.5	26.5	26.5	9.8	9.8	9.8	26.9	26.3	26.3
Italy	29.5	29.2	29.2	26.5	26.9	26.9	43.1	42.4	41.4
Japan	23.7	23.7	23.7	29.6	29.6	29.6	34.3	34.3	34.7
Netherlands	33.3	33.4	33.4	8.4	8.4	8.4	39.8	39.4	39.3
Portugal	20.6	20.6	20.7	20.1	20.1	20.1	36.2	35.7	35.7
Spain	26.3	27.3	27.2	16.0	16.4	16.4	38.0	37.7	37.6
Sweden	26.5	26.5	26.6	23.1	23.1	23.1	43.5	43.3	43.4
UK	22.7	22.9	22.9	13.3	13.1	12.3	35.6	36.3	36.3
US	19.6	19.6	19.6	29.0	29.0	29.0	30.8	31.0	31.0

Notes: (a) The average income tax rate is calculated as total income tax plus both employee and employer social security contributions as a share of personal income. (b) Revenue shares reflect NiGEM aggregates, which may differ from official government figures.

have continued to expand their balance sheets. On 10 March 2016, the ECB announced a package of measures "calibrated to further ease financing conditions…and accelerate the return of inflation to levels below, but close to, 2 per cent". This followed a more limited set of measures announced in December 2015. First, with effect from 16 March, the ECB's benchmark interest rates were lowered further. Second, the 'expanded asset purchase programme' which began in March 2015 was expanded further. The original package envisaged combined purchases of assets amounting to €60 billion a month until at least September 2016. Last December, the programme was extended to at least March 2017. In the latest package, it was announced that, beginning in April 2016, monthly purchases would be increased to €80 billion and "run until end-March 2017, or beyond". This means that if the programme ends in March 2017, total asset purchases will have amounted to €1.74 trillion over 25 months, rather than €1.5 trillion under the programme as extended last December. Third, the issuer and issue-share limits for the purchase of securities issued by international organisations and multilateral development banks were raised from 33 per cent to 50 per cent. Fourth, the assets eligible for purchase by the Eurosystem of central banks under the asset purchase programme would be expanded in June 2016 to include investment-grade, euro-denominated, non-bank corporate bonds issued in the Euro Area.

Finally, a new series of four-quarterly targeted long-term refinancing operations (TLTRO II), each with a maturity of four years, would be launched, starting in June 2016, with interest rates matching those on the deposit facility. TLTRO II is intended to give banks additional incentives to lend to the private sector: funds made available to banks under the scheme will depend upon eligible lending, similar to the Funding for Lending Scheme in the UK.

In October 2014, the Bank of Japan (BoJ) surprised financial markets by announcing that it would expand its asset purchase programme by about 30 per cent. The programme envisaged an increment of about ¥80 trillion added to the monetary base annually, up from an existing ¥60–70 trillion. In December 2015, the BoJ announced a further modification of its programme of quantitative and qualitative easing (QQE). This involves lengthening of the average maturity of bonds purchased from the beginning of 2016 to 7–12 from 7–10 years; increasing purchases of Japanese real estate investment trusts and also of exchange-traded funds and loosening collateral constraints by allowing foreign currency bonds and housing loans to be eligible. Additionally, at the end of January 2016, the BoJ lowered the interest rate on one tier of bank reserves marginally below zero. The minutes of the January 28–29 policy meeting indicate that more monetary stimulus measures may be introduced throughout the course of the year.

