

APEX

forecasting

Q4 2018



Contents

| | | | |
|----------------|--------------------|----------------|----------------------------|
| PAGE 3 | Methodology | PAGE 11 | Precious Metals |
| PAGE 4 | Base Metals | PAGE 12 | Gold |
| PAGE 5 | Aluminium | PAGE 13 | Silver |
| PAGE 6 | Copper | PAGE 14 | Platinum |
| PAGE 7 | Lead | PAGE 15 | Palladium |
| PAGE 8 | Nickel | PAGE 16 | Steel Raw Materials |
| PAGE 9 | Tin | PAGE 17 | Iron ore |
| PAGE 10 | Zinc | PAGE 18 | Coking coal |

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Apex

Analyst price expectations

Fastmarkets Apex is two-in-one product. First, it provides a ranking of the best analysts by forecast accuracy and metal on a quarterly basis. Secondly, it combines the best forecasts to provide a collective intelligence forecast.

Apex contains leader boards of analysts based upon the accuracy of their most recent price predictions for the base metals traded on the London Metal Exchange, precious metals and iron ore. Fastmarkets Apex answers three questions: Where will base metal prices be trading in the future? Which bank, brokerage or research company's published price expectations have been most accurate previously? How a collective intelligence forecast biased to the most accurate analysts would be? Fastmarkets takes forecasts from established credible and independent analysts/desks and combines them in a weighted average to form a consensus forecast. The weightings are created from the past performance of the analysts, in both long-term and short-term forecasting, allowing those with the greatest skills and market understanding to have the greatest influence in the consensus forecast.

Analyst rankings:

The Apex is open to all credible independent analysts/desks, although each institution is limited to one forecast, as being representative of the whole company. Each analyst/desk provides the latest forecasts for each metal at the turn of each quarter. At the end of the quarter a definitive ranking of accuracy in the forecasts will be calculated and published.

The accuracy rating reflects the % variance of the actual from the forecast. It is calculated as 100% minus the variance in % to the actual benchmark cash or 3m price. The analyst forecasts may be provided as either cash or 3- month prices and the accuracy of the forecast will be rated against these averages. All prices provided in c/ lb will be converted to \$/tonne at 2204.62 lb/tonne. The overall ranking is a straight average of the variances of all forecasts received from each analyst across all metals as appropriate.

The metals included in the Apex report are: Copper, Aluminium, Nickel, Lead, Zinc, Tin, Gold, Silver, Platinum, Palladium, Iron Ore and Coking Coal.

Collective Intelligence

Apex also provides a weighted average of forecasts. The use of weightings on accuracy allows the best analysts to have the greatest say in the forecasts. The top five most accurate forecasters will see their forecasts included in the weighted forecast. The most accurate forecaster will see their forecast receive the highest weighting in the final calculation. The analyst weightings are updated quarterly.

Annual Forecasts

Forecasts received for APEX calculations each quarter of the calendar year will be ranked for accuracy and averaged with results to come out during the first quarter of the following year.

For inclusion data must be received by 12am London time on the 14th day of the first month of the quarter. Any data provided after this deadline will not be updated. In this situation the most recent data provided will be used for one quarter. After this time the data will be excluded.

For further information on Fastmarkets Apex:

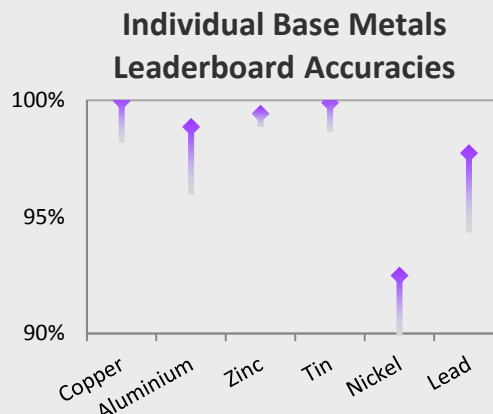
Contact: Inaki Villanueva
ivillanueva@fastmarkets.com

Base Metals

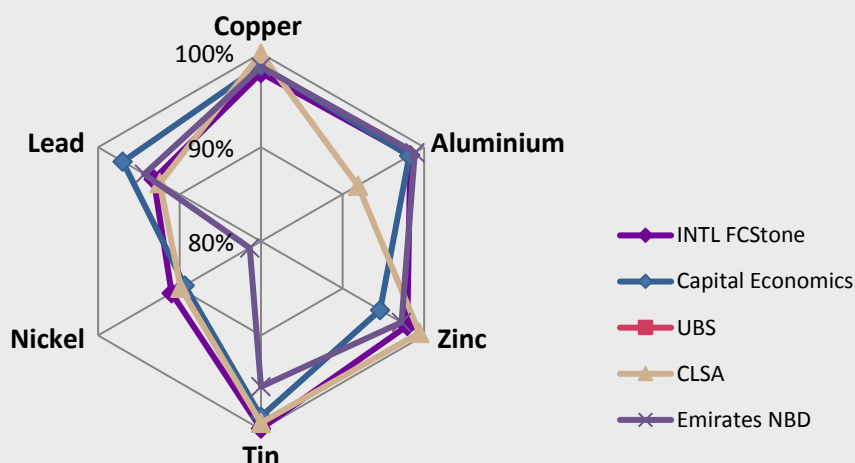
Leaderboard Q4 2018

Rank Analyst

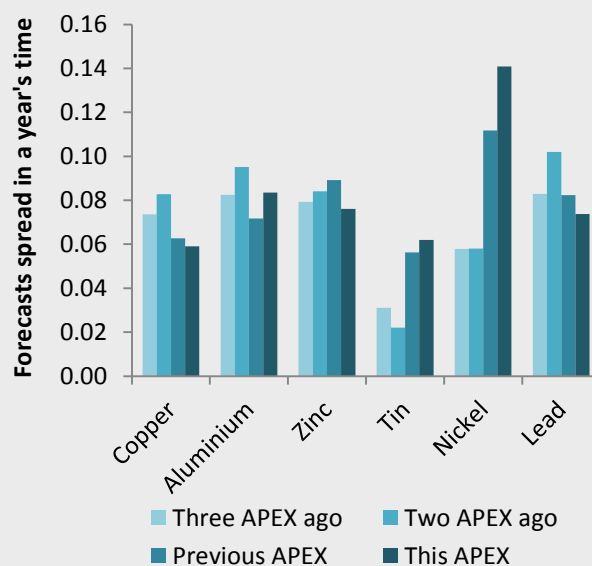
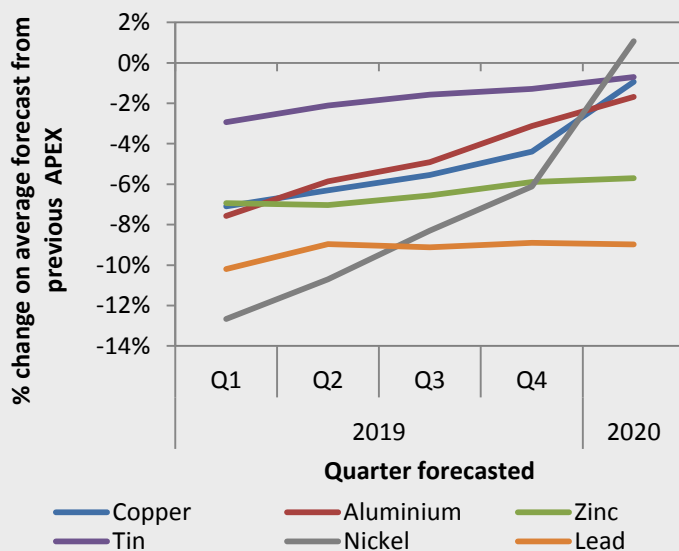
| Rank | Analyst | Accuracy |
|------|--|----------|
| 1 | INTL FCStone - Edward Meir | 98.51% |
| 2 | Capital Economics - C.Bain, R.Strachan | 98.12% |
| 3 | UBS - Lachlan Shaw | 98.04% |
| 4 | CLSA - Andrew Driscoll | 97.78% |
| 5 | Emirates NBD - Edward Bell | 97.52% |



OVERALL BASE METALS TOP 5 ANALYSTS



CHANGE IN FORECASTS FROM PREVIOUS APEXs



This graph shows how forecasts changed in % from the previous APEX for the X-axis dates.

This graph shows the level of forecast consensus. Lower values = higher consensus.

