Oil prices increased mainly owing to more positive global demand and a higher residual.

- The oil price rise over the past week was driven by all three components in our decomposition, including a modest perceived decrease in supply as well as more substantial increases in global demand expectations and the residual. For 2016:Q3, oil prices were somewhat lower as a result of volatile but weakening global demand expectations as well as looser supply conditions.

- These developments follow the rebound in oil prices in Q2. Upward price pressure from both tighter supply conditions and more upbeat global demand expectations drove this bounce-back.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down—a trend that appeared to have reversed in 2016:Q2, but reemerged in 2016:Q3.

Our analysis of oil price movements does not necessarily represent the views of the Federal Reserve Bank of New York, the Federal Reserve System, or the Federal Open Market Committee.
Cumulative Weekly Decomposition, Jul 01-Dec 30, 2016

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 1, 2016.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since July 1, 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
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<th>Brent</th>
</tr>
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<tr>
<td>Dec 16, 2016</td>
<td>0.9</td>
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<td>Dec 23, 2016</td>
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<td>Dec 30, 2016</td>
<td>1.8</td>
<td>8.2</td>
<td>2.1</td>
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</table>

Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
- The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.
1. What is the goal of the oil price decomposition?
   Our aim is to determine how much of the observed oil price change has been driven by demand and supply factors.

2. What is the modeling strategy?
   Using a statistical model and a large number of financial variables, we decompose weekly oil price changes into demand effects, supply effects, and an unexplained residual.

   Sparse partial least squares regression allows us to construct linear combinations from the variables in our financial market data set—called factors—which have maximum explanatory content for oil price changes. We first use this procedure to generate factors that best capture the patterns in the data, and then examine the estimated factors to determine how they reflect demand or supply dynamics.

   The model is re-estimated every week using weekly data from January 1986 through the close of business on Friday of the most recent week. Over this sample, the model can explain about two-thirds of the weekly oil price dynamics.

3. How to interpret the results?
   The output of the model is used to decompose weekly changes in an accounting sense. More specifically, the weekly Brent crude price change always equals the change explained by demand factors plus the change explained by supply factors plus a residual (the weekly change unexplained by the sum of the estimated demand and supply factors).

   Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

References


Authors

Brandyn Bok and Jan Groen
Oil prices increased slightly owing to improved demand.

- More upbeat demand expectations counteracted a modest perceived expansion in supply to drive oil prices up moderately over the past week. Over 2016:Q4, oil prices increased on net as a result of steadily contracting supply alongside volatile yet strengthening global demand.

- These developments offset the modest decline in oil prices over 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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**Cumulative Weekly Decomposition, Oct 07-Jan 06, 2017**

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from October 7, 2016.
- The table below presents the most recent cumulative values.

### Cumulative Percentage Changes since October 7, 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
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<td>1.3</td>
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<tr>
<td>Jan 06, 2017</td>
<td>2.8</td>
<td>5.3</td>
<td>1.4</td>
<td>9.5</td>
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</tbody>
</table>

**Longer-Term View of Oil Price Movements**

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2. **What is the modeling strategy?**
   
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   The model is re-estimated every week using weekly data from January 1986 through the close of business on Friday of the most recent week. Over this sample, the model can explain about two-thirds of the weekly oil price dynamics.

3. **How to interpret the results?**
   
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   Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices declined owing to both decreasing demand and increasing supply.

- A downturn in demand expectations combined with a perceived expansion in supply drove oil prices down over the past week. Over 2016:Q4, oil prices increased on net as a result of steadily contracting supply alongside volatile yet strengthening global demand.

- These developments offset the modest decline in oil prices over 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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<tr>
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<td>5.2</td>
<td>1.5</td>
<td>9.5</td>
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<tr>
<td>Jan 13, 2017</td>
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<td>0.7</td>
<td>6.6</td>
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Longer-Term View of Oil Price Movements

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**Oil Price Decomposition Q&A**

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   Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices were broadly unchanged as supply and demand decreased equally.