Table A4. Government spending assumptions[a]

	Gov't spending excluding interest payments (% of GDP)			Gov't interest payments (% of GDP)			Deficit projected to fall below 3% of GDP[b]
	2015	2016	2017	2015	2016	2017	
Australia	32.9	32.8	32.2	1.8	1.8	1.6	–
Austria	42.9	43.4	43.0	2.2	1.9	1.6	–
Belgium	43.4	42.8	42.4	2.7	2.2	1.9	2015
Canada	34.5	34.9	34.9	3.1	2.9	2.8	–
Denmark	47.9	48.1	47.4	1.4	1.2	1.0	–
Finland	48.7	48.3	47.6	1.1	0.9	0.8	2016
France	47.4	47.3	47.5	1.8	1.5	1.3	2018
Germany	39.2	39.2	39.3	1.5	1.1	0.9	–
Greece	40.0	42.0	41.5	3.1	3.1	2.9	–
Ireland	25.1	24.1	24.3	3.5	3.3	3.1	2015
Italy	41.2	40.8	39.9	4.5	4.1	3.5	2015
Japan	38.7	38.8	39.1	2.1	1.7	1.4	–
Netherlands	40.5	40.0	39.8	1.3	1.0	0.8	–
Portugal	36.5	36.1	35.9	4.2	3.7	3.5	2019
Spain	40.0	39.2	38.6	3.3	2.9	2.4	2018
Sweden	44.8	44.4	44.5	0.7	0.6	0.6	–
UK	36.3	36.0	35.4	1.7	1.8	1.8	2018
US	31.6	31.5	31.1	3.5	3.4	3.3	2020

Notes: (a) Expenditure shares reflect NiGEM aggregates, which may differ from official government figures. (b) The deficit in Australia, Austria, Canada, Denmark, Germany, Netherlands and Sweden is not expected to exceed 3 per cent of GDP within our forecast horizon. In Greece and Japan the deficit is not expected to fall below 3 per cent of GDP within our forecast horizon.

Figure A3. Corporate bond spreads. Spread between BAA corporate and 10-year government bond yields
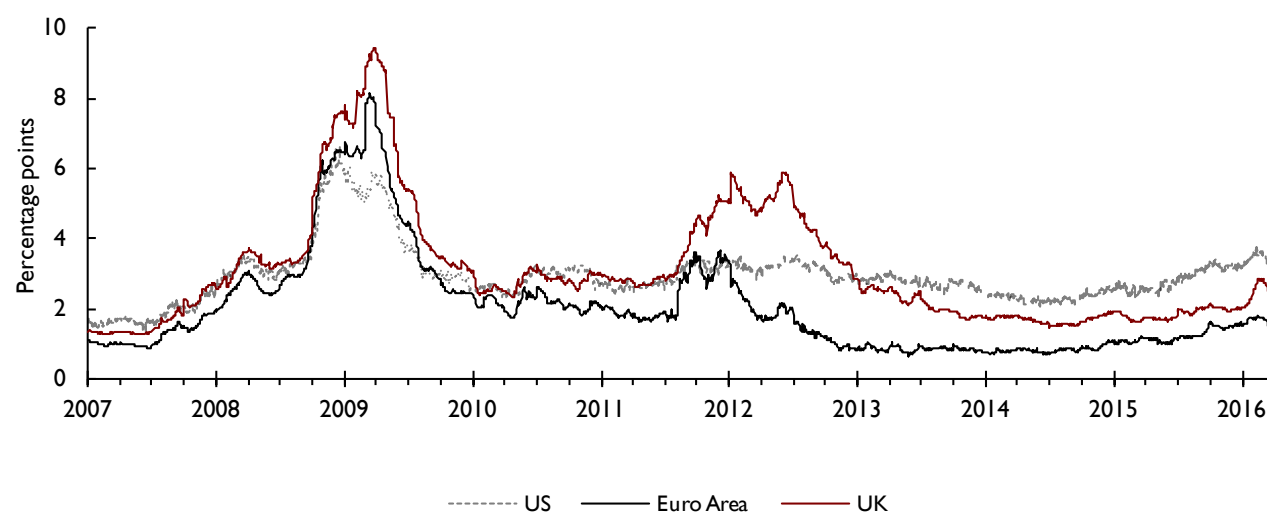

Source: Derived from Datastream series.

