Oil prices went up this week owing to an increase in demand and a decrease in supply.

- The tightening in anticipated supply combined with the strengthening of demand expectations to drive oil prices up this week. In 2018:Q4, oil prices fell due to declining demand and increasing supply.

- Developments in global demand expectations since 2017:Q3 have 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 since 2017:Q3.
Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from October 1, 2018.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since October 1, 2018

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 21, 2018</td>
<td>-20.5</td>
<td>-9.5</td>
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<tr>
<td>Dec 28, 2018</td>
<td>-19.5</td>
<td>-12.2</td>
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<td>Jan 04, 2019</td>
<td>-16.6</td>
<td>-9.6</td>
<td>-10.9</td>
<td>-37.1</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.

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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   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?
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References


Authors

Jan Groen and Casey McQuillan
Oil prices went up again this week owing to an increase in demand.

- Stronger demand expectations drove oil prices up this week while anticipated supply remained broadly unchanged. In 2018:Q4, oil prices fell due to declining demand and increasing supply.

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</tr>
<tr>
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<td>-16.6</td>
<td>-9.7</td>
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<td>Jan 11, 2019</td>
<td>-13.4</td>
<td>-9.5</td>
<td>-8.4</td>
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**References**

**Authors**
Jan Groen, Casey McQuillan, and Michael Nattinger
Oil prices rose over the past three weeks owing mostly to an increase in demand.

- A strengthening in demand expectations and relatively unchanged anticipated supply led to an increase in oil prices over the past three weeks. In 2018:Q4, oil prices fell due to declining demand and increasing supply.

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<td>Feb 01, 2019</td>
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**Authors**

Jan Groen, Casey McQuillan, and Michael Nattinger
Oil prices rose over the past week owing to an increase in demand and a contraction of supply.

- A strengthening in demand expectations and weakening of anticipated supply led to an increase in oil prices this week. In 2018:Q4, oil prices fell due to declining demand and increasing supply.

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Oil Price Decomposition Q&A

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Oil prices rose over the past week owing to an increase in demand.

- A strengthening in demand expectations offset higher anticipated supply, resulting in an increase in oil prices this week. In 2018:Q4, oil prices fell due to declining demand and increasing supply.

- Developments in global demand expectations since 2017:Q3 have reversed the largely supply-induced weakness in oil prices throughout the first half of 2017.

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Cumulative Weekly Decomposition, Oct 01-Feb 22, 2019

Recently Decomposition Data

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Cumulative Percentage Changes since October 1, 2018

<table>
<thead>
<tr>
<th>Date</th>
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<td>-28.7</td>
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<tr>
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<td>-7.3</td>
<td>-10.8</td>
<td>-2.8</td>
<td>-20.9</td>
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</tbody>
</table>

Longer-Term View of Oil Price Movements

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References


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Jan Groen, Casey McQuillan, and Michael Nattinger
Oil prices fell over the past week owing to an increase in supply.

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- Developments in global demand expectations since 2017:Q3 have 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 since 2017:Q3.
Cumulative Weekly Decomposition, Oct 01–Mar 01, 2019

Recent Decomposition Data

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<table>
<thead>
<tr>
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**Authors**

Jan Groen, Casey McQuillan, and Michael Nattinger
Oil prices increased over the past three weeks as the residual offset moves in demand and supply.

- Weakening demand expectations and higher anticipated supply were offset by a large increase in the residual, resulting in an increase in oil prices since the last release of this report. In 2018:Q4, oil prices fell due to declining demand and increasing supply.

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Jan Groen and Michael Nattinger
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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).
   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 Michael Nattinger
Oil prices rose over the past week owing to an increase in demand and decrease in supply.

- Strengthening demand expectations and lower anticipated supply resulted in an increase in oil prices this week. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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, Jan 01-Apr 05, 2019

- The chart at left depicts the cumulative oil price decomposition from January 1, 2019.
- The table below presents the most recent cumulative values.

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 22, 2019</td>
<td>11.9</td>
<td>-0.2</td>
<td>13.3</td>
<td>25.0</td>
</tr>
<tr>
<td>Mar 29, 2019</td>
<td>13.1</td>
<td>-2.0</td>
<td>15.9</td>
<td>27.0</td>
</tr>
<tr>
<td>Apr 05, 2019</td>
<td>14.9</td>
<td>-0.4</td>
<td>15.3</td>
<td>29.8</td>
</tr>
</tbody>
</table>

Cumulative Percentage Changes since January 1, 2019

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

Recent Decomposition Data

Cumulative Weekly Decomposition, 2010-Present
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).

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**References**


**Authors**

Jan Groen and Michael Nattinger
Oil prices rose over the past week owing to an increase in demand and decrease in supply.

- Strengthening demand expectations and lower anticipated supply resulted in an increase in oil prices this week. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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Cumulative Weekly Decomposition, Jan 01-Apr 12, 2019

Recent Decomposition Data
- The chart at left depicts the cumulative oil price decomposition from January 1, 2019.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th></th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 29, 2019</td>
<td>13.1</td>
<td>-2.0</td>
<td>15.9</td>
<td>27.0</td>
</tr>
<tr>
<td>Apr 05, 2019</td>
<td>14.9</td>
<td>-0.4</td>
<td>15.3</td>
<td>29.8</td>
</tr>
<tr>
<td>Apr 12, 2019</td>
<td>15.5</td>
<td>0.3</td>
<td>15.8</td>
<td>31.5</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.