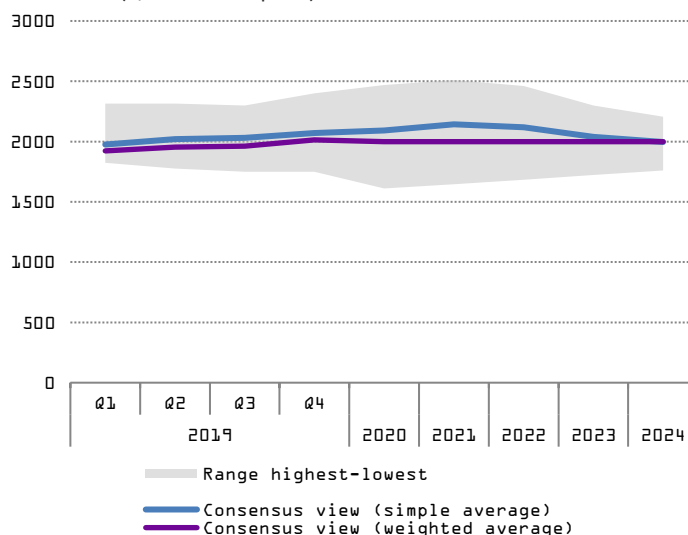
Aluminium

ALUMINIUM LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|---|----------|
| 1 | Emirates NBD - Edward Bell | 98.86% |
| 2 | INTL FCStone - Edward Meir | 98.30% |
| 3 | Capital Economics - C.Bain, R.Strachan | 98.18% |
| 4 | SP Angel - J. Meyer, S. Raevskiy, S. Beards | 96.33% |
| 5 | Fastmarkets | 95.94% |

Fastmarkets Apex Aluminium

Forecasts (\$/tonne cash price)



ALUMINIUM AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|-------|-------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | |
| Consensus view (weighted average) | 1,923 | 1,955 | 1,961 | 2,014 | 2,000 | 2,000 | 2,000 |
| Consensus view (simple average) | 1,976 | 2,020 | 2,031 | 2,070 | 2,091 | 2,143 | 2,118 |
| Lowest | 1,825 | 1,775 | 1,750 | 1,750 | 1,611 | 1,647 | 1,684 |
| Highest | 2,315 | 2,315 | 2,300 | 2,400 | 2,470 | 2,510 | 2,460 |
| All forecasts spread (standard deviation / mean) | 6.4% | 7.7% | 7.4% | 8.8% | 9.4% | 10.0% | 10.3% |

ALUMINIUM FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Fastmarkets | 1,900 | 1,930 | 1,960 | 2,000 | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 2,100 | 2,200 | 2,100 | 2,300 | 2,200 | 2,250 | 2,300 |
| 16/01/2019 | ANZ - Daniel Hynes | 2,200 | 2,300 | 2,300 | 2,400 | 2,470 | 2,510 | 2,460 |
| 16/01/2019 | ING - Warren Patterson | 1,975 | 2,050 | 2,150 | 2,250 | 2,280 | 2,275 | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore * | 1,855 | 1,875 | 1,900 | 1,950 | 2,000 | 2,000 | 2,000 |
| 16/01/2019 | RBCCM - Sam Crittenden | 2,094 | 1,984 | 1,874 | 1,874 | 1,984 | 2,094 | 2,094 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 1,831 | 1,775 | 1,750 | 1,750 | 1,950 | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 1,950 | 2,150 | 2,200 | 2,300 | 2,300 | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar * | 1,877 | | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 1,925 | 2,000 | 2,075 | 2,100 | 2,050 | | |
| 15/01/2019 | INTL FCStone - Edward Meir * | 1,885 | 1,865 | 1,835 | 1,855 | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 1,902 | 1,965 | 2,027 | 2,059 | 2,106 | 2,188 | 2,115 |
| 16/01/2019 | ABN Amro - Casper Burgering | 1,898 | 1,917 | 1,925 | 1,966 | 2,015 | | |
| 16/01/2019 | Citi - Nell Agate, Tracy Liao * | 2,000 | 2,100 | 2,100 | 2,100 | 2,250 | 2,300 | 2,300 |
| 11/01/2019 | Commerzbank * | 2,000 | 2,050 | 2,025 | 1,975 | 1,925 | | |
| 16/01/2019 | EIU - Vidhi Garg | 1,950 | 2,050 | 2,050 | 2,050 | 1,975 | 1,980 | 1,920 |
| 16/01/2019 | Morningstar | 1,825 | 1,825 | 1,825 | 1,825 | 1,611 | 1,647 | 1,684 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 2,315 | 2,315 | 2,293 | 2,293 | 2,293 | 2,276 | 2,105 |
| 16/01/2019 | Jefferies - Chris LaFemina | 1,874 | 1,808 | 1,984 | 1,984 | 2,050 | 2,094 | 2,205 |
| 16/01/2019 | Emirates NBD - Edward Bell * | 2,050 | 2,150 | 2,150 | 2,250 | | | |
| 16/01/2019 | Dept. Industry & Science - Gov. of Australia | 2,080 | 2,100 | 2,090 | 2,110 | 2,095 | 2,100 | |
| 16/01/2019 | TD Securities - Bart Melek * | 1,875 | 1,925 | 2,050 | 2,050 | 2,165 | | |
| 09/01/2019 | UBS - Lachlan Shaw | 2,028 | 1,984 | 2,028 | 2,094 | 2,188 | 2,205 | 2,205 |

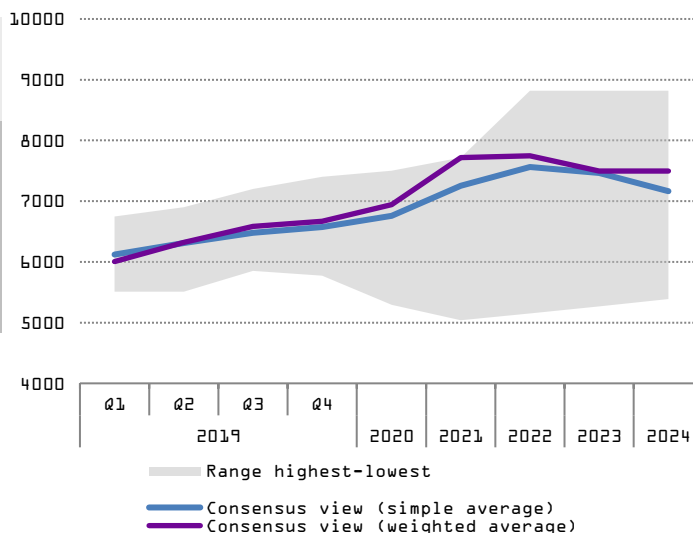
* Three-month prices

Copper

COPPER LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|--|----------|
| 1 | CLSA - Andrew Driscoll | 99.97% |
| 2 | EIU - Cailin Birch, Vidhi Garg | 98.72% |
| 3 | Capital Economics - C.Bain, R.Strachan | 98.70% |
| 4 | Emirates NBD - Edward Bell | 98.57% |
| 5 | Investec - Hunter Hillcoat, Alex Smith | 98.19% |

Apex Copper Forecasts (\$/tonne cash price)



COPPER AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | | | |
| Consensus view (weighted average) | 6,005 | 6,319 | 6,586 | 6,669 | 6,945 | 7,716 | 7,747 | 7,496 | 7,496 |
| Consensus view (simple average) | 6,121 | 6,308 | 6,477 | 6,573 | 6,759 | 7,251 | 7,562 | 7,466 | 7,163 |
| Lowest | 5,512 | 5,512 | 5,850 | 5,775 | 5,291 | 5,039 | 5,152 | 5,268 | 5,387 |
| Highest | 6,750 | 6,900 | 7,200 | 7,400 | 7,500 | 7,716 | 8,818 | 8,818 | 8,818 |
| All forecasts spread (standard deviation / mean) | 4.5% | 5.8% | 5.4% | 6.3% | 8.4% | 11.0% | 13.9% | 15.9% | 17.7% |

COPPER FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | Q1 | Q2 | Q3 | Q4 | | | | | |
| 16/01/2019 | Fastmarkets | 6,230 | 6,500 | 6,650 | 6,750 | | | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 6,500 | 6,800 | 6,800 | 7,100 | 7,000 | 7,500 | 8,000 | 8,000 | |
| 16/01/2019 | ANZ - Daniel Hynes | 6,750 | 6,900 | 7,200 | 7,400 | 7,440 | 7,360 | 7,380 | | |
| 16/01/2019 | ING - Warren Patterson | * | 6,200 | 6,400 | 6,700 | 6,900 | 7,000 | 7,300 | | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | * | 5,945 | 5,975 | 6,250 | 6,500 | 7,500 | 7,500 | 7,500 | 7,500 |
| 16/01/2019 | RBCCM - Sam Crittenden | 5,512 | 5,512 | 6,063 | 6,063 | 6,614 | 7,165 | 7,716 | 7,716 | 6,614 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 5,975 | 6,050 | 6,150 | 6,225 | 6,900 | | | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowden | 6,000 | 6,400 | 6,450 | 6,350 | 6,000 | | | | |
| 16/01/2019 | ICBC Standard Bank - Marcus Garvey | | | | | | | | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | * | 6,032 | | | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 6,050 | 6,400 | 6,600 | 6,650 | 7,000 | | | | |
| 15/01/2019 | INTL FCStone - Edward Meir | * | 5,925 | 5,910 | 5,850 | 5,775 | | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 5,732 | 6,173 | 6,614 | 6,614 | 7,055 | 7,716 | 7,061 | | |
| 16/01/2019 | ABN Amro - Casper Burgering | 6,291 | 6,355 | 6,487 | 6,681 | 6,936 | | | | |
| 16/01/2019 | Citi - Nell Agate, Tracy Liao | * | 6,300 | 6,600 | 6,600 | 6,800 | 7,000 | 7,500 | 8,000 | |
| 11/01/2019 | Commerzbank | * | 6,400 | 6,800 | 6,700 | 6,500 | 6,200 | | | |
| 16/01/2019 | EIU - Vidhi Garg | 6,280 | 6,500 | 6,800 | 6,950 | | | | | |
| 16/01/2019 | Morningstar | 5,952 | 5,952 | 5,952 | 5,952 | 5,291 | 5,039 | 5,152 | 5,268 | 5,387 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 6,283 | 6,283 | 6,393 | 6,393 | 6,834 | 7,716 | 8,433 | 7,496 | 7,496 |
| 16/01/2019 | Jefferies - Chris LaFemina | 6,063 | 5,842 | 6,063 | 6,283 | 6,614 | 7,716 | 8,818 | 8,818 | 8,818 |
| 16/01/2019 | Emirates NBD - Edward Bell | * | 6,000 | 6,500 | 6,750 | 7,000 | | | | |
| 16/01/2019 | Dept. Industry & Science - Gov. of Australia | 6,272 | 6,502 | 6,626 | 6,335 | 7,068 | 7,806 | | | |
| 16/01/2019 | TD Securities - Bart Melek | * | 5,900 | 6,150 | 6,450 | 6,450 | 6,750 | | | |
| 09/01/2019 | UBS - Lachlan Shaw | 6,173 | 6,283 | 6,393 | 6,614 | 7,110 | 7,275 | 7,275 | 7,275 | |

