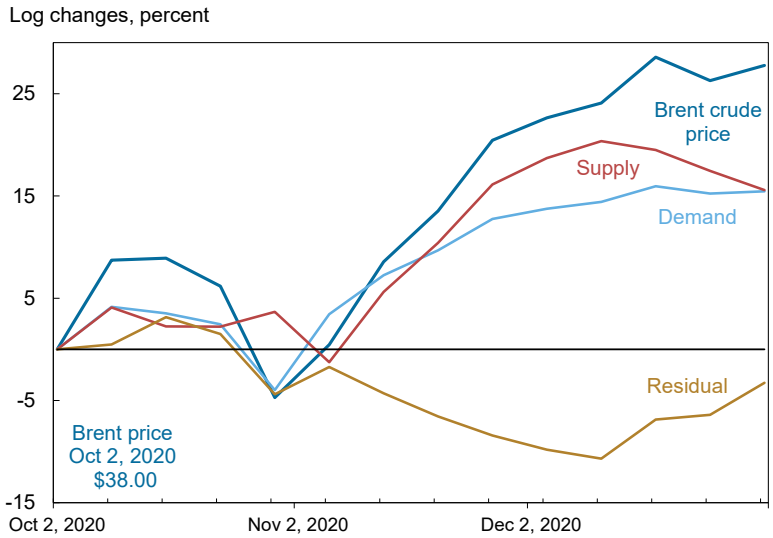
# OIL PRICE DYNAMICS REPORT

Updated: January 4, 2021

## Higher demand pushed oil prices higher over the past week

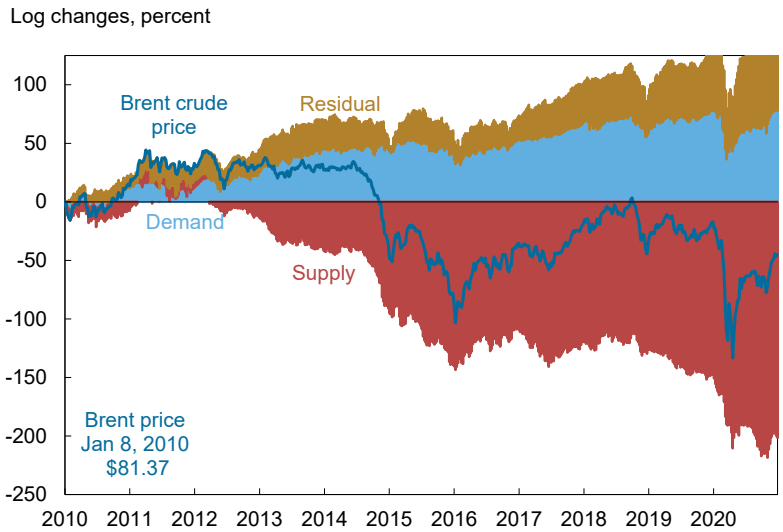
- Over the past week, an increase in anticipated supply was offset by an increase in demand expectations and the residual, resulting in higher oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Jan 01, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Dec 18, 2020 | 16.0 | 19.5 | -6.9 | 28.6 |
| Dec 25, 2020 | 15.2 | 17.5 | -6.4 | 26.3 |
| Jan 01, 2021 | 15.5 | 15.6 | -3.3 | 27.8 |

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

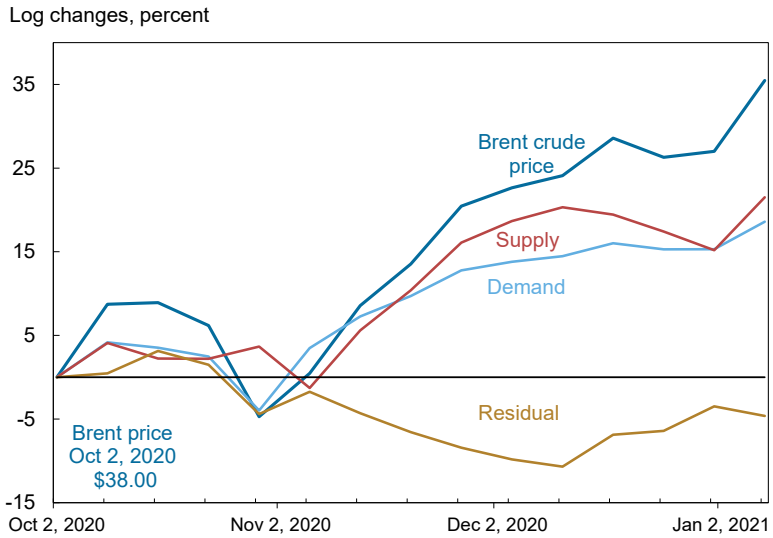
# OIL PRICE DYNAMICS REPORT

Updated: January 11, 2021

## Higher demand and lower supply pushed oil prices higher over the past week

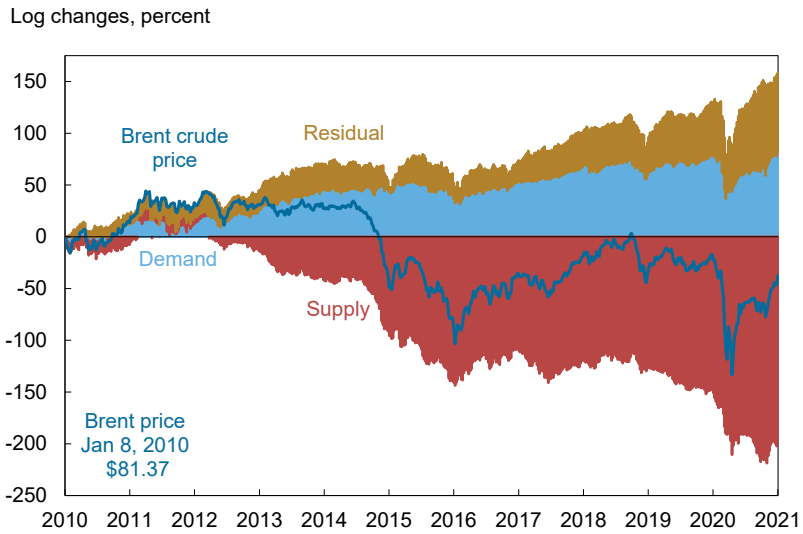
- Over the past week, an increase in demand expectations and a decrease in anticipated supply resulted in higher oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Jan 08, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Dec 25, 2020 | 15.3 | 17.4 | -6.4 | 26.3 |
| Jan 01, 2021 | 15.3 | 15.2 | -3.5 | 27.0 |
| Jan 08, 2021 | 18.6 | 21.5 | -4.6 | 35.5 |

## 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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   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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- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

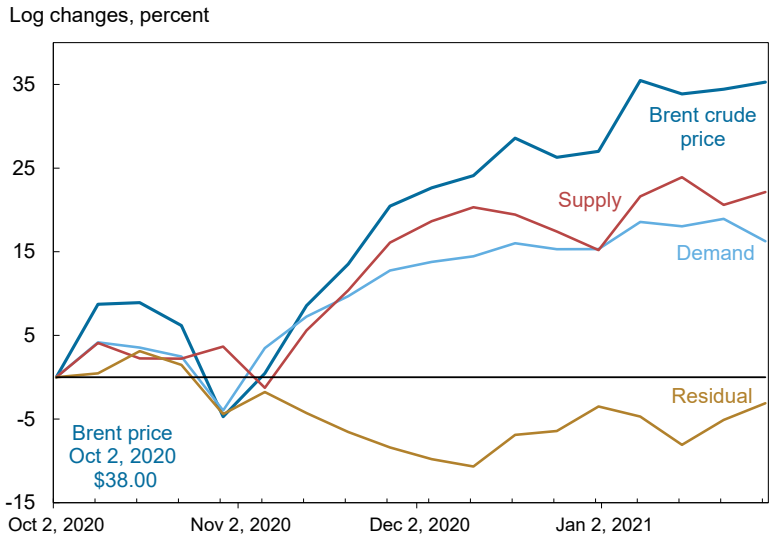
# OIL PRICE DYNAMICS REPORT

Updated: February 1, 2021

## Oil prices remained broadly the same over the past three weeks.

- Over the past three weeks, a decrease in anticipated supply was offset by a decrease in demand expectations, resulting in broadly unchanged oil prices. For the most recent week, anticipated supply fell and, despite the adverse move in expected demand, this led to somewhat higher prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Jan 29, 2021




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.

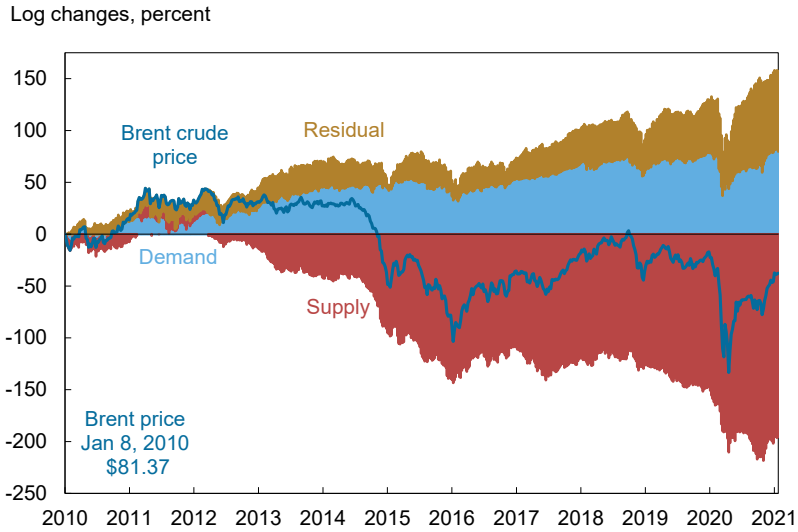
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jan 15, 2021 | 18.0 | 23.9 | -8.1 | 33.9 |
| Jan 22, 2021 | 18.9 | 20.6 | -5.1 | 34.4 |
| Jan 29, 2021 | 16.3 | 22.1 | -3.1 | 35.3 |

## 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.

## 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

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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).

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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

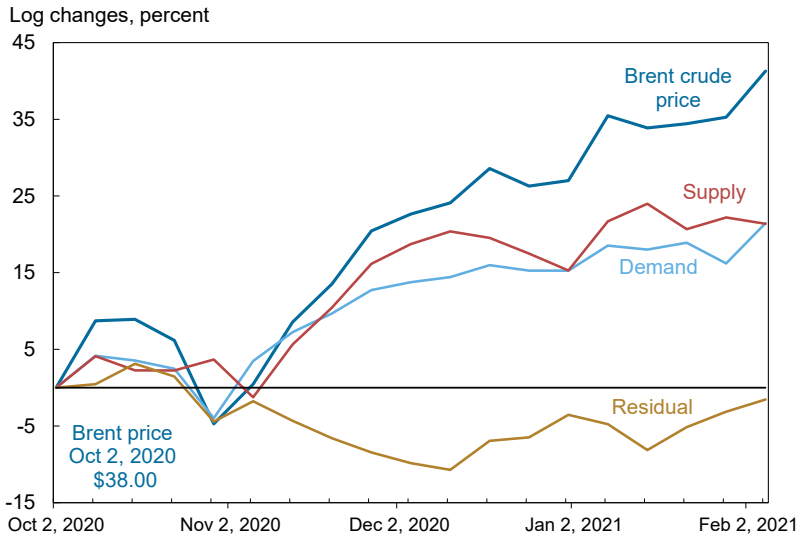
# OIL PRICE DYNAMICS REPORT

Updated: February 8, 2021

## Oil prices increased over the past week owing to increased demand.

- Over the past week, an increase in anticipated supply was offset by an increase in demand expectations, resulting in higher oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Feb 05, 2021




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.

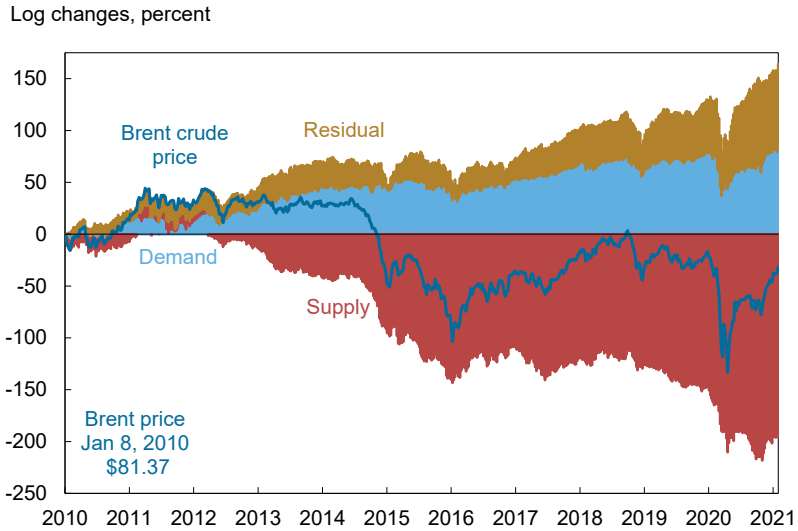
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jan 22, 2021 | 18.9 | 20.7 | -5.1 | 34.4 |
| Jan 29, 2021 | 16.2 | 22.2 | -3.1 | 35.3 |
| Feb 05, 2021 | 21.5 | 21.4 | -1.5 | 41.3 |

## Cumulative Weekly Decomposition, 2010-Present

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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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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

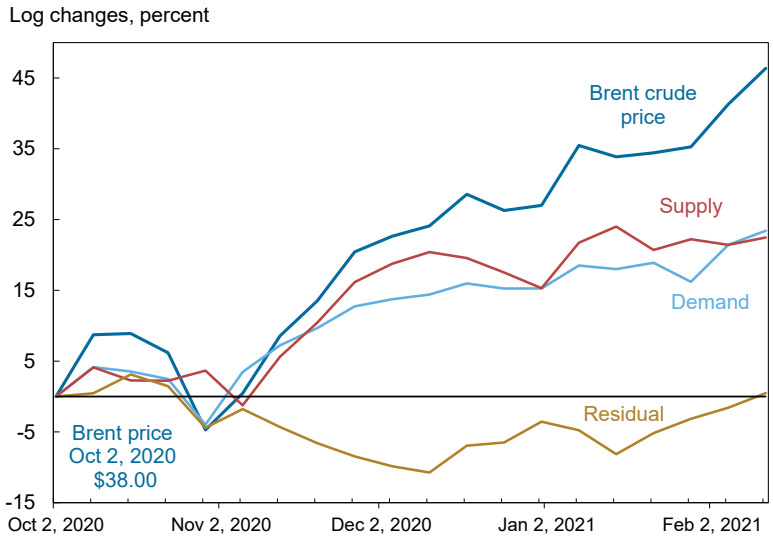
Updated: February 16, 2021

## Oil prices increased over the past week owing to increased demand and decreased supply.

- Over the past week, an increase in demand expectations and a decrease in anticipated supply resulted in higher oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

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, Oct 02-Feb 12, 2021




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.

