Independent Statistics & Analysis
U.S. Energy Information Administration

The Availability and Price of Petroleum and Petroleum Products Produced in Countries Other Than Iran

The fifth in a series of reports required by section 1245 (d) (4) (A) of the National Defense Authorization Act for Fiscal Year 2012

October 25, 2012

Independent Statistics & Analysis
www.eia.gov

U.S. Department of Energy
Washington, DC 20585

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- In September and October 2012, estimated global liquid fuels consumption slightly exceeded production, resulting in a 0.6 million barrels per day (bbl/d) draw in global oil stocks. However, these 60-day averages mask divergences between the two months, as preliminary estimates suggest that global stock withdrawals in September have been followed by stock builds in October. The front month Brent futures contract averaged about $111 per barrel for the five-day period ending October 23, nearly $4 per barrel lower than levels on August 20–24.

- September marked the end of the driving season in the United States, reduced demand for oil-fired electricity generation in the Middle East, and a change in seasonal factors in Europe. As a result, global consumption declined month-over-month by an estimated 0.9 million bbl/d in October, even though preliminary data suggest that U.S. consumption increased as the heating season commenced **(Table 2)**.

- Production from member states of the Organization of the Petroleum Exporting Countries (OPEC) has increased over the past year, especially in Libya and Iraq, while Saudi Arabia continues to produce at high levels **(Table 4)**. Non-OPEC production in September and October 2012 is estimated to be 0.4 million bbl/d above last year's level, led by North America, particularly the tight oil plays of the United States **(Table 3)**. While total unplanned production outages in some non-OPEC countries remain higher than normal, they declined in October after production capacity was restored in the U.S. Gulf of Mexico following disruptions related to the late August landfall of Hurricane Isaac **(Figure 2)**.

- Global surplus capacity remains relatively tight by historical standards, and is estimated at 2.0 million bbl/d over the last two months **(Table 1)**. EIA revised surplus capacity estimates for July and August from an average of 2.4 million bbl/d to 1.8 million bbl/d due to upward revisions to production in Saudi Arabia and United Arab Emirates. These estimates do not include additional capacity that may be available in Iran, but which is currently offline due to the impacts of U.S. and European Union (EU) sanctions on Iran's ability to sell its oil.

- Crude oil prices moved in a relatively narrow range during September and October, in contrast to the previous two reports, when prices fell substantially during May and June, then rose in July and August **(Figure 3)**. Backwardation in the Brent market was relatively unchanged, indicating a similar tightness in the near-term market compared to two months ago. Over the five days ending on October 23, the spread on the Brent 1st – 13th month contracts averaged about $6.02 per barrel, only slightly higher than the $5.86 per barrel for the five-day period ending August 24.

This is the fifth in a series of reports prepared in fulfillment of section 1245(d)(4)(A) of the National Defense Authorization Act (NDAA) for Fiscal Year 2012, as amended, which requires the U.S. Energy Information Administration (EIA) to submit to Congress a report on the availability and price of petroleum and petroleum products produced in countries other than Iran in the two-month period preceding the submission of the report. EIA consulted with the U.S. Department of the Treasury, the U.S. Department of State, and the intelligence community in the process of developing this report. Readers are encouraged to consult previous editions of this report for detailed background and contextual information not repeated here.

Estimates of Production, Consumption, Surplus Capacity, and Inventories

EIA estimates that global liquid fuels[1] production in September and October 2012 averaged 89.0 million bbl/d, an increase of 1.8 million bbl/d[2] from the same time period last year. Global liquid fuels consumption exceeded production slightly, resulting in a 0.6 million bbl/d draw in global oil stocks in September and October 2012 **(Table 1 and Figure 1)**. Oil inventories in the United States fell by an average of 0.2 million bbl/d in September and October. Commercial inventories in other member states of the Organization for Economic Cooperation and Development (OECD) declined by an average of 0.1 million bbl/d over the same time period **(Table 2)**. However, these 60-day averages mask divergences between two months, as the global supply-demand balance loosened in October despite stock withdrawals in the United States.

Global oil production increased by 0.8 million bbl/d in October compared to September. Production returned in some areas, including Canada, which had been undergoing regular maintenance. Furthermore, a number of unplanned outages eased in October, including the shut-in production volumes in the Gulf of Mexico in the wake of Hurricane Isaac. Hurricane Isaac led to a peak shut-in of 1.3 million bbl/d of U.S. production in the Gulf of Mexico, and average disruption volumes of 210 thousand bbl/d in August and September.

Total consumption decreased month-over-month by an estimated 0.9 million bbl/d in October, mainly due to estimated falls in consumption in Europe by 0.4 million bbl/d, China by 0.2 million bbl/d, and other non-OECD countries by 0.4 million bb/d. The consumption decline in Europe and non-OECD countries are mainly due to seasonal factors. The Middle East accounted for a majority of the consumption decline in non-OECD countries, as demand for oil-fired electricity generation waned as cooling needs fell along with temperatures. China has been experiencing a slowing of its economic growth rate, which likely contributed to its decrease in consumption.

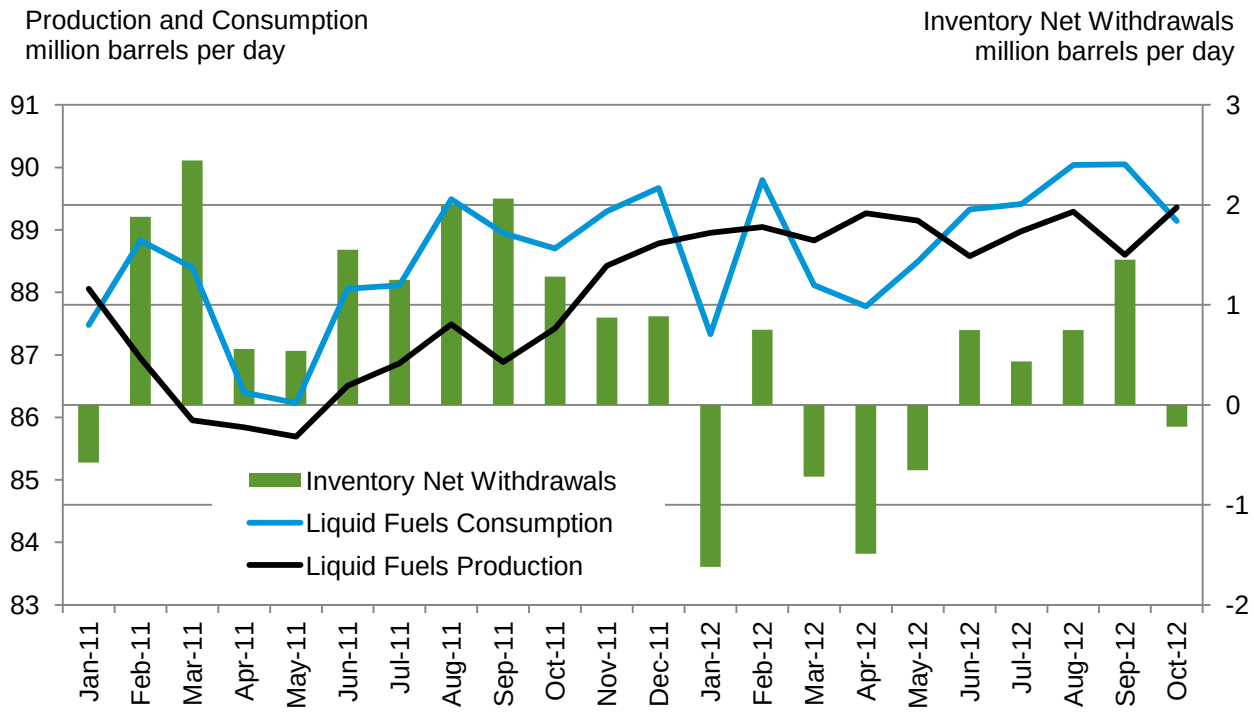
In the United States, October is typically the time when attention shifts from transportation to heating fuels. In contrast to estimates of falling consumption in other markets, preliminary estimates suggest that U.S. consumption slightly increased month-over-month by 0.2 million bbl/d in October, after dropping by 0.6 million bbl/d between August and September. Historically, September represents a trough in the seasonal patterns of U.S. oil consumption, as the summer driving season ends and mild temperatures limit heating oil demand, which becomes more pronounced in October.

Going into the heating oil season, global distillate markets are relatively tight, as reflected in both futures market prices and inventory levels in the United States. While U.S. distillate production is high, the global supply-demand balance for distillate fuels has created a price structure that has not encouraged inventory builds, as prices for future delivery are below current prices. The low distillate inventories could contribute to heating oil price volatility this winter. In addition, outages at several major refineries, notably Petroleos de Venezuela's Amuay Refinery, Shell Oil's Pernis Refinery in the Netherlands, and Irving Oil's Saint John Refinery in Canada, have added to market pressures in the Atlantic Basin.

[1] The term “liquid fuels” encompasses petroleum and petroleum products and close substitutes, including crude oil, lease condensate, natural gas plant liquids, biofuels, coal-to-liquids, gas-to-liquids, and refinery processing gains.

[2] The growth rates referenced here, and throughout the report, may not exactly match corresponding values in the tables due to slight differences in rounding.

Figure 1. World Liquid Fuels Production and Consumption and Net Inventory Withdrawals, January 2011-October 2012



Source: U.S. Energy Information Administration.

In September and October 2012, EIA estimates that consumption of petroleum and petroleum products in countries other than Iran averaged 86.1 million bbl/d. During the same period, EIA estimates that production of petroleum and petroleum products in countries other than Iran averaged 83.7 million bbl/d, which is 3.7 million bbl/d or almost 5 percent higher than the three-year annual average from 2009-2011 **(Table 1)**. The increase in global production compared with the three-year average can be attributed largely to a combination of increased output from some OPEC members and continued growth in North American oil supply. For example, average total liquid fuels supply in September and October 2012 in the United States is up by 1.3 million bbl/d, or almost 14 percent, from the three-year annual average from 2009-2011. Tables 3 and 4 provide further country-level reporting on supply estimates.

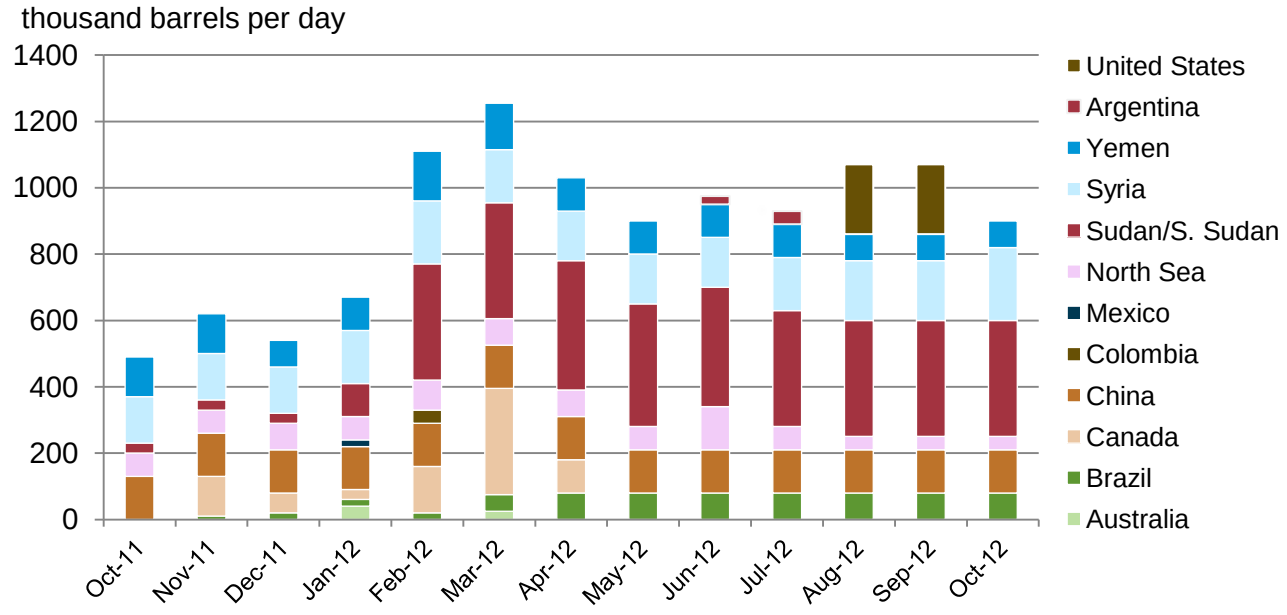
Most of the growth in OPEC supply in 2012 relative to last year derives from Iraq, Libya, and Saudi Arabia, with smaller growth in Kuwait and United Arab Emirates. Iraq's estimated average production level of 3.2 million bbl/d in September and October showed an increase over the preceding two months, boosted by new infrastructure and arrangements that have facilitated increased exports from its large southern fields and the area controlled by the Kurdistan Regional Government. Libyan crude oil production rose to approximately 1.5 million bbl/d in September and October from an average of 1.4 million bbl/d in July and August, slowly approaching the pre-crisis level of 1.65 million bbl/d even as the attacks on American personnel in Benghazi served as a tragic reminder that insecurity continues to plague the country. Meanwhile, Saudi Arabia continued to produce at relatively high levels, about 1.0

million bbl/d more than its three-year average **(Table 4)**. Nigerian oil production declined to about 2.1 million bbl/d in September and October from an average of 2.2 million bbl/d in July and August. Production declined in September due to maintenance-related outages, and remained relatively flat in October as flooding affected some onshore production.

