Forecasting the Price of Brass

Commodity	Brass 64/36 (London)
Forecast Period	September 2017 – February 2018
Currency	£
Unit	Metric Tonne
Observations	Monthly forecasts of the monthly average price

Forecasts

Observed Prices   **Forecasts**
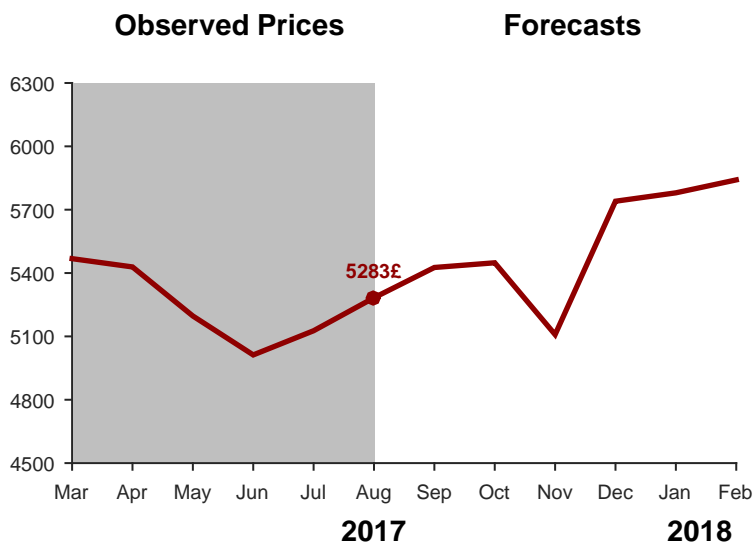
5283£

Month/Year	Forecast	Prob. of Raise
Sep. 2017	5426£	85 %
Oct. 2017	5449£	50 %
Nov. 2017	5109£	43 %
Dec. 2017	5740£	70 %
Jan. 2018	5780£	66 %
Feb. 2018	5841£	63 %

Suggested Action for Procurement

| Purchase Limit Month	Suggested Action
September 2017	Buy in August at 5283£
October 2017	Buy in August at 5283£
November 2017	Buy part of requirements
December 2017	Buy part of requirements
January 2018	Buy part of requirements
February 2018	Buy part of requirements