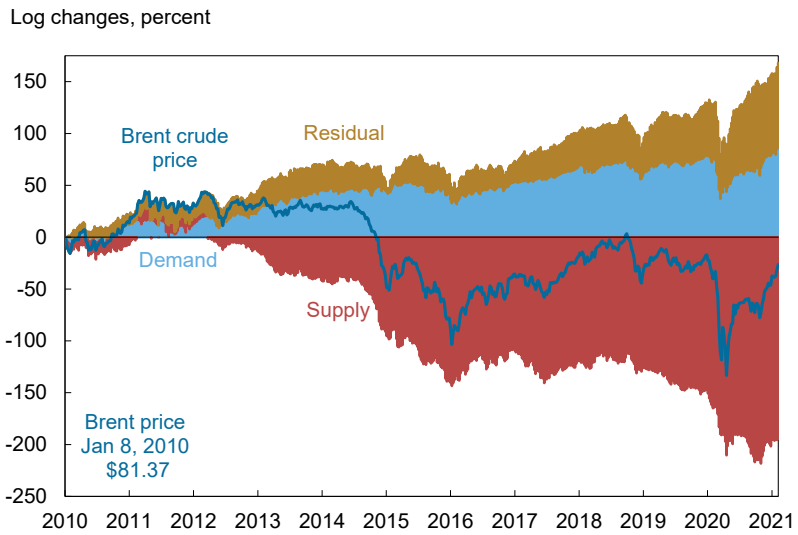
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jan 29, 2021 | 16.2 | 22.2 | -3.1 | 35.3 |
| Feb 05, 2021 | 21.4 | 21.4 | -1.6 | 41.3 |
| Feb 12, 2021 | 23.4 | 22.5 | 0.5 | 46.4 |

## Cumulative Weekly Decomposition, 2010-Present




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


Jan Groen, Lawrence Lin, and Adam Noble

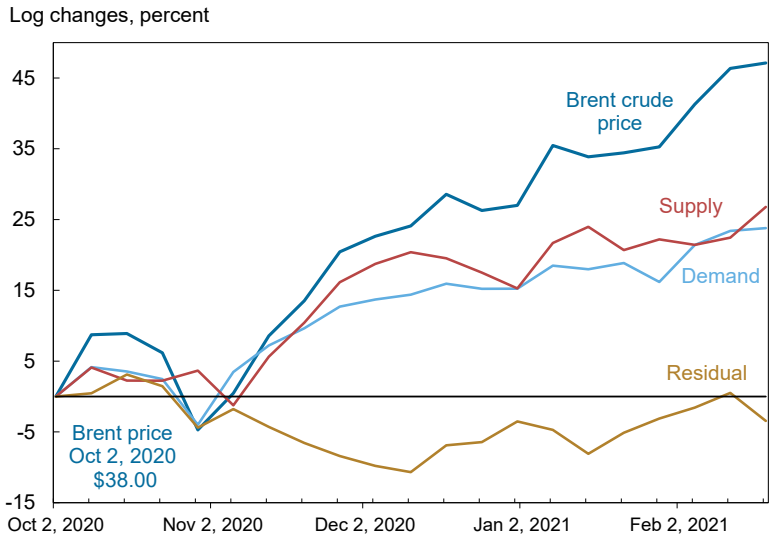
# OIL PRICE DYNAMICS REPORT

Updated: February 22, 2021

## Oil prices increased over the past week owing to increased demand and decreased supply.

- Over the past week, an increase in demand expectations and a decrease in anticipated supply resulted in higher oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Feb 19, 2021

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## Recent Decomposition Data

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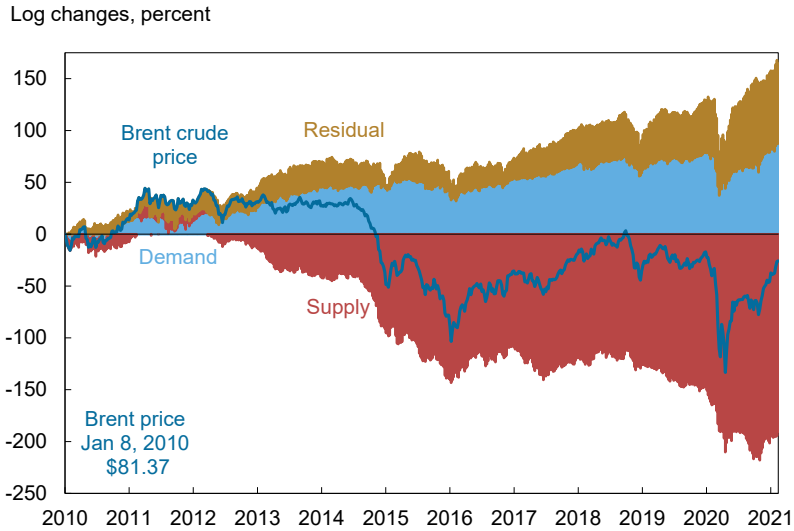
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Feb 05, 2021 | 21.4 | 21.4 | -1.6 | 41.3 |
| Feb 12, 2021 | 23.4 | 22.4 | 0.5 | 46.4 |
| Feb 19, 2021 | 23.8 | 26.8 | -3.5 | 47.1 |

## Cumulative Weekly Decomposition, 2010-Present

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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

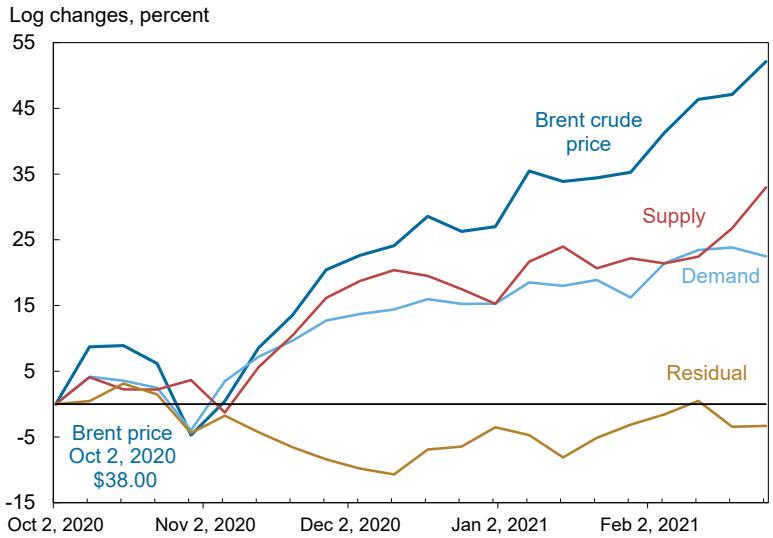
# OIL PRICE DYNAMICS REPORT

Updated: March 1, 2021

## Oil prices increased over the past week owing to decreased supply.

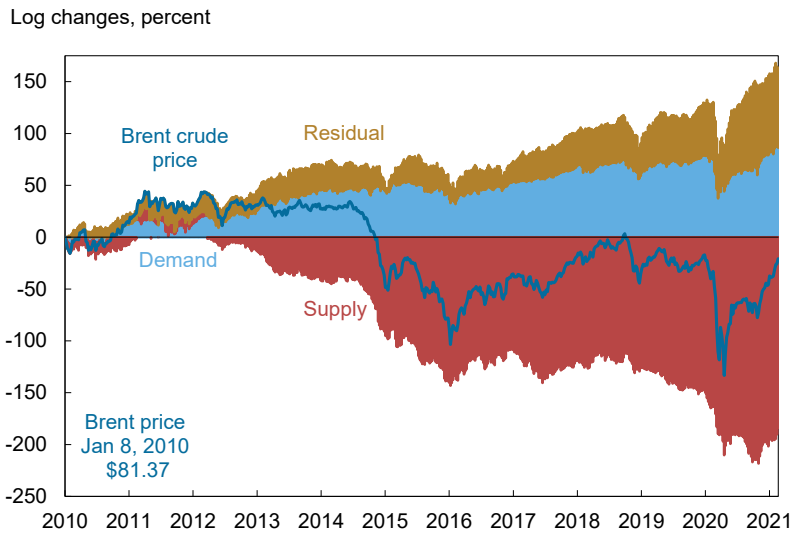
- Although demand expectations deteriorated over the past week, this was offset by a decrease in anticipated supply, resulting in higher oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Feb 26, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Feb 12, 2021 | 23.4 | 22.4 | 0.5 | 46.4 |
| Feb 19, 2021 | 23.8 | 26.7 | -3.5 | 47.1 |
| Feb 26, 2021 | 22.5 | 33.0 | -3.3 | 52.1 |

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

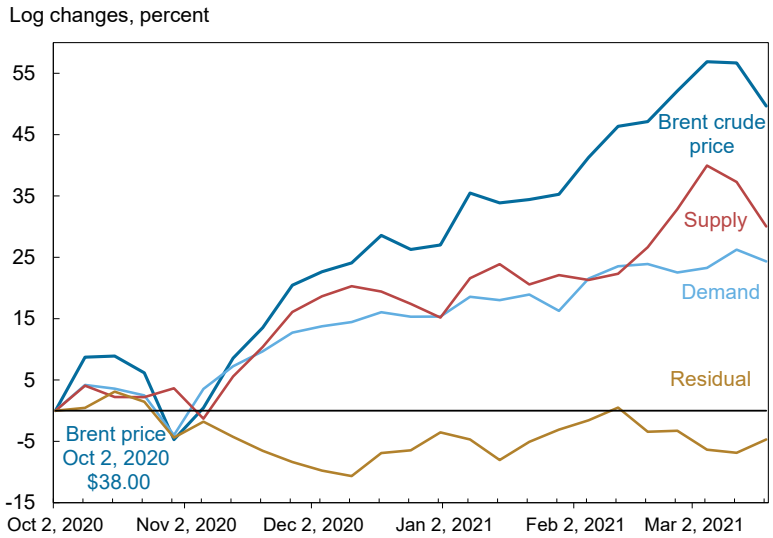
# OIL PRICE DYNAMICS REPORT

Updated: March 22, 2021

## Oil prices decreased over the past three weeks owing to increased supply.

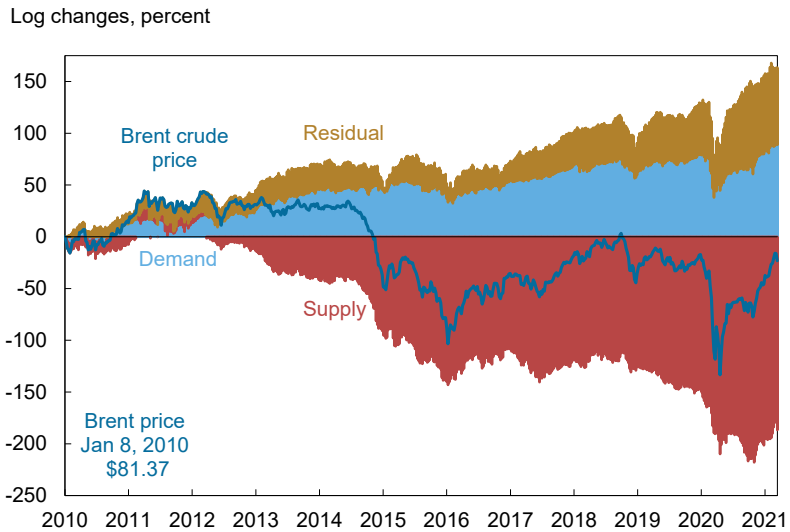
- Over the past three weeks, an increase in demand expectations was offset by an increase in anticipated supply, resulting in lower oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Mar 19, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Mar 05, 2021 | 23.3 | 40.0 | -6.4 | 56.9 |
| Mar 12, 2021 | 26.3 | 37.3 | -6.9 | 56.7 |
| Mar 19, 2021 | 24.3 | 30.0 | -4.7 | 49.7 |

## 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).

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- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

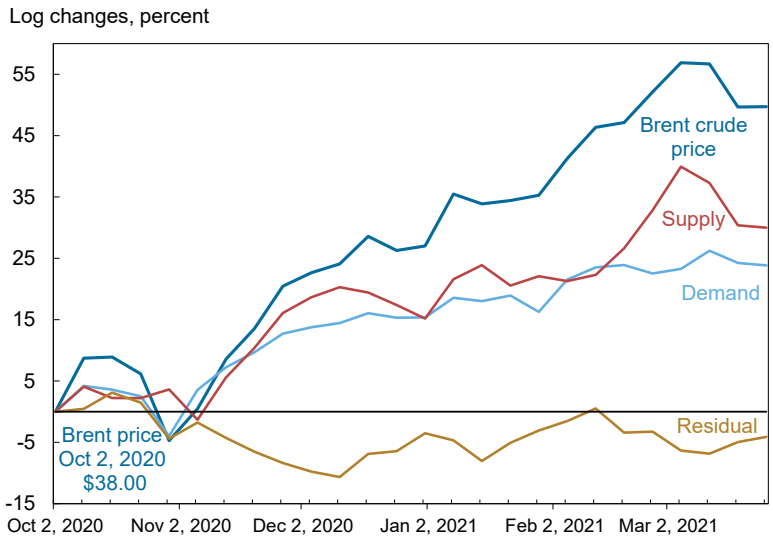
# OIL PRICE DYNAMICS REPORT

Updated: March 29, 2021

## Oil prices remained broadly the same over the past week.

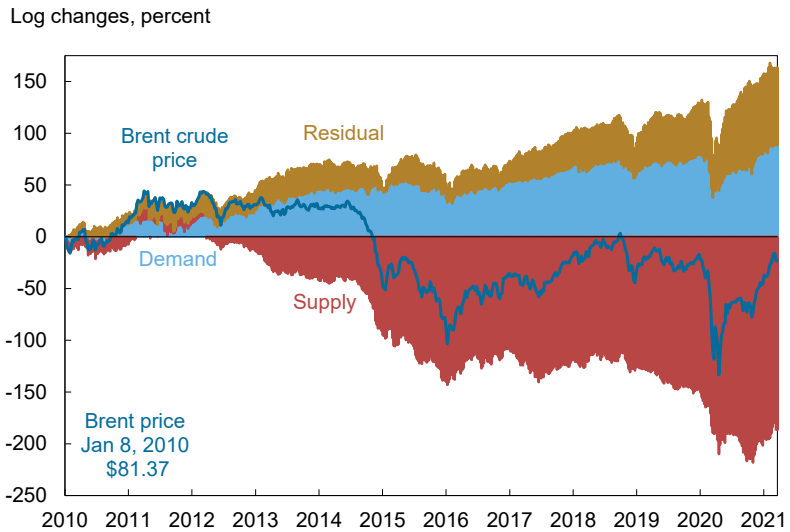
- Over the past week, a decrease in demand expectations and essentially constant anticipated supply were offset by an increase in the residual, resulting in broadly unchanged oil prices. In 2020:Q4, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. In 2020:Q3, oil prices fell owing to increased supply. Oil prices rose in 2019 due to increasing demand expectations.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices.