- A continued decline in demand expectations offset a perceived tightening in supply, leaving oil prices broadly unchanged over the past week. In 2016:Q4, oil prices increased on net as a result of steadily contracting supply alongside volatile yet strengthening global demand.

- These developments countered the modest decline in oil prices over 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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Cumulative Weekly Decomposition, Oct 07-Jan 20, 2017

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from October 7, 2016.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since October 7, 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
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</tr>
<tr>
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<td>0.7</td>
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<tr>
<td>Jan 20, 2017</td>
<td>1.2</td>
<td>4.6</td>
<td>0.8</td>
<td>6.6</td>
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</tbody>
</table>

Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
- The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg.
Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.
Oil Price Decomposition Q&A

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   Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices rose owing to a stronger demand outlook.

- After three consecutive weeks of decline, demand expectations improved, driving oil prices up over the past week. In 2016:Q4, oil prices increased on net as a result of steadily contracting supply alongside strengthening, albeit volatile, global demand.

- These developments countered the modest decline in oil prices during 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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**Cumulative Percentage Changes since October 7, 2016**

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<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
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</thead>
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<tr>
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<td>6.6</td>
</tr>
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<td>Feb 03, 2017</td>
<td>2.5</td>
<td>3.1</td>
<td>3.4</td>
<td>9.0</td>
</tr>
</tbody>
</table>

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg.

Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
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   Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

---

**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices declined slightly owing to increased supply.

- A perceived loosening in supply offset improving demand conditions and an increased residual, resulting in a slight decline in oil prices over the past week. In 2016:Q4, oil prices increased on net as a consequence of steadily contracting supply and strengthening, albeit volatile, global demand.

- These developments countered the modest decline in oil prices during 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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Cumulative Weekly Decomposition, Oct 07-Feb 10, 2017

The chart at left depicts the cumulative oil price decomposition from October 7, 2016.

The table below presents the most recent cumulative values.

Cumulative Percentage Changes since October 7, 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
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<th>Brent</th>
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<td>Feb 10, 2017</td>
<td>2.7</td>
<td>2.0</td>
<td>4.1</td>
<td>8.8</td>
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Cumulative Weekly Decomposition, 2010-16

This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.

The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.
1. **What is the goal of the oil price decomposition?**

Our aim is to determine how much of the observed oil price change has been driven by demand and supply factors.

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Using a statistical model and a large number of financial variables, we decompose weekly oil price changes into demand effects, supply effects, and an unexplained residual.

Sparse partial least squares regression allows us to construct linear combinations from the variables in our financial market data set—called factors—which have maximum explanatory content for oil price changes. We first use this procedure to generate factors that best capture the patterns in the data, and then examine the estimated factors to determine how they reflect demand or supply dynamics.

The model is re-estimated every week using weekly data from January 1986 through the close of business on Friday of the most recent week. Over this sample, the model can explain about two-thirds of the weekly oil price dynamics.

3. **How to interpret the results?**

The output of the model is used to decompose weekly changes in an accounting sense. More specifically, the weekly Brent crude price change always equals the change explained by demand factors plus the change explained by supply factors plus a residual (the weekly change unexplained by the sum of the estimated demand and supply factors).

Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

---

**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices fell further owing to increased supply.

- A perceived loosening in supply again offset improving demand expectations and an increased residual, resulting in a decline in oil prices for the second consecutive week. In 2016:Q4, oil prices increased on net as a consequence of steadily contracting supply and strengthening, albeit volatile, global demand.

- These developments countered the modest decline in oil prices during 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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Cumulative Weekly Decomposition, Oct 07-Feb 17, 2017

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The table below presents the most recent cumulative values.

Cumulative Percentage Changes since October 7, 2016

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<th>Date</th>
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<td>9.0</td>
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<tr>
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<td>Feb 17, 2017</td>
<td>3.0</td>
<td>-0.9</td>
<td>5.1</td>
<td>7.2</td>
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Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from October 7, 2016.
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<table>
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<tr>
<th>Date</th>
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---

**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices increased slightly owing to improving demand conditions and a higher residual.