Forecasting the Price of Brass

Impact Analysis: One Month Forecast
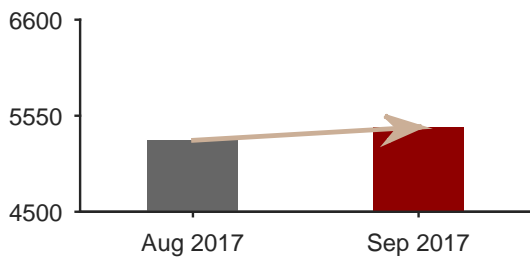
Our algorithm forecasts a higher price of Brass in one month: it is expectable that the price increases 2.71% from 5283£ to 5426£ until the beginning of September.
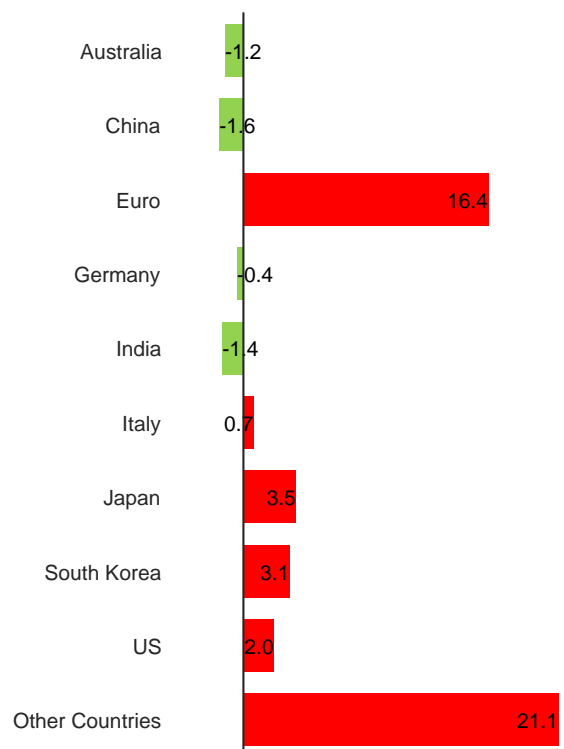
Indices of Factors
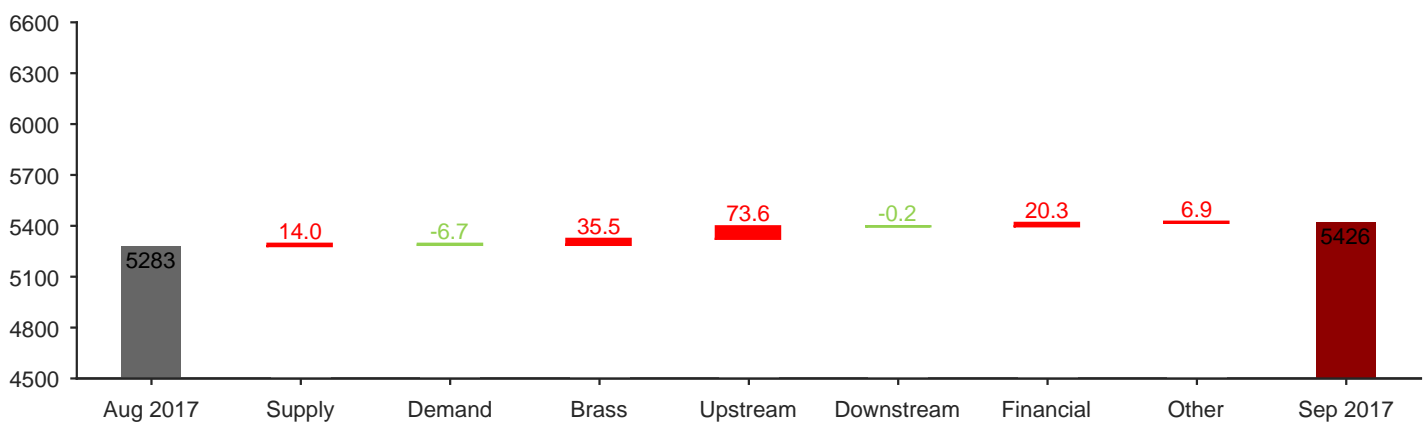
Interpretation

- **Decrease of Supply**: Positive pressure of the Supply index

- **Decrease of Demand**: Negative pressure of the Demand index

- Positive pressure of the index of Brass

- **Considerably positive pressure of the index of variables representing the market upstream**

- Slightly negative pressure of the index of variables representing the market downstream

- Positive pressure of the financial index

- Positive pressure of other commodities and other factors
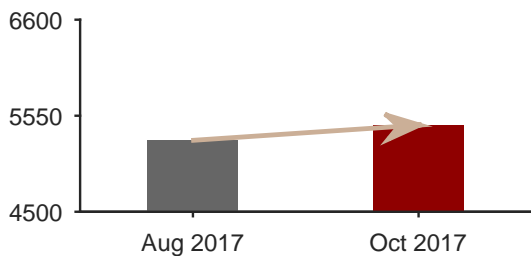
- Focus on Euro, Denmark, and UK
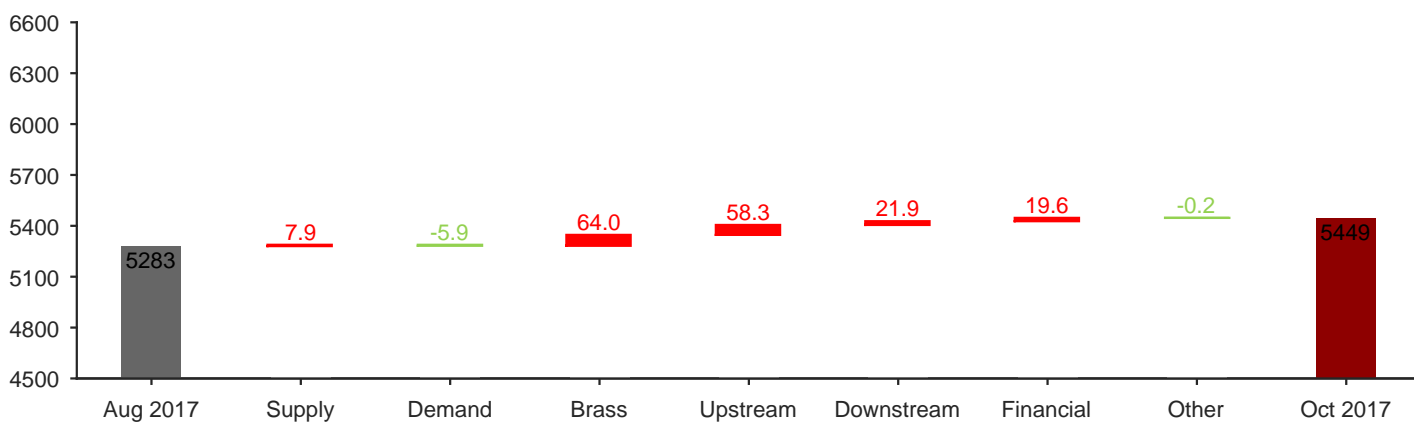
Impact per Country