Non-OPEC liquids production in September and October 2012 is estimated to be 0.4 million bbl/d above last year's level. The United States is the largest source of non-OPEC liquids production growth over the past year and the largest source of liquids production growth relative to the recent three-year average for any country. Due to the continued production growth in onshore tight oil plays, U.S. crude oil production averaged 6.5 million bbl/d in September and October, as total liquids production reached 11.0 million bbl/d. Many of the other countries that are producing above three-year averages are also located in the Western Hemisphere, including Canada, Brazil, and Colombia. Russia and China also produced above their three-year levels, although the increases in these two countries were relatively smaller at about 0.2 million bbl/d **(Table 3)**.

Unplanned non-OPEC disruptions declined slightly over the last month, from an average of about 1.1 million bbl/d in both August and September to 0.9 million bbl/d in October. This is mainly due to the return of U.S. production in the Gulf of Mexico, which was temporarily affected by Hurricane Isaac in August and September **(Figure 2)**. An above-normal volume of non-OPEC production is offline due to unrest and an embargo in Syria. The situation in Syria continues to deteriorate and its impact on oil prices arguably transcend disrupted volumes in that country as concerns grow about the risk of regional spillover effects from the conflict. Production in South Sudan is still completely offline, though the government has recently ordered oil companies to restart production, shortly after reaching an agreement with Sudan on oil export fees and security arrangements. However, some post-independence issues such as border demarcation, rights to the disputed Abyei region, and claims for compensation of seized assets still remain unresolved.

Figure 2. Estimated Unplanned Production Disruptions Among non-OPEC Producers, October 2011 – October 2012



Source: U.S. Energy Information Administration.

EIA estimates that global surplus crude oil production capacity was 2.0 million bbl/d in September and October **(Table 1).** This estimate does not include additional capacity that may be available in Iran, but which is currently offline due to the impacts of U.S. and EU sanctions on Iran's ability to sell its oil. The current level of surplus capacity is quite modest by historical standards (e.g., 3.6 million bbl/d average from 2009 to 2011 and 2.7 million bbl/d average in September and October 2011), especially when measured as a percentage of global oil production and consumption. Surplus capacity must also be considered in the context of current geopolitical uncertainties, including, but not limited to, the situation in Iran.

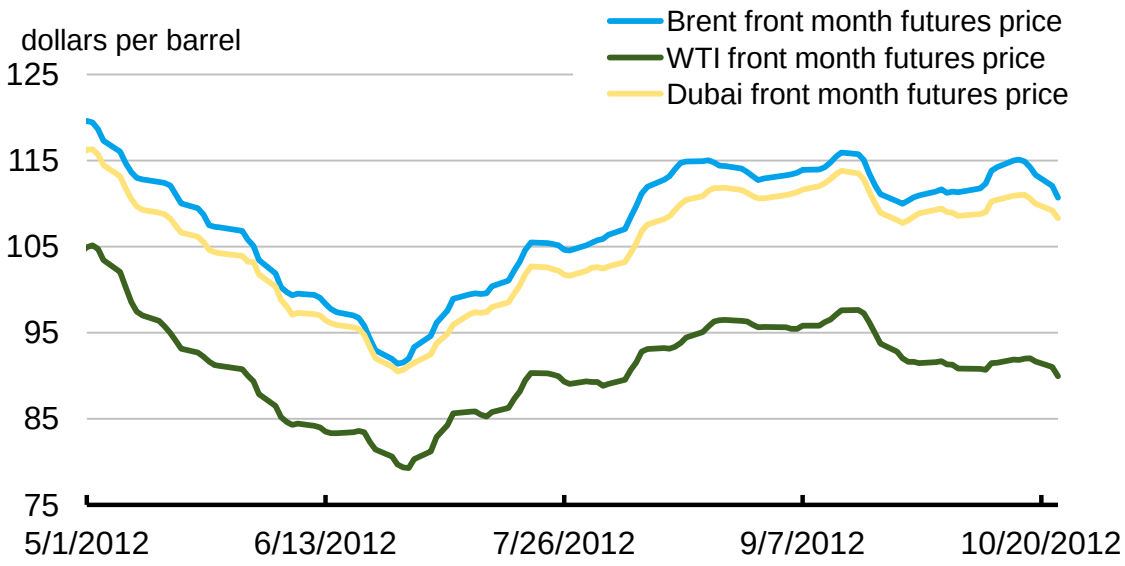
During September and October, EIA estimates that liquid fuels production and consumption in Iran were 3.2 million bbl/d and 1.7 million bbl/d, respectively **(Table 1)**. The difference between the preliminary estimates of Iran's liquid production and consumption levels includes Iran's implied net exports of crude oil, condensate, petroleum products, and natural gas liquids, as well as volumes slated for onshore and floating storage. Iran's crude oil production capacity has eroded in recent years, due to its inability to carry out investment projects that are necessary to offset the natural decline in production from existing wells. Iranian crude oil production continued to decline in September and October, albeit at a slower pace than this past summer when month-over-month declines reached their highest levels around the entry into force of U.S. and EU sanctions. EIA estimates that Iran's total liquids production has fallen to about 3.2 million bbl/d in September and October 2012 compared with the year-ago average of 4.2 million bbl/d.

A number of recently published reports indicate that Iranian crude oil exports experienced precipitous declines in July, due to the enforcement of the latest round of U.S. and EU sanctions, although Iran's difficulties in exporting its oil seemed to have eased somewhat in September and October. While countries in the EU appear to have ceased imports of Iranian crude oil, the reinsurance ban imposed by the EU affected Iran's ability to sell its crude to some of its largest customers in Asia, including Japan and South Korea. Most of Iran's crude oil customers have been able to replace insurance coverage, once provided by European protection and indemnity (P&I) clubs, over the last two months. Preliminary data show a very small increase in global imports of Iranian crude oil since July. EIA bases this assessment on preliminary commercial data on tanker liftings from Iran, press reports, and other relevant information. This tentative interpretation of a very fluid situation could change as data are revised and more details emerge.

Crude Oil and Petroleum Product Prices

In contrast to data on petroleum and petroleum product volumes, price data is available on a real-time or near-real-time basis.[3] Over the last 60 days, crude oil prices have declined **(Figure 3)**. For the five days ending on October 23, the price of the front-month futures contract for Brent crude from the North Sea, a proxy for the global oil price, averaged $110.69 per barrel, a $3.68 per barrel decrease from its average over the August 20–24 period when the last report was released.

Figure 3. Front Month Crude Oil Futures Prices



Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME), Intercontinental Exchange (ICE) and Dubai Mercantile Exchange (DME).

Despite the recent price declines, crude oil prices are currently higher than their year-ago averages. The average price for September and October of the front month West Texas Intermediate (WTI) contract was $92.77 per barrel and the two-month average for the Brent front month contract was $112.68 per barrel **(Table 5)**. The September and October average prices were $6.76 and $3.32 per barrel higher than at this time a year ago for WTI and Brent and $13.83 and $28.04 per barrel higher than the three-year average from 2009 to 2011, respectively.

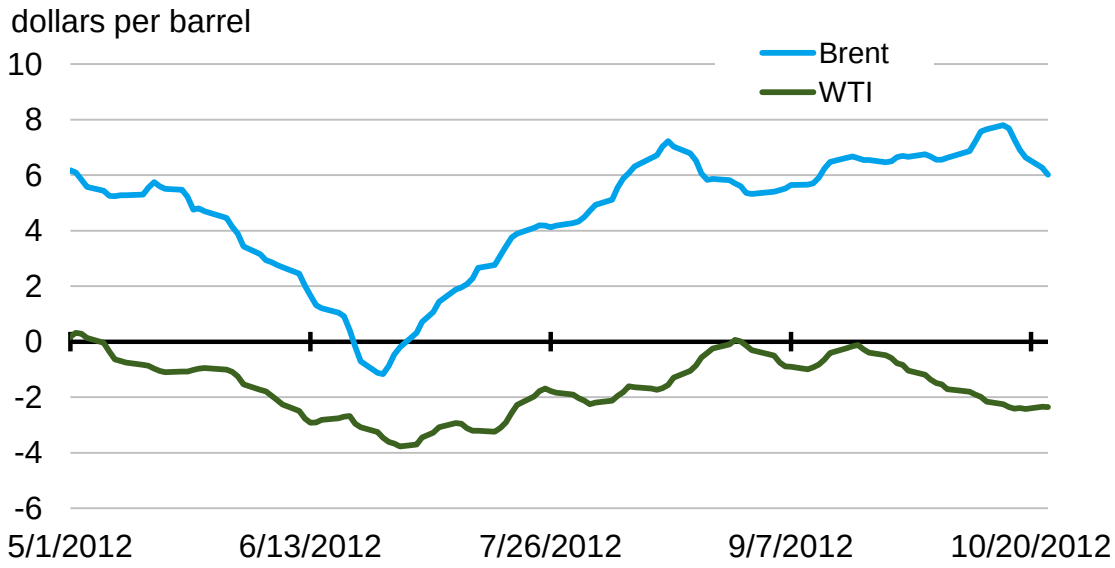
The Brent market has remained in backwardation, with prompt month prices above prices for future delivery, during all of September and October. For the five-days ending October 23, the 1st – 13th month spread averaged slightly above $6 per barrel, well above the 2012 lows of -$1.17 for the five-day period ending June 26 and a slight increase from the five-day period ending on August 24. One possible contributor to the recent backwardation in the Brent market may be related to the reduced shipping volumes of crude oil out of the North Sea. September showed the lowest amount of crude oil loadings from the North Sea in over five years and there are reports that some of the maintenance and production issues have carried over into October as well. With those reduced volumes, front month

[3] The price data in this report are current as of October 23, 2012. In order to make it more understandable, and to respect contractual restrictions on EIA republication of certain data, most price data are reported using 5-day rolling or monthly averages and some are reported only in the figures.

prices increased relative to prices further out on the futures curve to incentivize selling out of inventories.

The WTI 1st – 13th month spread has remained in contango, averaging -$1.35 per barrel in September and October, but this is a much smaller spread than the three-year average of -$5.59 per barrel from 2009 through 2011. WTI prices continue to reflect transportation bottlenecks in the midcontinent region with crude oil inventories at Cushing, Oklahoma, the delivery point for the WTI futures contract, well above their five-year averages. Efforts to reconfigure existing pipelines and build new ones are ongoing in order to ameliorate the excess of crude oil in the U.S. midcontinent.

Figure 4. Crude Oil 1st - 13th Month Futures Price Spread



Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME) and Intercontinental Exchange (ICE).