## Cumulative Weekly Decomposition, Oct 02-Mar 26, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from October 2, 2020.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since October 2, 2020

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Mar 12, 2021 | 26.2 | 37.3 | -6.8 | 56.7 |
| Mar 19, 2021 | 24.2 | 30.4 | -5.0 | 49.7 |
| Mar 26, 2021 | 23.8 | 30.0 | -4.1 | 49.7 |

## 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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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: April 5, 2021

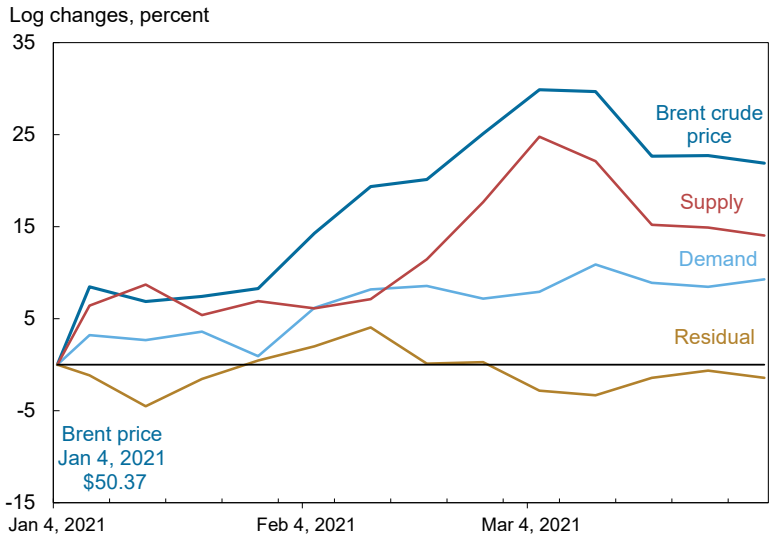
## Oil prices decreased over the past week owing to increased supply.

- Over the past week, an increase in demand expectations was offset by an increase in anticipated supply and a decrease in the residual, resulting in lower oil prices. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.

- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

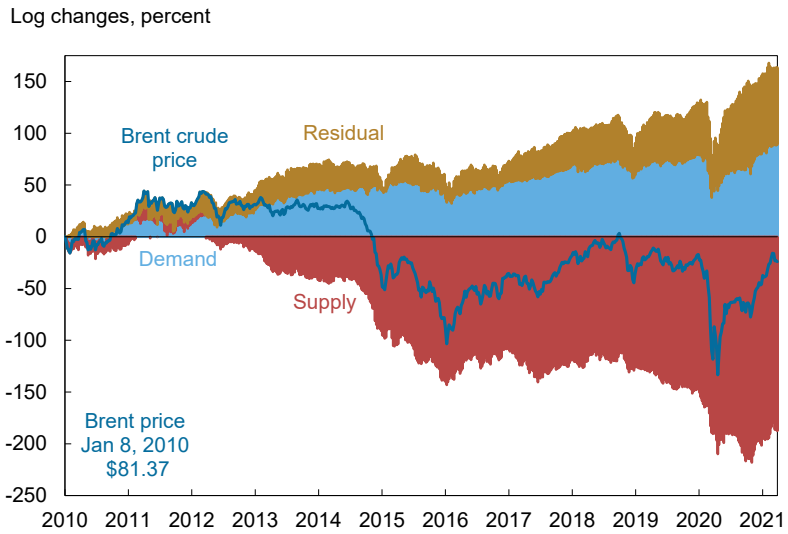
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-Apr 02, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Mar 19, 2021 | 8.9 | 15.2 | -1.4 | 22.7 |
| Mar 26, 2021 | 8.5 | 14.9 | -0.6 | 22.7 |
| Apr 02, 2021 | 9.3 | 14.0 | -1.4 | 21.9 |

## 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.

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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?**

   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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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

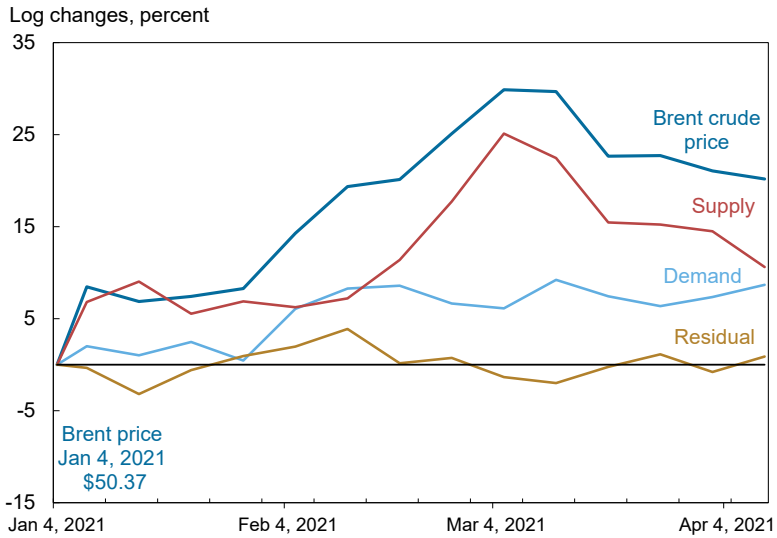
# OIL PRICE DYNAMICS REPORT

Updated: April 12, 2021

## Oil prices decreased over the past week owing to increased supply.

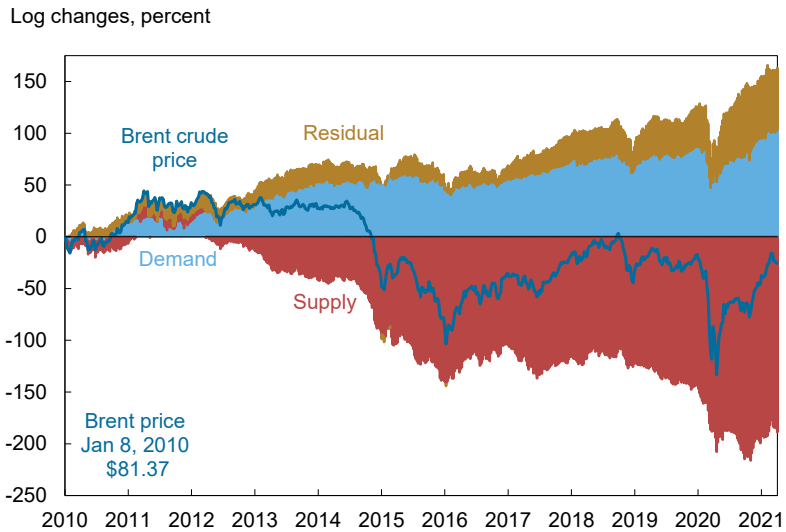
- Over the past week, an increase in demand expectations was offset by an increase in anticipated supply, resulting in lower oil prices. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-Apr 09, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Mar 26, 2021 | 6.4 | 15.2 | 1.1 | 22.7 |
| Apr 02, 2021 | 7.4 | 14.5 | -0.8 | 21.1 |
| Apr 09, 2021 | 8.7 | 10.6 | 0.9 | 20.2 |

## 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

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## References


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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

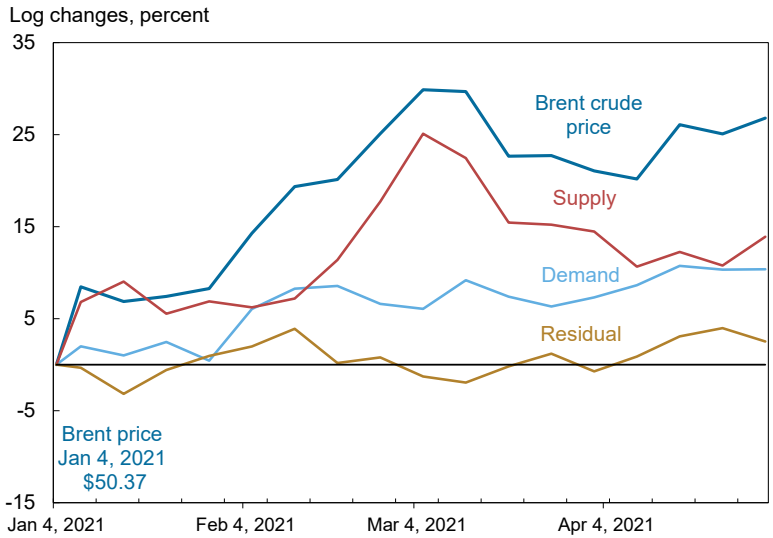
# OIL PRICE DYNAMICS REPORT

Updated: May 3, 2021

## Oil prices increased over the past three weeks owing mostly to decreased supply.

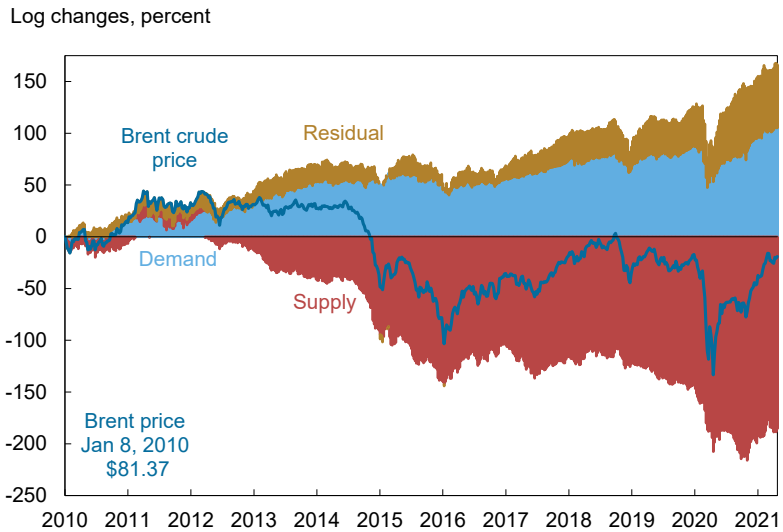
- Over the past three weeks, a decrease in anticipated supply and, to a lesser extent, an increase in demand expectations resulted in higher oil prices. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-Apr 30, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Apr 16, 2021 | 10.7 | 12.3 | 3.1 | 26.1 |
| Apr 23, 2021 | 10.3 | 10.8 | 4.0 | 25.1 |
| Apr 30, 2021 | 10.4 | 13.9 | 2.5 | 26.8 |

## 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

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## References


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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

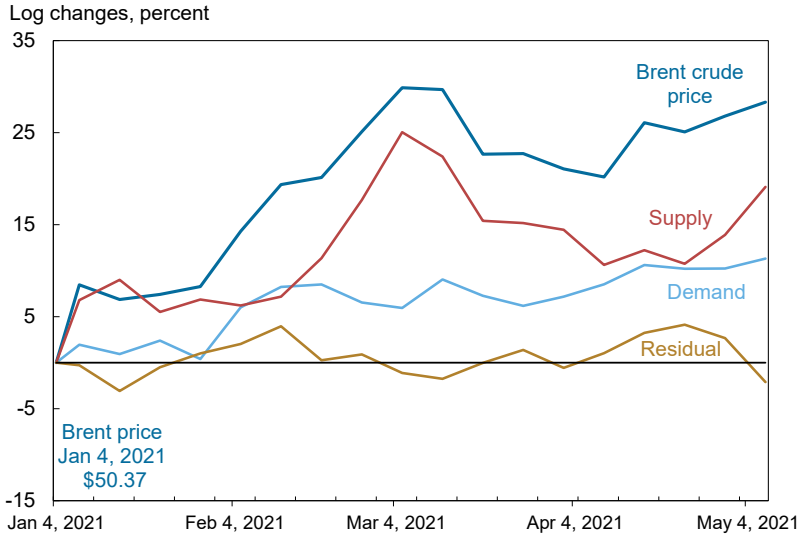
# OIL PRICE DYNAMICS REPORT

Updated: May 10, 2021

## Oil prices increased over the past week, again driven mainly by decreased supply.

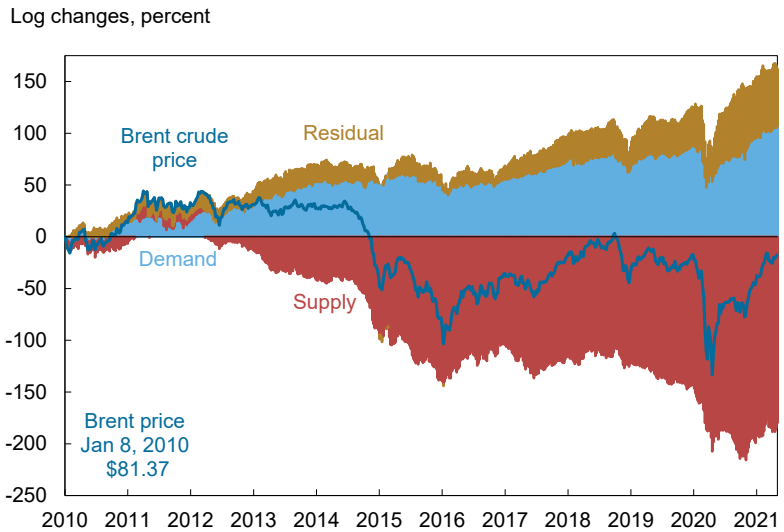
- Oil prices rose over the past week, mainly driven by a decrease in anticipated supply and, to a lesser extent, by improving demand expectations. The same pattern was observed the previous week. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-May 07, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Apr 23, 2021 | 10.2 | 10.7 | 4.1 | 25.1 |
| Apr 30, 2021 | 10.2 | 13.9 | 2.7 | 26.8 |
| May 07, 2021 | 11.3 | 19.1 | -2.1 | 28.3 |

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

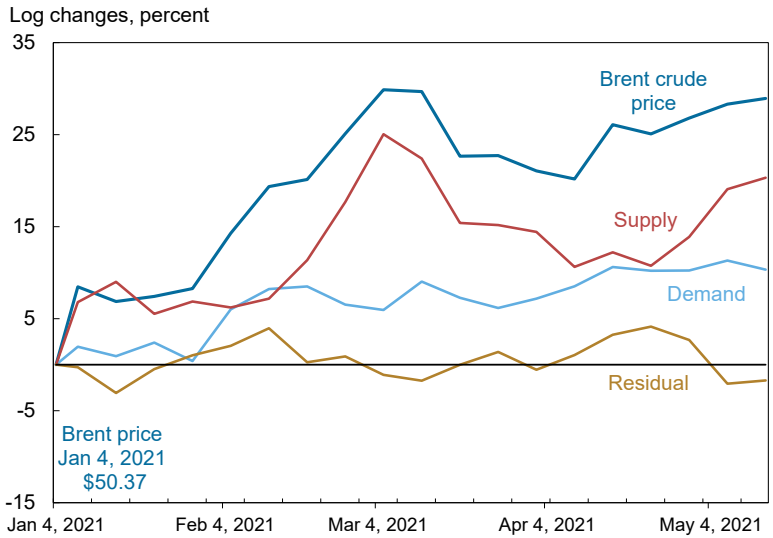
# OIL PRICE DYNAMICS REPORT

Updated: May 17, 2021

## Once again decreased supply led to higher oil prices over the past week.

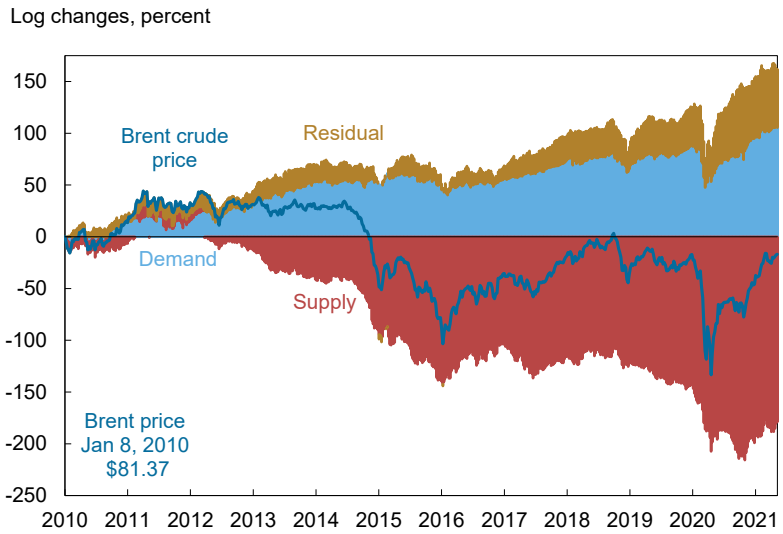
- Over the past week, a decrease in demand expectations was offset by a decrease in anticipated supply, resulting in somewhat higher oil prices. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-May 14, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Apr 30, 2021 | 10.2 | 13.9 | 2.7 | 26.8 |
| May 07, 2021 | 11.3 | 19.1 | -2.1 | 28.3 |
| May 14, 2021 | 10.3 | 20.3 | -1.7 | 28.9 |