Figure A1 illustrates the recent movement in, and our projections for, 10-year government bond yields in the US, Euro Area, the UK and Japan. Convergence in Euro Area bond yields towards those in the US, observed since the start of 2013, reversed at the beginning of 2014. Since February 2014, the margin between Euro Area and US bond yields started to widen, reaching a maximum of about 150 basis points (in absolute terms)

Figure A4. Effective exchange rates
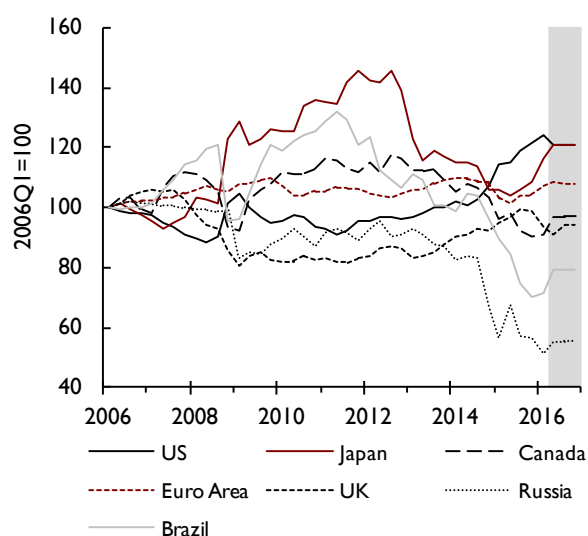
Source: NiGEM database and NIESR forecasts. Weights based on 2010 goods and services trade shares.

Figure A5. Oil prices
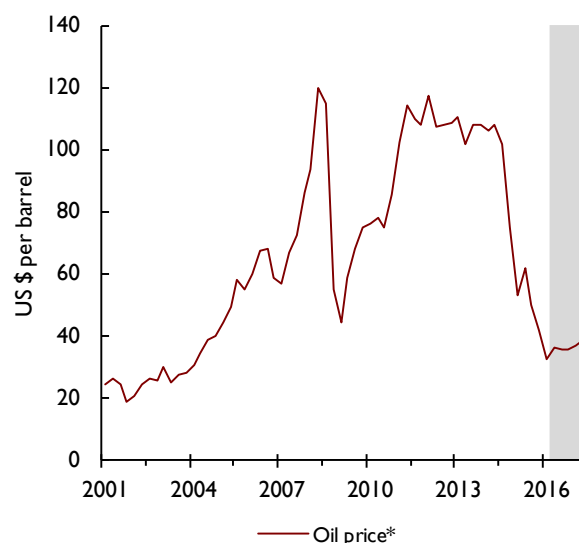
Source: NiGEM database and NIESR forecast.
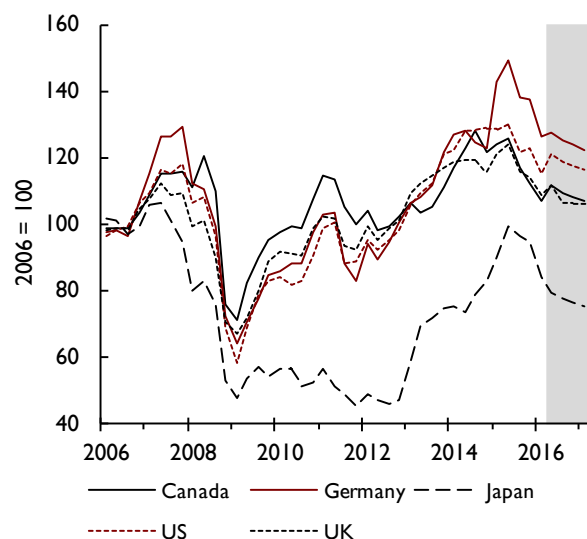Note: *Average of Dubai and Brent spot prices.

at the beginning of March 2015. Since then the margin has narrowed, remaining at around 100 basis points. After reaching extremely low levels at the beginning of 2015, government bond yields in the US, UK and the Euro Area picked up during the summer, but have since reversed some of these gains in yields. Ten-year sovereign bond yields have declined since late January in the US, Euro Area, the UK and Japan – by about 20 basis points in the US and the Euro Area, 25 basis points in the UK and 30 basis points in Japan. Current expectations for bond yields for the end of 2016 are lower, by about 45–50 basis points, compared with expectations formed just three months ago, for the US, Euro Area, the UK, and Japan.