For the five days ending October 23, the average price of the January 2013 WTI crude oil futures contract was $90.70 per barrel and the average price of the January 2013 Brent contract was $109.97 per barrel. WTI average prices for the five days ending October 23 for the January 2013 contract have decreased by about $6.95 per barrel since August 24 and Brent prices have decreased by $2.84 per barrel over the same time period. Based on implied volatilities calculated from options and futures prices over the five days ending October 23, the probability of the January 2013 WTI futures contract expiring above $100 per barrel is 19 percent, a decrease of 22 percentage points from the same calculation made using price data from the five-day period ending August 24. Given the higher absolute level of Brent prices relative to WTI prices over the last two months, the probabilities that the January Brent contract will exceed specified dollar thresholds are higher.

Reformulated blendstock for oxygenate blending (RBOB) is a widely traded unfinished gasoline that requires blending with an oxygenate, such as ethanol, before being sold. RBOB prices declined along with crude oil prices over the last two months. Comparing the five-day periods ending August 24, 2012 and October 23, the price of the front month of the NYMEX RBOB contract, which calls for delivery in New York Harbor, decreased from $3.08 per gallon to $2.70 per gallon. Some of this decrease is

attributable to the switchover from summer-grade gasoline to cheaper winter-grade gasoline. During September and October, the average price for the front month RBOB futures contract was $2.92 per gallon, $0.71 per gallon higher than the average front month price over the three-year period from 2009-2011 and $0.22 per gallon above the September and October 2011 average.

The average price of the January 2013 RBOB futures contract for the five-day period ending October 23 was $2.67 per gallon, a decrease of $0.11 per gallon since August 24. Based on implied volatilities calculated from options and futures prices over the five days ending October 23, the probability of the January 2013 RBOB futures contract expiring above $3.35 per gallon (comparable to a $4.00 per gallon national average retail price for regular grade gasoline) is now 4 percent, an 8 percentage point decrease from August 24. The decreased gasoline futures prices were largely responsible for the lower probability of retail gasoline exceeding different price points.

Table 1. Summary of Estimated Liquid Fuels Quantities and Prices

Item	September 2012	October 2012	Sept. - Oct. 2012 Average	Sept. - Oct. 2011 Average	2009 - 2011 Average
Total Global Liquid Fuels					
Total Global Liquid Fuels Production (million bbl/d)	88.6	89.4	89.0	87.2	86.1
Total Global Liquid Fuels Consumption (million bbl/d)	90.0	89.1	89.6	88.8	86.7
Biofuels Production (a) (million bbl/d)	2.1	2.0	2.0	2.0	1.8
Biofuels Consumption (a) (million bbl/d)	1.8	1.8	1.8	1.8	1.7
Iran Liquid Fuels Production (million bbl/d)	3.2	3.2	3.2	4.2	4.2
Iran Liquid Fuels Consumption (million bbl/d)	1.7	1.7	1.7	1.7	1.8
Petroleum and Petroleum Products Produced and Consumed in Countries Other Than Iran					
Production (b) (million bbl/d)	83.2	84.2	83.7	81.0	80.1
Consumption (c) (million bbl/d)	86.6	85.7	86.1	85.3	83.3
Production minus Consumption	-3.3	-1.4	-2.4	-4.4	-3.2
World Inventory Net Withdrawals Including Iran (million bbl/d)	1.5	-0.2	0.6	1.7	0.7
Estimated OECD Inventory Level (d) (million barrels)	2,637	2,633	2,635	2,649	--
Surplus Production Capacity					
OPEC Surplus Crude Oil Production Capacity (e) (million bbl/d)	2.0	2.0	2.0	2.7	3.6
Oil Price Level					
WTI Front Month Futures Price (f) ($ per barrel)	94.56	90.64	92.77	86.01	78.94
Brent Front Month Futures Price (g) ($ per barrel)	113.03	112.26	112.68	109.36	84.64
RBOB Front Month Futures Price (h) ($ per gallon)	3.00	2.83	2.92	2.70	2.21
Oil Price Time Spread					
WTI 1st - 13th Month Futures Spread ($ per barrel)	-0.69	-2.13	-1.35	-1.93	-5.59
Brent 1st - 13th Month Futures Spread ($ per barrel)	6.35	6.83	6.57	5.81	-3.23

Note: The term "liquid fuels" encompasses crude oil, lease condensate, natural gas plant liquids, biofuels, coal-to-liquids, gas-to-liquids, and refinery processing gains, which are important to consider in concert due to the inter-related supply, demand, and price dynamics of petroleum, petroleum products, and related fuels.
(a) Biofuels production and consumption are based on EIA estimates for 2010 as published in the International Energy Statistics. Biofuels production in July to September tends to be at its highest level in the year since ethanol production in Brazil reaches its seasonal peak in the third quarter.
(b) Production includes crude oil (including lease condensates), natural gas plant liquids, other liquids, and refinery processing gains.
(c) Consumption of petroleum by the OECD countries is synonymous with "products supplied," defined in the glossary of the EIA Petroleum Supply Monthly, DOE/EIA-0109. Consumption of petroleum by the non-OECD countries is "apparent consumption," which includes internal consumption, refinery fuel and loss, and bunkering.
(d) Estimated inventory level is for OECD only.
(e) EIA defines surplus oil production capacity as potential oil production that could be brought online within 30 days and sustained for at least 90 days, consistent with sound business practices. This does not include oil production increases that could not be sustained without degrading the future production capacity of a field. It also does not include additional capacity that may be available in Iran, but which is currently offline due to the impacts of U.S. and EU sanctions on Iran's ability to sell its oil.
(f)WTI refers to West Texas Intermediate crude oil traded on the Chicago Mercantile Exchange (CME).
(g) Brent refers to Brent crude oil traded on the Intercontinental Exchange (ICE).
(h) RBOB refers to reformulated blendstock for oxygenate blending traded on the CME.
Note: October prices include data through market close on October 23, 2012.
Source: U.S. Energy Information Administration.

Table 2. International Liquid Fuels Production, Consumption, and Inventory Estimates

Item	September 2012	October 2012	Sept. - Oct. 2012 Average	Sept. - Oct. 2011 Average	2009 - 2011 Average
Production (million barrels per day) (a)					
OECD	22.0	22.4	22.2	21.6	21.4
U.S. (50 States)	10.8	11.2	11.0	10.3	9.7
Canada	3.8	4.0	3.9	3.7	3.5
Mexico	3.0	3.0	3.0	2.9	3.0
North Sea (b)	2.8	2.8	2.8	3.2	3.7
Other OECD	1.5	1.5	1.5	1.6	1.6
Non-OECD	66.6	66.9	66.8	65.5	64.7
OPEC	36.5	36.6	36.6	35.2	34.6
Crude Oil Portion	30.8	30.9	30.9	29.9	29.6
Other Liquids	5.7	5.7	5.7	5.3	5.1
Former Soviet Union	13.1	13.4	13.2	13.2	13.1
China	4.4	4.4	4.4	4.2	4.2
Other Non-OECD	12.6	12.5	12.6	12.9	12.7
Total World Production	88.6	89.4	89.0	87.2	86.1
Non-OPEC Production	52.1	52.7	52.4	52.0	51.4
Consumption (million barrels per day) (c)					
OECD	45.6	45.2	45.4	45.9	45.9
U.S. (50 States)	18.5	18.8	18.7	18.9	19.0
U.S. territories	0.3	0.3	0.3	0.3	0.3
Canada	2.3	2.3	2.3	2.2	2.2
Europe	14.5	14.1	14.3	14.7	14.5
Japan	4.4	4.3	4.3	4.3	4.4
Other OECD	5.6	5.4	5.5	5.5	5.5
Non-OECD	44.5	43.9	44.2	42.9	40.9
Former Soviet Union	5.0	5.0	5.0	4.8	4.5
Europe	0.8	0.8	0.8	0.8	0.7
China	10.5	10.3	10.4	9.8	9.3
Other Asia	10.2	10.3	10.2	10.2	9.8
Other Non-OECD	18.0	17.6	17.8	17.4	16.6
Total World Consumption	90.0	89.1	89.6	88.8	86.7
Inventory Net Withdrawals (million barrels per day)					
U.S. (50 States)	0.1	0.3	0.2	0.4	0.0
Other OECD	0.5	-0.2	0.1	0.5	0.1
Other Stock Draws and Balance	0.8	-0.4	0.2	0.7	0.6
Total Stock Draw	1.5	-0.2	0.6	1.7	0.7
End-of-period Inventories (million barrels)					
U.S. Commercial Inventory	1,098	1,087	1,092	1,079	--
OECD Commercial Inventory	2,637	2,633	2,635	2,649	--

OECD = Organization for Economic Cooperation and Development: Australia, Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Slovakia, South Korea, Spain, Sweden, Switzerland, Turkey, the United Kingdom, and the United States. Monthly OECD supply and consumption does not yet include Chile, Estonia, Israel, or Slovenia.
OPEC = Organization of the Petroleum Exporting Countries: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.
Former Soviet Union = Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.
(a) Supply includes production of crude oil (including lease condensates), natural gas plant liquids, biofuels, other liquids, and refinery processing gains.
(b) Includes offshore supply from Denmark, Germany, the Netherlands, Norway, and the United Kingdom.
(c) Consumption of petroleum by the OECD countries is synonymous with "products supplied," defined in the glossary of the EIA Petroleum Supply Monthly, DOE/EIA-0109. Consumption of petroleum by the non-OECD countries is "apparent consumption," which includes internal consumption, refinery fuel and loss, and bunkering.
(d) The estimate is -0.01 million bbl/d.
Source: U.S. Energy Information Administration.

Table 3. Non-OPEC Liquid Fuels Supply Estimates

Production (million barrels per day)	September 2012	October 2012	Sept. - Oct. 2012 Average	Sept. - Oct. 2011 Average	2009 - 2011 Average
North America	17.6	18.1	17.9	16.9	16.1
Canada	3.8	4.0	3.9	3.7	3.5
Mexico	3.0	3.0	3.0	2.9	3.0
United States	10.8	11.2	11.0	10.3	9.7
Central and South America	5.2	5.1	5.1	5.1	4.7
Argentina	0.8	0.8	0.8	0.8	0.8
Brazil	3.0	2.9	3.0	2.9	2.7
Colombia	1.0	1.0	1.0	0.9	0.8
Other Central and South America	0.4	0.4	0.4	0.5	0.5
Europe	3.8	3.8	3.8	4.2	4.6
Norway	1.7	1.7	1.7	2.0	2.2
United Kingdom (offshore)	0.9	0.9	0.9	1.0	1.3
Other North Sea	0.2	0.2	0.2	0.2	0.3
Former Soviet Union (FSU)	13.1	13.4	13.2	13.2	13.1
Azerbaijan	0.8	0.9	0.9	1.0	1.0
Kazakhstan	1.4	1.6	1.5	1.6	1.6
Russia	10.3	10.3	10.3	10.2	10.1
Turkmenistan	0.3	0.3	0.3	0.2	0.2
Other FSU	0.3	0.3	0.3	0.2	0.2
Middle East	1.3	1.2	1.3	1.4	1.5
Oman	0.9	0.9	0.9	0.9	0.9
Syria	0.2	0.2	0.2	0.3	0.4
Yemen	0.2	0.2	0.2	0.2	0.2
Asia and Oceania	8.8	8.8	8.8	8.6	8.7
Australia	0.5	0.5	0.5	0.5	0.6
China	4.4	4.4	4.4	4.2	4.2
India	1.0	1.0	1.0	0.9	0.9
Indonesia	1.0	1.0	1.0	1.0	1.0
Malaysia	0.6	0.6	0.6	0.6	0.7
Vietnam	0.4	0.4	0.4	0.3	0.3
Africa	2.3	2.4	2.4	2.6	2.6
Egypt	0.7	0.7	0.7	0.7	0.7
Equatorial Guinea	0.3	0.3	0.3	0.3	0.3
Gabon	0.2	0.2	0.2	0.2	0.2
Sudan	0.1	0.1	0.1	0.5	0.5
Total non-OPEC liquids	52.1	52.7	52.4	52.0	51.4
OPEC non-crude liquids	5.7	5.7	5.7	5.3	5.1
Non-OPEC + OPEC non-crude liquids	57.8	58.5	58.1	57.2	56.5

Former Soviet Union = Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine and Uzbekistan.
Sudan production represents total production from both north and south.
OPEC = Organization of the Petroleum Exporting Countries: Algeria, Angola, Ecuador, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, the United Arab Emirates, and Venezuela.
Source: U.S. Energy Information Administration.