- Despite a perceived loosening in supply, stronger demand expectations and an increased residual resulted in a slight rise in oil prices over the past week. In 2016:Q4, oil prices increased on net as a consequence of steadily contracting supply and strengthening, albeit volatile, global demand.

- These developments countered the modest decline in oil prices during 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

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<td>6.2</td>
<td>7.5</td>
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Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.

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**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices were broadly unchanged as the residual offset movements in supply and demand.

- An increasing residual dominated a further perceived loosening in supply and a downturn in demand expectations, leaving oil prices broadly unchanged over the past week. In 2016:Q4, oil prices increased on net as a consequence of steadily contracting supply and strengthening, albeit volatile, global demand.

- These developments countered the modest decline in oil prices during 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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Cumulative Weekly Decomposition, Oct 07-Mar 03, 2017

Recent Decomposition Data
- The chart at left depicts the cumulative oil price decomposition from October 7, 2016.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since October 7, 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
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<th>Brent</th>
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</table>

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Cumulative Weekly Decomposition, 2010-16

Longer-Term View of Oil Price Movements
- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
- The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.
Oil Price Decomposition Q&A

1. **What is the goal of the oil price decomposition?**
   
   Our aim is to determine how much of the observed oil price change has been driven by demand and supply factors.

2. **What is the modeling strategy?**
   
   Using a statistical model and a large number of financial variables, we decompose weekly oil price changes into demand effects, supply effects, and an unexplained residual.

   Sparse partial least squares regression allows us to construct linear combinations from the variables in our financial market data set—called factors—which have maximum explanatory content for oil price changes. We first use this procedure to generate factors that best capture the patterns in the data, and then examine the estimated factors to determine how they reflect demand or supply dynamics.

   The model is re-estimated every week using weekly data from January 1986 through the close of business on Friday of the most recent week. Over this sample, the model can explain about two-thirds of the weekly oil price dynamics.

3. **How to interpret the results?**

   The output of the model is used to decompose weekly changes in an accounting sense. More specifically, the weekly Brent crude price change always equals the change explained by demand factors plus the change explained by supply factors plus a residual (the weekly change unexplained by the sum of the estimated demand and supply factors).

   Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

**References**


**Authors**

Brandyn Bok and Jan Groen
After falling significantly last week, oil prices rebounded slightly owing to strengthening demand.

- Despite loosening supply conditions, improved global demand expectations drove oil prices up during the week. The preceding week saw a large decline in oil prices, as the demand outlook deteriorated and perceived supply expanded. In 2016:Q4, oil prices increased on net as a consequence of steadily contracting supply and strengthening, albeit volatile, global demand.

- These developments countered the modest decline in oil prices during 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.
Cumulative Weekly Decomposition, Oct 07-Mar 17, 2017

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<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
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<th>Brent</th>
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<td>Mar 17, 2017</td>
<td>2.5</td>
<td>-7.1</td>
<td>4.3</td>
<td>-0.3</td>
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</table>

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Cumulative Weekly Decomposition, 2010-16

Longer-Term View of Oil Price Movements
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**Authors**

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Oil prices fell owing to weakening demand.

- A decline in demand expectations together with a decreasing residual drove oil prices down over the past week. In 2016:Q4, oil prices increased on net as a consequence of steadily contracting supply and strengthening, albeit volatile, global demand.

- These developments countered the modest decline in oil prices during 2016:Q3 caused by weakening global demand expectations and loosening supply conditions.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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<td>1.6</td>
<td>-7.4</td>
<td>3.6</td>
<td>-2.2</td>
</tr>
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Longer-Term View of Oil Price Movements

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- Strengthening demand expectations together with a perceived tightening in supply drove oil prices up over the past week. In 2016:Q4, oil prices increased on net as a consequence of steadily contracting supply and strengthening, albeit volatile, global demand.

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<td>-5.7</td>
<td>3.7</td>
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</table>

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- Strengthening demand expectations together with a perceived tightening in supply and an increasing residual drove oil prices up for the second consecutive week. In 2017:Q1, steadily loosening supply conditions triggered a decline in oil prices.

