

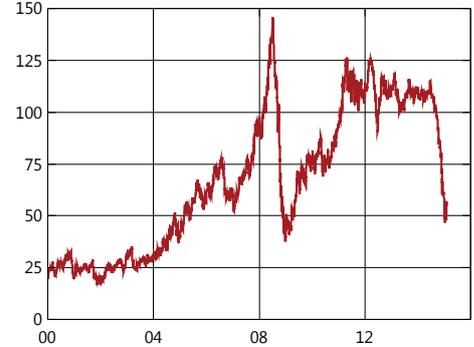
## ■ Effects of the falling oil price on the global economy

Prices on the world market for oil have fallen rapidly since the summer of 2014. Measured in US dollars, the price has fallen by approximately 50 per cent since June. The falling oil prices are largely deemed to be an effect of the increased supply of oil, but slightly worsened global growth prospects are also deemed to have played a part. Forward pricing indicates that prices in the years ahead will not return to recent years' levels. This article discusses how the falling oil prices may affect the development of the global economy and inflation. Lower oil prices dampen inflation both directly when the price of oil-related products falls and indirectly when production costs for other goods fall. The effects are different for oil-producing countries and oil-importing countries. A fall in oil prices will have a greater effect if the lower prices are permanent, as companies and consumers will then change their behaviour more than they would if the fall in the prices was only temporary. The reaction of central banks' monetary policy to a fall in oil prices depends greatly on how inflation and inflation expectations are affected.

### Falling oil prices since the summer

Prices on the world market for crude oil, using the Brent benchmark, had been around 115 US dollars per barrel for several years prior to mid-June, but have, since then, rapidly fallen and oil is now traded at levels just under 60 dollars per barrel (see Figure A5). The price of oil has thus fallen by approximately 50 per cent. Expressed as the number of dollars per barrel, this is the second largest fall over a twelve-month period in the last 50 years. The largest fall occurred in conjunction with the financial crisis of 2008–2009, when demand in the global economy fell rapidly. This time, the price decrease is largely deemed to be an effect of the increased global supply of oil (see Figure A6). The production of North American shale oil has increased sharply in recent years. This lies behind the heavy increase of total oil production in the United States and Canada. Russia, Iraq and Libya have also increased production since the summer (see Figure A7 and A8). Unlike in previous price falls, the oil cartel OPEC has not decreased production to maintain prices. Instead, OPEC has also increased production. An expected decrease in demand for oil due to lowered expectations for global GDP growth has also contributed to the price fall. GDP growth in China has fallen and is weak in Europe. Nevertheless, the increase in supply is deemed to explain the greater part of the price fall, and this conclusion is shared by most studies. According to Arezki and Blanchard (2014)<sup>26</sup>, 65–80 per cent of the fall in oil prices until December last year can be explained by increased supply.

**Figure A5. Oil price**  
USD per barrel



Note: Brent oil.  
Source: Macrobond

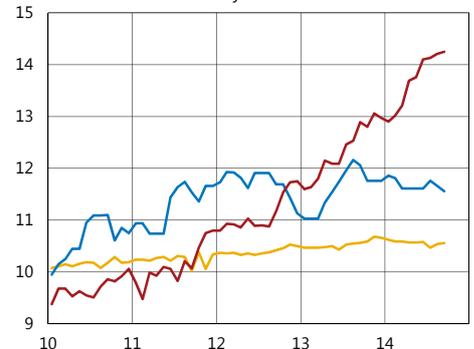
**Figure A6. Oil production**  
Index, 2010 = 100



— Global  
— OPEC  
— Non-OPEC

Sources: U.S. Energy Information Administration and the Riksbank

**Figure A7. Oil production**  
Millions of barrels a day



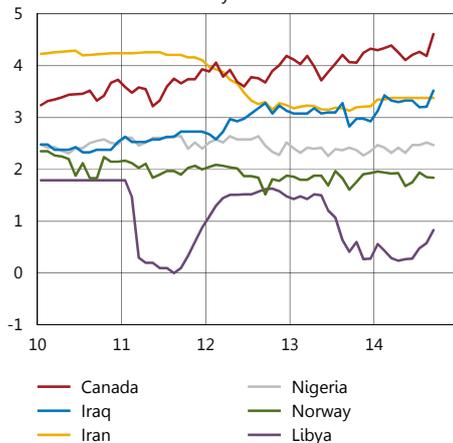
— USA  
— Saudi Arabia  
— Russia

Source: U.S. Energy Information Administration

<sup>26</sup> Arezki, R. and O. Blanchard (2014), "Seven Questions about the Recent Oil Price Slump," *IMFdirect Blog*, 22 December 2014.