Table 4. OPEC Crude Oil (Excluding Condensates) and Liquid Fuels Supply Estimates

Production (million barrels per day)	September 2012	October 2012	Sept. - Oct. 2012 Average	Sept. - Oct. 2011 Average	2009 - 2011 Average
Crude Oil					
Algeria	1.3	1.3	1.3	1.3	1.3
Angola	1.7	1.8	1.7	1.7	1.8
Ecuador	0.5	0.5	0.5	0.5	0.5
Iran	2.7	2.6	2.6	3.6	3.7
Iraq	3.2	3.2	3.2	2.7	2.4
Kuwait	2.6	2.6	2.6	2.6	2.4
Libya	1.5	1.5	1.5	0.2	1.3
Nigeria	2.1	2.1	2.1	2.1	2.0
Qatar	0.7	0.7	0.7	0.9	0.8
Saudi Arabia	9.8	9.8	9.8	9.6	8.8
United Arab Emirates	2.7	2.7	2.7	2.6	2.4
Venezuela	2.2	2.2	2.2	2.2	2.2
OPEC Total	30.8	30.9	30.9	29.9	29.6
Other Liquids	5.7	5.7	5.7	5.3	5.1
Total OPEC Supply	36.5	36.6	36.6	35.2	34.6
Crude Oil Production Capacity					
Africa	6.5	6.6	6.5	5.3	6.3
South America	2.7	2.7	2.7	2.7	2.7
Middle East	23.6	23.6	23.6	24.7	24.2
OPEC Total	32.8	32.9	32.9	32.7	33.1
Surplus Crude Oil Production Capacity (a)					
Africa	0.0	0.0	0.0	0.0	0.0
South America	0.0	0.0	0.0	0.0	0.0
Middle East	2.0	2.0	2.0	2.7	3.6
OPEC Total	2.0	2.0	2.0	2.7	3.6

OPEC = Organization of the Petroleum Exporting Countries: Algeria, Angola, Libya, and Nigeria (Africa); Ecuador and Venezuela (South America); Iran, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates (Middle East).
a) EIA defines surplus crude oil production capacity as potential oil production that could be brought online within 30 days and sustained for at least 90 days, consistent with sound business practices. This does not include oil production increases that could not be sustained without degrading the future production capacity of a field. It also does not include additional capacity that may be available in Iran, but which is currently offline due to the impacts of U.S. and EU sanctions on Iran's ability to sell its oil.
Source: U.S. Energy Information Administration.

Table 5. Crude Oil and Petroleum Product Price Data

Item	September 2012 Average	October 2012 Average*	Sept. - Oct. 2012 Average*	Sept. - Oct. 2011 Average	2009-2011 Average
Brent Front Month Futures Price ($ per barrel)	113.03	112.26	112.68	109.36	84.64
WTI Front Month Futures Price ($ per barrel)	94.56	90.64	92.77	86.01	78.94
Dubai Front Month Futures Price ($ per barrel)	110.85	109.23	110.11	106.05	82.51
Brent 1st - 13th Month Futures Spread ($ per barrel)	6.35	6.83	6.57	5.81	-3.23
WTI 1st - 13th Month Futures Spread ($ per barrel)	-0.69	-2.13	-1.35	-1.93	-5.59
RBOB Front Month Futures Price ($ per gallon)	3.00	2.83	2.92	2.70	2.21
Heating Oil Front Month Futures Price ($ per gallon)	3.15	3.16	3.15	2.95	2.26
RBOB - Brent Futures Crack Spread ($ per gallon)	0.31	0.16	0.24	0.10	0.20
Heating Oil - Brent Futures Crack Spread ($ per gallon)	0.45	0.48	0.47	0.34	0.24

*Note: October prices include data through market close on October 23, 2012.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME), Intercontinental Exchange (ICE) and Dubai Mercantile Exchange (DME).

Appendix

Market Indicators Considered in this Report

Due to time lags in the collection of production and consumption data, nearly all of the petroleum and petroleum product volumes presented in this report are estimates rather than actual data.[4] EIA revises estimates as new information becomes available, and production and consumption estimates featured in the previous reports in this series have since changed accordingly. For example, after incorporating the latest data for July and August, EIA's current estimate of average global liquid fuels production over that time period is 0.4 million bbl/d higher than previously estimated, while consumption is 0.2 million bbl/d lower.

In addition to estimated volumes of production and consumption, as well as spot market and futures prices, this report focuses on a variety of other indicators of volumes, surplus production capacity, and price spreads relevant to the "availability and price of petroleum and petroleum products."
EIA defines surplus capacity as the amount of additional production that can be brought onstream within 30 days and sustained for at least 90 days, and in a manner consistent with sound business and reservoir management practices. Surplus capacity is an indicator of the world oil market's ability to respond to potential disruptions that reduce oil supply. Oil prices tend to rise when surplus capacity reaches very low levels, as occurred in the 2003 to 2008 period.

Crude oil and petroleum product inventories, also referred to as stocks, act as the balancing point between supply and demand. Given the uncertainty of supply and demand, inventories are often seen as a precautionary measure and, along with surplus capacity, serve to cushion the market in addressing negative supply shocks and/or positive demand shocks. The term structure of prices for future delivery, discussed below, is one factor that signals the market to build or reduce stocks.

Petroleum and petroleum product prices are indicators of the relative balance of supply and demand. Rising prices suggest that demand is growing more rapidly (or declining at a slower rate) than supply, while falling prices imply that demand is growing less quickly (or falling more rapidly) than supply. Prices also reflect expectations regarding future changes in the balance between supply and demand, which can be influenced by a variety of supply and demand drivers. This report reflects price data through October 23, 2012.

Differences in prices, commonly referred to as price spreads, also convey important information about the current state of the market and market expectations. The term structure of prices for future delivery is one key indicator of market participants' expectations regarding changes in market tightness over time. For example, the difference between the price of the front month and thirteenth month futures contracts provides insight into current market tightness relative to expectations for the coming year. A positive difference, referred to as backwardation, indicates tightness in the current market,

[4] Liquid fuels consumption and inventory data for most OECD member countries outside of the United States are based upon published International Energy Agency (IEA) estimates, which are lagged by two to three months and are trended forward using forecast economic growth, weather, and related assumptions. Weekly data on U.S. stock changes, refinery activity, and imports together with estimates of primary liquids production, exports, and product supplied are available through EIA's *Weekly Petroleum Status Report*. EIA's estimates of liquid fuels consumption for non-OECD countries are primarily based upon estimated changes in economic activity and related assumptions.

while a negative difference, called contango, indicates a relatively looser near-term supply-demand balance and encourages stock building.

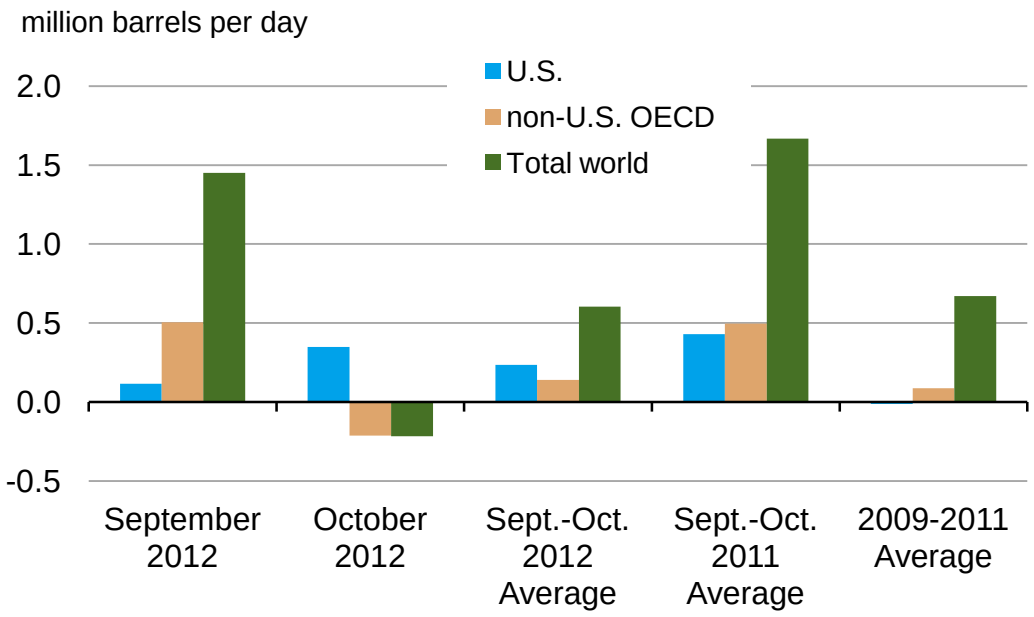
There are a variety of other spreads that also provide important market insights. These include the price spread across different crude streams that can arise due to differences in physical characteristics (for example, American Petroleum Institute [API] gravity and sulfur content) or their location. With respect to location, transportation bottlenecks can result in significant price differences between physically similar crudes in markets with different balances between crude supply and demand.

The price spread between crude oil and refined products, often referred to as a crack spread, provides an indication of the relative tightness in the supply-demand balance for different petroleum products. In recent years, the crack spread for distillate fuels (a category that includes diesel fuel and heating oil) has generally been greater than the crack spread for gasoline. Crack spreads also provide insight into the profitability of refining operations, which is often a reflection of the availability of refinery capacity relative to the demand for refined products.

The value of options on futures contracts is another current indicator of forward-looking market sentiment. Call options provide the holder with the right to buy a commodity at a specified price up to a specified future date, while put options provide the right to sell at a specified price up to a specified future date. Given strike prices and the time to expiration, the value of options contracts can be used to calculate the market's current assessment of the uncertainty range for future prices and/or the market's view that prices for future delivery at specified dates will exceed or fall below any particular level.