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<th>Demand</th>
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<td>1.4</td>
<td>-8.8</td>
<td>4.1</td>
<td>-3.3</td>
</tr>
</tbody>
</table>

**Cumulative Percentage Changes since January 6, 2017**

**Longer-Term View of Oil Price Movements**

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
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**Cumulative Weekly Decomposition, Jan 06-Apr 07, 2017**

**Cumulative Weekly Decomposition, 2010-Present**

**Sources:** Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.

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**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices rose slightly owing to decreasing supply.

- A perceived tightening in supply drove oil prices up for the third consecutive week, although at a slower pace than in previous weeks. In 2017:Q1, steadily loosening supply conditions triggered a decline in oil prices.

- The 2017:Q1 developments largely offset the 2016:Q4 oil price increase that was driven by contracting supply and strengthening, albeit volatile, global demand.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
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Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
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**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices fell steadily owing to increasing supply.

- Over the past three weeks, perceived loosening in supply drove down oil prices. In 2017:Q1, steadily loosening supply conditions triggered a decline in oil prices.

- The 2017:Q1 developments largely offset the 2016:Q4 oil price increase that was driven by contracting supply and strengthening, albeit volatile, global demand.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.
Cumulative Weekly Decomposition, Jan 06-May 05, 2017

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<tr>
<th>Date</th>
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<td>-18.2</td>
<td>3.4</td>
<td>-15.1</td>
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</tbody>
</table>

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- Strengthening global demand expectations and a perceived tightening in supply caused oil prices to rebound following a three-week decline. In 2017:Q1, steadily loosening supply conditions triggered a decline in oil prices.

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Cumulative Weekly Decomposition, Jan 06-May 12, 2017

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<tr>
<th>Year</th>
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<th>Brent</th>
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Cumulative Weekly Decomposition, 2010-Present

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<td>-17.2</td>
<td>4.1</td>
<td>-11.6</td>
</tr>
<tr>
<td>May 19, 2017</td>
<td>4.2</td>
<td>-15.8</td>
<td>5.3</td>
<td>-6.3</td>
</tr>
</tbody>
</table>

Recent Decomposition Data

- Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
- Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Cumulative Weekly Decomposition, 2010-Present

The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.

Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.

- Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
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**Oil Price Decomposition Q&A**

1. **What is the goal of the oil price decomposition?**
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**References**

**Authors**
Brandyn Bok and Jan Groen
Oil prices fell owing to increasing supply.

- While the demand outlook remained essentially unchanged, a perceived loosening in supply drove oil prices down over the past week. In 2017:Q1, steadily loosening supply conditions triggered a decline in oil prices.

- The 2017:Q1 developments largely offset the 2016:Q4 oil price increase driven by contracting supply and strengthening, albeit volatile, global demand.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.
Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from January 6, 2017.
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### Cumulative Percentage Changes since January 6, 2017

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Residual</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 12, 2017</td>
<td>1.5</td>
<td>-17.2</td>
<td>4.1</td>
<td>-11.6</td>
</tr>
<tr>
<td>May 19, 2017</td>
<td>4.2</td>
<td>-15.8</td>
<td>5.3</td>
<td>-6.3</td>
</tr>
<tr>
<td>May 26, 2017</td>
<td>4.0</td>
<td>-18.2</td>
<td>5.1</td>
<td>-9.1</td>
</tr>
</tbody>
</table>

### Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
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**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices fell steadily owing to decreasing demand and increasing supply.

- Since the last published report, a net weakening in demand expectations together with a net loosening in supply conditions and a decreasing residual drove down oil prices. In 2017:Q1, steadily loosening supply conditions triggered a decline in oil prices.

- The 2017:Q1 developments largely offset the 2016:Q4 oil price increase driven by contracting supply and strengthening, albeit volatile, global demand.