* Three-month prices

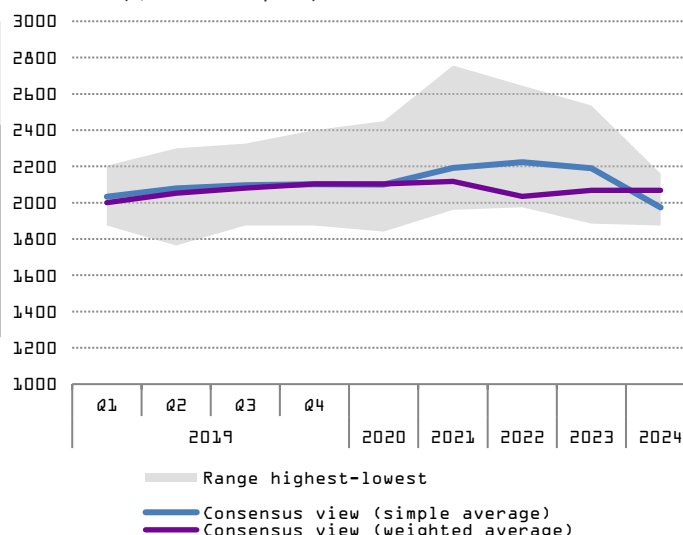
Lead

LEAD LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|---|----------|
| 1 | Bank Muscat - Ajit S Mauskar | 97.73% |
| 2 | Capital Economics - C.Bain, R.Strachan | 96.97% |
| 3 | SP Angel - J. Meyer, S. Raevskiy, S. Beards | 96.47% |
| 4 | Investec - Hunter Hillcoat, Alex Smith | 94.45% |
| 5 | Emirates NBD - Edward Bell | 94.33% |

Apex Lead

Forecasts (\$/tonne cash price)



LEAD AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | |
|--|-------|-------|-------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | | |
| Consensus view (weighted average) | 2,000 | 2,052 | 2,080 | 2,103 | 2,104 | 2,117 | 2,035 | 2,068 |
| Consensus view (simple average) | 2,034 | 2,078 | 2,096 | 2,101 | 2,099 | 2,192 | 2,223 | 2,190 |
| Lowest | 1,874 | 1,764 | 1,874 | 1,875 | 1,840 | 1,960 | 1,975 | 1,885 |
| Highest | 2,205 | 2,300 | 2,325 | 2,400 | 2,450 | 2,756 | 2,646 | 2,535 |
| All forecasts spread (standard deviation / mean) | 4.7% | 6.6% | 6.4% | 7.4% | 9.6% | 10.8% | 8.4% | 10.1% |

LEAD FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Fastmarkets | 2,000 | 2,125 | 2,175 | 2,200 | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 2,200 | 2,300 | 2,300 | 2,400 | 2,400 | 2,300 | 2,300 |
| 16/01/2019 | ANZ - Daniel Hynes | 2,100 | 2,200 | 2,200 | 2,100 | 2,080 | 2,120 | 2,230 |
| 16/01/2019 | ING - Warren Patterson | * | 1,910 | 1,890 | 1,910 | 1,900 | 1,840 | 1,960 |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | * | 1,995 | 2,005 | 1,975 | 1,975 | 1,975 | 1,975 |
| 16/01/2019 | RBCCM - Sam Crittenden | 2,205 | 2,205 | 2,205 | 2,205 | 2,205 | 2,205 | 2,205 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 2,004 | 1,975 | 1,925 | 1,875 | 1,950 | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 2,200 | 2,200 | 2,200 | 2,200 | 1,900 | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | * | 1,997 | | | | | |
| 15/01/2019 | INTL FCStone - Edward Meir | * | 1,935 | 1,915 | 1,945 | 1,890 | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 2,094 | 2,094 | 2,094 | 2,094 | 1,984 | 1,984 | 2,118 |
| 16/01/2019 | Citi - Nell Agate, Tracy Liao | * | 2,000 | 2,100 | 2,100 | 2,100 | 2,000 | 2,200 |
| 11/01/2019 | Commerzbank | * | 2,025 | 2,150 | 2,100 | 2,000 | 1,875 | |
| 16/01/2019 | EIU - Vidhi Garg | 2,060 | 2,100 | 2,150 | 2,200 | 2,365 | 2,756 | 2,646 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 2,072 | 2,072 | 2,116 | 2,116 | 2,232 | 2,260 | 2,094 |
| 16/01/2019 | Jefferies - Chris LaFemina | 1,874 | 1,764 | 1,874 | 1,984 | 1,984 | 1,984 | 2,094 |
| 16/01/2019 | Emirates NBD - Edward Bell | * | 1,936 | 2,078 | 2,149 | 2,219 | | |
| 16/01/2019 | TD Securities - Bart Melek | * | 2,050 | 2,250 | 2,325 | 2,375 | 2,450 | |
| 09/01/2019 | UBS - Lachlan Shaw | 1,984 | 1,984 | 1,984 | 1,984 | 2,249 | 2,370 | 2,370 |

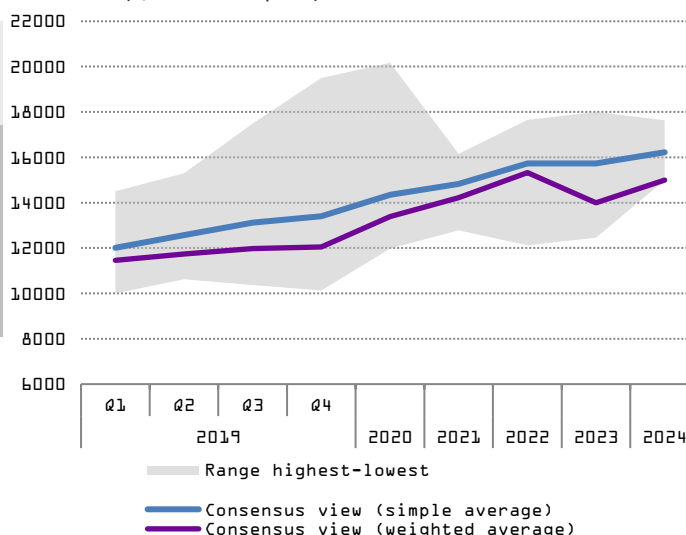
* Three-month prices

Nickel

NICKEL LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|--------------------------------|----------|
| 1 | EIU - Cailin Birch, Vidhi Garg | 92.48% |
| 2 | UBS - Lachlan Shaw | 91.80% |
| 3 | Jefferies - Chris LaFemina | 91.41% |
| 4 | INTL FCStone - Edward Meir | 91.00% |
| 5 | CLSA - Andrew Driscoll | 89.88% |

Apex Nickel Forecasts (\$/tonne cash price)



NICKEL AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|--------|--------|--------|--------|--------|--------|--------|
| | Q1 | Q2 | Q3 | Q4 | | | |
| Consensus view (weighted average) | 11,458 | 11,741 | 11,982 | 12,042 | 13,389 | 14,216 | 15,326 |
| Consensus view (simple average) | 12,011 | 12,568 | 13,123 | 13,408 | 14,347 | 14,827 | 15,736 |
| Lowest | 10,000 | 10,625 | 10,375 | 10,125 | 11,984 | 12,787 | 12,125 |
| Highest | 14,500 | 15,300 | 17,500 | 19,500 | 20,170 | 16,160 | 17,653 |
| All forecasts spread (standard deviation / mean) | 9.4% | 9.5% | 11.7% | 14.4% | 12.8% | 8.3% | 12.8% |

NICKEL FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|----------|--------|--------|--------|--------|--------|--------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Fastmarkets | 12,100 | 13,000 | 14,600 | 15,000 | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 13,000 | 14,000 | 14,000 | 15,000 | 15,000 | 16,000 | 17,000 |
| 16/01/2019 | ANZ - Daniel Hynes | 14,500 | 15,300 | 15,300 | 15,500 | 15,830 | 16,160 | 16,620 |
| 16/01/2019 | ING - Warren Patterson | * 11,800 | 11,800 | 12,800 | 13,300 | 14,700 | 15,750 | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | * 11,950 | 12,250 | 12,750 | 13,000 | 15,000 | 15,500 | 15,500 |
| 16/01/2019 | RBCCM - Sam Crittenden | 13,228 | 13,228 | 14,330 | 14,330 | 15,432 | 15,432 | 17,637 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 10,677 | 10,625 | 10,375 | 10,125 | 12,000 | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 13,500 | 14,500 | 17,500 | 19,500 | 20,170 | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | * 11,620 | | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 11,750 | 12,750 | 13,500 | 13,500 | 14,200 | | |
| 15/01/2019 | INTL FCStone - Edward Meir | * 11,850 | 11,650 | 11,320 | 10,950 | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 11,023 | 11,574 | 12,125 | 12,677 | 13,779 | 15,432 | 17,653 |
| 16/01/2019 | ABN Amro - Casper Burgering | 11,846 | 12,426 | 12,560 | 12,954 | 14,215 | | |
| 16/01/2019 | Citi - Nell Agate, Tracy Liao | * 11,000 | 12,000 | 12,500 | 12,500 | 13,500 | 14,000 | 15,000 |
| 11/01/2019 | Commerzbank | * 10,000 | 12,000 | 12,500 | 13,000 | 13,400 | | |
| 16/01/2019 | EIU - Vidhi Garg | 12,948 | 13,242 | 12,434 | 11,956 | 11,984 | 12,787 | 12,125 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 11,023 | 11,023 | 12,125 | 12,125 | 13,669 | 15,432 | 17,086 |
| 16/01/2019 | Jefferies - Chris LaFemina | 11,500 | 12,000 | 12,500 | 12,500 | 13,000 | 13,000 | 14,000 |
| 16/01/2019 | Emirates NBD - Edward Bell | * 12,125 | 12,500 | 12,750 | 13,250 | | | |
| 16/01/2019 | Dept. Industry & Science - Gov. of Australia | 13,800 | 14,000 | 14,000 | 14,000 | 13,900 | 13,600 | |
| 16/01/2019 | TD Securities - Bart Melek | * 11,000 | 11,500 | 12,500 | 13,000 | 14,125 | | |
| 09/01/2019 | UBS - Lachlan Shaw | 11,464 | 12,346 | 13,228 | 14,110 | 16,562 | 16,535 | 15,432 |