Cumulative Weekly Decomposition, 2010-Present

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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   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.

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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.

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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 Michael Nattinger
Oil prices fell over the past three weeks owing to an increase in supply.

- Higher anticipated supply more than offset strengthening demand expectations, resulting in a decrease in oil prices over the past three weeks. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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, Jan 01-May 03, 2019

Recent Decomposition Data
- The chart at left depicts the cumulative oil price decomposition from January 1, 2019.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 19, 2019</td>
<td>16.3</td>
<td>0.4</td>
<td>16.9</td>
</tr>
<tr>
<td>Apr 26, 2019</td>
<td>17.0</td>
<td>-3.7</td>
<td>19.0</td>
</tr>
<tr>
<td>May 03, 2019</td>
<td>16.9</td>
<td>-5.0</td>
<td>18.7</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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   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 Michael Nattinger
Oil prices hardly changed this week as lower demand countered the impact of lower supply.

- Lower demand expectations offset the price impact of lower anticipated supply, resulting in broadly unchanged oil prices this week. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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Cumulative Weekly Decomposition, Jan 01-May 10, 2019

The chart at left depicts the cumulative oil price decomposition from January 1, 2019.

The table below presents the most recent cumulative values.

### Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 26, 2019</td>
<td>17.0</td>
<td>-3.7</td>
<td>19.0</td>
<td>32.4</td>
</tr>
<tr>
<td>May 03, 2019</td>
<td>16.9</td>
<td>-5.0</td>
<td>18.7</td>
<td>30.5</td>
</tr>
<tr>
<td>May 10, 2019</td>
<td>14.9</td>
<td>-4.1</td>
<td>19.4</td>
<td>30.2</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apr 26, 2019</td>
<td>17.0</td>
<td>-3.7</td>
<td>19.0</td>
<td>32.4</td>
</tr>
<tr>
<td>May 03, 2019</td>
<td>16.9</td>
<td>-5.0</td>
<td>18.7</td>
<td>30.5</td>
</tr>
<tr>
<td>May 10, 2019</td>
<td>14.9</td>
<td>-4.1</td>
<td>19.4</td>
<td>30.2</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.
1. **What is the goal of the oil price decomposition?**
   
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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.

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**Authors**

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Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from January 1, 2019.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 03, 2019</td>
<td>16.9</td>
<td>-5.0</td>
<td>18.7</td>
<td>30.5</td>
</tr>
<tr>
<td>May 10, 2019</td>
<td>15.0</td>
<td>-4.2</td>
<td>19.4</td>
<td>30.2</td>
</tr>
<tr>
<td>May 17, 2019</td>
<td>16.1</td>
<td>-3.7</td>
<td>20.1</td>
<td>32.4</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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**Authors**

Jan Groen and Michael Nattinger
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- Lower demand expectations and higher anticipated supply resulted in lower oil prices this week. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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Cumulative Weekly Decomposition, Jan 01-May 24, 2019

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from January 1, 2019.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 10, 2019</td>
<td>15.0</td>
<td>-4.2</td>
<td>19.4</td>
<td>30.2</td>
</tr>
<tr>
<td>May 17, 2019</td>
<td>16.1</td>
<td>-3.7</td>
<td>20.1</td>
<td>32.4</td>
</tr>
<tr>
<td>May 24, 2019</td>
<td>14.0</td>
<td>-7.9</td>
<td>21.4</td>
<td>27.5</td>
</tr>
</tbody>
</table>

Cumulative Weekly Decomposition, 2010-Present

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

Jan Groen and Michael Nattinger
Oil prices fell this week owing to decreased demand and higher supply.

- Lower demand expectations and higher anticipated supply resulted in lower oil prices this week. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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Cumulative Weekly Decomposition, Jan 01-May 31, 2019

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from January 1, 2019.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th></th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 17, 2019</td>
<td>16.1</td>
<td>-3.7</td>
<td>20.1</td>
<td>32.4</td>
</tr>
<tr>
<td>May 24, 2019</td>
<td>13.9</td>
<td>-7.8</td>
<td>21.3</td>
<td>27.5</td>
</tr>
<tr>
<td>May 31, 2019</td>
<td>11.0</td>
<td>-9.3</td>
<td>19.5</td>
<td>21.1</td>
</tr>
</tbody>
</table>

Cumulative Weekly Decomposition, 2010-Present

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 Michael Nattinger
Oil prices rose somewhat in the past three weeks, with higher demand offsetting increased supply.

- Over the past three weeks, higher anticipated supply as well as higher demand expectations resulted in a modest overall increase in oil prices. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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Cumulative Weekly Decomposition, Jan 01-Jun 21, 2019

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from January 1, 2019.
- The table below presents the most recent cumulative values.

### Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun 07, 2019</td>
<td>13.4</td>
<td>-11.8</td>
<td>17.6</td>
<td>19.3</td>
</tr>
<tr>
<td>Jun 14, 2019</td>
<td>14.0</td>
<td>-13.1</td>
<td>16.4</td>
<td>17.2</td>
</tr>
<tr>
<td>Jun 21, 2019</td>
<td>15.8</td>
<td>-9.7</td>
<td>16.2</td>
<td>22.2</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.

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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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

Jan Groen and Michael Nattinger
Oil prices rose somewhat in the past week due to lower supply and slightly higher demand.

- Over the past week, lower anticipated supply as well as slightly higher demand expectations resulted in an increase in oil prices. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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**Cumulative Weekly Decomposition, Jan 01-Jun 28, 2019**

The chart at left depicts the cumulative oil price decomposition from January 1, 2019.

The table below presents the most recent cumulative values.

### Cumulative Percentage Changes since January 1, 2019

<table>
<thead>
<tr>
<th>Date</th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
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</thead>
<tbody>
<tr>
<td>Jun 14, 2019</td>
<td>14.0</td>
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<td>16.4</td>
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<td>Jun 21, 2019</td>
<td>15.8</td>
<td>-9.7</td>
<td>16.2</td>
<td>22.2</td>
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<tr>
<td>Jun 28, 2019</td>
<td>16.1</td>
<td>-8.8</td>
<td>17.0</td>
<td>24.3</td>
</tr>
</tbody>
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**Recent Decomposition Data**

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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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   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.

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**References**


**Authors**

Jan Groen and Michael Nattinger
Oil prices dropped in the past week due to higher supply.

- Over the past week, higher anticipated supply resulted in a drop in oil prices. In 2019:Q1, oil prices rose due to increasing demand.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices.

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<td>Jul 05, 2019</td>
<td>16.9</td>
<td>-12.7</td>
<td>16.5</td>
<td>20.7</td>
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Authors
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Oil prices rose in the past week due to lower supply.

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**References**


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Jan Groen and Michael Nattinger
Oil prices fell over the past three weeks owing to lower demand and higher supply.

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<td>-10.0</td>
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**References**

**Authors**
Jan Groen and Michael Nattinger
Oil prices were unchanged this week as lower demand and higher supply were offset by the residual.

- Over the past week, lower demand expectations and higher anticipated supply were offset by the residual, resulting in broadly unchanged oil prices. In 2019:Q2, oil prices fell due to increasing supply.

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```
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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Cumulative Weekly Decomposition, Apr 01-Aug 30, 2019

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**References**


**Authors**

Jan Groen and Michael Nattinger
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Longer-Term View of Oil Price Movements

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**References**


**Authors**

Jan Groen and Michael Nattinger
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- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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Cumulative Weekly Decomposition, Apr 01-Sep 27, 2019

Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from April 1, 2019.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since April 1, 2019

<table>
<thead>
<tr>
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Cumulative Weekly Decomposition, 2010-Present

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- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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Jan Groen and Michael Nattinger
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<td>-3.8</td>
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Cumulative Weekly Decomposition, Jul 05-Nov 08, 2019

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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).

   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).

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**References**


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Jan Groen, Michael Nattinger, and Adam Noble
Oil prices rose over the past week owing to increased demand.

- Over the past week, higher demand expectations and lower anticipated supply resulted in higher oil prices. In 2019:Q3, oil prices fell due to increasing supply.

- In 2018, strengthening global demand expectations drove oil prices higher. This trend reversed in 2018:Q4, when weaker expected demand and higher anticipated supply lowered prices. In 2019:Q1, oil prices rose due to increasing demand expectations, whereas in 2019:Q2 higher anticipated supply drove prices down.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend has reversed as stronger demand expectations and stabilizing anticipated supply have driven oil prices higher.

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 05-Dec 20, 2019

Recent Decomposition Data
- The chart at left depicts the cumulative oil price decomposition from July 5, 2019.
- The table below presents the most recent cumulative values.

Cumulative Percentage Changes since July 5, 2019

<table>
<thead>
<tr>
<th></th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 06, 2019</td>
<td>0.8</td>
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<tr>
<td>Dec 13, 2019</td>
<td>1.4</td>
<td>-5.9</td>
<td>6.0</td>
<td>1.5</td>
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<td>Dec 20, 2019</td>
<td>3.3</td>
<td>-5.8</td>
<td>5.5</td>
<td>2.9</td>
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</tbody>
</table>

Cumulative Weekly Decomposition, 2010-Present

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).

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Cumulative Weekly Decomposition, Jul 05-Dec 27, 2019

The chart at left depicts the cumulative oil price decomposition from July 5, 2019.

The table below presents the most recent cumulative values.

Cumulative Percentage Changes since July 5, 2019

<table>
<thead>
<tr>
<th></th>
<th>Demand</th>
<th>Supply</th>
<th>Rest</th>
<th>Brent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dec 13, 2019</td>
<td>1.4</td>
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<tr>
<td>Dec 20, 2019</td>
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<td>2.9</td>
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<td>-5.4</td>
<td>7.3</td>
<td>5.9</td>
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 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.

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