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<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
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<tr>
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<td>Jun 09, 2017</td>
<td>1.1</td>
<td>-21.5</td>
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</tr>
<tr>
<td>Jun 16, 2017</td>
<td>1.4</td>
<td>-22.2</td>
<td>2.1</td>
<td>-18.7</td>
</tr>
</tbody>
</table>

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**References**


**Authors**
Brandyn Bok and Jan Groen
Oil prices fell owing to decreasing demand and increasing supply.

- A weakening in demand expectations together with a loosening in supply conditions led to a decrease in oil prices over the past week. In 2017:Q1, steadily expanding supply conditions triggered a decline in oil prices.

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Cumulative Weekly Decomposition, Jan 06-Jun 23, 2017

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from January 6, 2017.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since January 6, 2017

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun 09, 2017</td>
<td>1.1</td>
<td>-21.5</td>
<td>3.3</td>
<td>-17.0</td>
</tr>
<tr>
<td>Jun 16, 2017</td>
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<td>2.1</td>
<td>-18.7</td>
</tr>
<tr>
<td>Jun 23, 2017</td>
<td>0.1</td>
<td>-24.7</td>
<td>2.0</td>
<td>-22.6</td>
</tr>
</tbody>
</table>

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Cumulative Weekly Decomposition, 2010-Present

Longer-Term View of Oil Price Movements

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References

Authors
Brandyn Bok and Jan Groen
Oil prices rebounded, spurred mainly by tightening supply.

- A perceived contraction in supply alongside strengthening demand expectations contributed to an increase in oil prices over the past week. In 2017:Q1, steadily expanding supply conditions triggered a decline in oil prices.

- The 2017:Q1 developments largely offset the 2016:Q4 oil price increase driven by contracting supply and strengthening, albeit volatile, global demand.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4.

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Cumulative Weekly Decomposition, Jan 06-Jun 30, 2017

Recent Decomposition Data

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Cumulative Percentage Changes since January 6, 2017

<table>
<thead>
<tr>
<th></th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun 16, 2017</td>
<td>1.4</td>
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<td>2.1</td>
<td>-18.7</td>
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<td>Jun 23, 2017</td>
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<td>1.9</td>
<td>-21.1</td>
<td>1.7</td>
<td>-17.5</td>
</tr>
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Longer-Term View of Oil Price Movements

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**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices fell in response to decreasing demand.

- Weakening demand expectations drove oil prices down over the past week. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

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Cumulative Weekly Decomposition, Apr 07-Jul 07, 2017

Recent Decomposition Data

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Cumulative Percentage Changes since April 7, 2017

<table>
<thead>
<tr>
<th></th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
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<tr>
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<td>-12.3</td>
<td>-3.0</td>
<td>-16.8</td>
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</table>

Longer-Term View of Oil Price Movements

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References

Authors
- Brandyn Bok and Jan Groen
Oil prices rose in response to increasing demand and decreasing supply.

- Since the last published report, a steady strengthening in demand expectations together with a net tightening in supply conditions pushed up oil prices. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

- The 2017:Q2 developments followed a largely supply-induced weakness in oil prices throughout 2017:Q1, which mostly offset the 2016:Q4 price increase driven by contracting supply and strengthening, albeit volatile, global demand.

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Cumulative Weekly Decomposition, Apr 07-Jul 28, 2017

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<thead>
<tr>
<th>Date</th>
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<td>Jul 28, 2017</td>
<td>6.1</td>
<td>-10.1</td>
<td>-1.1</td>
<td>-5.0</td>
</tr>
</tbody>
</table>

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References


Authors

Brandyn Bok and Jan Groen
Oil prices were broadly stable over the past week.

- A slight strengthening in demand offset loosening supply conditions to leave oil prices broadly unchanged. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

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<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
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<tbody>
<tr>
<td>Jul 28, 2017</td>
<td>6.1</td>
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<td>-1.1</td>
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<td>Aug 04, 2017</td>
<td>6.6</td>
<td>-10.6</td>
<td>-1.3</td>
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References

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Brandyn Bok and Jan Groen
Oil prices fell slightly owing to decreasing demand.

- Weakening demand expectations offset tightening supply conditions, leading to a small decline in oil prices over the past week. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

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<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
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<td>-5.2</td>
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<tr>
<td>Aug 11, 2017</td>
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<td>-9.8</td>
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**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices rose slightly owing to an increasing residual.