Forecasting the Price of Brass

Impact Analysis: Two Months Forecast

Our algorithm forecasts a higher price of Brass in two months: it is expectable that the price increases 3.13% from 5283£ to 5449£ until the beginning of October.
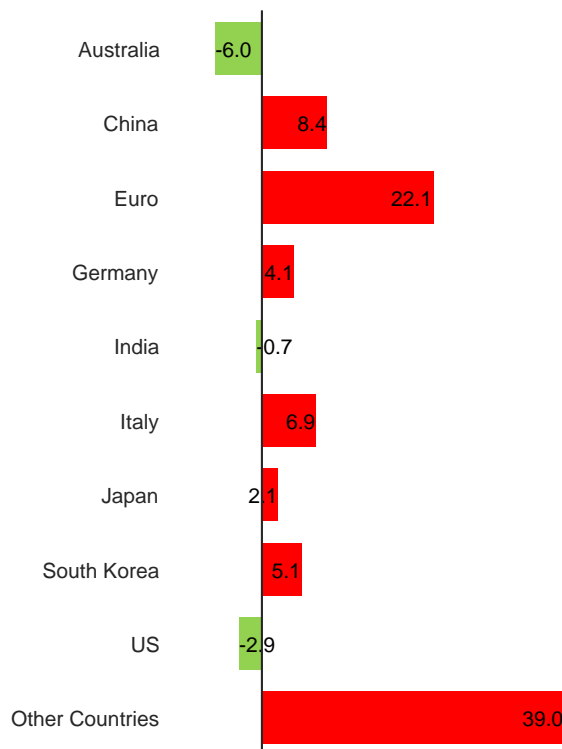
Indices of Factors