**Figure A8. Oil production**

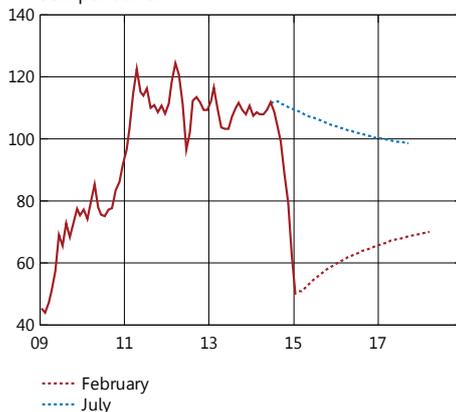
Millions of barrels a day



Source: U.S. Energy Information Administration

**Figure A9. Oil price and futures prices**

USD per barrel



Note. Brent oil. Futures are calculated as a 15-day average. Outcomes represent monthly averages of spot prices.

Sources: Macrobond and the Riksbank

### Is the low oil price here to stay?

Whether the low oil price will be permanent or not is a decisive factor for the effects the fall in oil prices may have on the development of the global economy. The Riksbank's forecasts of the oil price are based on forward pricing of Brent crude oil. According to the oil forwards, a cautious increase in oil prices from the current level of just over 50 dollars per barrel to about 70 dollars per barrel can be predicted for the start of 2018 (see Figure A9). The forward pricing thus indicates that the price of oil will rise, but to a level significantly lower than has been experienced in recent years. Naturally, there is considerable uncertainty about this forecast. How permanent the low oil price will be largely depends on how OPEC's production is affected. If OPEC reduces oil production, the price of oil will probably rise. A low oil price would probably also lead to lower investments in oil production, including North American shale oil production, which would, in turn, reduce production capacity and thus the supply of oil. Other factors that could influence the price of oil via reduced supply are the geopolitical turbulence in Libya and Iraq, for example, and uncertainty linked to the conflict between Russia and Ukraine.

### Effects of the lower oil price on the global economy

If the low oil price is expected to be long-lasting, the economy will be affected more strongly than if the price decrease is expected to be temporary, as companies and consumers react more strongly to a permanently lower oil price. But the effect of the lower oil price on the development of the global economy depends not only on whether the low price is expected to be temporary or persistent but also on the causes of the oil price fall. A price fall due to reduced demand for oil will not have the same positive effects on the global economy as a price fall due to an increased supply of oil. This is because a demand-driven price fall is symptomatic of worsened growth prospects. Various studies clearly show this (see Table A1). The extent of the effects also depends on how countries adjust their fiscal and monetary policies in response to the fall in prices.

**Table A1. Effects on the level of GDP and inflation of an oil price fall of 10 per cent**  
Per cent

	USA	Euro area
<b>GDP</b>		
Barell and Pomerantz (2004)	0.16	0.13
Carabenciov et al (2008)	0.20	0.06
Cashin et al (2014)*	0.08	0.08
Cashin et al (2014)**	-0.08	-0.05
EC (2008)		0.06
Hervé et al (2010)	0.31	0.20
Jimenez-Rodriguez and Sanchez (2004)	0.40	0.01
Kilian and Vigfusson (2014)	0.20	
Peersman and Van Robays (2011)*	0.44	0.08
Peersman and Van Robays (2011)**	-0.50	-0.54
<b>Inflation</b>		
Barell and Pomerantz (2004)	-0.17	-0.10
Carabenciov et al (2008)	-0.27	-0.16
Cashin et al (2014)*	-0.01	-0.04
Cashin et al (2014)**	-0.03	-0.06
EC (2008)		-0.13
Hervé et al (2010)	-0.41	-0.31

Note. Effects are scaled to correspond to an oil price fall of 10 per cent. \*Refers to supply shock.  
\*\*Refers to demand shock.

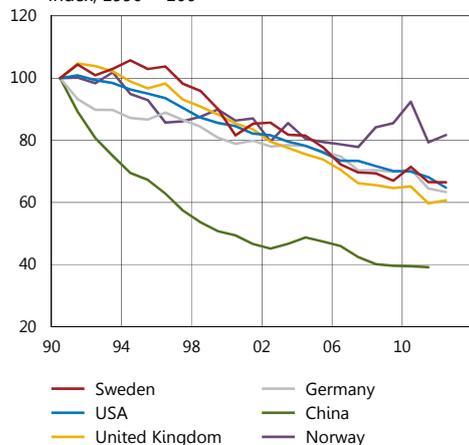
Sources: See footnote 27.