Sovereign risks in the Euro Area have been a major macroeconomic issue for the global economy and financial markets over the past five years. Figure A2 depicts the spread between 10-year government bond yields of Spain, Italy, Portugal, Ireland and Greece over Germany's. The final agreement on Private Sector Involvement in the Greek government debt restructuring in February 2012 and the potential for Outright Money Transactions (OMT) announced by the ECB in August 2012 brought some relief to bond yields in these vulnerable economies. Sovereign spreads have remained stable, in most cases, from late July 2014, the most notable exception being a marked widening of Greek spreads. For Greece this reflected initial uncertainty

over the fiscal stance and probability of debt repayment following the formation of a government dominated by a political party elected on an 'anti-austerity' manifesto in January 2015. The risk of Greece leaving the Euro Area returned to the fore, as a deal on a third bailout for Greece appeared unlikely. In the summer of 2015 a lack of liquidity led to a three-week closure of the domestic banking system, with withdrawal limits imposed upon on Greeks' bank accounts and the imposition of controls on external payments. The dangers relating to the financial difficulties of Greece and the policy programme being negotiated with its European partners subsequently receded. In mid-August last year, it was confirmed that negotiators had reached agreement in principle on a 3-year fiscal and structural reform programme to be supported by €86 billion of financing from the European Stability Mechanism (ESM). Disbursements (including cash and cashless) totalling €21.4 billion were made by the ESM between August and December 2015. However, recently, renewed fears of debt sustainability led to an increase in sovereign spreads in Greece to the levels last seen in the first half of last year.

In Portugal sovereign spreads have started to widen since the end of 2015 and reached highs last seen at the beginning of 2014. A combination of factors, including the 'anti-austerity' stance of the new Socialist government, the surprise decision by the Portuguese central bank to impose losses on bank bonds held by international

Figure A6. Share prices

Source: NiGEM database and NIESR forecast.

assume a vote to remain a member of the EU leading to an immediate unwinding of the risk premium that appeared in the run-up to the referendum. Figure A4 plots the recent history as well as our forecast of the effective exchange rate indices for Brazil, Canada, the Euro Area, Japan, UK, Russia and the US. Since late January 2016, the US dollar has depreciated against all other major currencies except sterling. In trade-weighted terms, this was a reversal of an appreciation trend lasting since 2011. The US dollar's trade-weighted value has fallen by about 3 per cent since the end of the first quarter; nevertheless it was still about 33 per cent above its mid-2011 trough. The dollar's recent reversal may be related partly to downward revisions in expectations about tightening by the Federal Reserve and about the associated widening of interest differentials in favour of dollar-denominated assets. After depreciating significantly between mid-2014 and the first quarter of this year, in effective terms, both the Russian rouble and the Brazilian real have gained, by about 10 and 8 per cent respectively, since the first quarter of 2016. The trade-weighted value of the Canadian dollar has increased by about 7 per cent over the same period after depreciating by about 15 per cent between mid-2014 and the first quarter of 2016.