Interpretation

- **Decrease of Supply**: Positive pressure of the Supply index
- Slight decrease of Demand: Negative pressure of the Demand index
- **Considerably positive pressure of the index of Brass**
- **Considerably positive pressure of the index of variables representing the market upstream**
- Positive pressure of the index of variables representing the market downstream
- Positive pressure of the financial index
- Slightly negative pressure of other commodities and other factors
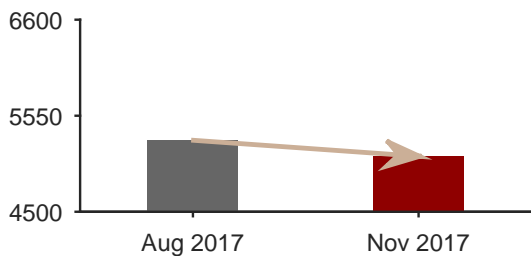- Focus on Euro, Denmark, and UK
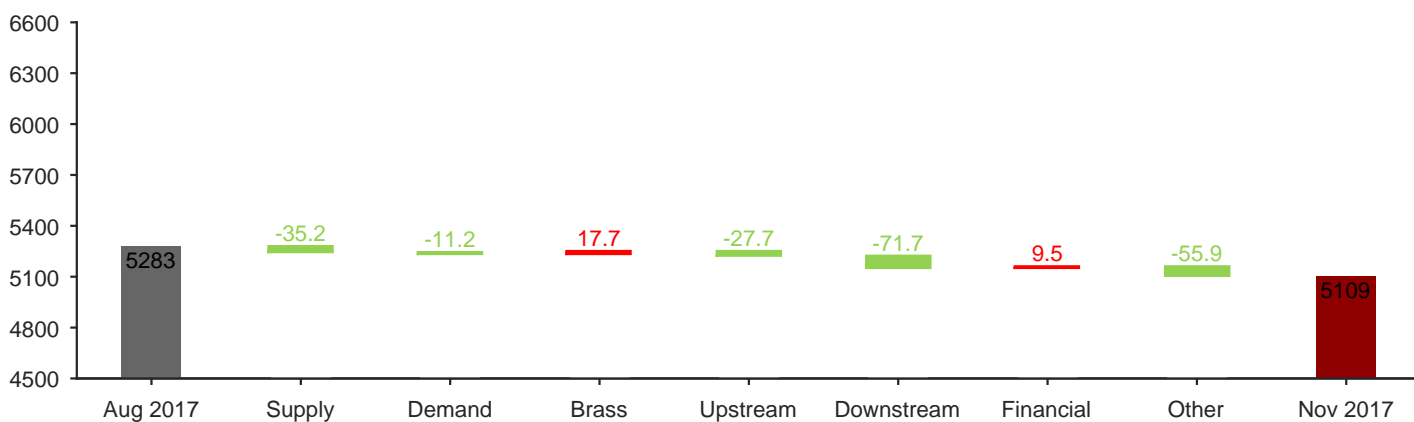
Impact per Country

Forecasting the Price of Brass

Impact Analysis: Three Months Forecast

Our algorithm forecasts a lower price of Brass in three months: it is expectable that the price decreases 3.30% from 5283£ to 5109£ until the beginning of November.
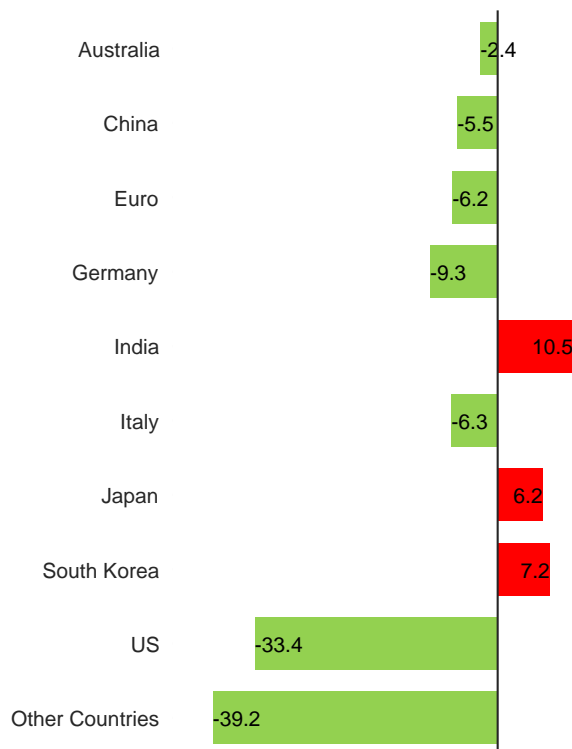
Indices of Factors

Interpretation

- **Increase of Supply**: Negative pressure of the Supply index

- **Decrease of Demand**: Negative pressure of the Demand index

- Positive pressure of the index of Brass

- Negative pressure of the index of variables representing the market upstream

- **Considerably negative pressure of the index of variables representing the market downstream**

- Positive pressure of the financial index

- Negative pressure of other commodities and other factors

- Focus on Spain, US, and UK
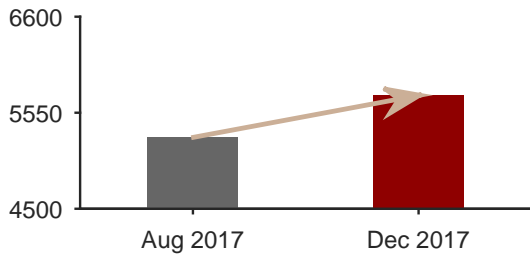
Impact per Country

Country	Value
Australia	-2.4
China	-5.5
Euro	-6.2
Germany	-9.3
India	10.5
Italy	-6.3
Japan	6.2
South Korea	7.2
US	-33.4
Other Countries	-39.2

Forecasting the Price of Brass

Impact Analysis: Four Months Forecast

Our algorithm forecasts a higher price of Brass in four months: it is expectable that the price increases 8.65% from 5283£ to 5740£ until the beginning of December.