### *GDP effects*

As the fall in oil prices since the summer is deemed largely to be due to an increased supply of oil, it is assumed it will have positive effects on the development of the global economy as a whole. However, the effects will vary greatly from country to country, depending on whether these are net importers or net exporters of oil. Historical correlations indicate that the fall in oil prices since the summer would increase the global level of GDP by almost 1 per cent in a few years' time, assuming that the price remains on today's level.<sup>28</sup> However, several studies indicate that the effects of oil price fluctuations on the development of the economy have

<sup>27</sup> Barrell, R. and O. Pomerantz (2004): "Oil prices and the world economy", NIESR Discussion Paper, no. 242. Carabenciov, I., I. Ermolaev, C. Freedman, M. Juillard, O. Kamenik, D. Korshunov, D. Laxton and J. Laxton (2008): "A Small Quarterly Multi-country projection Model with Financial-real Linkage and Oil Prices", IMF Working Papers 08/280. Cashin, P., K. Mohaddes, M. Raissi and M. Raissi (2014): "The differential effects of oil demand and supply shocks on the global economy", Energy Economics, vol. 44, no. 1, pp. 113–34. European Commission (2008): "Recent economic developments and short-term prospects", Quarterly Report on the Euro Area, no. 7. Hervé, K., N. Pain, P. Richardson, F. Sédillot, and P. Befy (2010): "The OECD's new global model", Economic Modelling, vol. 28, pp. 589–601. Jiménez-Rodriguez, R. and M. Sánchez (2004): "Oil price shocks and real GDP growth: Empirical evidence for some OECD countries", European Central Bank Working Papers, no. 362. Kilian, L. and R.J. Vigfusson (2011): "Are the responses of the U.S. economy asymmetric in energy price increases and decreases?", Quantitative Economics, vol. 2, no. 3, pp. 419–53. Peersman, G. and I. Van Robays (2012): "Cross-country differences in the effects of oil shocks", Energy Economics, vol. 34, no. 5, pp. 1532–47.  
<sup>28</sup> Based on calculations in World Bank (2015), "Global Economic Perspectives – Having Fiscal Space and Using It". A World Bank Group Flagship Report, January 2015.

**Figure A10. Energy Intensity**  
Index, 1990 = 100



Note. Energy intensity is calculated as use of energy in relation to GDP.

Sources: The World Bank and the Riksbank

decreased over time.<sup>29</sup> For example, the energy intensity of the global economy has decreased significantly in recent decades (see Figure A10). This means that earlier estimates of the effects of oil price fluctuations on growth should be interpreted with caution.

The great majority of countries, including Sweden, are net importers of oil (see Table A2). In oil-importing countries, the effect of falling oil prices on GDP growth is overwhelmingly positive. Households' scope for consumption increases and companies' production and transportation costs decrease, which normally leads to higher profits, investments and new recruitments. The assessment of this Monetary Policy Report is that a long-lasting decline of 10 per cent in the price of oil will make Sweden's GDP level at the end of the forecast period 0.1 per cent higher (see chapter 2, "Alternative scenarios and risks"). This assessment is in line with regression results for the euro area (see Table A1). The effects on household consumption and on profits and investments partly depend on how energy-intensive the economies are. China, India and Indonesia have more energy-intensive economies than developed economies and therefore gain greater benefits from lower oil prices. Some countries, such as India and China, have already taken advantage of the lower oil prices to reduce their domestic oil subsidies and increase oil-related taxes to improve their public finances.

In contrast, among the net exporters such as Saudi Arabia, Russia and Norway, GDP growth is dampening as export revenues are falling. The tendency among certain oil-producing countries to compensate for the decreased prices by producing and exporting more so as not to lose too much export revenue has probably contributed towards further price decreases in recent months. Countries exporting oil are generally more dependent on the price of oil than countries importing oil. The negative effects on the economy may thus be significant for several oil-exporting countries.

<sup>29</sup> See, for example Blanchard, O. and J. Gali (2008): "The Macroeconomic Effects of Oil Shocks: Why are the 2000s so Different from the 1970s?," *CEPR Discussion Papers 6631*, Hamilton, D. (2005): "Oil and the Macroeconomy," in *The New Palgrave Dictionary of Economics*, eds. Durlauf, S. and L. Blume, (London: MacMillan, 2006, 2nd ed), and Kiltian, L. (2014): "Oil Price Shocks: Causes and Consequences," *Annual Review of Resource Economics, Annual Reviews*, vol. 6(1): 133-154.