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: May 24, 2021

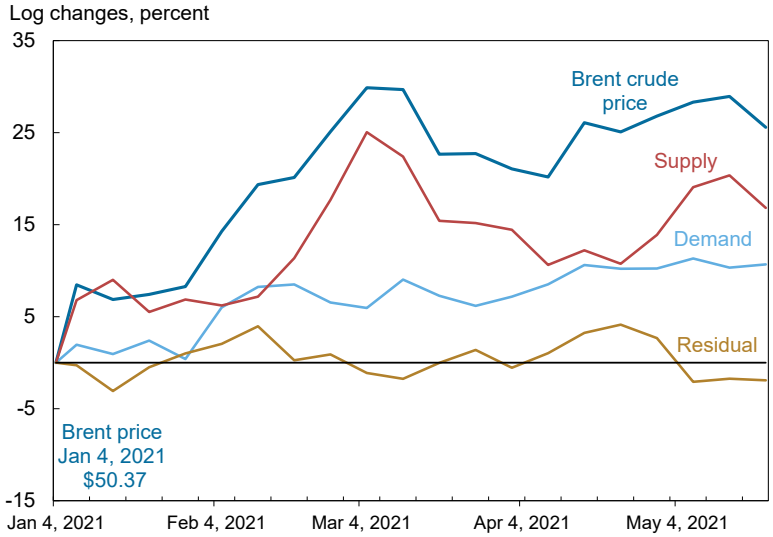
## Oil prices decreased over the past week owing to increased supply.

- Over the past week, an increase in anticipated supply resulted in lower oil prices. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.

- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

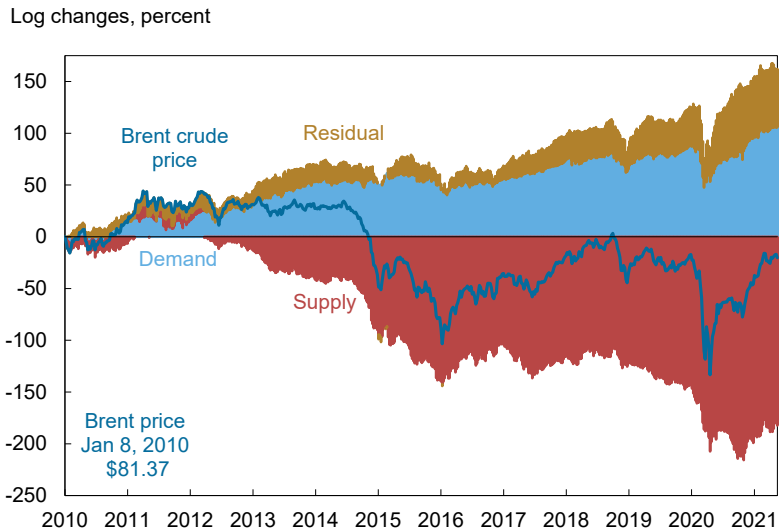
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-May 21, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| May 07, 2021 | 11.3 | 19.1 | -2.1 | 28.3 |
| May 14, 2021 | 10.3 | 20.4 | -1.7 | 28.9 |
| May 21, 2021 | 10.7 | 16.8 | -1.9 | 25.6 |

## 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.

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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


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- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: June 1, 2021

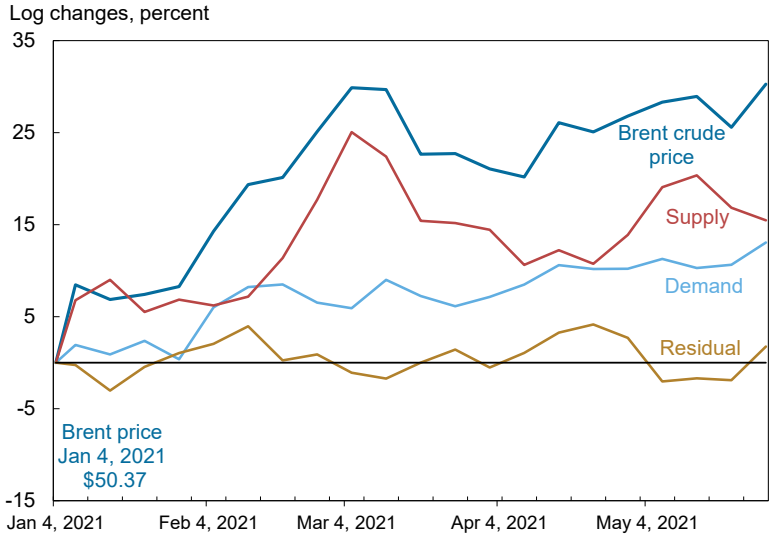
## Oil prices increased over the past week owing to increased demand.

- Over the past week, an increase in anticipated supply was offset by an increase in demand expectations and an increase in the residual, resulting in higher oil prices. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.

- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

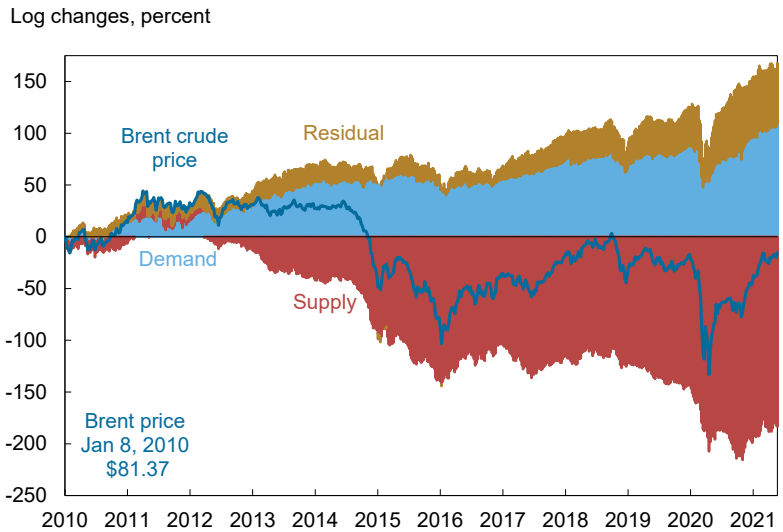
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-May 28, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| May 14, 2021 | 10.3 | 20.3 | -1.7 | 28.9 |
| May 21, 2021 | 10.6 | 16.8 | -1.9 | 25.6 |
| May 28, 2021 | 13.1 | 15.5 | 1.7 | 30.3 |

## 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?**

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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?**

   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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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

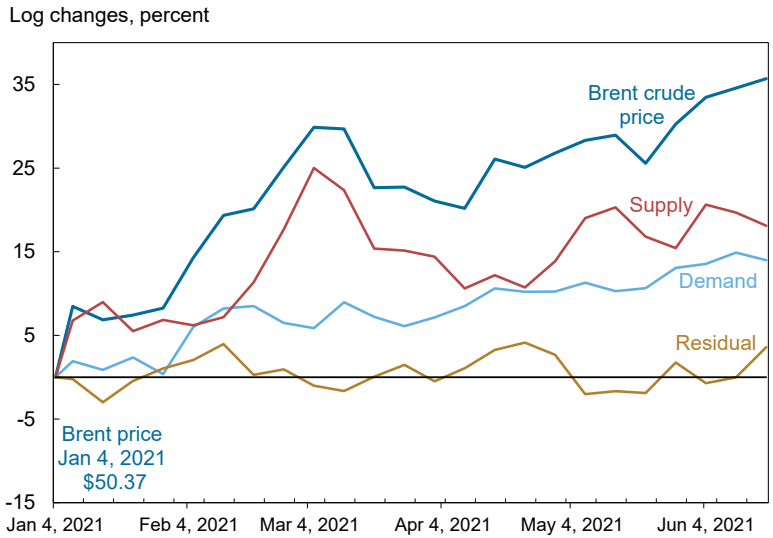
# OIL PRICE DYNAMICS REPORT

Updated: June 21, 2021

## Oil prices increased over the past three weeks owing to increased demand and decreased supply.

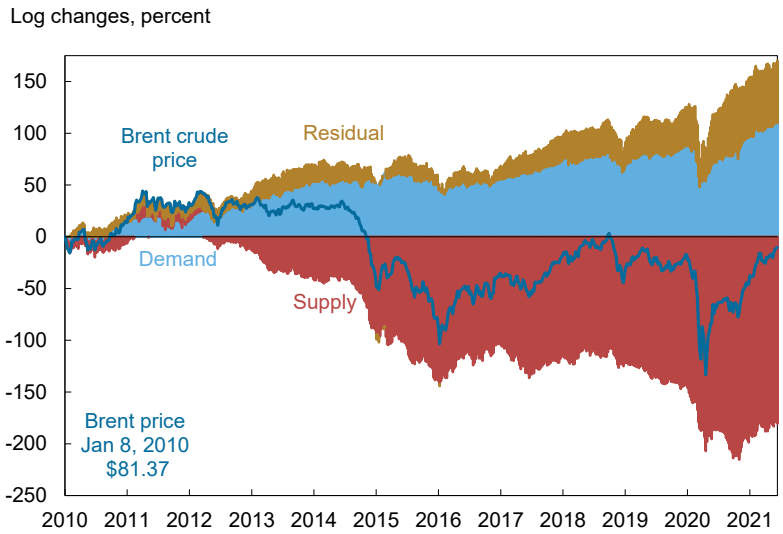
- Over the past three weeks, an increase in demand expectations and a decrease in anticipated supply resulted in higher oil prices. During the most recent week, however, declining demand expectations were offset by the continued decrease in anticipated supply. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-Jun 18, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jun 04, 2021 | 13.5 | 20.6 | -0.7 | 33.5 |
| Jun 11, 2021 | 14.9 | 19.7 | -0.0 | 34.6 |
| Jun 18, 2021 | 14.0 | 18.1 | 3.6 | 35.7 |

## 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

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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).

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- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

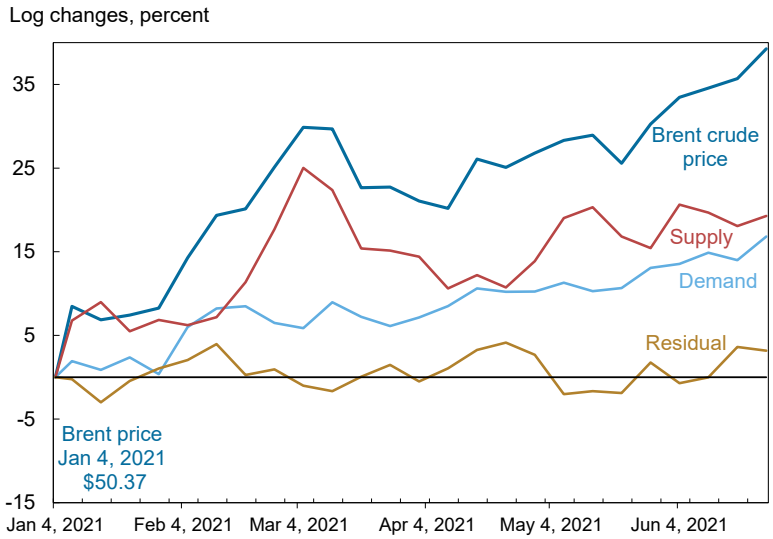
# OIL PRICE DYNAMICS REPORT

Updated: June 28, 2021

## Oil prices increased over the past week owing to increased demand and decreased supply.

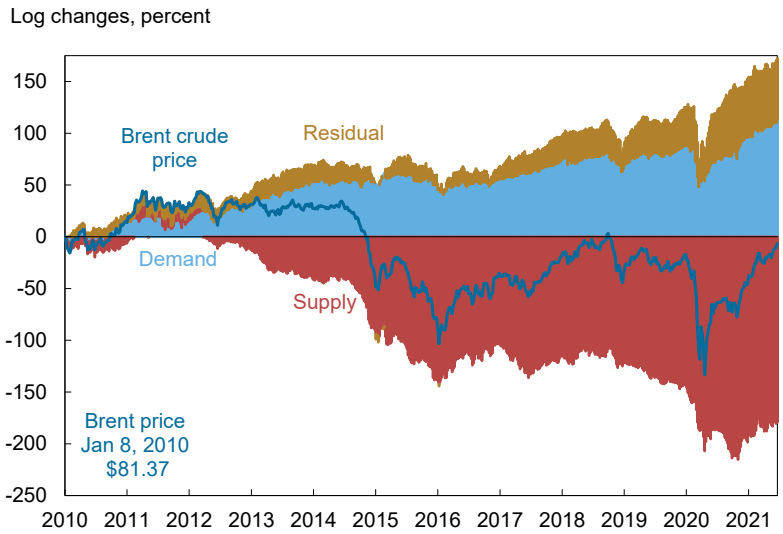
- Over the past week, an increase in demand expectations and a decrease in anticipated supply resulted in higher oil prices. In 2021:Q1, oil prices rose owing to increased demand and decreased supply.
- In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jan 04-Jun 25, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from January 4, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since January 4, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jun 11, 2021 | 14.9 | 19.7 | -0.0 | 34.6 |
| Jun 18, 2021 | 14.0 | 18.1 | 3.6 | 35.7 |
| Jun 25, 2021 | 16.8 | 19.3 | 3.2 | 39.3 |

## 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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   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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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: July 6, 2021

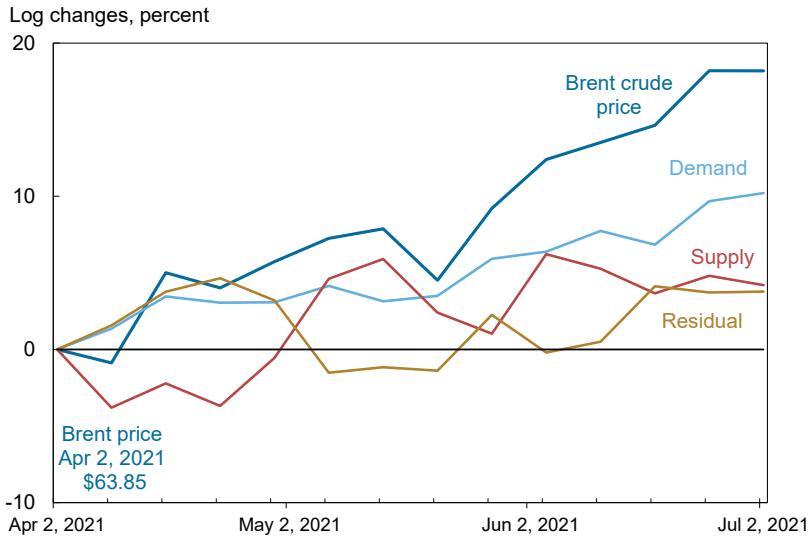
## Oil prices remained broadly the same over the past week.