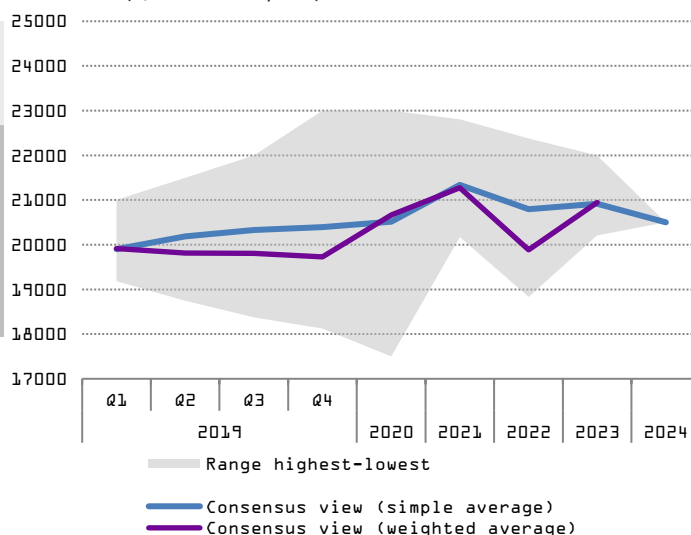
* Three-month prices

Tin

TIN LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|--|----------|
| 1 | INTL FCStone - Edward Meir | 99.89% |
| 2 | UBS - Lachlan Shaw | 99.87% |
| 3 | Bank Muscat - Ajit S Mauskar | 99.63% |
| 4 | CLSA - Andrew Driscoll | 99.30% |
| 5 | Capital Economics - C.Bain, R.Strachan | 98.62% |

Apex Tin Forecasts (\$/tonne cash price)



TIN AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | |
|--|--------|--------|--------|--------|--------|--------|--------|--------|
| | Q1 | Q2 | Q3 | Q4 | | | | |
| Consensus view (weighted average) | 19,912 | 19,814 | 19,804 | 19,728 | 20,668 | 21,275 | 19,887 | 20,944 |
| Consensus view (simple average) | 19,901 | 20,187 | 20,332 | 20,392 | 20,513 | 21,339 | 20,793 | 20,913 |
| Lowest | 19,180 | 18,750 | 18,375 | 18,125 | 17,500 | 20,172 | 18,830 | 20,210 |
| Highest | 21,000 | 21,500 | 22,000 | 23,000 | 23,000 | 22,810 | 22,380 | 22,000 |
| All forecasts spread (standard deviation / mean) | 3.1% | 3.6% | 4.8% | 6.2% | 7.0% | 4.6% | 6.2% | 3.8% |

TIN FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|--------|--------|--------|--------|--------|--------|--------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Fastmarkets | 20,500 | 21,000 | 21,600 | 22,000 | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 19,500 | 20,000 | 20,000 | 20,500 | 21,000 | 22,000 | 22,000 |
| 16/01/2019 | ANZ - Daniel Hynes | 19,500 | 20,000 | 22,000 | 23,000 | 23,000 | 22,810 | 22,380 |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 20,500 | 20,500 | 20,500 | 20,500 | 20,500 | 20,500 | 20,500 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 19,260 | 18,750 | 18,375 | 18,125 | 20,000 | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 19,600 | 20,000 | 20,400 | 20,600 | 21,177 | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | 20,617 | | | | | | |
| 15/01/2019 | INTL FCStone - Edward Meir | 20,450 | 20,200 | 19,950 | 19,500 | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 19,401 | 19,842 | 19,842 | 19,842 | 20,613 | 21,605 | 18,830 |
| 11/01/2019 | Commerzbank | 19,500 | 21,500 | 21,250 | 21,000 | 20,100 | | |
| 16/01/2019 | EIU - Vidhi Garg | 19,700 | 20,300 | 19,700 | 19,300 | 17,500 | 20,172 | 20,106 |
| 16/01/2019 | Emirates NBD - Edward Bell | 21,000 | 20,750 | 20,750 | 20,500 | | | |
| 09/01/2019 | UBS - Lachlan Shaw | 19,180 | 19,401 | 19,621 | 19,842 | 20,723 | 20,944 | 20,944 |

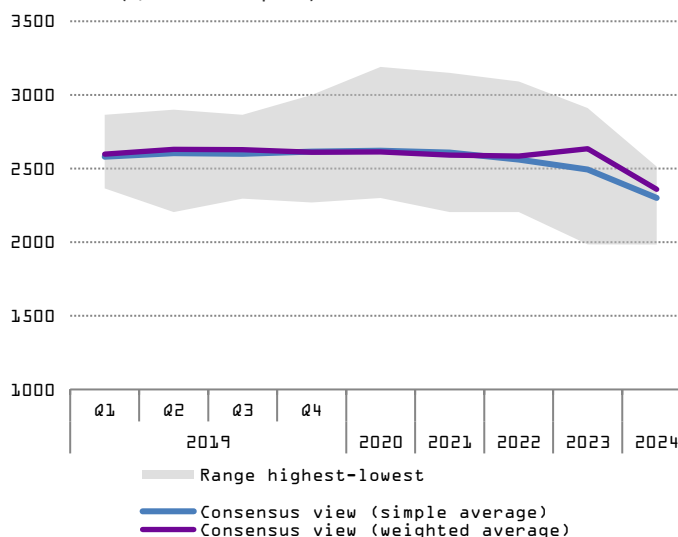
* Three-month prices

Zinc

ZINC LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|--|----------|
| 1 | CLSA - Andrew Driscoll | 99.42% |
| 1 | RBCCM - Sam Crittenden | 99.42% |
| 3 | ABN Amro - Casper Burgering | 98.99% |
| 4 | Investec | 98.90% |
| 5 | Deutsche Bank - P. Jones, L. Fitzpatrick | 98.85% |

Apex Zinc Forecasts (\$/tonne cash price)



ZINC AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|-------|-------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | |
| Consensus view (weighted average) | 2,597 | 2,631 | 2,629 | 2,610 | 2,613 | 2,590 | 2,585 |
| Consensus view (simple average) | 2,580 | 2,605 | 2,600 | 2,614 | 2,621 | 2,608 | 2,561 |
| Lowest | 2,365 | 2,205 | 2,295 | 2,270 | 2,300 | 2,205 | 2,205 |
| Highest | 2,866 | 2,900 | 2,866 | 3,000 | 3,190 | 3,150 | 3,090 |
| All forecasts spread (standard deviation / mean) | 5.4% | 7.0% | 6.2% | 7.6% | 10.0% | 10.4% | 11.1% |

ZINC FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|--|-------|-------|-------|-------|-------|-------|-------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Fastmarkets | 2,580 | 2,660 | 2,500 | 2,400 | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 2,700 | 2,700 | 2,600 | 2,800 | 2,500 | 2,400 | 2,300 |
| 16/01/2019 | ANZ - Daniel Hynes | 2,700 | 2,900 | 2,800 | 3,000 | 3,190 | 3,150 | 3,090 |
| 16/01/2019 | ING - Warren Patterson | * | 2,480 | 2,460 | 2,580 | 2,395 | 2,550 | |
| 15/01/2019 | SP Angel - John Meyer, Sergey Raevskiy | * | 2,475 | 2,495 | 2,505 | 2,525 | 2,500 | 2,500 |
| 16/01/2019 | RBCCM - Sam Crittenden | 2,866 | 2,866 | 2,866 | 2,866 | 2,866 | 2,756 | 2,756 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 2,459 | 2,375 | 2,338 | 2,313 | 2,500 | | |
| 16/01/2019 | Deutsche Bank - P. Jones, L. Fitzpatrick | 2,500 | 2,500 | 2,500 | 2,500 | 2,300 | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | * | 2,498 | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 2,550 | 2,700 | 2,750 | 2,700 | 2,600 | | |
| 15/01/2019 | INTL FCStone - Edward Meir | * | 2,365 | 2,315 | 2,295 | 2,270 | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 2,425 | 2,535 | 2,535 | 2,425 | 2,425 | 2,205 | 2,354 |
| 16/01/2019 | ABN Amro - Casper Burgering | 2,592 | 2,654 | 2,597 | 2,615 | 2,700 | | |
| 16/01/2019 | Citi - Nell Agate, Tracy Liao | * | 2,600 | 2,500 | 2,400 | 2,400 | 2,300 | 2,400 |
| 11/01/2019 | Commerzbank | * | 2,650 | 2,800 | 2,750 | 2,700 | 2,600 | |
| 16/01/2019 | EIU - Vidhi Garg | 2,790 | 2,740 | 2,650 | 2,620 | 2,628 | 2,888 | 2,800 |
| 11/01/2019 | Investec | 2,601 | 2,601 | 2,646 | 2,646 | 2,772 | 2,811 | 2,646 |
| 16/01/2019 | Jefferies - Chris LaFemina | 2,425 | 2,205 | 2,425 | 2,535 | 2,425 | 2,425 | 2,205 |
| 17/10/2018 | Emirates NBD - Edward Bell | * | 2,513 | 2,687 | 2,772 | 2,858 | | |
| 17/10/2018 | Dept. Industry & Science - Gov. of Australia | | 2,850 | 2,800 | 2,750 | 2,700 | 2,700 | 2,600 |
| 16/01/2019 | TD Securities - Bart Melek | * | 2,550 | 2,600 | 2,750 | 2,850 | 3,161 | |
| 09/01/2019 | UBS - Lachlan Shaw | 2,425 | 2,315 | 2,315 | 2,425 | 2,425 | 2,425 | 2,425 |