Indices of Factors
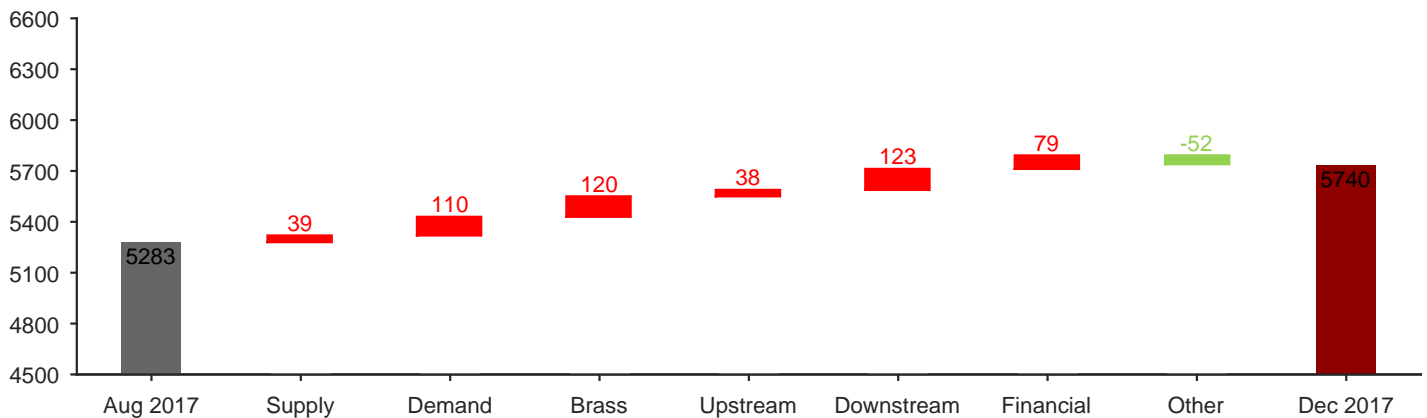
Interpretation

- **Decrease of Supply**: Positive pressure of the Supply index

- **Increase of Demand**: Positive pressure of the Demand index

- **Considerably positive pressure of the index of Brass**

- Positive pressure of the index of variables representing the market upstream

- **Considerably positive pressure of the index of variables representing the market downstream**