- Over the past week, an increase in demand expectations was offset by an increase in anticipated supply, resulting in broadly unchanged oil prices. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.

- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Jul 02, 2021




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.

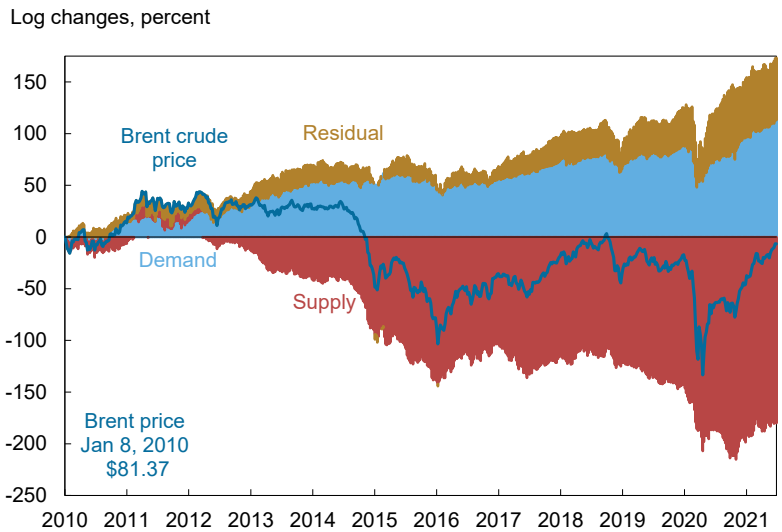
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jun 18, 2021 | 6.8 | 3.7 | 4.1 | 14.6 |
| Jun 25, 2021 | 9.7 | 4.8 | 3.7 | 18.2 |
| Jul 02, 2021 | 10.2 | 4.2 | 3.8 | 18.2 |

## 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.

## 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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   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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

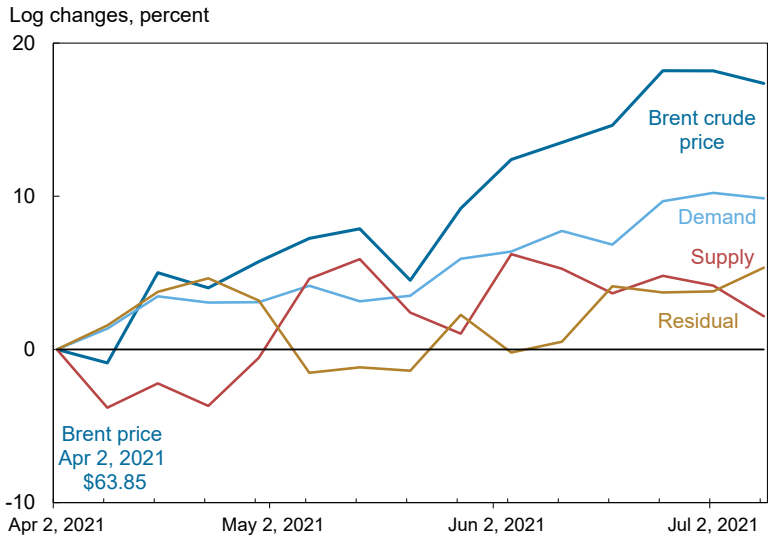
# OIL PRICE DYNAMICS REPORT

Updated: July 12, 2021

## Oil prices decreased over the past week owing mostly to increased supply.

- Over the past week, a slight decrease in demand expectations and, more significantly, an increase in anticipated supply resulted in lower oil prices. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.
- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Jul 09, 2021




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.

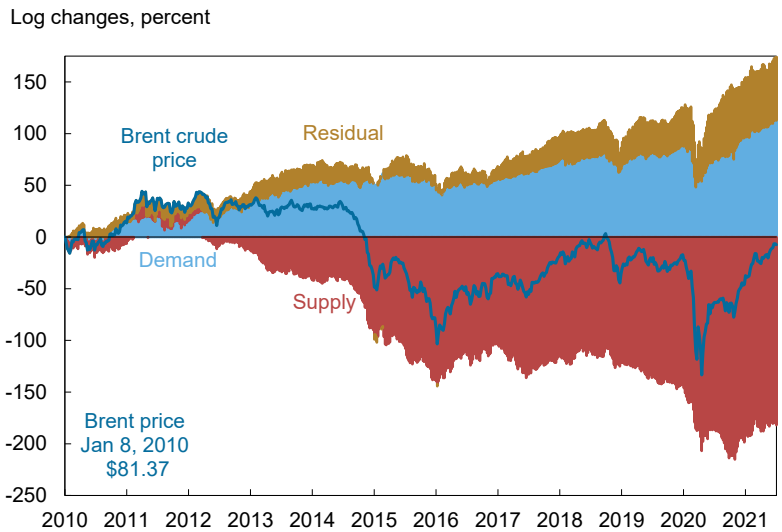
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jun 25, 2021 | 9.7 | 4.8 | 3.7 | 18.2 |
| Jul 02, 2021 | 10.2 | 4.2 | 3.8 | 18.2 |
| Jul 09, 2021 | 9.9 | 2.2 | 5.3 | 17.4 |

## 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.

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: August 2, 2021

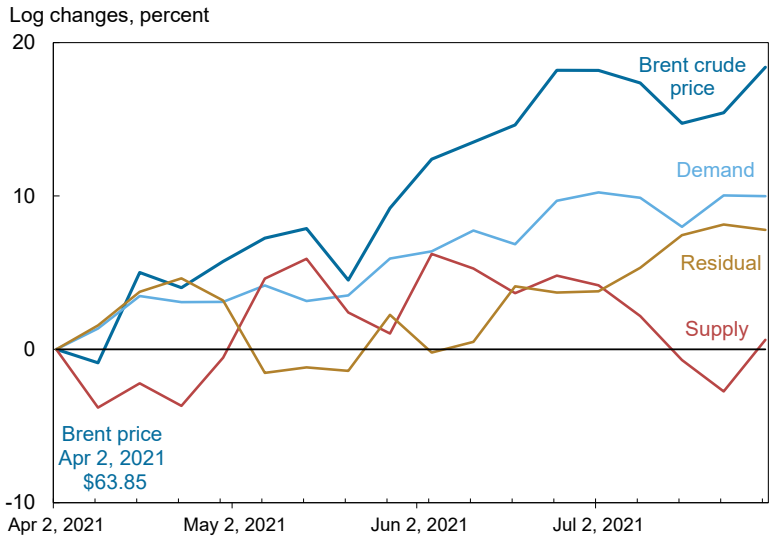
## Oil prices increased over the past three weeks owing to increased demand.

- Over the past three weeks, an increase in anticipated supply was offset by an increase in demand expectations, resulting in higher oil prices. During the most recent week, however, stable demand expectations and a decrease in anticipated supply drove the price increases. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.

- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.

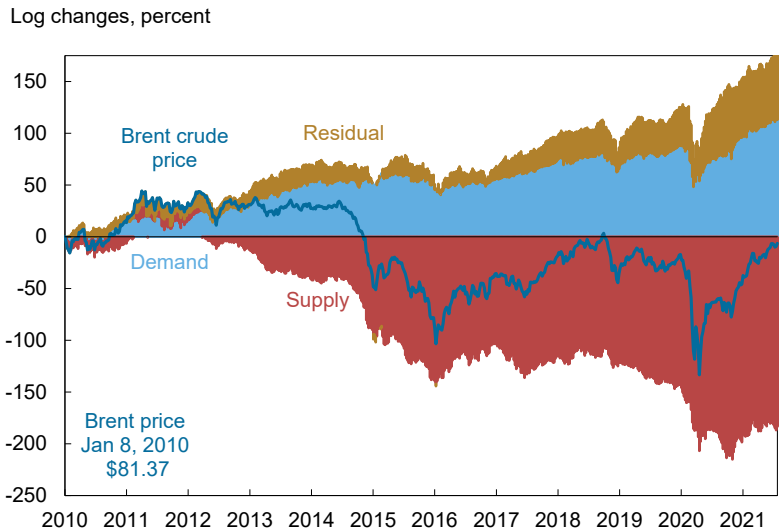
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Jul 30, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jul 16, 2021 | 8.0 | -0.7 | 7.4 | 14.7 |
| Jul 23, 2021 | 10.0 | -2.7 | 8.1 | 15.4 |
| Jul 30, 2021 | 10.0 | 0.6 | 7.8 | 18.4 |

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

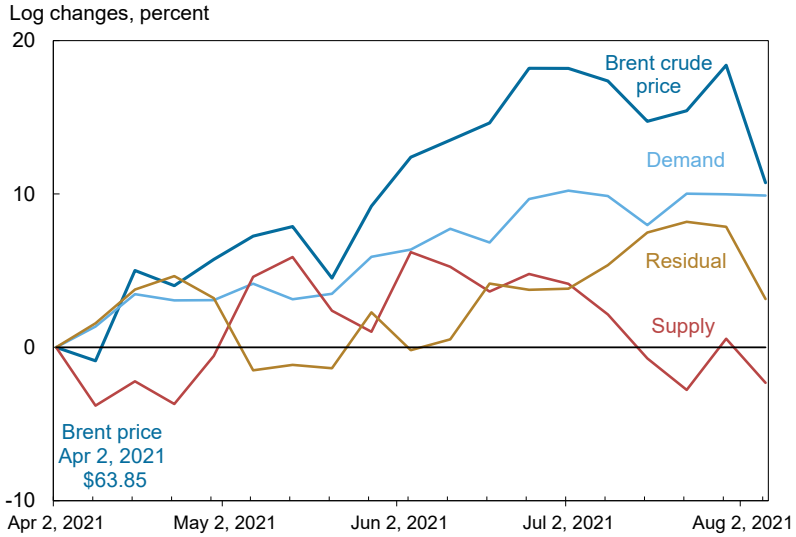
# OIL PRICE DYNAMICS REPORT

Updated: August 9, 2021

## Oil prices decreased over the past week owing to increased supply.

- Over the past week, an increase in anticipated supply resulted in lower oil prices. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.
- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Aug 06, 2021




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.

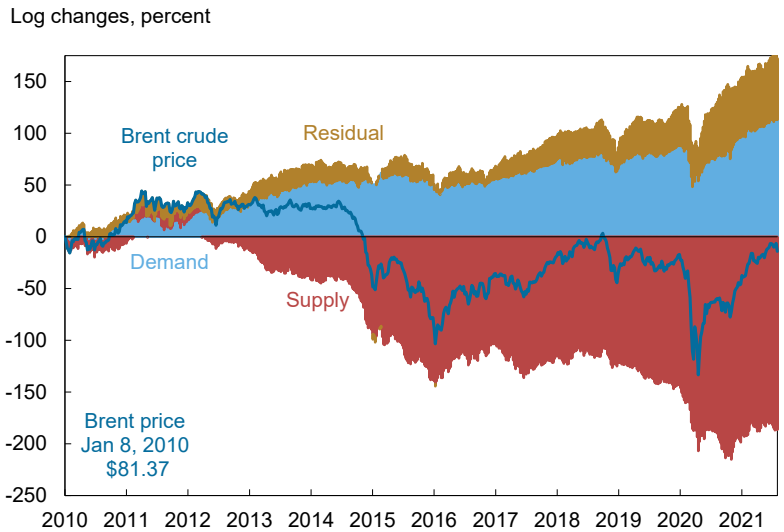
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jul 23, 2021 | 10.0 | -2.8 | 8.2 | 15.4 |
| Jul 30, 2021 | 10.0 | 0.6 | 7.9 | 18.4 |
| Aug 06, 2021 | 9.9 | -2.3 | 3.1 | 10.7 |

## 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.

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: August 16, 2021

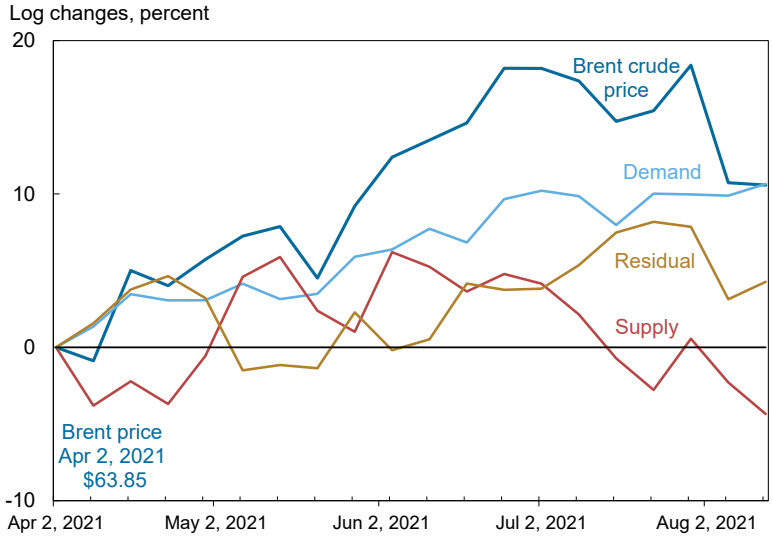
## Oil prices decreased slightly over the past week owing to increased supply.

- Over the past week, higher demand expectations were offset by an increase in anticipated supply, resulting in lower oil prices. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.

- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.