* Three-month prices

Precious Metals Leaderboard Q4 2018

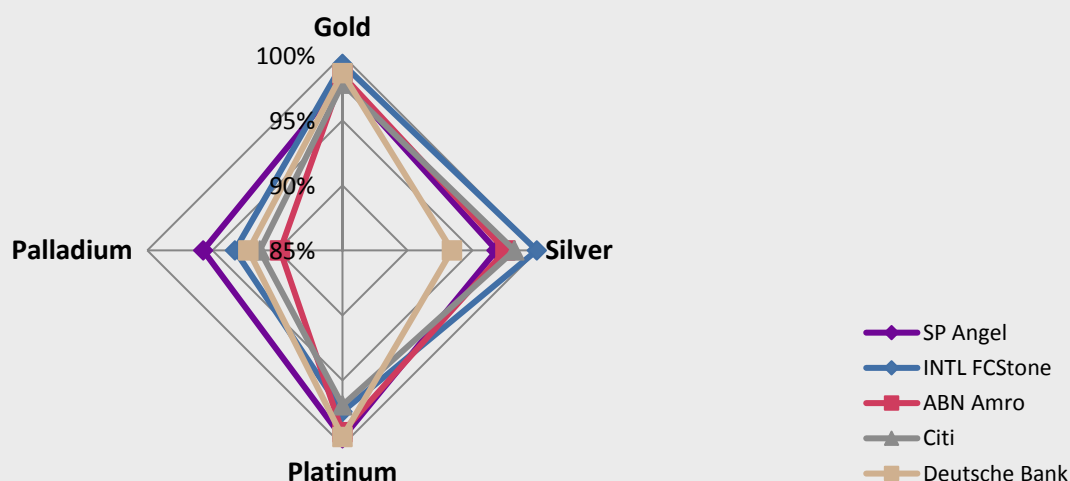
Rank Analyst

| Rank | Analyst | Accuracy |
|------|---|----------|
| 1 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 97.53% |
| 2 | INTL FCStone - Edward Meir | 97.49% |
| 3 | ABN Amro - Georgette Boele | 96.19% |
| 4 | Citi - Aakash Doshi, Nell Agate | 96.08% |
| 5 | Deutsche Bank - Nicholas Snowdon | 95.90% |

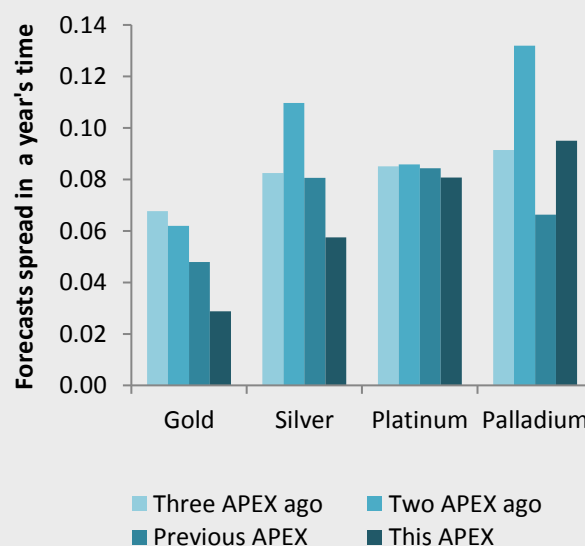
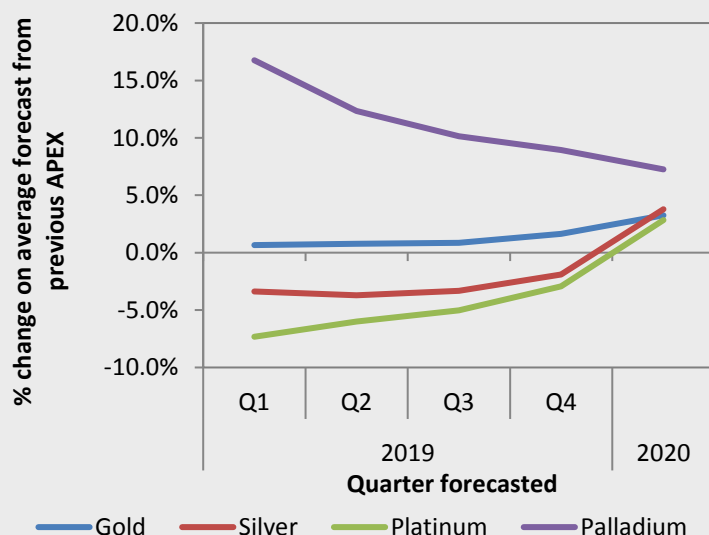
Individual Precious Metals
Leaderboard Accuracies



OVERALL PRECIOUS METALS TOP 5 ANALYSTS



CHANGE IN FORECASTS FROM PREVIOUS APEXs



This graph shows how forecasts changed in % from the previous APEX for the X-axis dates.

This graph shows the level of consensus. Lower values = higher consensus.

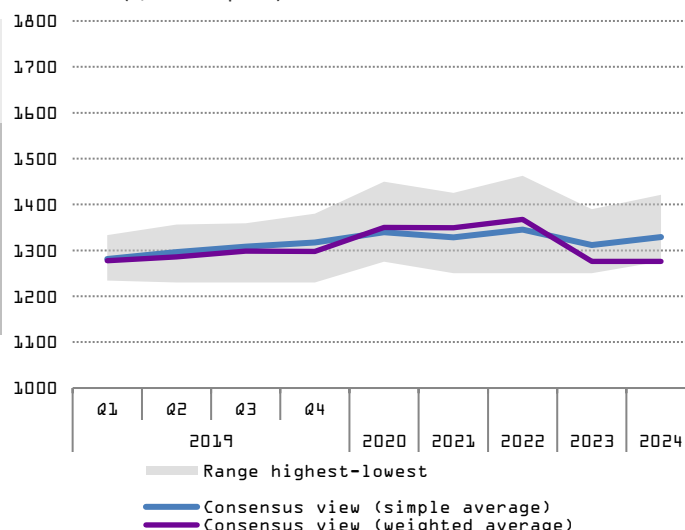
Gold

GOLD LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|--|----------|
| 1 | TD Securities - Bart Melek | 99.85% |
| 2 | INTL FCStone - Edward Meir | 99.34% |
| 3 | Deutsche Bank - Nicholas Snowdon | 98.63% |
| 4 | ABN Amro - Georgette Boele | 98.46% |
| 5 | Investec - Hunter Hillcoat, Alex Smith | 98.22% |

Apex Gold

Forecasts (\$/oz cash price)



GOLD AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|-------|-------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | |
| Consensus view (weighted average) | 1,278 | 1,286 | 1,298 | 1,298 | 1,350 | 1,349 | 1,368 |
| Consensus view (simple average) | 1,281 | 1,297 | 1,308 | 1,317 | 1,340 | 1,328 | 1,345 |
| Lowest | 1,234 | 1,230 | 1,230 | 1,230 | 1,275 | 1,250 | 1,250 |
| Highest | 1,333 | 1,356 | 1,359 | 1,380 | 1,450 | 1,425 | 1,463 |
| All forecasts spread (standard deviation / mean) | 1.9% | 2.4% | 2.5% | 2.9% | 3.7% | 4.4% | 5.1% |

GOLD FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 1,250 | 1,275 | 1,275 | 1,300 | 1,275 | 1,250 | 1,250 |
| 15/10/2018 | ANZ - Daniel Hynes | 1,285 | 1,300 | 1,310 | 1,320 | 1,369 | 1,425 | 1,463 |
| 16/01/2019 | ING - Warren Patterson | 1,280 | 1,300 | 1,300 | 1,300 | 1,335 | 1,400 | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 1,305 | 1,310 | 1,315 | 1,330 | 1,350 | 1,350 | 1,350 |
| 16/01/2019 | RBCCM - C. Louney, S. Walker, D. Rollins, M. Mihaljevic | 1,333 | 1,356 | 1,359 | 1,304 | 1,300 | 1,300 | 1,300 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 1,291 | 1,313 | 1,338 | 1,350 | 1,350 | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 1,234 | 1,230 | 1,230 | 1,230 | 1,290 | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | 1,277 | | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 1,310 | 1,290 | 1,340 | 1,380 | 1,395 | | |
| 15/01/2019 | INTL FCStone - Edward Meir | 1,310 | 1,325 | 1,335 | 1,295 | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 1,250 | 1,270 | 1,290 | 1,300 | 1,340 | 1,275 | 1,313 |
| 16/01/2019 | ICBC Standard Bank - Marcus Garvey | 1,260 | 1,290 | 1,320 | 1,300 | | | |
| 16/01/2019 | ABN Amro - Georgette Boele | 1,291 | 1,313 | 1,338 | 1,375 | 1,450 | | |
| 16/01/2019 | Citi - Aakash Doshi, Nell Agate | 1,300 | 1,325 | 1,350 | 1,350 | 1,375 | 1,400 | 1,450 |
| 11/01/2019 | Commerzbank | 1,250 | 1,250 | 1,300 | 1,350 | 1,425 | | |
| 16/01/2019 | EIU - Vidhi Garg | 1,260 | 1,320 | 1,280 | 1,330 | 1,313 | 1,256 | 1,300 |
| 16/01/2019 | Morningstar | 1,271 | 1,271 | 1,271 | 1,271 | 1,300 | 1,329 | 1,359 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 1,275 | 1,275 | 1,290 | 1,290 | 1,310 | 1,349 | 1,368 |
| 16/01/2019 | Jefferies - Chris LaFemina | 1,300 | 1,300 | 1,300 | 1,300 | 1,300 | 1,300 | 1,300 |
| 16/01/2019 | Emirates NBD - Edward Bell | 1,300 | 1,350 | 1,350 | 1,380 | | | |
| 16/01/2019 | Dept. Industry & Science - Gov. of Australia | 1,273 | 1,269 | 1,275 | 1,285 | 1,299 | 1,303 | |
| 16/01/2019 | TD Securities - Bart Melek | 1,275 | 1,300 | 1,325 | 1,350 | 1,375 | | |
| 09/01/2019 | UBS - Lachlan Shaw | 1,275 | 1,250 | 1,325 | 1,350 | 1,325 | 1,350 | 1,375 |