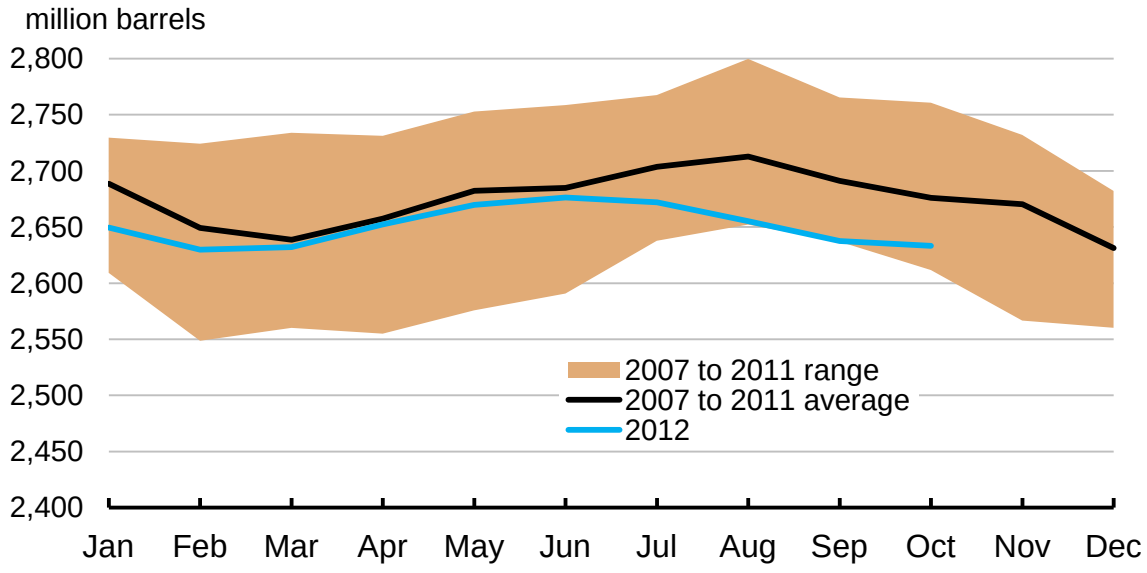
Figures

Figure 5. Global Total Liquids Inventories Net Withdrawals



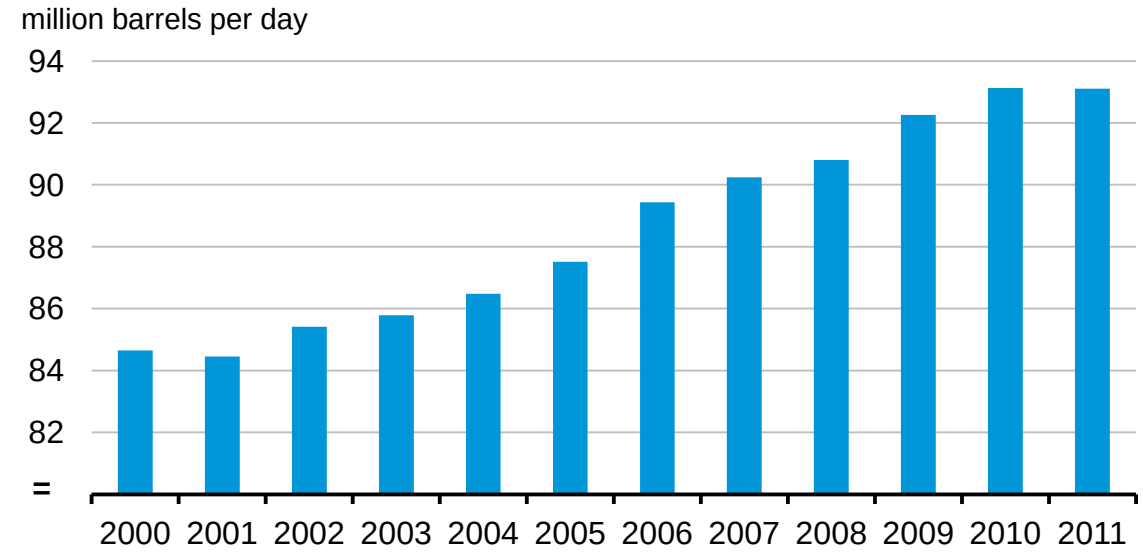
Source: U.S. Energy Information Administration.

Figure 6. OECD Total Liquid Fuels Inventories



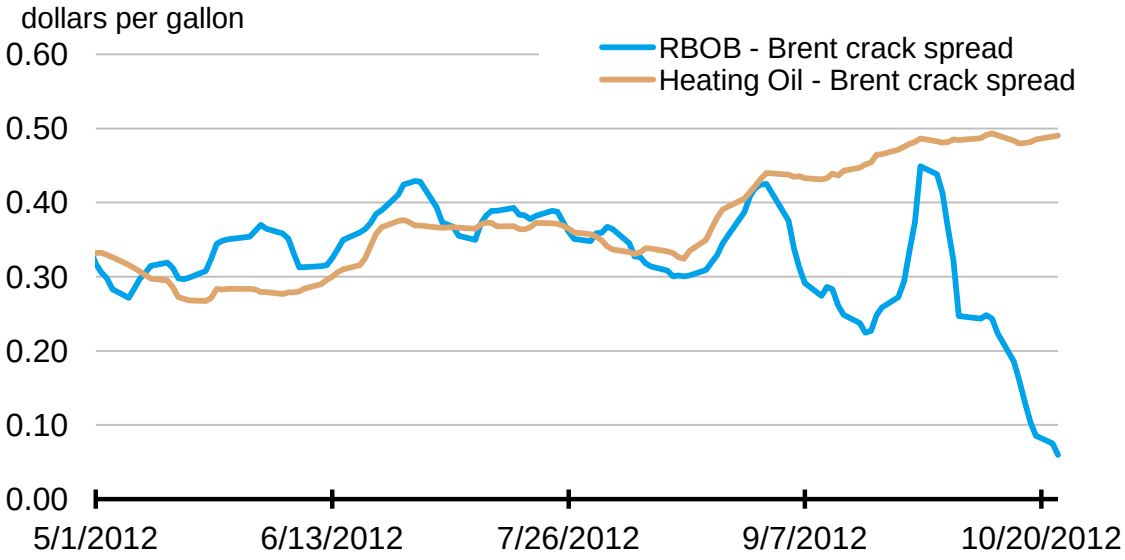
Source: U.S. Energy Information Administration.

Figure 7. Global Crude Oil Distillation Capacity



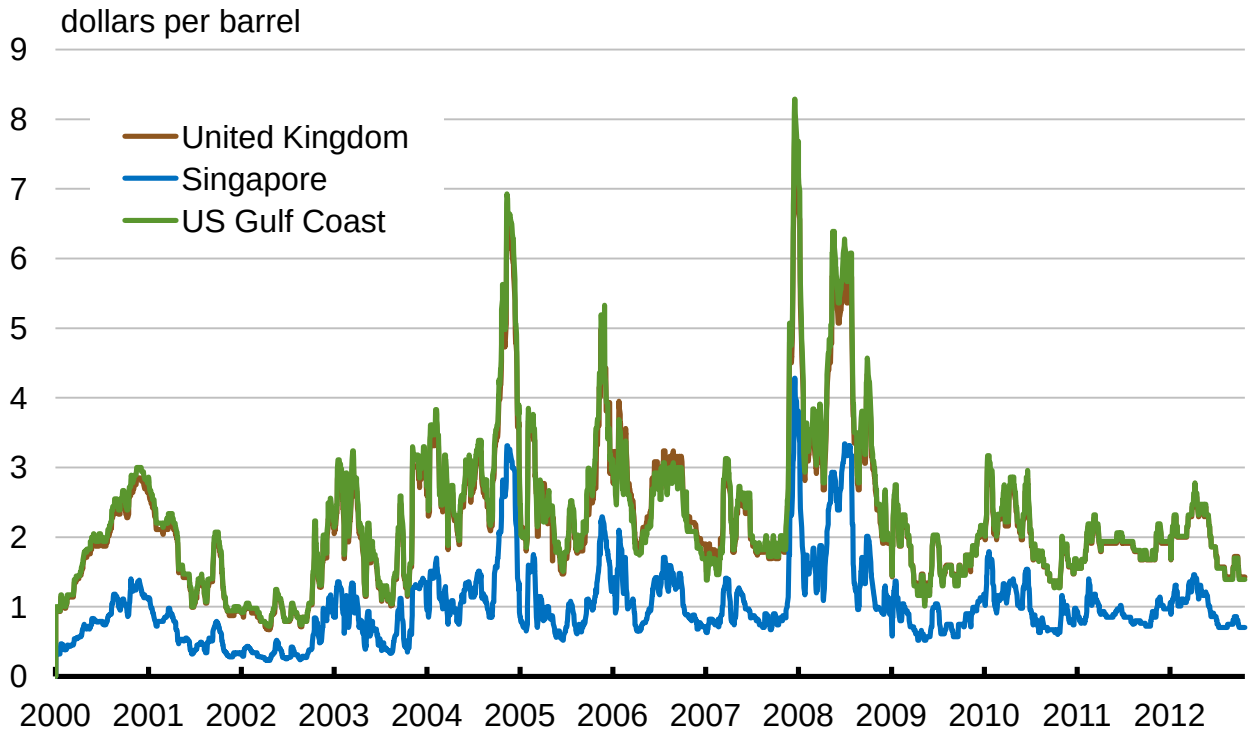
Source: Purvin & Gertz.

Figure 8. Front Month Futures Crack Spreads



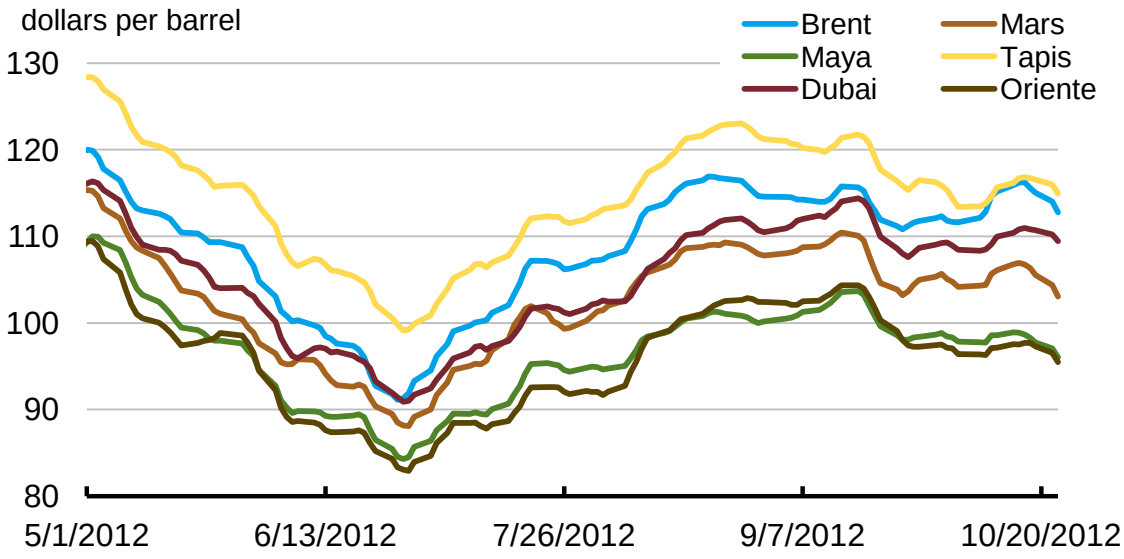
Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME) and Intercontinental Exchange (ICE).

Figure 9. Very Large Crude Carrier Shipping Rates for Delivery from the Persian Gulf



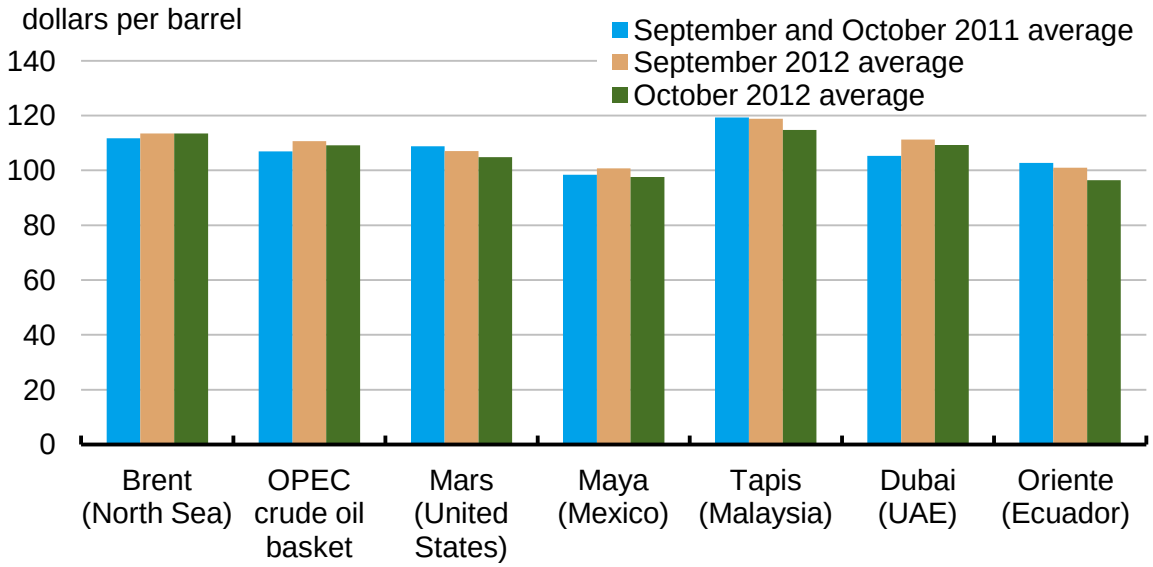
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 10. Global Crude Oil Spot Prices