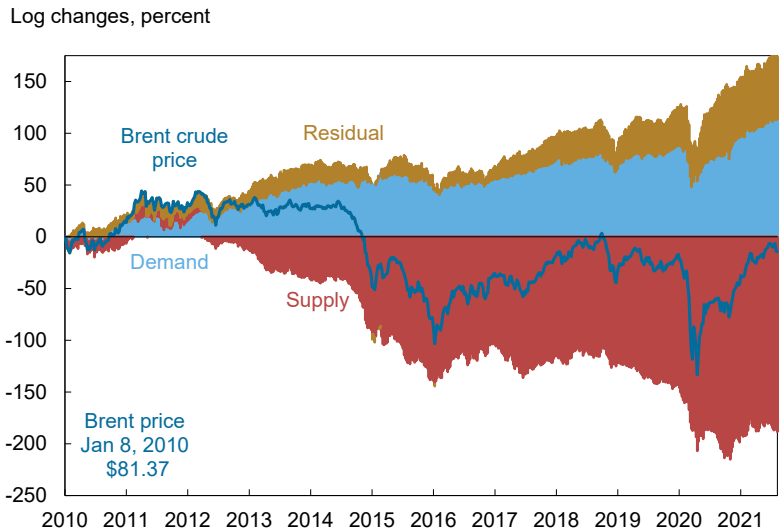
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Aug 13, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Jul 30, 2021 | 10.0 | 0.6 | 7.9 | 18.4 |
| Aug 06, 2021 | 9.9 | -2.3 | 3.1 | 10.7 |
| Aug 13, 2021 | 10.7 | -4.3 | 4.3 | 10.6 |

## 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).

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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: August 23, 2021

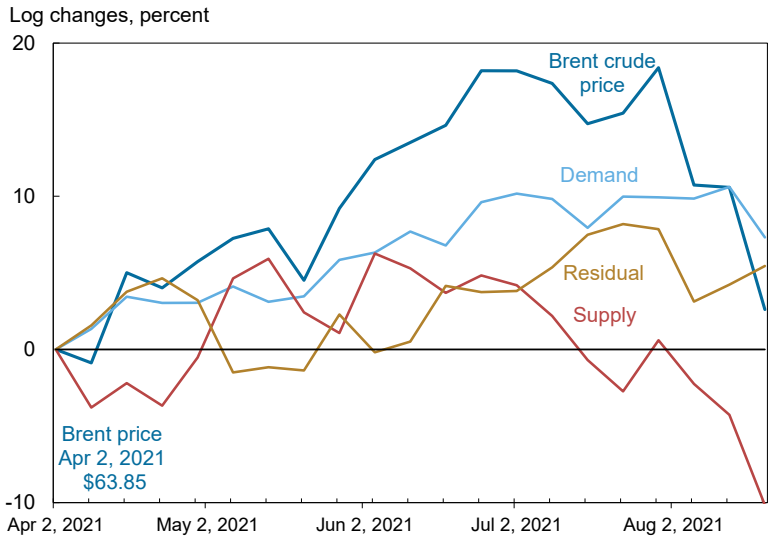
## Oil prices decreased over the past week owing to decreased demand and increased supply.

- Over the past week, a decrease in demand expectations and an increase in anticipated supply resulted in lower oil prices. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.

- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Aug 20, 2021




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.

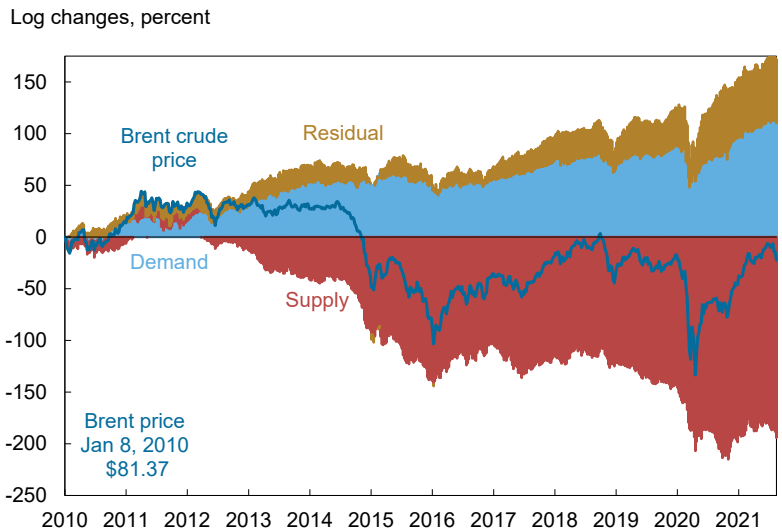
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Aug 06, 2021 | 9.9 | -2.2 | 3.1 | 10.7 |
| Aug 13, 2021 | 10.6 | -4.3 | 4.2 | 10.6 |
| Aug 20, 2021 | 7.3 | -10.2 | 5.4 | 2.6 |

## 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.

## 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).

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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: August 30, 2021

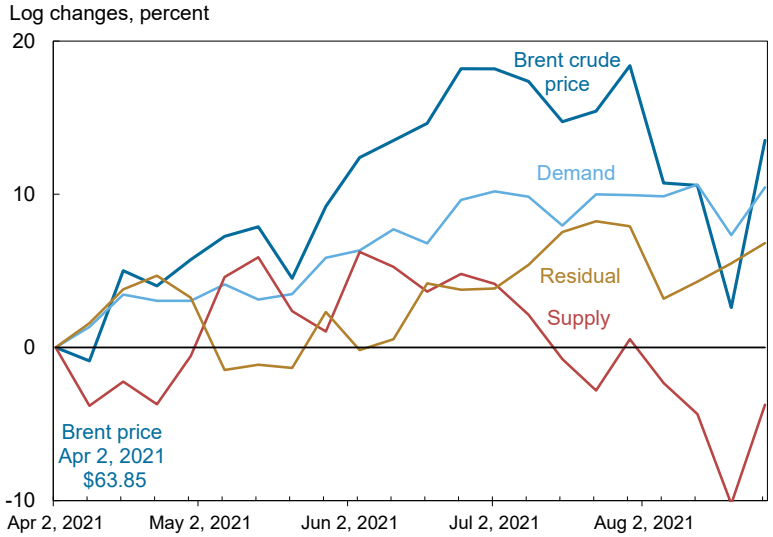
## Oil prices increased over the past week owing to increased demand and decreased supply.

- Over the past week, an increase in demand expectations and a decrease in anticipated supply resulted in higher oil prices. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.

- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.

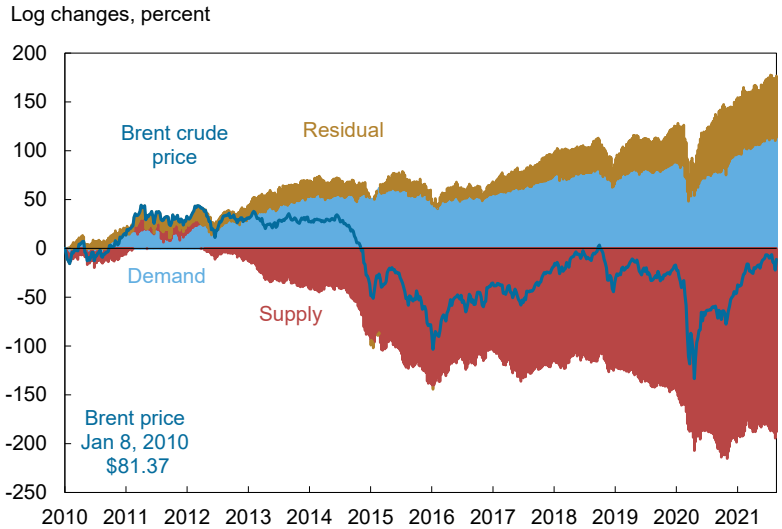
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Aug 27, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Aug 13, 2021 | 10.6 | -4.4 | 4.3 | 10.6 |
| Aug 20, 2021 | 7.3 | -10.2 | 5.5 | 2.6 |
| Aug 27, 2021 | 10.5 | -3.7 | 6.8 | 13.5 |

## 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?**

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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?**

   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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- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: September 7, 2021

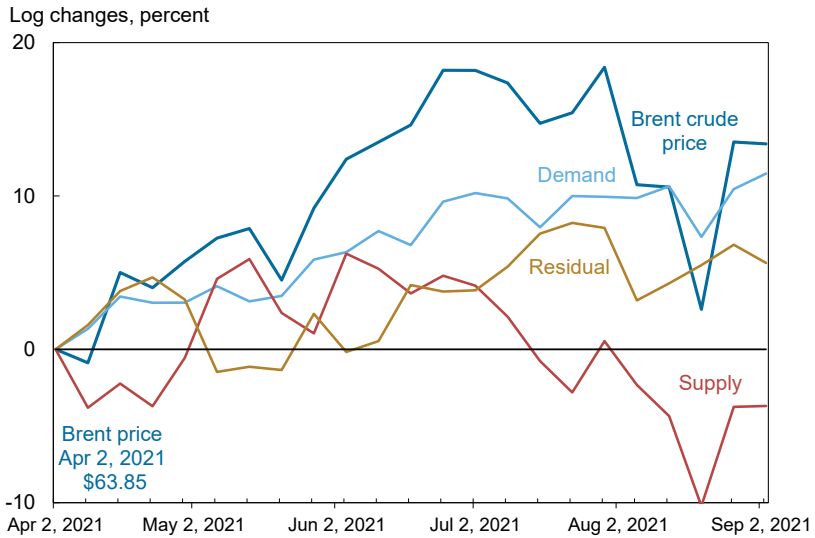
## Oil prices remained relatively unchanged over the past week.

- Over the past week, an increase in demand expectations was offset by a decrease in the residual, resulting in relatively unchanged oil prices. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.

- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Apr 02-Sep 03, 2021




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.

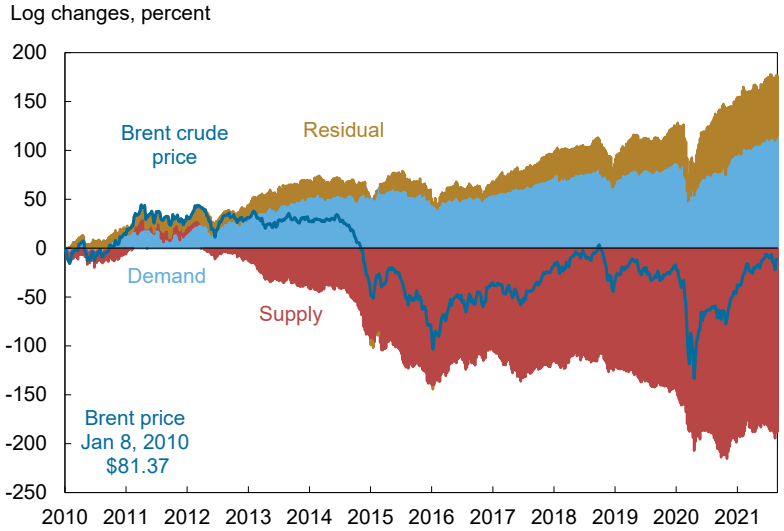
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Aug 20, 2021 | 7.3 | -10.2 | 5.5 | 2.6 |
| Aug 27, 2021 | 10.5 | -3.8 | 6.8 | 13.5 |
| Sep 03, 2021 | 11.5 | -3.7 | 5.6 | 13.4 |

## 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.

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

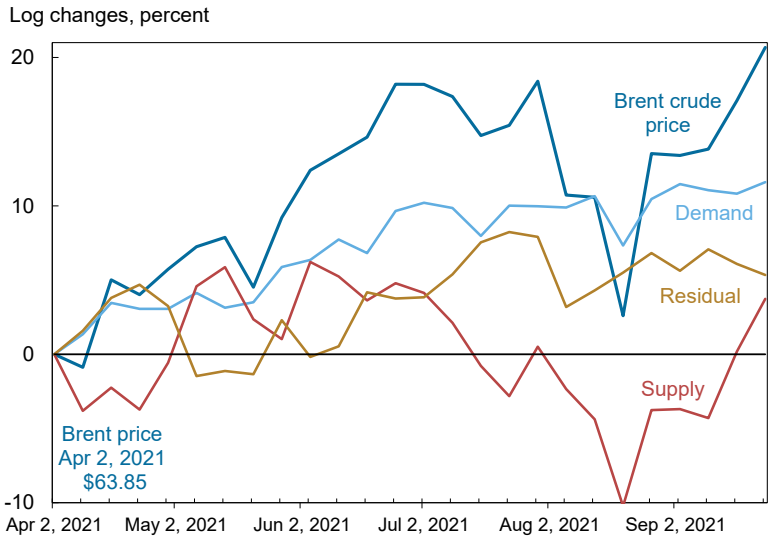
Updated: September 27, 2021

## Oil prices increased over the past three weeks, owing to decreased supply.

- Over the past three weeks, a decrease in anticipated supply resulted in higher oil prices. For the most recent week, oil prices moved up again owing to lower anticipated supply and, to a lesser extent, higher expected demand. In 2021:Q2, oil prices rose owing to increased demand and decreased supply.
- Increased demand and decreased supply were also responsible for higher oil prices in 2021:Q1. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply, which has been the dominant oil price driver pattern since then.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

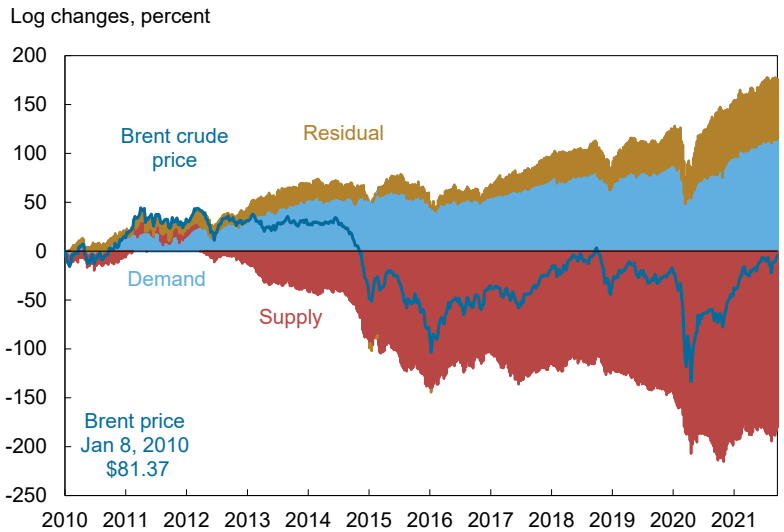
Our analysis of oil price movements does not necessarily represent the views of the Federal Reserve Bank of New York, the Federal Reserve System, or the Federal Open Market Committee.

## Cumulative Weekly Decomposition, Apr 02-Sep 24, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from April 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since April 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Sep 10, 2021 | 11.1 | -4.3 | 7.1 | 13.8 |
| Sep 17, 2021 | 10.8 | 0.2 | 6.1 | 17.1 |
| Sep 24, 2021 | 11.6 | 3.7 | 5.3 | 20.7 |

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: October 4, 2021

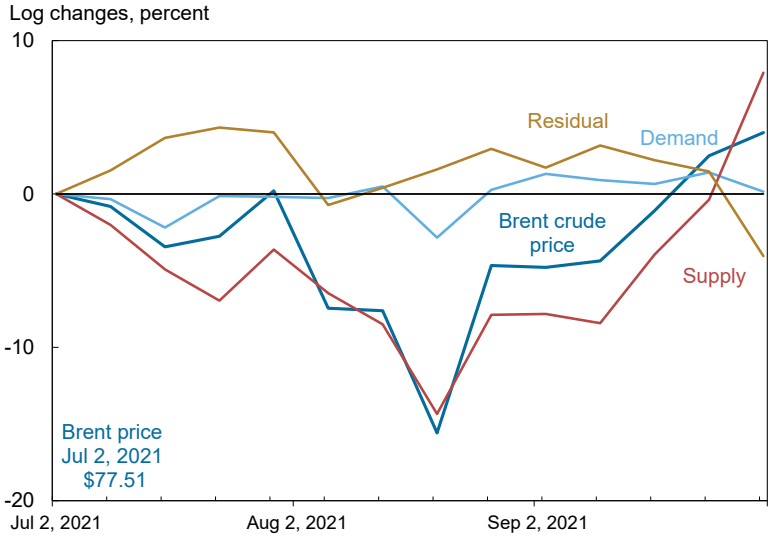
## Oil prices increased over the past week, owing to decreased supply.