**Table A2. Net exports of oil 2014**  
Per cent of GDP

Country	Net exports	Country	Net exports
Russia	12.91	Sweden	-1.99
Norway	9.45	Italy	-2.04
Canada	3.52	Germany	-2.15
Mexico	0.57	China	-2.19
Denmark	0.38	Spain	-3.74
United Kingdom	-1.00	Poland	-4.09
France	-1.50	Japan	-4.19
Brazil	-1.56	Czech Republic	-4.86
USA	-1.68	India	-4.99
Finland	-1.85		

Note. Based on estimates from IMF World Economic Outlook, October 2014.  
Sources: The IMF and the Riksbank.

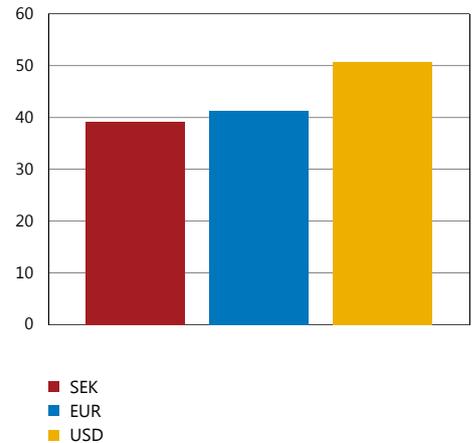
*Effects on inflation*

Lower oil prices lead to lower global inflation. In the assessment of the World Bank (2015), global inflation would fall by 0.4–0.9 percentage points over 2015 as a result of a fall in oil prices of 30 per cent. However, the effects vary from country to country depending on factors such as the weight oil products have in the CPI basket, the effects of the oil price on wages and other prices, exchange rate developments, how much freedom of action monetary policy has and the structure of oil-related taxes and subsidies.

The fall in the price of oil will have a greater direct effect on inflation in countries in which oil-related products form a large part of the CPI basket. The size of the indirect effects, which is to say how much other prices and wages are affected by a fall in the price of oil, also varies from country to country. The level of oil-related taxes also affects how great the impact will be on consumer prices. For example, the impact on petrol prices is significantly greater in the United States than in the euro area and Sweden, due to the United States' lower volume-based specific taxes on petrol which are independent of the price. Expressed in a common currency, for example, Swedish krona per litre, the difference is large.<sup>30</sup> This means that the part of the petrol price affected by market prices for oil is significantly greater in the United States than in Europe. In the euro area, Japan and Sweden, the fall in oil prices measured in dollars has also been counteracted by a currency depreciation against the US dollar, which has dampened the price fall in domestic currency (see Figure A11). For Sweden, the direct effects of the fall in the price of oil are assessed to contribute towards lowering CPI inflation by 0.4 percentage points in 2015 (see Figure A12). This calculation is based on an average fall of 45 per cent in the future price of oil expressed in dollars this year against 2014. This is equivalent to 34 per cent expressed in Swedish krona. The

<sup>30</sup> In the United States, the volume-based specific tax on petrol corresponds to just less than one krona per litre. In Europe, it is about six Swedish krona per litre.

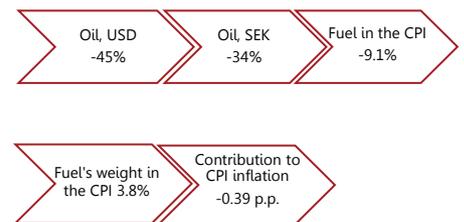
**Figure A11. Oil price fall in different currencies**  
Per cent



Note. The change refers to the difference between the end of June 2014 and the start of February 2015.

Sources: Macrobond and the Riksbank

**Figure A12. Oil price path to consumer prices in Sweden from 2014 to 2015, direct effects**  
Annual percentage change and percentage points



Note. Alongside fuel such as petrol and diesel, the price of oil also has a certain effect on domestic heating oil. However, this product has a very marginal weight in the CPI.

Sources: Macrobond, Statistics Sweden and the Riksbank

weight of fuels in the CPI at almost 4 per cent, the effect on the total CPI will be -0.4 percentage points.

### **Effects on monetary policy**

In normal cases, a fall in oil prices mostly due to increased supply should not lead to any long-lasting effects on inflation. In such a scenario, the monetary policy response should be fairly cautious in many cases. This is partly because the decrease in inflation is strongly expected to be temporary and partly because the effects on the real economy are positive, which could increase inflationary pressures. However, at present, the situation is complicated in many economies by the fact that inflation is already very low to start with. When inflation is far below target, central banks' tolerance for further negative inflation impulses can be low. In addition, there may be an elevated risk for household and corporate inflation expectations to fall as a result of the fall in oil prices. Such a scenario may give monetary policy reason to react more forcefully (see the analysis in chapter 2 "Alternative scenarios and risks").