- Despite somewhat looser supply and weakening demand, a larger residual spurred a small rise in oil prices over the past week. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

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Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
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Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
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**References**


**Authors**

Brandyn Bok and Jan Groen
Oil prices fell slightly over the past week.

- Despite strengthening demand, loosening supply and a smaller residual led to a slight decline in oil prices. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

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Brandyn Bok and Jan Groen
Oil prices rose slightly owing mainly to increasing demand.

- Strengthening demand expectations and a perceived tightening in supply conditions led to a small increase in oil prices over the past week. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

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Jan Groen and Max Sterman
Oil prices rose somewhat, driven mainly by an increasing residual.

- Despite broadly unchanged supply and demand conditions, oil prices moderately increased over the past week owing to a higher residual. In 2017:Q2, a continued trend of expanding supply reduced oil prices.

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Cumulative Weekly Decomposition, Jul 07-Oct 06, 2017

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Cumulative Weekly Decomposition, 2010-Present

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Jan Groen and Max Sterman
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References


Authors

Jan Groen and Max Sterman
Oil prices rose, driven by increasing demand, supply, and the residual term.

- Over the past three weeks oil prices increased, as anticipated supply tightened somewhat, demand expectations were modestly higher, and, above all, the residual moved higher. In 2017:Q3, robust global demand expectations exerted upward pressure on oil prices.

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   Sparse partial least squares regression allows us to construct linear combinations from the variables in our financial market data set—called factors—which have maximum explanatory content for oil price changes. We first use this procedure to generate factors that best capture the patterns in the data, and then examine the estimated factors to determine how they reflect demand or supply dynamics.

   The model is re-estimated every week using weekly data from January 1986 through the close of business on Friday of the most recent week. Over this sample, the model can explain about two-thirds of the weekly oil price dynamics.

3. **How to interpret the results?**
   The output of the model is used to decompose weekly changes in an accounting sense. More specifically, the weekly Brent crude price change always equals the change explained by demand factors plus the change explained by supply factors plus a residual (the weekly change unexplained by the sum of the estimated demand and supply factors).

   Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

**References**


**Authors**

Jan Groen and Max Sterman
Oil prices fell modestly, driven mainly by increasing supply.

- An anticipated loosening in supply and a slight decrease in demand expectations led to somewhat lower oil prices over the past week. In 2017:Q3, robust global demand expectations exerted upward pressure on oil prices.

- The 2017:Q3 developments reversed the largely supply-induced weakness in oil prices throughout the first half of 2017.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4, and notably in 2017:Q3.

Our analysis of oil price movements does not necessarily represent the views of the Federal Reserve Bank of New York, the Federal Reserve System, or the Federal Open Market Committee.
Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 7, 2017.
- The table below presents the most recent cumulative values.

### Cumulative Percentage Changes since July 7, 2017

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 03, 2017</td>
<td>16.7</td>
<td>3.1</td>
<td>8.6</td>
<td>28.4</td>
</tr>
<tr>
<td>Nov 10, 2017</td>
<td>17.6</td>
<td>4.3</td>
<td>8.8</td>
<td>30.7</td>
</tr>
<tr>
<td>Nov 17, 2017</td>
<td>17.3</td>
<td>2.8</td>
<td>9.4</td>
<td>29.5</td>
</tr>
</tbody>
</table>

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.

Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Cumulative Weekly Decomposition, 2010-Present

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
- The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.

Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.
1. **What is the goal of the oil price decomposition?**
   Our aim is to determine how much of the observed oil price change has been driven by demand and supply factors.

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Given the noise in weekly price changes, we choose to show the results as a cumulation from a certain starting point (usually the start of the previous quarter).

---

**References**

**Authors**
Jan Groen and Max Sterman
Oil prices rose owing to increasing demand.

- Despite an anticipated loosening in supply, increases in global demand expectations and the residual led to higher oil prices over the past week. In 2017:Q3, robust global demand expectations exerted upward pressure on oil prices.