Our oil price assumptions for the short term are based on those of the US Energy Information Administration (EIA), published on 12 April 2016, and updated with daily spot price data available up to the same date. The EIA use information from forward markets as well as an evaluation of supply conditions, and these are illustrated in figure A5. Global oil prices bottomed out at about $26 a barrel in February 2016 and have since risen to about $40, the highest levels since last November. An initial trigger for the turnaround seems to have been speculation around an announcement in February 2016 that some major oil producers, including Saudi Arabia, might cap production at January 2016 levels, conditional on agreement by other producers. However, a subsequent meeting of oil producing countries, in Doha in April, failed to reach any agreement. Projections from the EIA suggest little further increase in prices in the near term. Overall, current expectations for the position of oil prices at the end of this year have fallen by about 8 per cent, compared to the expectations formed just three months ago, which leaves oil prices more than $70 lower than their nominal level in mid-2014. Oil prices are expected to reach $36 and $48 a barrel by the end of 2016 and 2017 respectively.

investors and a risk of a credit-rating downgrade that may result in the exclusion of government bonds from the ECB's asset-buying programme, led to Portuguese bonds being the worst performers in the Euro Area (after Greece). In our forecast, we have assumed spreads over German bond yields continue to narrow in all Euro Area countries. The implicit assumption underlying the forecast is that the current Euro Area membership composition persists.

Figure A3 reports the spread of corporate bond yields over government bond yields in the US, UK and Euro Area. This acts as a proxy for the margin between private sector and 'risk-free' borrowing costs. Private sector borrowing costs have risen more or less in line with the observed rise in government bond yields from the second half of 2013 till the second half of 2015, illustrated by the stability of these spreads in the US, Euro Area and the UK. However, since late last year corporate bond spreads have widened, reflecting a tightening of financial conditions. Our forecast assumption for corporate spreads is that they gradually converge towards their long-term equilibrium level.

Nominal exchange rates against the US dollar are generally assumed to remain constant at the rate prevailing on 12 April 2016 until the end of December 2016. After that, they follow a backward-looking uncovered-interest parity condition, based on interest rate differentials relative to the US. The exception is the UK, where we

Our equity price assumptions for the US reflect the expected return on capital. Other equity markets are assumed to move in line with the US market, but are

adjusted for different exchange rate movements and shifts in country-specific equity risk premia. Figure A6 illustrates the key equity price assumptions underlying our current forecast. Overall, between 2013 and the second half of 2014, global share prices have performed well, irrespective of a short-lived drop – a reaction to the QE tapering signals emanating from the Federal Reserve in the summer of 2013. However, concerns about weak growth and low inflation seem to have induced a fall in share prices in many countries in the second half of 2014, with the scale of the drop varying significantly between economies. Share prices in many countries rose again in the first half of 2015, especially in the Euro Area economies, partly supported by the wide-scale asset purchase programme introduced by the ECB in March 2015. However, between mid-2015 and the first quarter of 2016, the performance of share prices globally has been disappointing. The triggers for equity price declines seem to have been related to turmoil in the Chinese equity market, with in some cases country-specific issues exacerbating the impact. Since early February 2016 equity markets, generally, have risen. One possible explanation is the partial recovery of oil prices which has reduced the financial pressures on oil-producing companies and countries, including indebted ones, and also on their lenders. The recent decline in bond yields may have been another factor boosting equities.

Fiscal policy assumptions for 2016 follow announced policies as of 8 April 2016. Average personal sector tax rates and effective corporate tax rate assumptions underlying the projections are reported in table A3, while table A4 lists assumptions for government spending. Government spending is expected to decline as a share of GDP between 2015 and 2016 in the majority of Euro Area countries reported in the table. Pressure continues to mount for a loosening of fiscal policy to support demand. Calls for infrastructure investment, which supports demand in the near term and potential growth in the longer term is where these calls are particularly focused (IMF, 2016 and OECD, 2016). A policy loosening relative to our current assumptions poses an upside risk to the short-term outlook in Europe. For a discussion of fiscal multipliers and the impact of fiscal policy on the macroeconomy based on NiGEM simulations, see Barrell *et al.* (2012).

NOTES

1   With the exception of Chile, Iceland and Israel.
2   Interest rate assumptions are based on information available for the period to 13 April 2016.

REFERENCE

Barrell, R., Holland, D. and Hurst, I. (2012), 'Fiscal multipliers and prospects for consolidation', *OECD Journal: Economic Studies*, pp. 71–102.
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