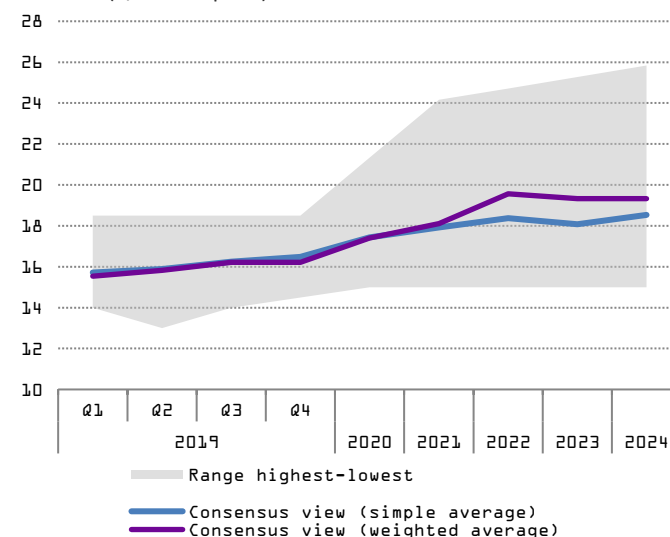
Silver

SILVER LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|--|----------|
| 1 | INTL FCStone - Edward Meir | 99.95% |
| 2 | Capital Economics - C.Bain, R.Strachan | 99.60% |
| 3 | TD Securities - Bart Melek | 98.58% |
| 4 | Citi - Aakash Doshi, Nell Agate | 98.23% |
| 5 | Investec - Hunter Hillcoat, Alex Smith | 97.88% |

Apex Silver

Forecasts (\$/oz cash price)



SILVER AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|------|------|------|------|------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | |
| Consensus view (weighted average) | 16 | 16 | 16 | 16 | 17 | 18 | 19 |
| Consensus view (simple average) | 16 | 16 | 16 | 16 | 17 | 18 | 19 |
| Lowest | 14 | 13 | 14 | 15 | 15 | 15 | 15 |
| Highest | 19 | 19 | 19 | 19 | 21 | 24 | 25 |
| All forecasts spread (standard deviation / mean) | 5.8% | 6.7% | 5.5% | 5.8% | 8.2% | 13.6% | 15.1% |

SILVER FORECASTS

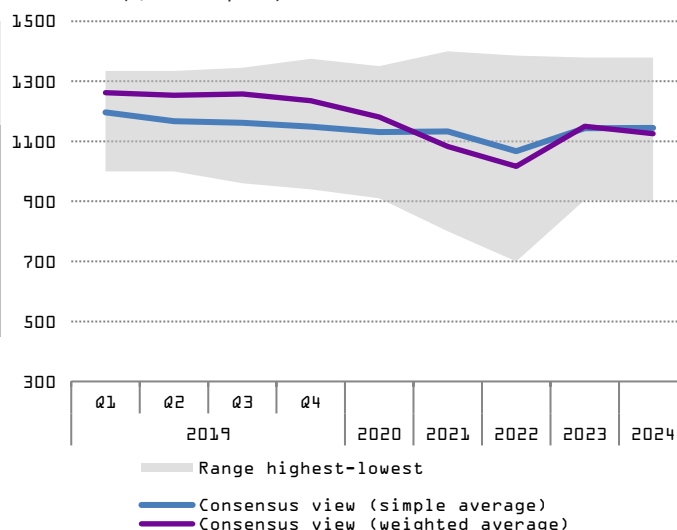
| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|------|------|------|------|------|------|------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | 16.0 | |
| 15/10/2018 | ANZ - Daniel Hynes | 16.1 | 16.3 | 16.4 | 16.5 | 17.9 | 19.5 | 20.7 |
| 16/01/2019 | ING - Warren Patterson | 15.6 | 16.3 | 16.5 | 17.1 | 18.5 | 19.5 | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 15.6 | 15.8 | 16.0 | 16.2 | 16.0 | 16.0 | 16.0 |
| 16/01/2019 | RBCCM - M. Mihaljevic, S. Walker, D. Rollins | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 | 16.5 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 15.7 | 16.3 | 16.8 | 17.3 | 17.5 | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 16.2 | 16.2 | 16.4 | 16.4 | 17.4 | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | 15.4 | | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 15.8 | 15.3 | 16.4 | 17.3 | 17.6 | | |
| 15/01/2019 | INTL FCStone - Edward Meir | 15.6 | 15.3 | 15.5 | 15.3 | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 16.7 | 16.9 | 17.2 | 17.3 | 18.5 | 18.2 | 18.8 |
| 16/01/2019 | ABN Amro - Georgette Boele | 15.7 | 16.3 | 16.8 | 17.5 | 19.0 | | |
| 16/01/2019 | Citi - Aakash Doshi, Nell Agate | 14.8 | 15.5 | 16.0 | 16.0 | 17.0 | 18.0 | 19.0 |
| 11/01/2019 | Commerzbank | 14.5 | 15.0 | 15.5 | 16.0 | 17.3 | | |
| 16/01/2019 | EIU - Vidhi Garg | 15.1 | 15.8 | 15.6 | 16.2 | 16.0 | 16.2 | 17.0 |
| 16/01/2019 | Morningstar | 18.5 | 18.5 | 18.5 | 18.5 | 21.3 | 24.2 | 24.7 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 15.6 | 15.6 | 16.1 | 16.1 | 16.8 | 18.2 | 20.1 |
| 16/01/2019 | Jefferies - Chris LaFemina | 14.0 | 13.0 | 14.0 | 14.5 | 15.0 | 15.0 | 15.0 |
| 16/01/2019 | Emirates NBD - Edward Bell | 15.0 | 15.3 | 15.5 | 15.0 | | | |
| 16/01/2019 | TD Securities - Bart Melek | 16.3 | 17.0 | 17.3 | 17.5 | 18.4 | | |
| 09/01/2019 | UBS - Lachlan Shaw | 15.5 | 15.0 | 16.0 | 16.6 | 17.3 | 17.9 | 18.3 |

Palladium

PALLADIUM LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|---|----------|
| 1 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 95.71% |
| 2 | INTL FCStone - Edward Meir | 93.27% |
| 3 | Deutsche Bank - Nicholas Snowdon | 92.23% |
| 4 | Citi - Aakash Doshi, Nell Agate | 91.36% |
| 4 | Jefferies - Chris LaFemina | 91.36% |

Apex Palladium Forecasts (\$/oz cash price)



PALLADIUM AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | |
|--|--------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | | | |
| Consensus view (weighted average) | 1,262 | 1,253 | 1,258 | 1,235 | 1,181 | 1,083 | 1,017 | 1,150 | 1,125 |
| Consensus view (simple average) | 1,196 | 1,167 | 1,162 | 1,149 | 1,131 | 1,133 | 1,067 | 1,144 | 1,145 |
| Lowest | 1,000 | 1,000 | 960 | 940 | 910 | 800 | 700 | 905 | 900 |
| Highest | 1,335 | 1,335 | 1,345 | 1,375 | 1,350 | 1,400 | 1,386 | 1,379 | 1,379 |
| All forecasts spread (standard deviation / mean) | 8.7% | 9.4% | 9.4% | 9.5% | 10.4% | 16.5% | 21.3% | 17.8% | 22.3% |