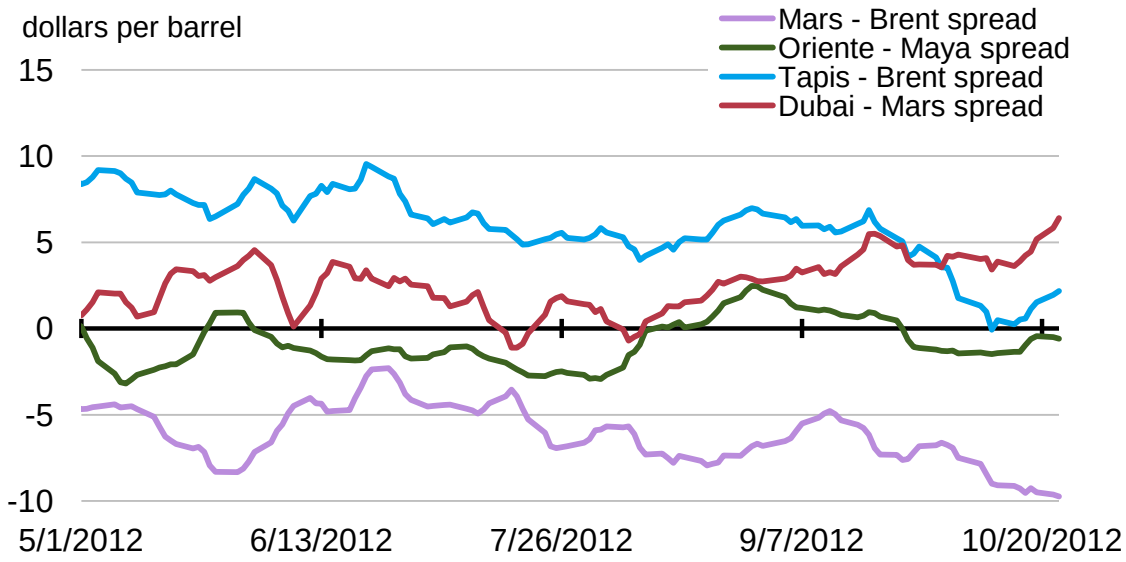
Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 11. Global Crude Oil Spot Price Averages



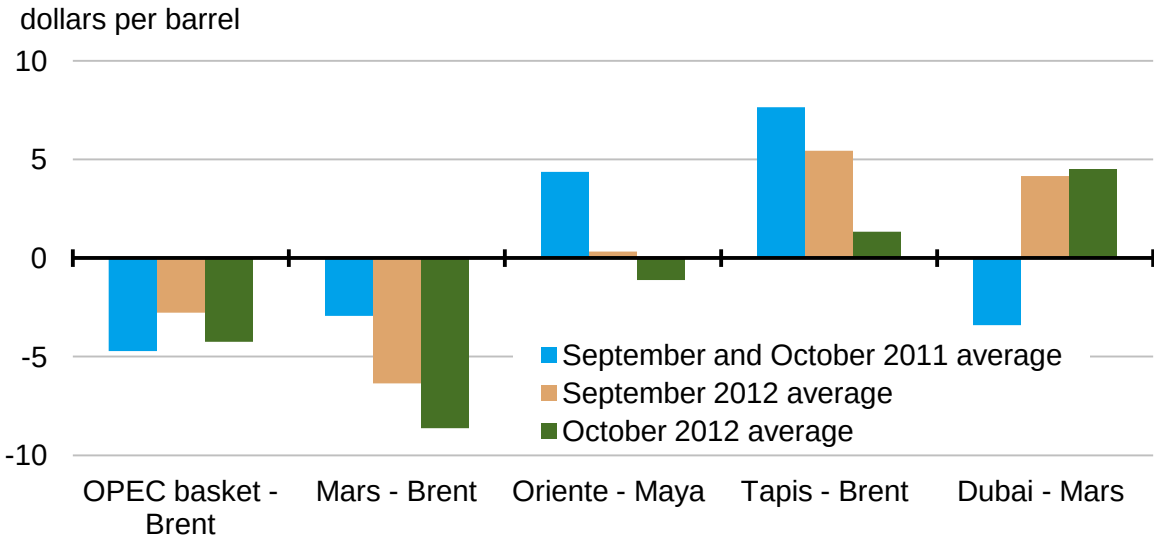
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 12. Global Crude Oil Spot Price Differentials



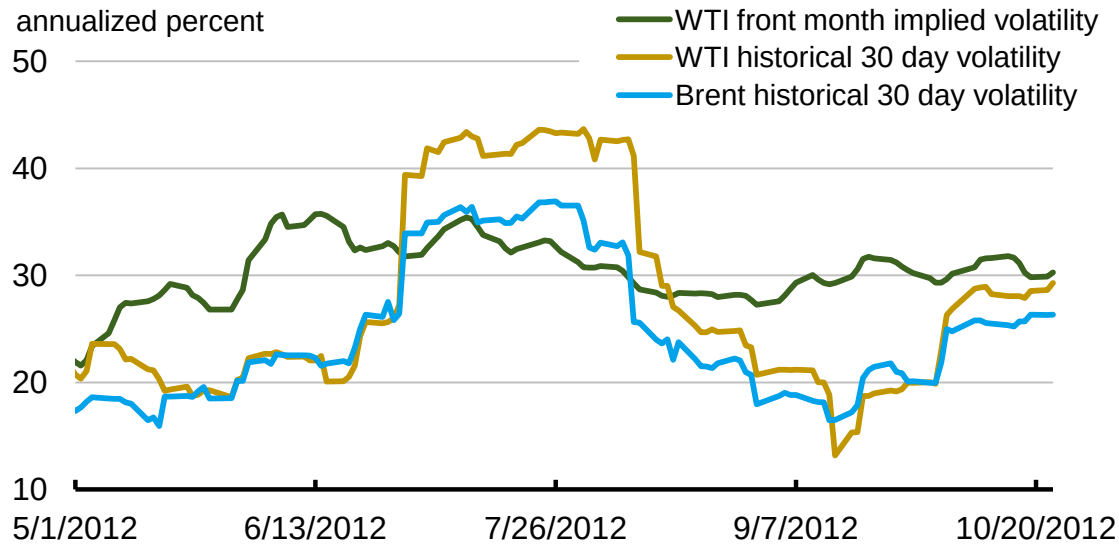
Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 13. Global Crude Oil Spot Price Differentials Averages



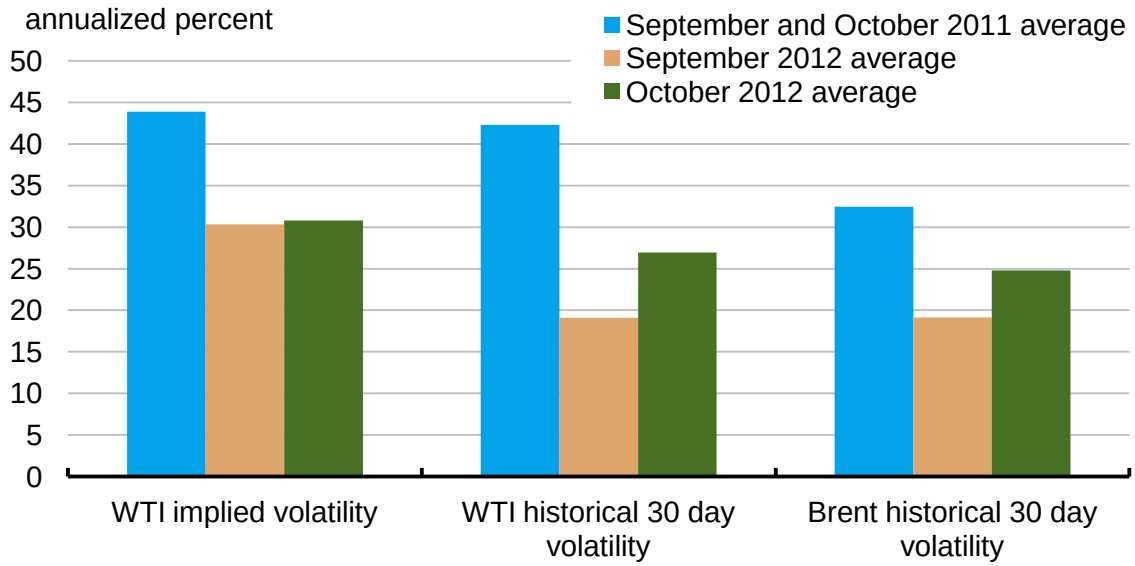
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 14. Crude Oil Historical and Implied Volatility



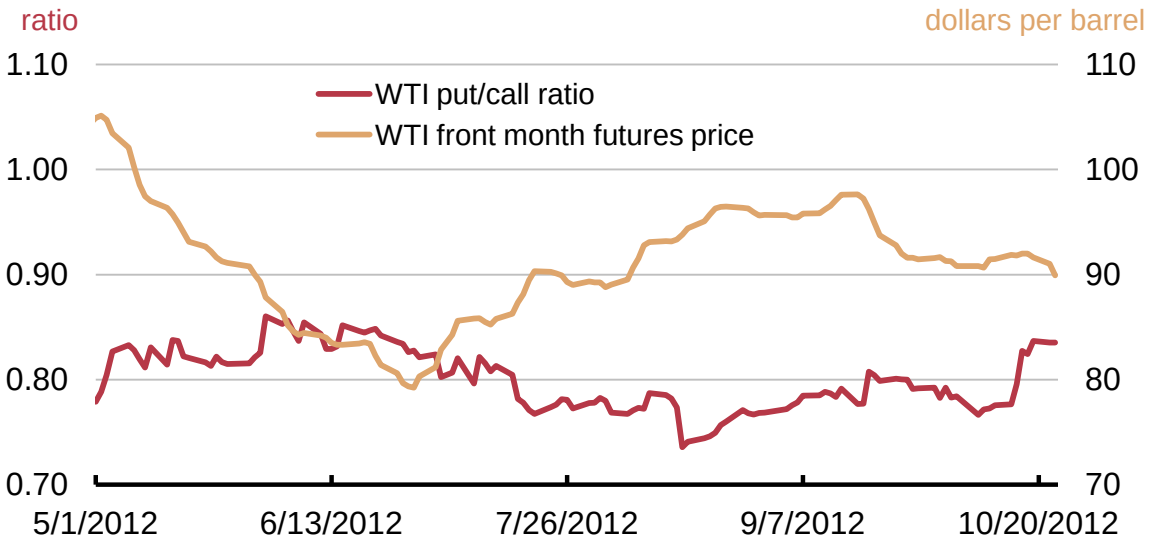
Note: Historical volatility is shown as a 30-day rolling average. Implied volatility is a 5-day rolling average.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME) and Intercontinental Exchange (ICE).

Figure 15. Crude Oil Historical and Implied Volatility Averages



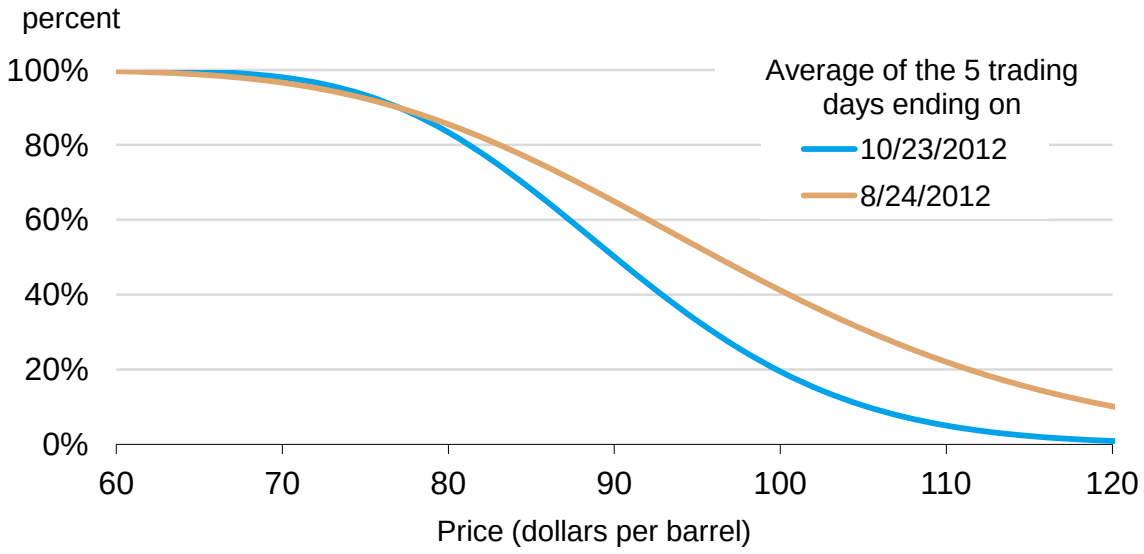
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME).