- The 2017:Q3 developments reversed the largely supply-induced weakness in oil prices throughout the first half of 2017.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4, and notably in 2017:Q3.

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**Cumulative Weekly Decomposition, Jul 07-Nov 24, 2017**

- The chart at left depicts the cumulative oil price decomposition from July 7, 2017.
- The table below presents the most recent cumulative values.

### Cumulative Percentage Changes since July 7, 2017

<table>
<thead>
<tr>
<th></th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nov 10, 2017</td>
<td>17.2</td>
<td>4.7</td>
<td>8.8</td>
<td>30.7</td>
</tr>
<tr>
<td>Nov 17, 2017</td>
<td>16.7</td>
<td>3.4</td>
<td>9.4</td>
<td>29.5</td>
</tr>
<tr>
<td>Nov 24, 2017</td>
<td>18.1</td>
<td>2.4</td>
<td>10.8</td>
<td>31.3</td>
</tr>
</tbody>
</table>

**Recent Decomposition Data**

- Sources: Authors' calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
- Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

**Cumulative Weekly Decomposition, 2010-Present**

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
- The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.

**Longer-Term View of Oil Price Movements**

- Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
- Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.
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   The output of the model is used to decompose weekly changes in an accounting sense. More specifically, the weekly Brent crude price change always equals the change explained by demand factors plus the change explained by supply factors plus a residual (the weekly change unexplained by the sum of the estimated demand and supply factors).

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**References**


**Authors**

Jan Groen and Max Sterman
Oil prices declined over the past three weeks owing to a supply increase.

- Although both global demand expectations and the residual went up over the past three weeks (since the last published report), the fall in anticipated supply more than offset these moves and led to lower oil prices over this period. In 2017:Q3, robust global demand expectations exerted upward pressure on oil prices.

- The 2017:Q3 developments reversed the largely supply-induced weakness in oil prices throughout the first half of 2017.

- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4, and notably in 2017:Q3.
Cumulative Weekly Decomposition, Jul 07-Dec 15, 2017

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 7, 2017.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since July 7, 2017

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 01, 2017</td>
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<td>10.4</td>
<td>31.1</td>
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<tr>
<td>Dec 08, 2017</td>
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<td>0.3</td>
<td>11.4</td>
<td>30.6</td>
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<tr>
<td>Dec 15, 2017</td>
<td>18.9</td>
<td>-0.1</td>
<td>11.5</td>
<td>30.3</td>
</tr>
</tbody>
</table>

Longer-Term View of Oil Price Movements

- This final chart provides a somewhat longer-term perspective by means of a cumulative decomposition from 2010 onward.
- The analysis shows that excess supply became a significant driver of oil prices in mid-2012 and generally dominated price dynamics after mid-2014.
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---

**References**


**Authors**

Jan Groen and Max Sterman
Oil prices increased over the past week owing to lower supply and higher demand.

- A fall in anticipated supply and a rise in demand expectations led to higher oil prices this week. In 2017:Q3, robust global demand expectations exerted upward pressure on oil prices.

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- Overall, since the end of 2014:Q2, both lower global demand expectations and looser supply have held oil prices down, though this trend seems to have reversed in 2016:Q2 and 2016:Q4, and notably in 2017:Q3.

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Cumulative Weekly Decomposition, Jul 07-Dec 22, 2017

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The table below presents the most recent cumulative values.

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<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
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<th>Rest</th>
<th>Brent</th>
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<td>Dec 08, 2017</td>
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<td>30.6</td>
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<tr>
<td>Dec 15, 2017</td>
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<td>-0.2</td>
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<td>Dec 22, 2017</td>
<td>20.5</td>
<td>2.5</td>
<td>10.4</td>
<td>33.4</td>
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</table>

Sources: Authors’ calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
Notes: Residual reflects price movements unexplained by supply and demand factors. Supply, demand, and residual sum to Brent crude price.

Cumulative Weekly Decomposition, 2010-Present

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**References**


**Authors**

Jan Groen and Max Sterman