PALLADIUM FORECASTS

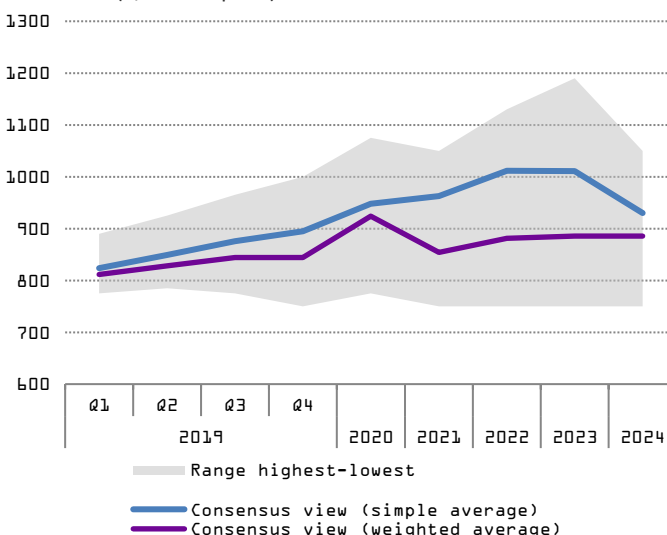
| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | Q1 | Q2 | Q3 | Q4 | | | | | |
| 16/01/2019 | Société Générale - Robin Bhar | 1,050 | 1,100 | 1,120 | 1,130 | 1,150 | 1,200 | 1,250 | 1,250 | |
| 15/10/2018 | ANZ - Daniel Hynes | 1,295 | 1,250 | 1,200 | 1,200 | 1,126 | 1,084 | 1,056 | | |
| 16/01/2019 | ING - Warren Patterson | 1,300 | 1,320 | 1,320 | 1,320 | 1,350 | 1,400 | | | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 1,325 | 1,335 | 1,345 | 1,375 | 1,350 | 1,350 | 1,350 | 1,350 | |
| 16/01/2019 | RBCCM - Stephen Walker & Dan Rollins | 1,050 | 1,050 | 1,050 | 1,050 | 1,025 | 1,000 | 950 | 950 | |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 1,231 | 1,175 | 1,125 | 1,075 | 1,075 | | | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 1,250 | 1,250 | 1,250 | 1,250 | 1,074 | | | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | 1,282 | | | | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 1,250 | 1,150 | 1,050 | 1,030 | 1,055 | | | | |
| 15/01/2019 | INTL FCStone - Edward Meir | 1,335 | 1,280 | 1,295 | 1,250 | | | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 1,050 | 1,050 | 1,050 | 1,050 | 1,050 | 1,085 | 854 | | |
| 16/01/2019 | ABN Amro - Georgette Boele | 1,257 | 1,225 | 1,150 | 1,075 | 1,006 | | | | |
| 16/01/2019 | Citi - Aakash Doshi, Nell Agate | 1,200 | 1,300 | 1,300 | 1,200 | 1,150 | 800 | 700 | | |
| 11/01/2019 | Commerzbank | 1,150 | 1,000 | 1,050 | 1,100 | 1,150 | | | | |
| 16/01/2019 | EIU - Vidhi Garg | 1,060 | 1,000 | 960 | 940 | 910 | 915 | 900 | 905 | |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 1,255 | 1,255 | 1,270 | 1,270 | 1,296 | 1,333 | 1,386 | 1,379 | 1,379 |
| 16/01/2019 | Jefferies - Chris LaFemina | 1,200 | 1,100 | 1,100 | 1,100 | 1,150 | 1,100 | 1,000 | 950 | 900 |
| 16/01/2019 | Emirates NBD - Edward Bell | 1,000 | 1,050 | 1,150 | 1,150 | | | | | |
| 16/01/2019 | TD Securities - Bart Melek | 1,250 | 1,175 | 1,150 | 1,125 | 1,150 | | | | |
| 09/01/2019 | UBS - Lachlan Shaw | 1,140 | 1,100 | 1,140 | 1,140 | 1,165 | 1,200 | 1,225 | 1,225 | |

Platinum

PLATINUM LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|--|---------------|
| 1 | RBCCM - Stephen Walker | 99.44% |
| 1 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 99.44% |
| 3 | Deutsche Bank - Nicholas Snowdon | 99.34% |
| 4 | ABN Amro - Georgette Boele | 98.98% |
| 5 | Investec - Hunter Hillcoat, Alex Smith | 98.84% |

Apex Platinum Forecasts (\$/oz cash price)



PLATINUM AVERAGES

| | 2019 | Q1 | Q2 | Q3 | Q4 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|------|------|------|-------|-------|-------|-------|-------|-------|------|------|
| Consensus view (weighted average) | 812 | 828 | 844 | 844 | 924 | 854 | 881 | 886 | 886 | | |
| Consensus view (simple average) | 824 | 849 | 876 | 895 | 948 | 963 | 1,012 | 1,011 | 930 | | |
| Lowest | 775 | 785 | 775 | 750 | 775 | 750 | 750 | 750 | 750 | 750 | |
| Highest | 890 | 925 | 965 | 1,000 | 1,075 | 1,050 | 1,130 | 1,190 | 1,050 | | |
| All forecasts spread (standard deviation / mean) | 3.8% | 5.2% | 7.0% | 8.1% | 8.4% | 8.9% | 10.9% | 14.4% | 14.7% | | |

PLATINUM FORECASTS

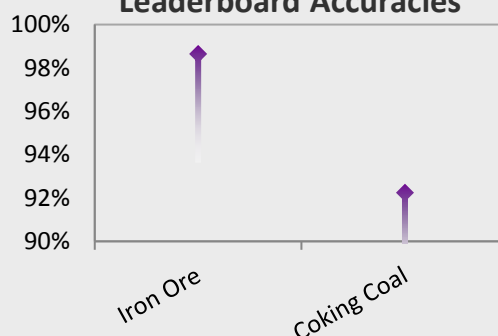
| Forecast date | Analyst/desk | 2019 | Q1 | Q2 | Q3 | Q4 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|------|-----|-----|-------|-------|-------|-------|-------|-------|-------|------|
| 16/01/2019 | Société Générale - Robin Bhar | 875 | 875 | 900 | 950 | 950 | 1,000 | 1,050 | 1,075 | | | |
| 16/01/2019 | ANZ - Daniel Hynes | 810 | 840 | 860 | 900 | 974 | 1,006 | 1,031 | | | | |
| 16/01/2019 | ING - Warren Patterson | 820 | 900 | 965 | 990 | 1,015 | 1,050 | | | | | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 795 | 785 | 775 | 750 | 775 | 750 | 750 | 750 | 750 | 750 | |
| 16/01/2019 | RBCCM - Stephen Walker & Dan Rollins | 825 | 800 | 800 | 800 | 825 | 900 | 1,025 | 1,025 | 1,050 | | |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 796 | 800 | 825 | 875 | 1,000 | | | | | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 800 | 800 | 800 | 800 | 972 | | | | | | |
| 11/01/2019 | Bank Muscat - Ajit S Mauskar | 792 | | | | | | | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 850 | 825 | 860 | 885 | 890 | | | | | | |
| 15/01/2019 | INTL FCStone - Edward Meir | 845 | 865 | 825 | 815 | | | | | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 860 | 900 | 950 | 950 | 950 | 1,000 | 1,068 | | | | |
| 16/01/2019 | ABN Amro - Georgette Boele | 848 | 925 | 963 | 988 | 1,050 | | | | | | |
| 16/01/2019 | Citi - Aakash Doshi, Nell Agate | 825 | 875 | 875 | 900 | 940 | 1,000 | 1,100 | | | | |
| 11/01/2019 | Commerzbank | 800 | 850 | 900 | 900 | 1,025 | | | | | | |
| 16/01/2019 | EIU - Vidhi Garg | 815 | 830 | 850 | 900 | 905 | 1,000 | 1,050 | 1,115 | | | |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 803 | 803 | 839 | 839 | 899 | 958 | 1,012 | 1,021 | 1,021 | 1,021 | |
| 16/01/2019 | Jefferies - Chris LaFemina | 775 | 800 | 825 | 850 | 875 | 900 | 900 | 900 | 900 | 900 | |
| 16/01/2019 | Emirates NBD - Edward Bell | 850 | 900 | 950 | 950 | | | | | | | |
| 16/01/2019 | TD Securities - Bart Melek | 800 | 900 | 950 | 1,000 | 1,075 | | | | | | |
| 09/01/2019 | UBS - Lachlan Shaw | 890 | 860 | 925 | 965 | 1,000 | 1,030 | 1,130 | 1,190 | | | |

Steel Raw Materials Leaderboard Q4 2018

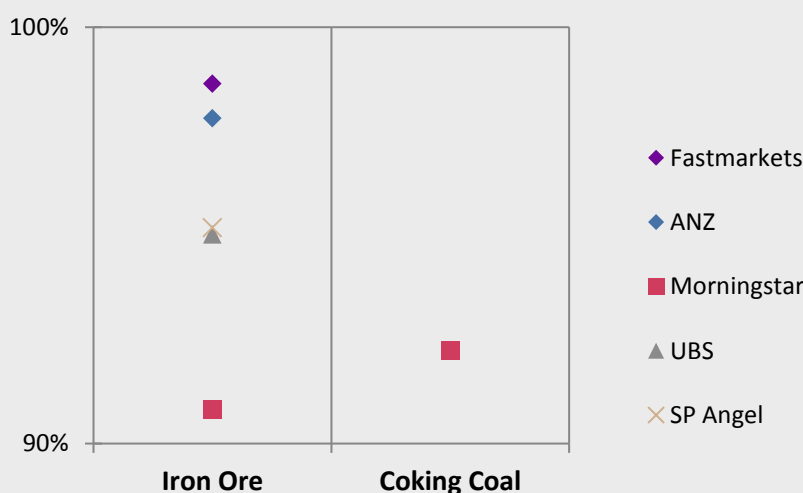
Rank Analyst

| Rank | Analyst | Accuracy |
|------|---|----------|
| 1 | Fastmarkets | 93.38% |
| 2 | ANZ - Daniel Hynes | 92.57% |
| 3 | Morningstar | 91.54% |
| 4 | UBS - Lachlan Shaw | 91.52% |
| 5 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 91.26% |

Individual Raw Materials Leaderboard Accuracies



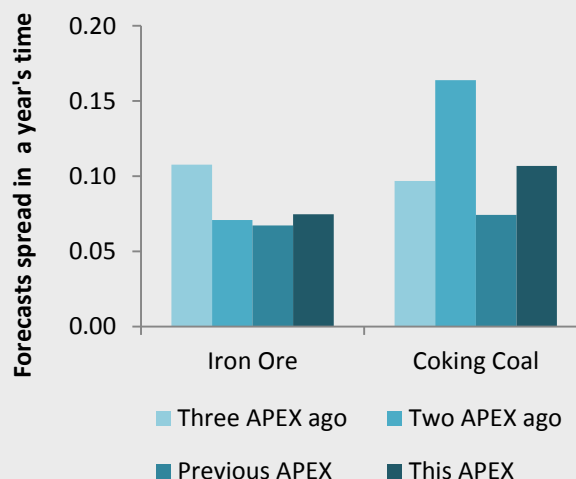
OVERALL Raw Materials TOP 5 ANALYSTS



CHANGE IN FORECASTS FROM PREVIOUS APEXs



This graph shows how forecasts changed in % from the previous APEX for the X-axis dates.



This graph shows the level of consensus. Lower values = higher consensus.