- Over the past week, a decrease in expected demand was offset by a decrease in anticipated supply, resulting in higher oil prices. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.

- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Oct 01, 2021




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.

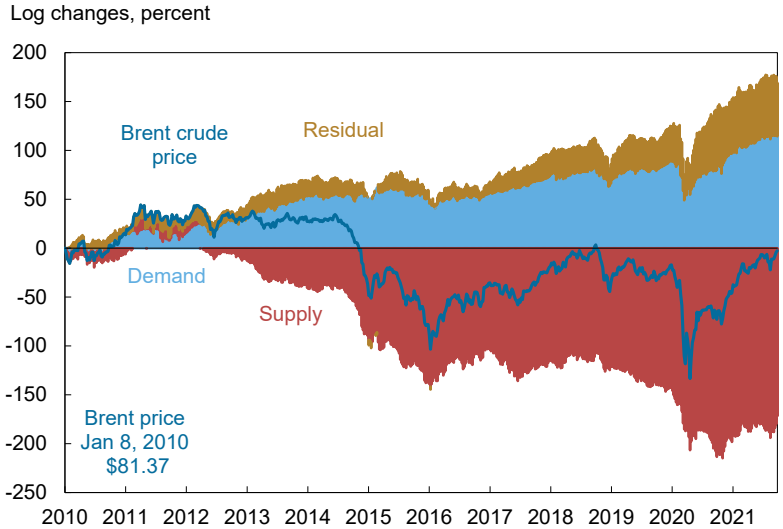
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Sep 17, 2021 | 0.7 | -3.9 | 2.2 | -1.1 |
| Sep 24, 2021 | 1.4 | -0.4 | 1.5 | 2.5 |
| Oct 01, 2021 | 0.1 | 7.9 | -4.1 | 4.0 |

## 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.

## 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.

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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).

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- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
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- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

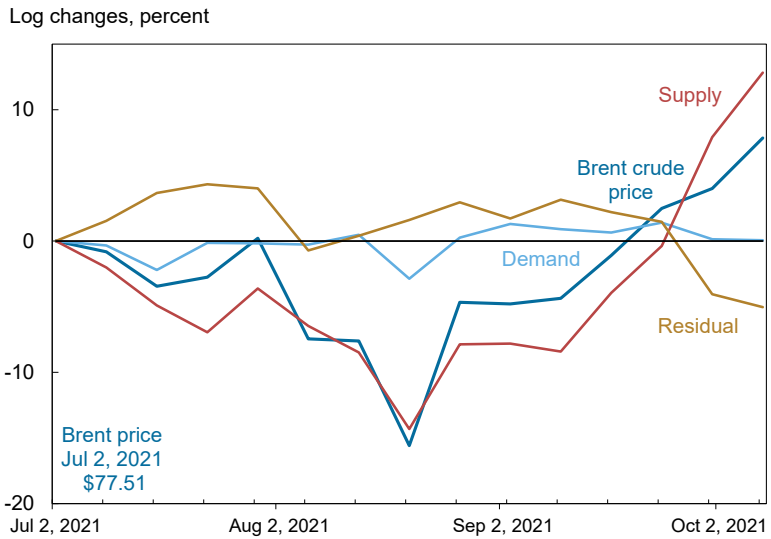
# OIL PRICE DYNAMICS REPORT

Updated: October 12, 2021

## Oil prices increased over the past week, owing to decreased supply.

- Over the past week a decrease in anticipated supply resulted in higher oil prices. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.
- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Oct 08, 2021




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.

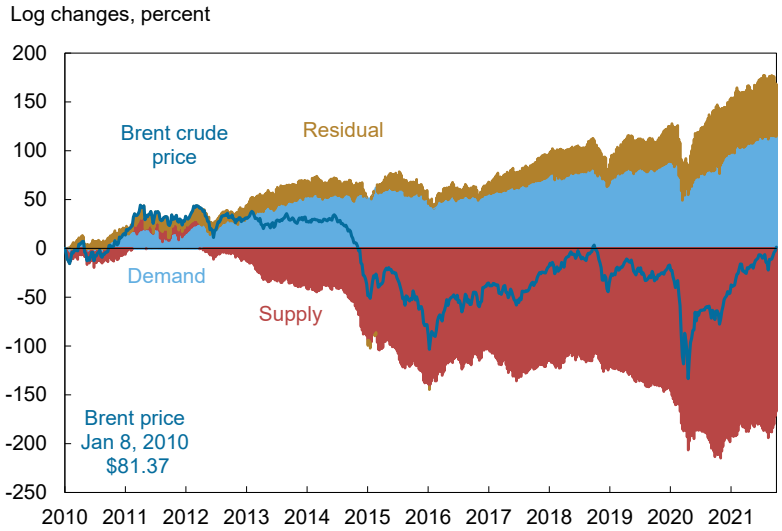
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Sep 24, 2021 | 1.4 | -0.4 | 1.5 | 2.5 |
| Oct 01, 2021 | 0.1 | 7.9 | -4.0 | 4.0 |
| Oct 08, 2021 | 0.1 | 12.8 | -5.0 | 7.8 |

## 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.

## 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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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

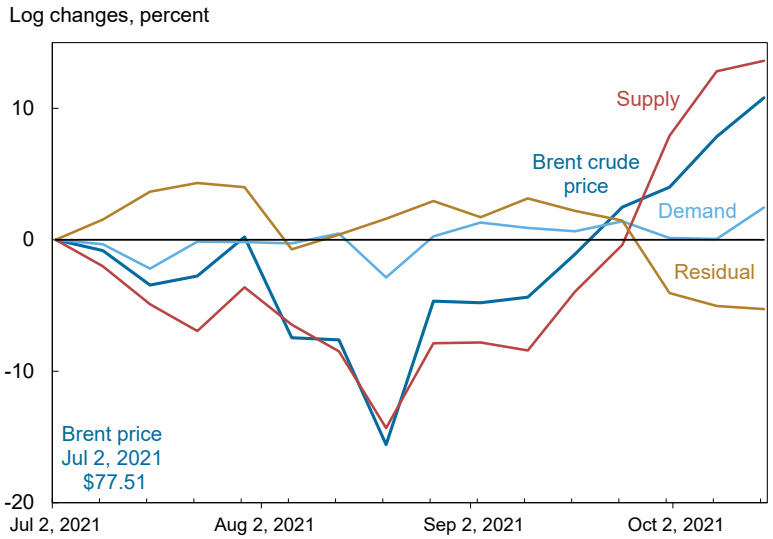
# OIL PRICE DYNAMICS REPORT

Updated: October 18, 2021

## Oil prices increased over the past week, mostly owing to higher demand.

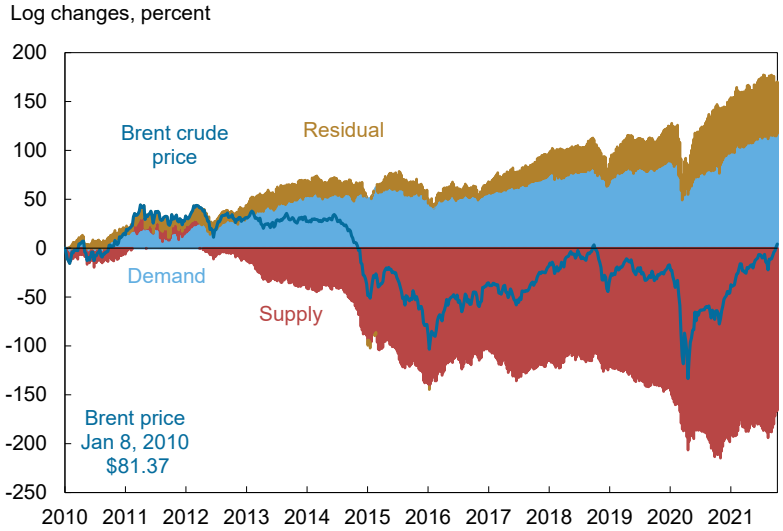
- Over the past week, demand expectations increased substantially and anticipated supply declined moderately, both resulting in higher oil prices. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.
- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Oct 15, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Oct 01, 2021 | 0.1 | 7.9 | -4.0 | 4.0 |
| Oct 08, 2021 | 0.1 | 12.8 | -5.0 | 7.8 |
| Oct 15, 2021 | 2.5 | 13.6 | -5.3 | 10.8 |

## 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.

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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.

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


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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: November 8, 2021

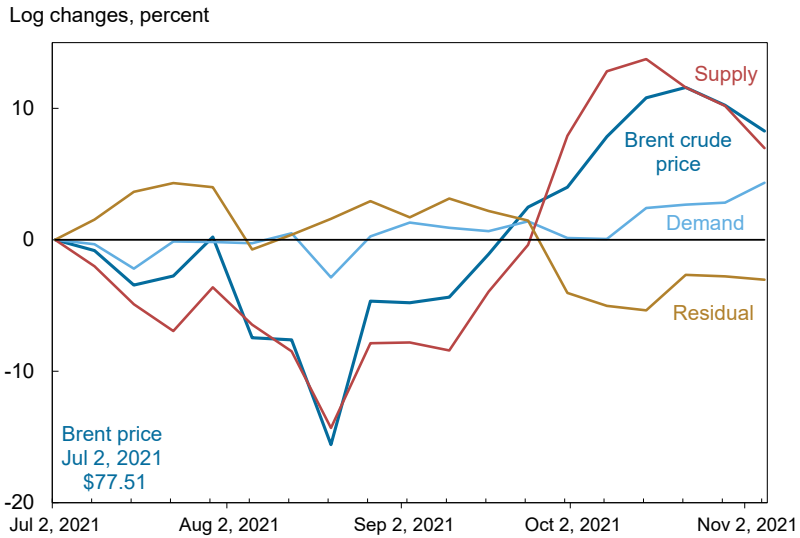
## Oil prices decreased over the past three weeks owing to higher supply.

- Over the past three weeks, an increase in demand expectations was offset by an increase in anticipated supply, resulting in lower oil prices. The bulk of the rise in demand expectations occurred over the most recent week. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.

- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Nov 05, 2021




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.

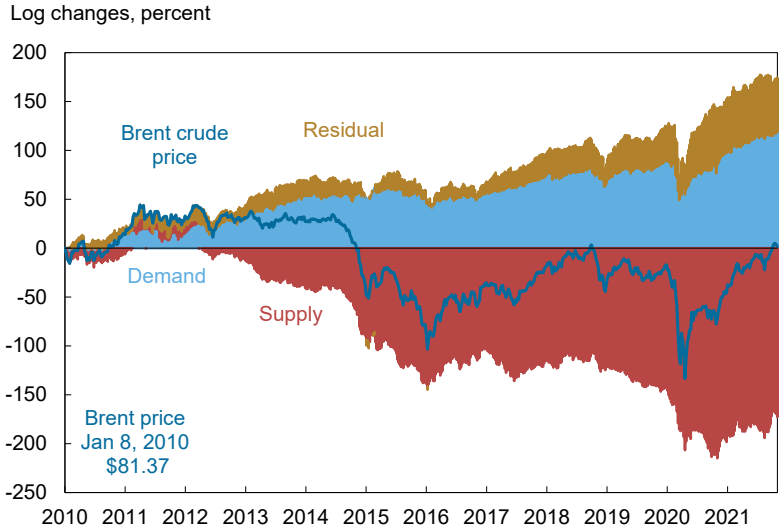
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Oct 22, 2021 | 2.7 | 11.6 | -2.7 | 11.6 |
| Oct 29, 2021 | 2.8 | 10.2 | -2.8 | 10.2 |
| Nov 05, 2021 | 4.3 | 7.0 | -3.0 | 8.3 |

## 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.

## Longer-Term View of Oil Price Movements

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## References


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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: November 15, 2021

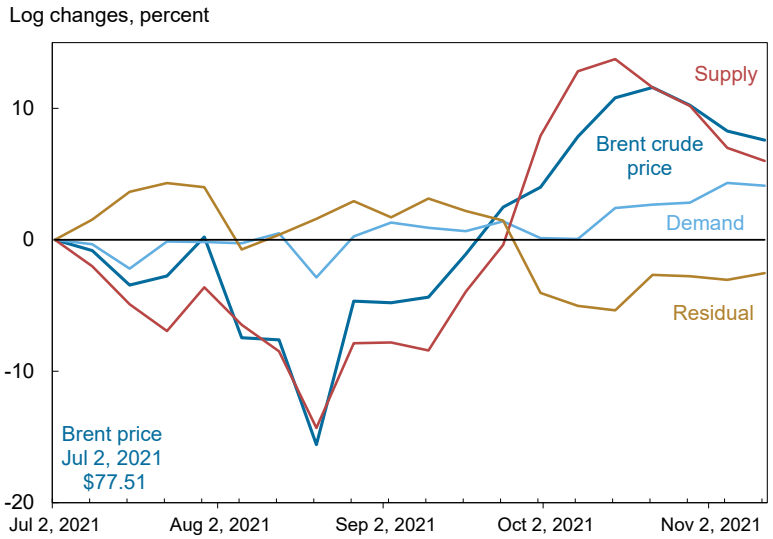
## Oil prices decreased over the past week owing to higher supply.

- Over the past week, broadly stable demand expectations and an increase in anticipated supply resulted in lower oil prices. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.

- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

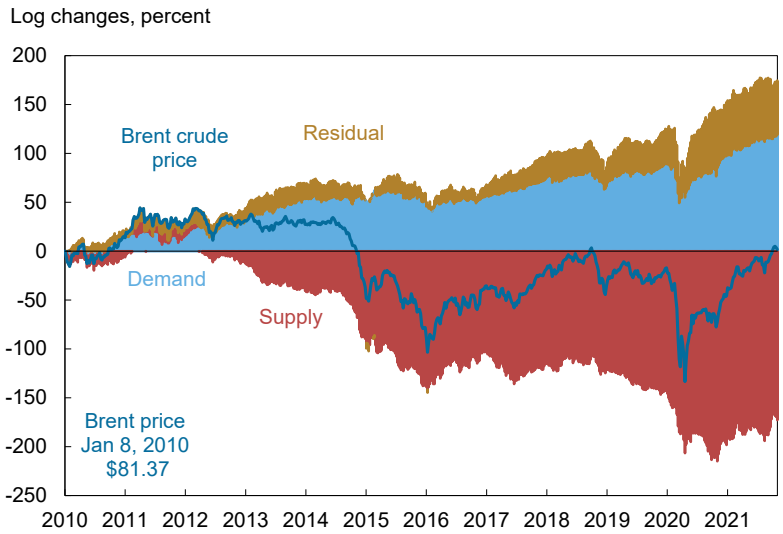
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Nov 12, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Oct 29, 2021 | 2.8 | 10.2 | -2.8 | 10.2 |
| Nov 05, 2021 | 4.3 | 7.0 | -3.0 | 8.3 |
| Nov 12, 2021 | 4.1 | 6.0 | -2.5 | 7.6 |

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: November 22, 2021

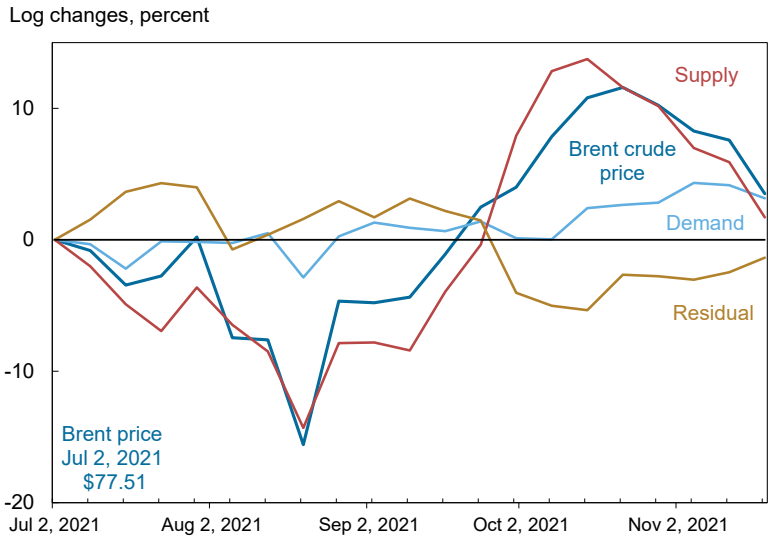
## Oil prices decreased over the past week owing to lower demand and higher supply.