Figure 16. Put/Call Ratio for all Options on WTI Futures Contracts



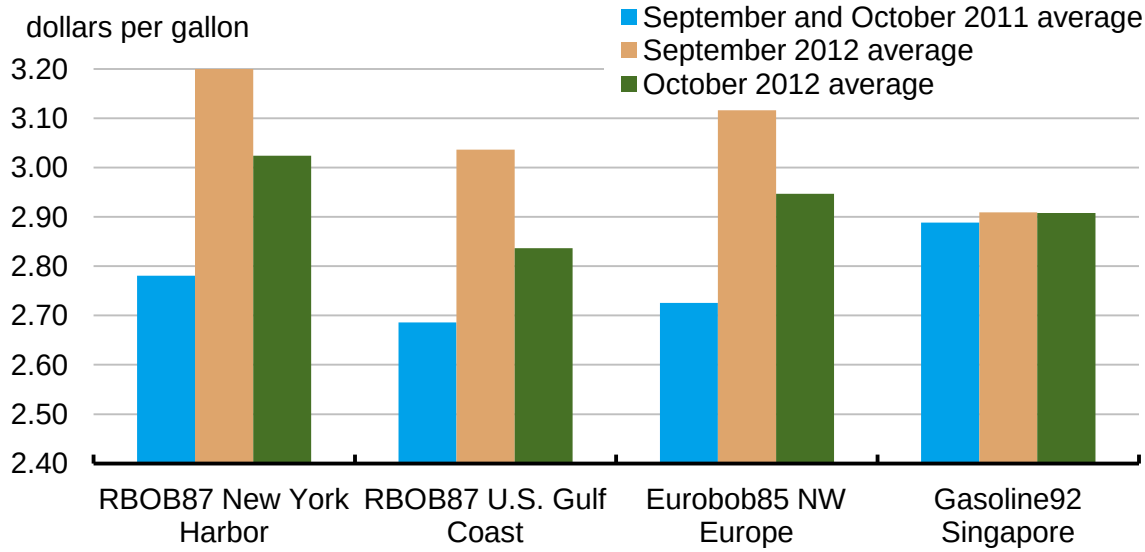
Note: The futures price is a 5-day rolling average.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME) and Intercontinental Exchange (ICE).

Figure 17. Probability of the January 2013 WTI Contract Expiring Above Different Price Levels



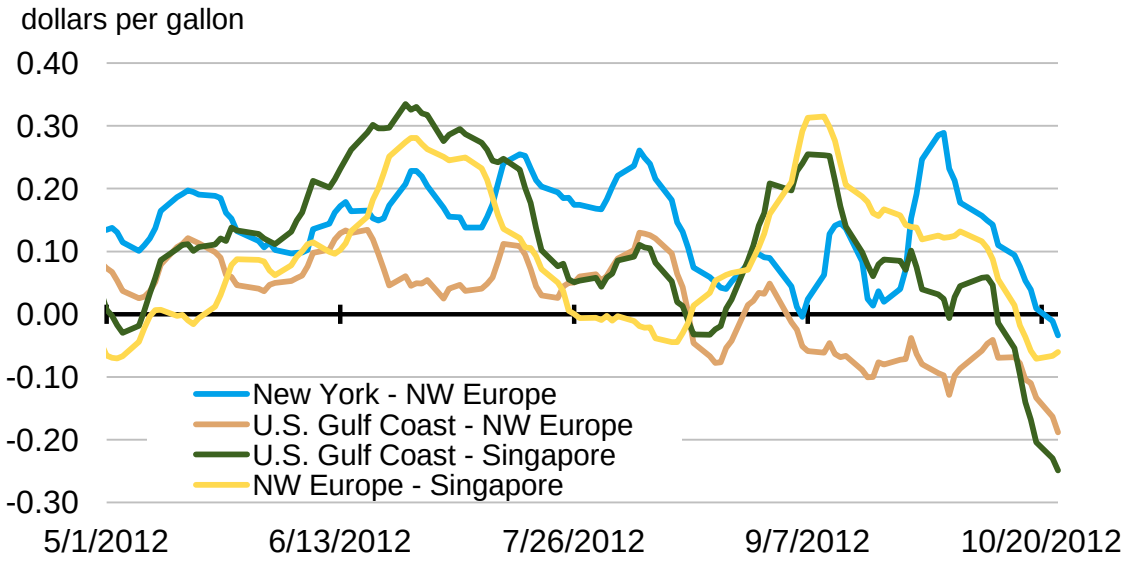
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME).

Figure 18. Global Gasoline Spot Price Averages



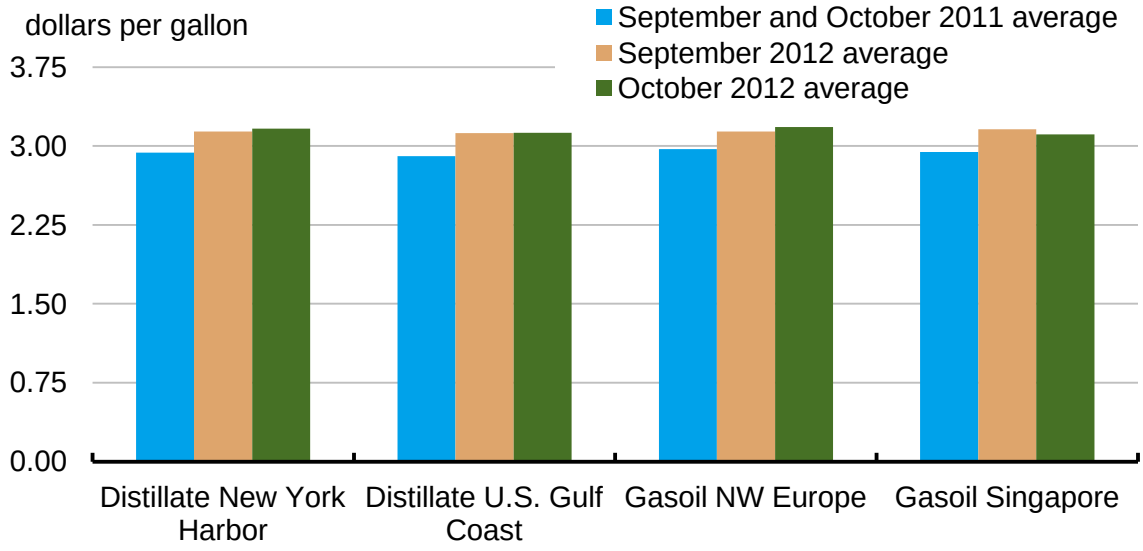
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 19. Global Gasoline Spot Price Differentials



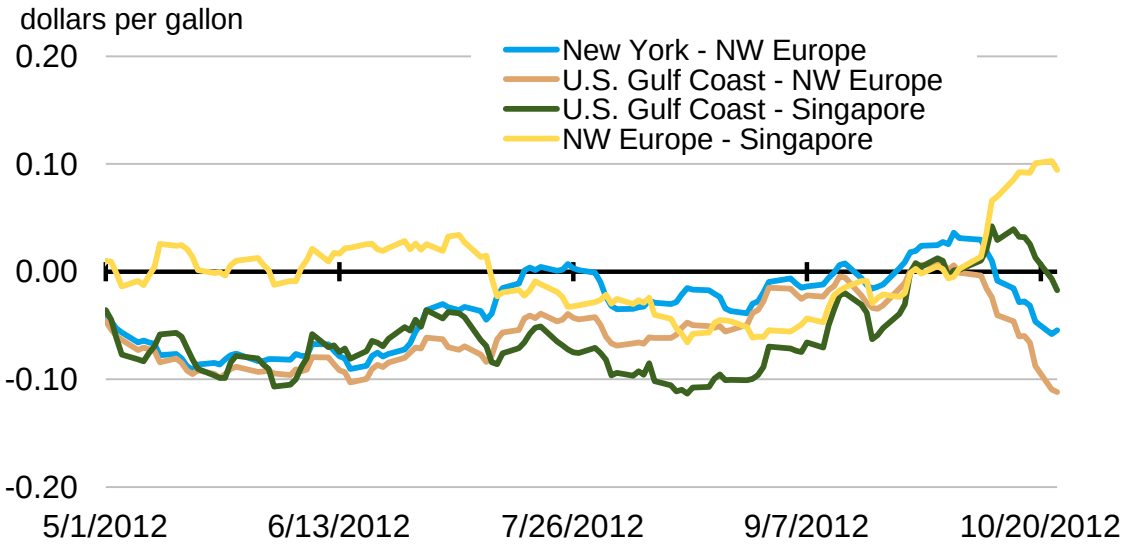
Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 20. Global Distillate Spot Price Averages



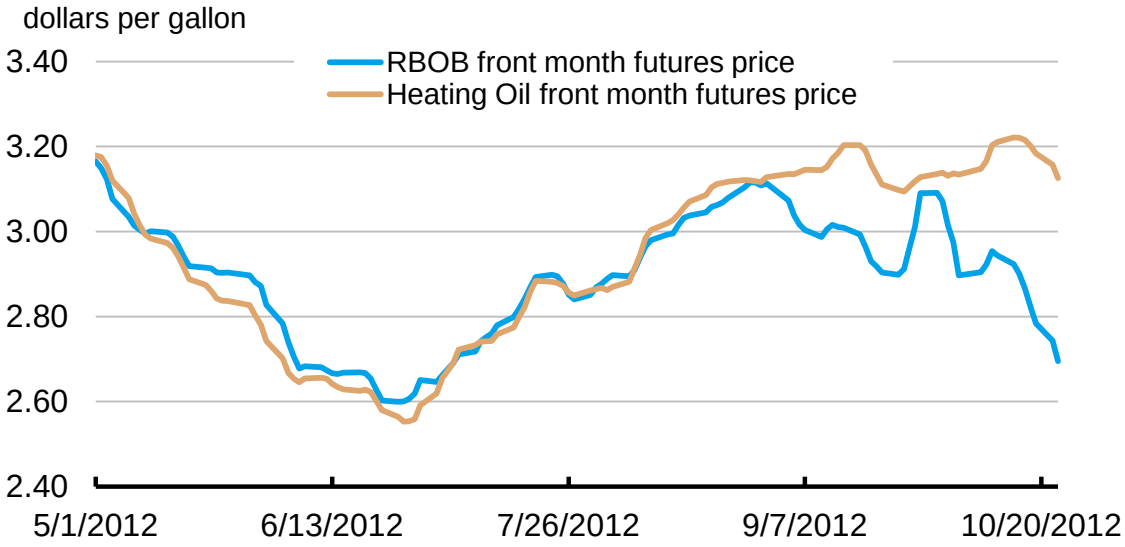
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 21. Global Distillate Spot Price Differentials