- Positive pressure of the financial index

- Negative pressure of other commodities and other factors

- Focus on France, Denmark, and US

Impact per Country

Forecasting the Price of Brass

Impact Analysis: Five Months Forecast

Our algorithm forecasts a higher price of Brass in five months: it is expectable that the price increases 9.40% from 5283£ to 5780£ until the beginning of January.
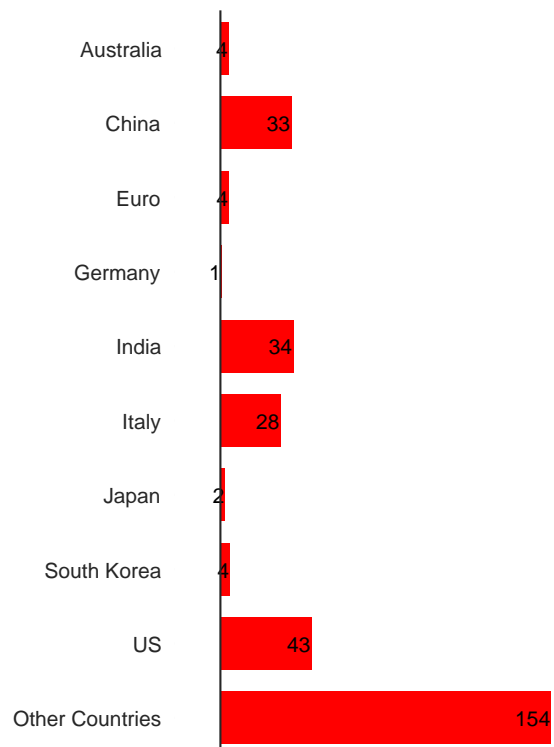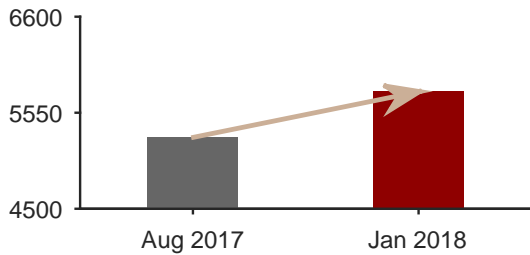
Indices of Factors
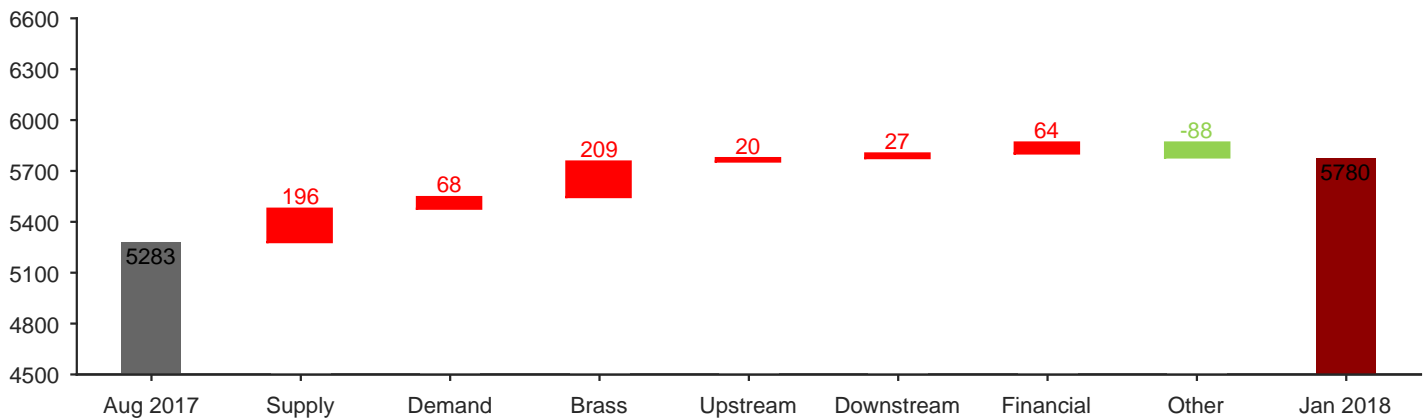
Interpretation

- **Considerable decrease of Supply**: Positive pressure of the Supply index

- **Increase of Demand**: Positive pressure of the Demand index

- **Considerably positive pressure of the index of Brass**

- Slightly positive pressure of the index of variables representing the market upstream