- Over the past week, a decrease in demand expectations and, especially, an increase in anticipated supply resulted in lower oil prices. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.

- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Nov 19, 2021




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.

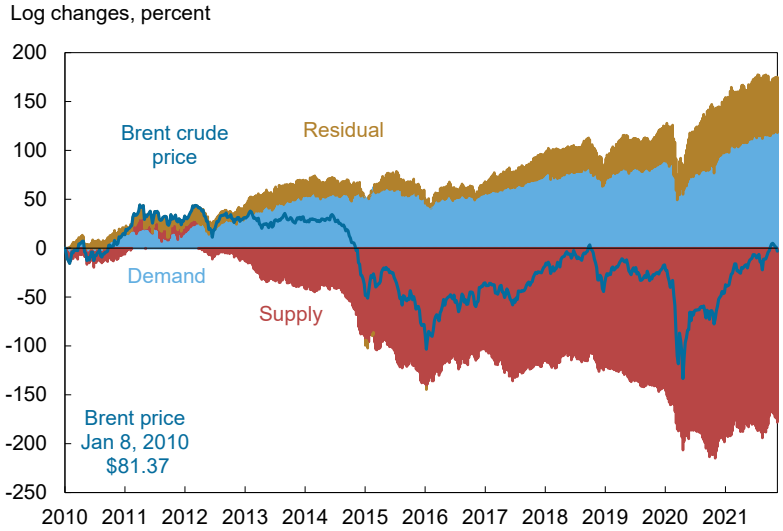
## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Nov 05, 2021 | 4.3 | 7.0 | -3.0 | 8.3 |
| Nov 12, 2021 | 4.1 | 5.9 | -2.5 | 7.6 |
| Nov 19, 2021 | 3.2 | 1.7 | -1.4 | 3.5 |

## 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.

## 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


- *Groen, J., and P. Russo*. 2016. "Lower Oil Prices and U.S. Economic Activity." *Liberty Street Economics*, May 2.
- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

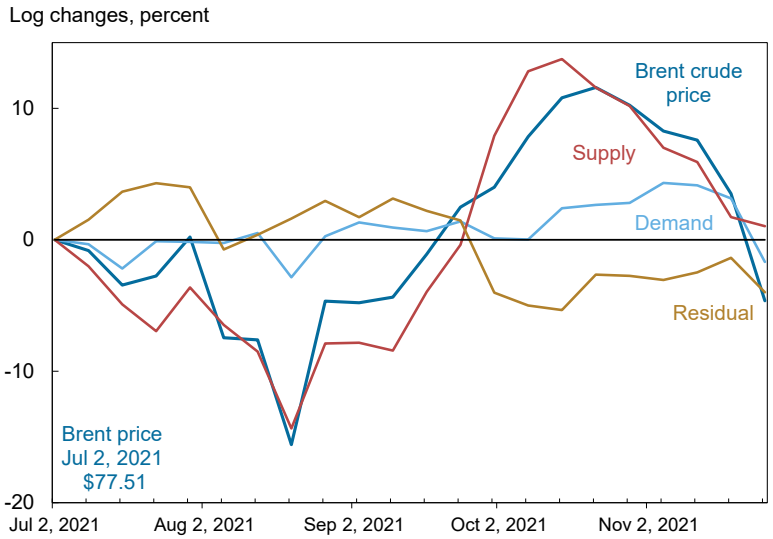
# OIL PRICE DYNAMICS REPORT

Updated: November 29, 2021

## Oil prices decreased over the past week owing mostly to lower demand.

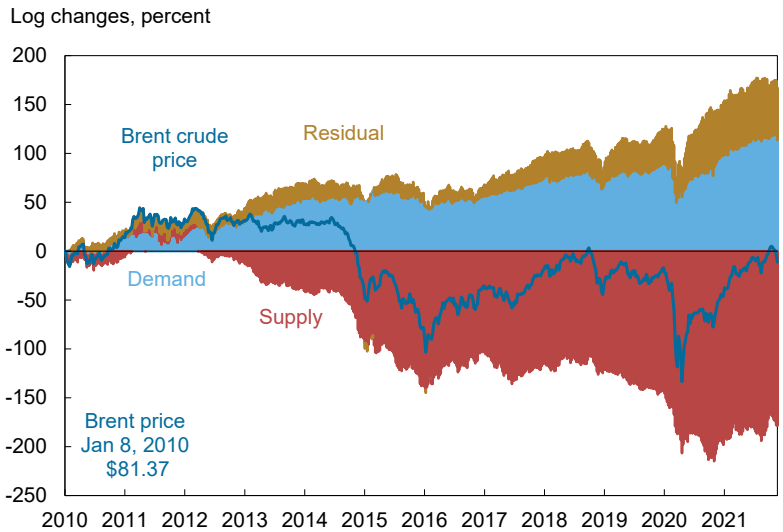
- Over the past week oil prices fell, as anticipated supply continued to ease and, more significantly, demand expectations declined. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.
- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.
- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Nov 26, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Nov 12, 2021 | 4.1 | 5.9 | -2.5 | 7.6 |
| Nov 19, 2021 | 3.1 | 1.7 | -1.4 | 3.5 |
| Nov 26, 2021 | -1.7 | 1.0 | -4.0 | -4.6 |

## 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).

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- *Groen, J., and P. Russo*. 2015. "Is Cheaper Oil Good News or Bad News for the U.S. Economy?" *Liberty Street Economics*, June 8.
- *Groen, J., K. McNeil, and M. Middeldorp*. 2013. "A New Approach for Identifying Demand and Supply Shocks in the Oil Market." *Liberty Street Economics*, March 25.


## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: December 20, 2021

## Oil prices increased slightly over the past three weeks owing to higher demand and lower supply.

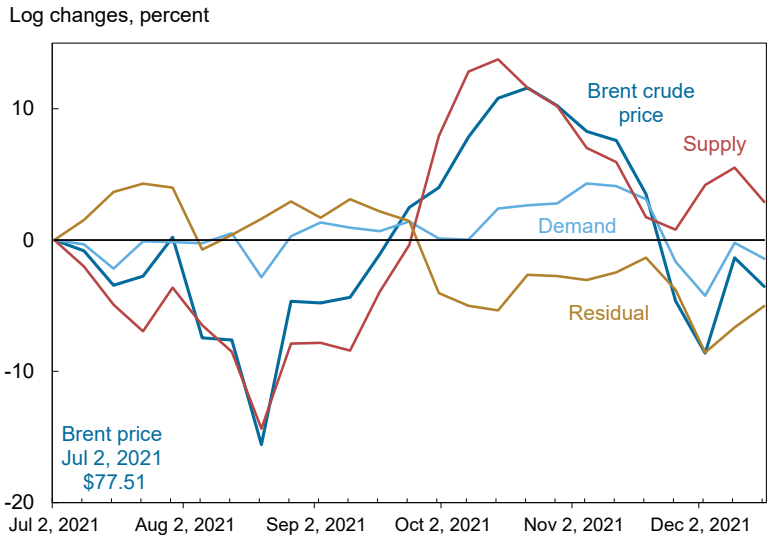
- Over the past three weeks, an increase in demand expectations and a decrease in anticipated supply resulted in somewhat higher oil prices. During the most recent week, however, a decrease in demand expectations and an increase in anticipated supply drove oil prices lower. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.

- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

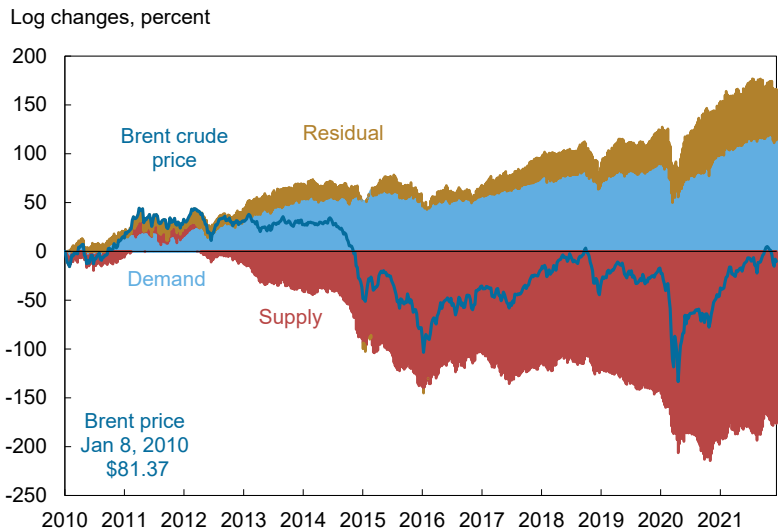
Our analysis of oil price movements does not necessarily represent the views of the Federal Reserve Bank of New York, the Federal Reserve System, or the Federal Open Market Committee.

## Cumulative Weekly Decomposition, Jul 02-Dec 17, 2021




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




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

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Dec 03, 2021 | -4.2 | 4.2 | -8.6 | -8.6 |
| Dec 10, 2021 | -0.2 | 5.5 | -6.7 | -1.3 |
| Dec 17, 2021 | -1.4 | 2.9 | -5.0 | -3.5 |

## 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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## Authors


Jan Groen, Lawrence Lin, and Adam Noble

# OIL PRICE DYNAMICS REPORT

Updated: December 27, 2021

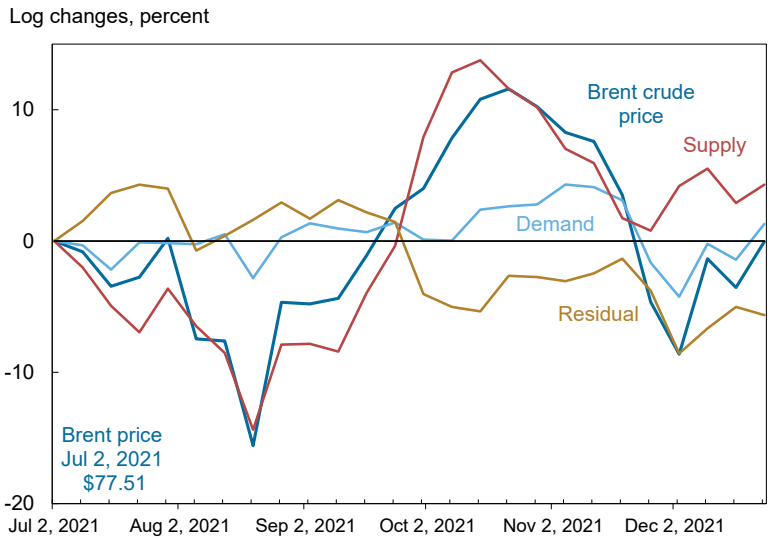
## Oil prices increased over the past week owing to higher demand and lower supply.

- Over the past week, an increase in demand expectations and a decrease in anticipated supply resulted in higher oil prices. In 2021:Q3, oil prices rose owing to increased demand and decreased supply.

- Rising demand expectations were the main cause of higher oil prices in 2021:Q1 and 2021:Q2. In 2020:Q1, oil prices plummeted owing to decreased demand and increased supply, whereas in 2020:Q2, oil prices rose owing to increased demand. Increased supply led to falling oil prices in 2020:Q3, and this reversed in 2020:Q4, as oil prices rose owing to increased demand and decreased supply.

- Overall, between 2014 and 2017, both lower global demand expectations and higher anticipated supply held oil prices down. Since mid-2017, this trend reversed as stronger demand expectations and stabilizing anticipated supply drove oil prices higher. This lasted until 2018:Q4, when weaker demand lowered prices. Oil prices rose in 2019 due to increasing demand expectations.

## Cumulative Weekly Decomposition, Jul 02-Dec 24, 2021




Sources: Authors' calculations; Haver Analytics; Thomson Reuters; Bloomberg L.P.
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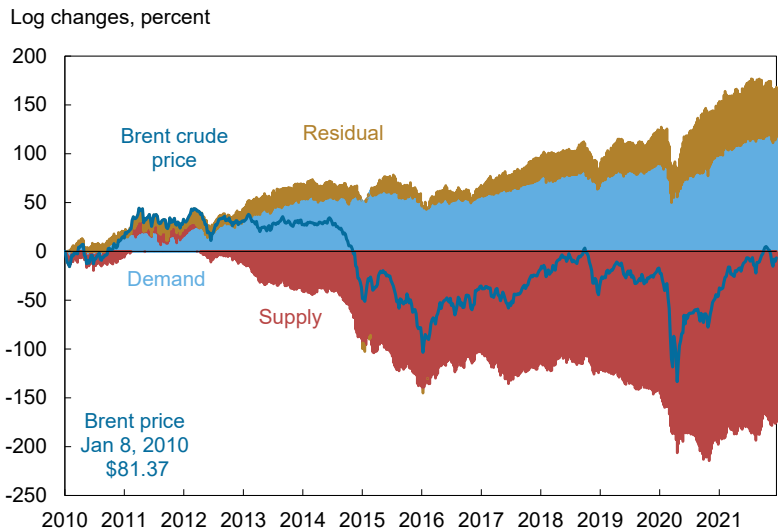
## Cumulative Weekly Decomposition, 2010-Present




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.

## Recent Decomposition Data

- The chart at left depicts the cumulative oil price decomposition from July 2, 2021.
- The table below presents the most recent cumulative values.

## Cumulative Percentage Changes since July 2, 2021

| | Demand | Supply | Rest | Brent |
|---|---|---|---|---|
| Dec 10, 2021 | -0.2 | 5.5 | -6.7 | -1.3 |
| Dec 17, 2021 | -1.4 | 2.9 | -5.0 | -3.5 |
| Dec 24, 2021 | 1.3 | 4.3 | -5.6 | -0.0 |

## 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?**

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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?**

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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## Authors


Jan Groen, Lawrence Lin, and Adam Noble