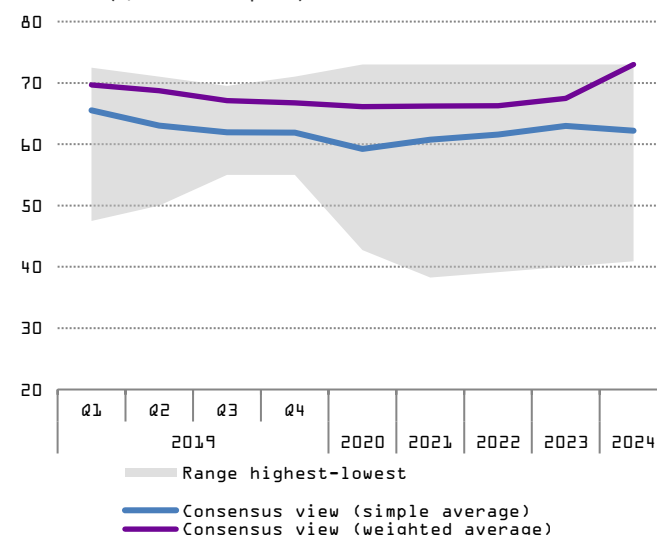
Iron ore

IRON ORE LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|---|----------|
| 1 | Fastmarkets | 98.65% |
| 2 | ANZ - Daniel Hynes | 97.82% |
| 3 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 95.19% |
| 4 | UBS - Lachlan Shaw | 95.03% |
| 5 | ABN Amro - Casper Burgering | 93.63% |

Apex Iron Ore

Forecasts (\$/tonne cash price)



IRON ORE AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | |
|--|------|------|------|------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | | | |
| Consensus view (weighted average) | 70 | 69 | 67 | 67 | 66 | 66 | 68 | 73 | |
| Consensus view (simple average) | 66 | 63 | 62 | 62 | 59 | 61 | 62 | 62 | |
| Lowest | 48 | 50 | 55 | 55 | 43 | 38 | 39 | 41 | |
| Highest | 73 | 71 | 70 | 71 | 73 | 73 | 73 | 73 | |
| All forecasts spread (standard deviation / mean) | 9.4% | 8.6% | 7.7% | 7.5% | 11.0% | 14.9% | 15.1% | 17.3% | 20.3% |

IRON ORE FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | | |
|---------------|---|------|------|------|------|------|------|------|------|------|
| | | Q1 | Q2 | Q3 | Q4 | | | | | |
| 16/01/2019 | Fastmarkets | 67.7 | | | | | | | | |
| 16/01/2019 | ANZ - Daniel Hynes | 72.0 | 67.0 | 65.0 | 64.0 | 59.8 | 60.6 | 62.4 | | |
| 16/01/2019 | ING - Warren Patterson | 67.0 | 62.0 | 58.0 | 60.0 | 56.0 | 60.0 | | | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 71.5 | 71.0 | 69.5 | 71.0 | 73.0 | 73.0 | 73.0 | 73.0 | |
| 16/01/2019 | RBCCM - Tyler Broda | 47.5 | 50.0 | 55.0 | 57.5 | 60.0 | 70.0 | 70.0 | 70.0 | 65.0 |
| 16/01/2019 | Capital Economics - C.Bain, R.Strachan | 67.8 | 62.5 | 59.0 | 56.5 | 50.0 | | | | |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 65.0 | 63.0 | 60.0 | 60.0 | 58.2 | | | | |
| 16/01/2019 | Natixis - Bernard Dahdah | 63.0 | 62.0 | 57.0 | 58.0 | 56.0 | | | | |
| 15/01/2019 | INTL FCStone - Spencer Johnson | 72.5 | | | | | | | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 70.0 | 65.0 | 62.5 | 60.0 | 60.0 | 57.5 | 55.5 | | |
| 16/01/2019 | ABN Amro - Casper Burgering | 72.0 | 70.0 | 69.0 | 68.0 | 66.0 | | | | |
| 16/01/2019 | Citi - Tracy Liao | 65.0 | 63.0 | 63.0 | 61.0 | 60.0 | 55.0 | 60.0 | | |
| 11/01/2019 | Commerzbank | 65.0 | 63.0 | 62.0 | 60.0 | 59.0 | | | | |
| 16/01/2019 | Morningstar | 55.0 | 55.0 | 55.0 | 55.0 | 42.8 | 38.3 | 39.1 | 40.0 | 40.9 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 65.0 | 65.0 | 66.0 | 66.0 | 63.5 | 62.5 | 62.0 | 62.0 | 62.0 |
| 16/01/2019 | EIU - Vidhi Garg | 69.0 | 69.0 | 69.0 | 69.0 | 60.0 | 63.5 | 65.0 | 66.0 | |
| 16/01/2019 | Jefferies - Chris LaFemina | 60.0 | 57.0 | 60.0 | 64.0 | 60.0 | 63.0 | 65.0 | 68.0 | 70.0 |
| 16/01/2019 | TD Securities - Bart Melek | 65.0 | 60.0 | 58.0 | 58.0 | 57.0 | | | | |
| 09/01/2019 | UBS - Lachlan Shaw | 65.0 | 67.0 | 65.0 | 64.0 | 65.8 | 65.0 | 63.5 | 62.0 | |

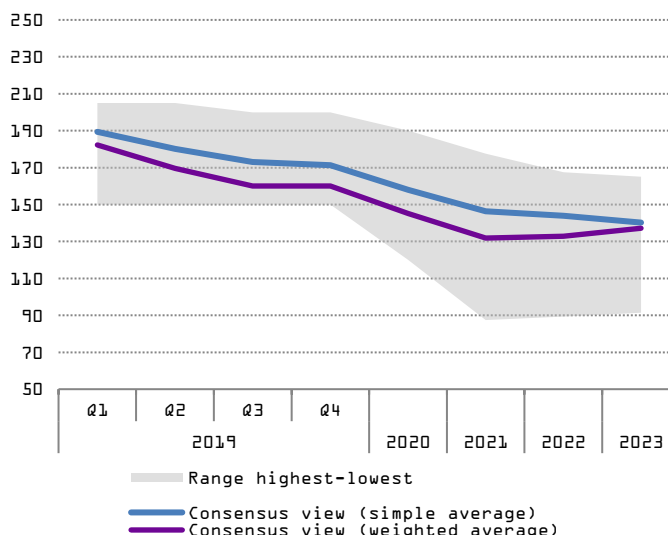
Coking coal

COKING COAL LEADERBOARD Q4 2018

| Rank | Analyst | Accuracy |
|------|----------------------------|----------|
| 1 | Morningstar | 92.24% |
| 2 | Jefferies - Chris LaFemina | 89.56% |
| 3 | CLSA - Andrew Driscoll | 88.66% |
| 4 | Fastmarkets | 88.12% |
| 5 | UBS - Lachlan Shaw | 88.02% |

Apex Coking coal

Forecasts (\$/tonne cash price)



COKING COAL AVERAGES

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|--|------|------|-------|-------|-------|-------|-------|
| | Q1 | Q2 | Q3 | Q4 | | | |
| Consensus view (weighted average) | 182 | 170 | 160 | 160 | 145 | 132 | 133 |
| Consensus view (simple average) | 189 | 180 | 173 | 171 | 158 | 146 | 144 |
| Lowest | 150 | 150 | 150 | 150 | 120 | 87 | 89 |
| Highest | 205 | 205 | 200 | 200 | 190 | 178 | 168 |
| All forecasts spread (standard deviation / mean) | 8.0% | 9.0% | 10.0% | 10.7% | 11.5% | 15.5% | 15.4% |

COKING COAL FORECASTS

| Forecast date | Analyst/desk | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 |
|---------------|---|-------|-------|-------|-------|-------|-------|-------|
| | | Q1 | Q2 | Q3 | Q4 | | | |
| 16/01/2019 | Fastmarkets | 170.5 | | | | | | |
| 16/01/2019 | ANZ - Daniel Hynes | 205.0 | 200.0 | 180.0 | 170.0 | 159.0 | 154.3 | 157.3 |
| 16/01/2019 | ING - Warren Patterson | 185.0 | 165.0 | 155.0 | 160.0 | 143.0 | 135.0 | |
| 15/01/2019 | SP Angel - J. Meyer, S. Raevskiy, S. Beardsmore | 190.0 | 170.0 | 170.0 | 150.0 | 150.0 | 150.0 | 150.0 |
| 16/01/2019 | RBCCM - Sam Crittenden | 180.0 | 180.0 | 180.0 | 180.0 | 160.0 | 160.0 | 140.0 |
| 16/01/2019 | Deutsche Bank - Nicholas Snowdon | 200.0 | 200.0 | 200.0 | 200.0 | 170.0 | | |
| 16/01/2019 | CLSA - Andrew Driscoll | 200.0 | 180.0 | 170.0 | 160.0 | 150.0 | 140.0 | 138.8 |
| 16/01/2019 | ABN Amro - Casper Burgering | 190.0 | 185.0 | 189.0 | 195.0 | 184.0 | | |
| 16/01/2019 | Citi - Tracy Liao | 200.0 | 190.0 | 180.0 | 180.0 | 170.0 | 160.0 | 150.0 |
| 16/01/2019 | Morningstar | 150.0 | 150.0 | 150.0 | 150.0 | 120.0 | 87.4 | 89.4 |
| 11/01/2019 | Investec - Hunter Hillcoat, Alex Smith | 205.0 | 205.0 | 200.0 | 200.0 | 190.0 | 177.5 | 167.5 |
| 16/01/2019 | Jefferies - Chris LaFemina | 190.0 | 165.0 | 150.0 | 165.0 | 155.0 | 145.0 | 150.0 |
| 16/01/2019 | Dept. Industry & Science - Gov. of Australia | 185.0 | 168.0 | 156.0 | 151.0 | 147.0 | 145.0 | 165.0 |
| 09/01/2019 | UBS - Lachlan Shaw | 200.9 | 183.3 | 170.0 | 165.0 | 155.4 | 155.0 | 152.9 |