- Positive pressure of the index of variables representing the market downstream

- Positive pressure of the financial index

- Negative pressure of other commodities and other factors

- Focus on Euro, Denmark, and UK

Impact per Country

Forecasting the Price of Brass

Impact Analysis: Six Months Forecast
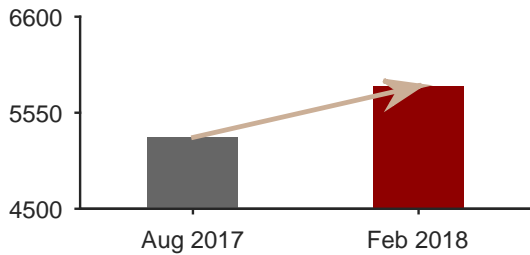
Our algorithm forecasts a higher price of Brass in six months: it is expectable that the price increases 10.56% from 5283£ to 5841£ until the beginning of February.
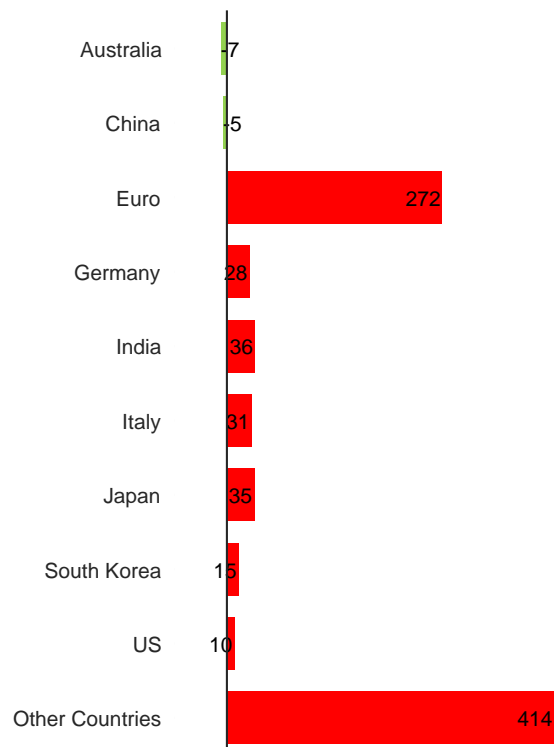
Indices of Factors
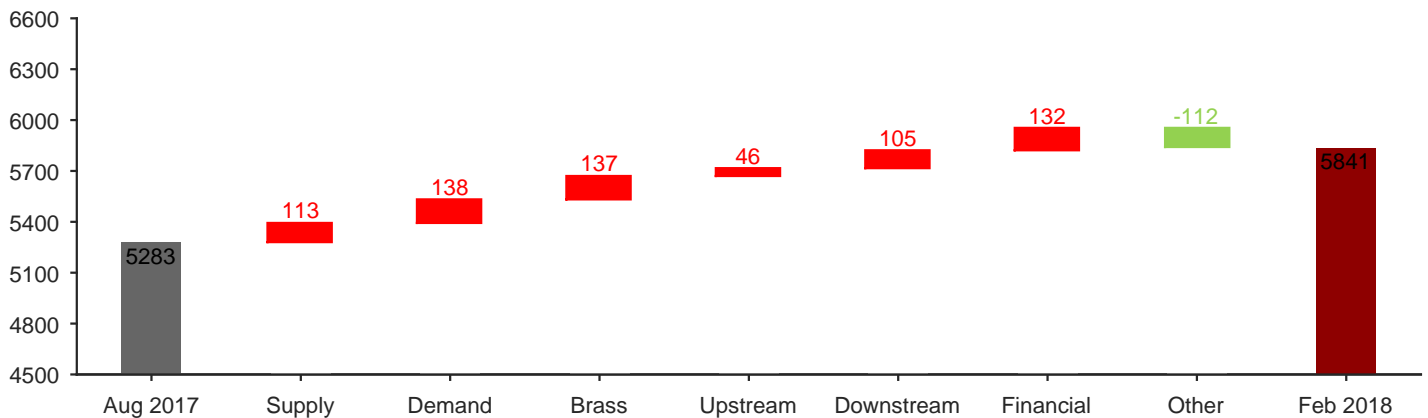
Interpretation