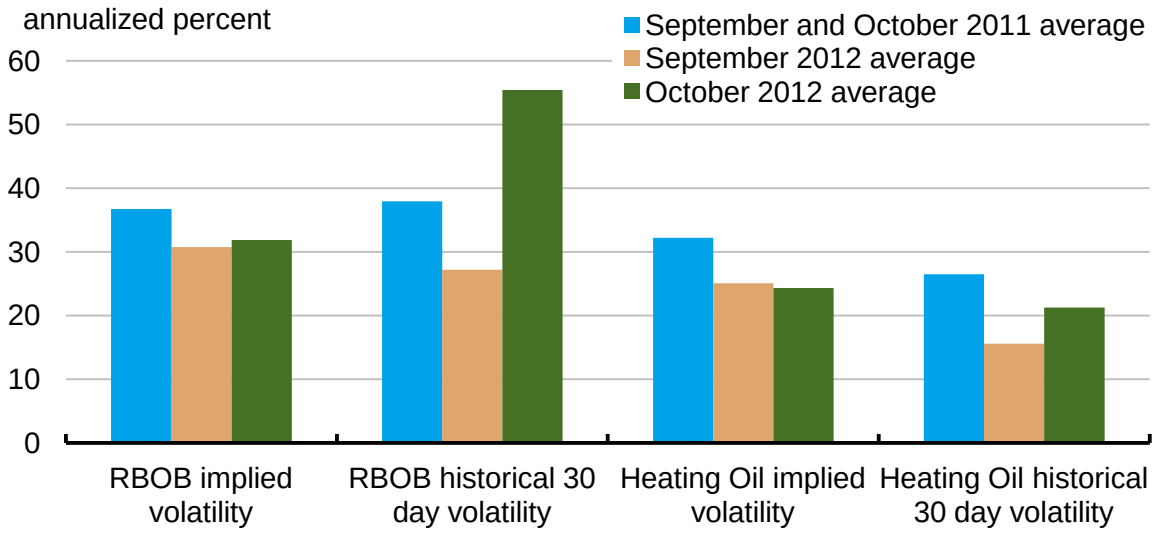
Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 22. Front Month RBOB Gasoline and Heating Oil Futures Prices



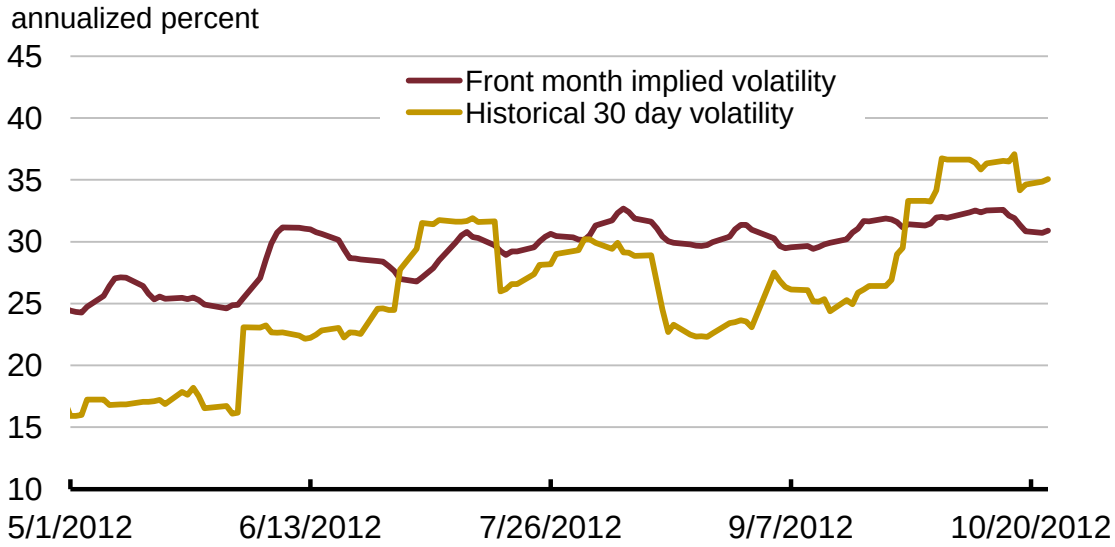
Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME).

Figure 23. Front Month Gasoline and Heating Oil Futures Volatility



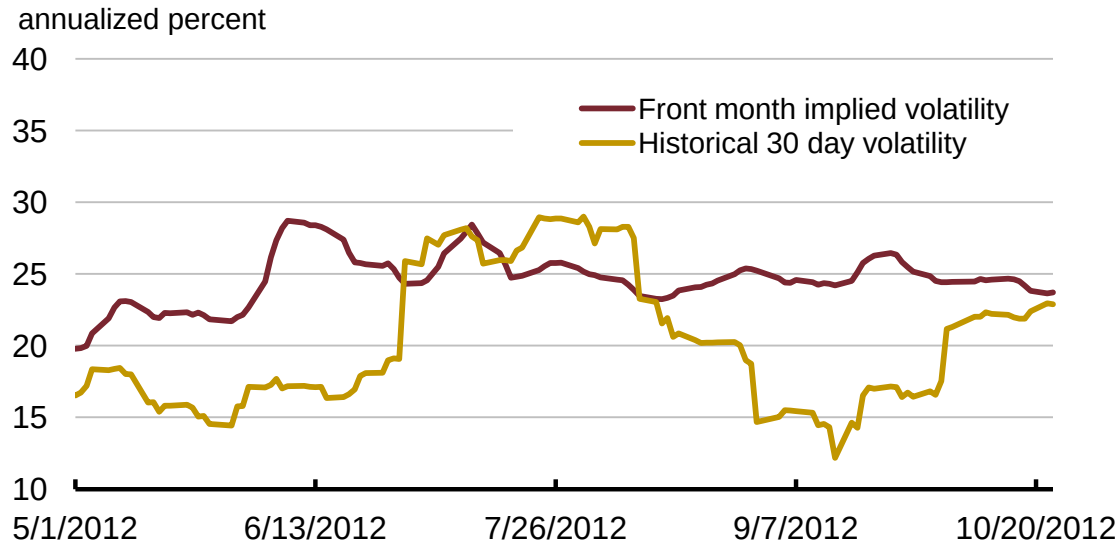
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME).

Figure 24. RBOB Gasoline Historical and Implied Volatility



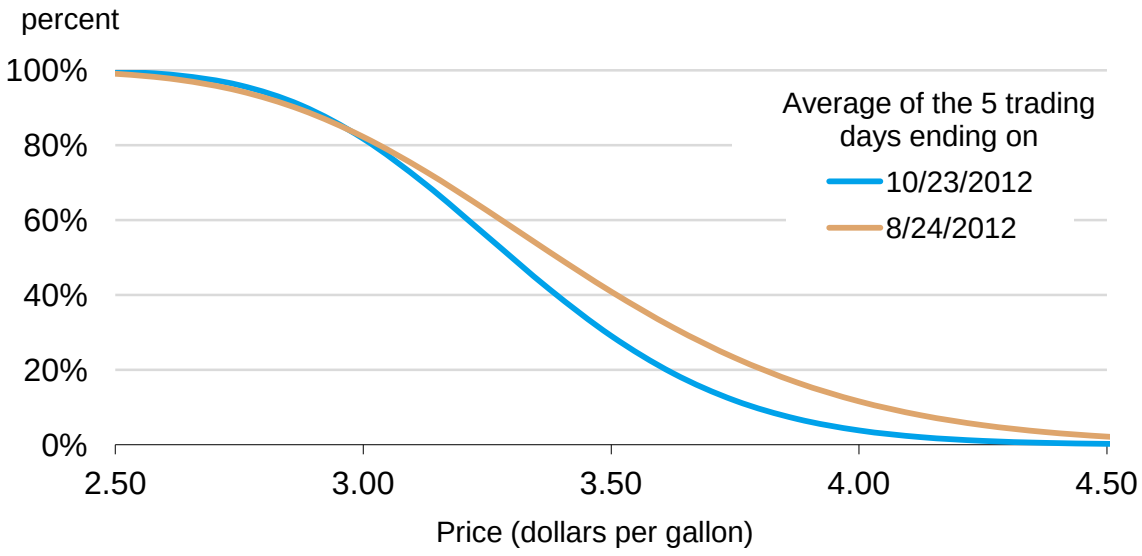
Note: Historical volatility is shown as a 30-day rolling average. Implied volatility is a 5-day rolling average.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME).

Figure 25. Heating Oil Historical and Implied Volatility



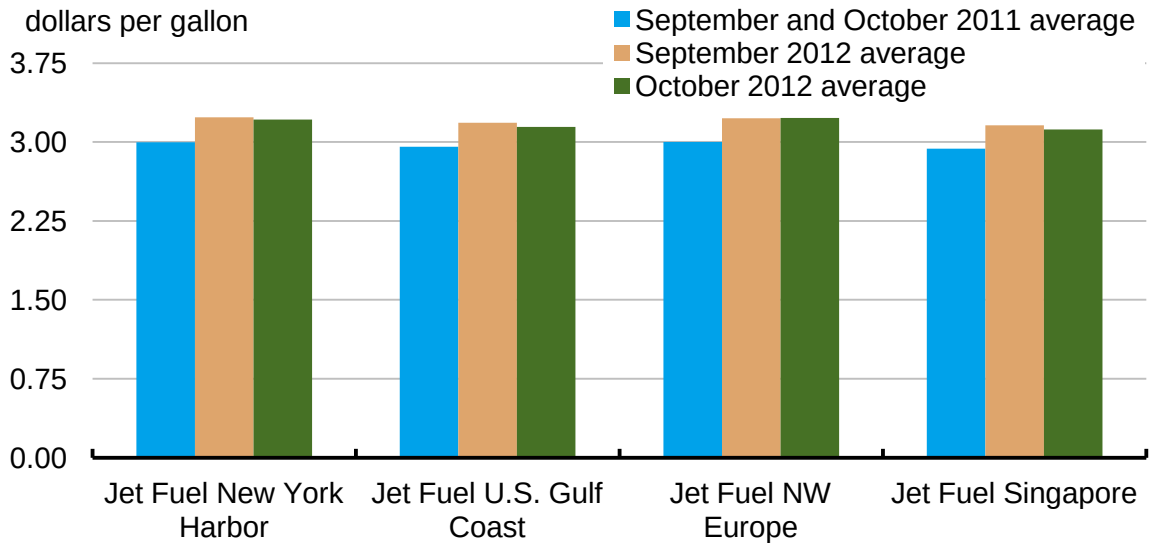
Note: Historical volatility is shown as a 30-day rolling average. Implied volatility is a 5-day rolling average.
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME).

Figure 26. Probability of January 2013 Retail Gasoline Exceeding Different Price Levels at Expiration



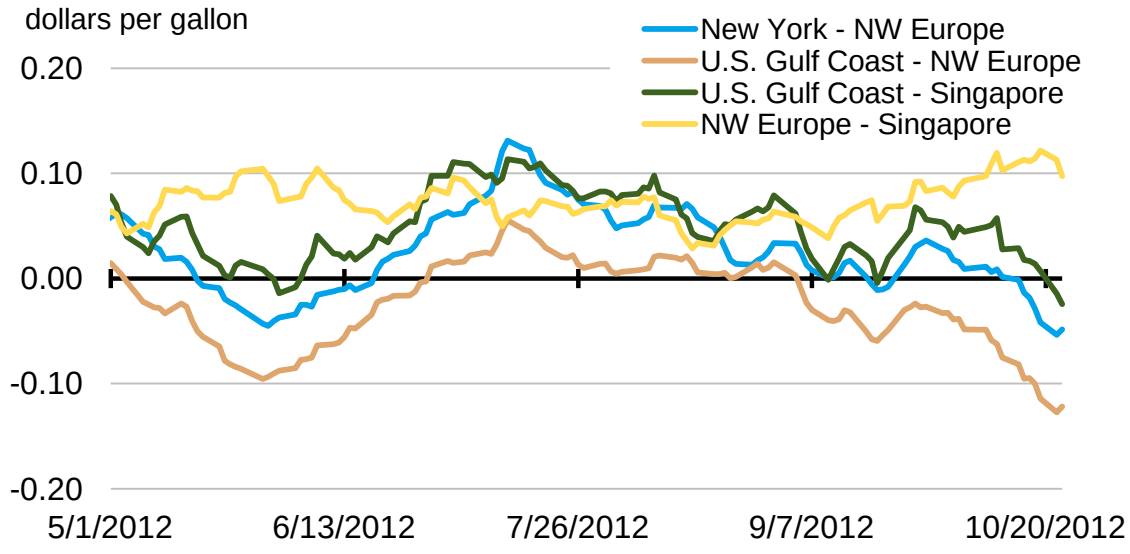
Source: U.S. Energy Information Administration, based on Chicago Mercantile Exchange (CME).

Figure 27. Global Jet Fuel Spot Price Averages



Source: U.S. Energy Information Administration, based on Bloomberg, L.P.

Figure 28. Global Jet Fuel Spot Price Differentials



Note: All prices represent rolling 5-day averages.
Source: U.S. Energy Information Administration, based on Bloomberg, L.P.