- **Decrease of Supply**: Positive pressure of the Supply index

- **Considerable increase of Demand**: Positive pressure of the Demand index

- **Considerably positive pressure of the index of Brass**

- Positive pressure of the index of variables representing the market upstream

- Positive pressure of the index of variables representing the market downstream

- **Considerably positive pressure of the financial index**

- Negative pressure of other commodities and other factors

- Focus on France, Italy, and Denmark

Impact per Country
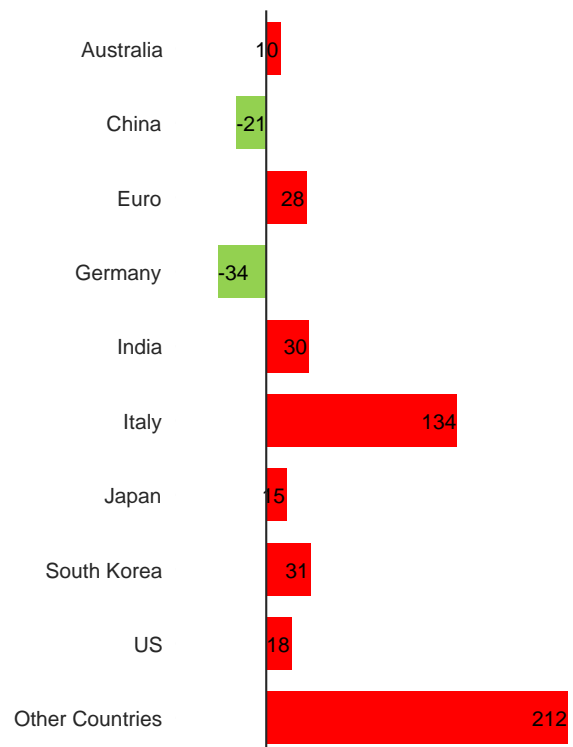
Forecasting the Price of Brass

APPENDIX – Technical Explanation of the Impact Analysis

In this appendix, we explain the impact analysis of the factors that most contribute for our forecasts.

This Impact Analysis is conducted individually for **each time horizon**, allowing for a distinction between the indices of variables that contribute for our forecasts at short and medium run.

For each time horizon, our analysis has **two components**: first, we present the impact of variables grouped by **indices of factors**; second we present the impact of variables grouped by **indices of countries**.

Indices of Factors

Indices of factors are indices of the weighted contributions of the variables grouped in those factors.

Supply Index: composed of macroeconomic variables of the producing and exporting countries. It includes variables such as production, exchange rates, inflation, monetary policy, and wages. For example, an increase in wages implies higher production costs which should (in linear, general, and ceteris paribus terms) generate an incentive to increase prices;

Demand index: composed of macroeconomic variables of the consuming and importing countries. It includes variables such as production, exchange rates, inflation, monetary policy, and wages. For example, a decrease in a consumer confidence index should (in linear, general, and ceteris paribus terms) increase savings and decrease demand, leading to lower prices;

Brass Index: composed of variables related to Brass. It includes variables such as the price of Brass in different regions of the world and exports, imports, and producer prices of Brass in some countries. For example, an increase in the price of Brass in other region may imply an increase in the price of Brass in Europe due to arbitrage movements;

Upstream index: composed of variables related to Copper and Zinc. It includes variables such as the price and exports, imports, and producer prices of the inputs in some countries. For example, an increase in the price of Copper should (in linear, general, and ceteris paribus terms) generate an increase in the price of Brass;

Forecasting the Price of Brass

APPENDIX – Technical Explanation of the Impact Analysis (II)

Downstream index: composed of variables related to downstream industries, such as Construction and Electronics. It includes variables exports, imports, and producer prices of these industries in some countries. For example, an increase in the demand of these industries should (in linear, general, and ceteris paribus terms) generate an increase in the price of Brass;

Financial Variables Index: composed of financial market variables. It includes the share price of companies that produce Brass. It also includes financial indices related to this sector. For example, a positive change in the share price of a producer of Brass should (in linear, general, and ceteris paribus terms) imply an increase in expected profitability of the firm. This may signal an expectation of increase in the price of Brass;

Other Variables Index: composed of variables related to other metals (Aluminium and Bronze) and Oil. It includes the price, exports, and imports of these commodities. For example, a positive change in the price of a substitute commodity, should (in linear, general, and ceteris paribus terms) imply an increase of demand of Brass, and thus, of the price of Brass.

Indices of Countries

Indices of Countries: are indices of the weighted contributions of the macroeconomic variables of each country. The countries we present are the most relevant countries in the production, consumption, and international commerce of Brass.

Interpretation Warning

It is important to note that the contribution of individual variables and indices of variables is not linear. The interaction between variables and between variables of different factors may not be neglectable, which means that the importance of each variable and indices of variables is determined together with the importance of all other variables.

Furthermore, the analysis of changes in variables is not linear. This means that the same variable with the same change in different moments of time may have different impacts given its previous evolution. For example, the algorithm contrasts the change in a variable with its expected change. A positive change but inferior to the expected change may originate an effect of price correction.