1. The analysis for the first half 2018

In the first half of 2018 Ekuota has published reports on currencies and metal prices with indications on the expected future scenarios of quotations. The analyzes contain indications on the expected trend (neutral, increase, decrease) and on the main risk indicators.

The purpose of this report is to verify the reliability of the published indications and forecasts.

2. The analysis methodology

Ekuota bases its analysis on advanced statistical models that use financial market data to obtain useful indications for taking the right decisions on financial strategies. The statistical models generate future probability distributions for market quotations. Ekuota provides its customers with direct access, via the platform, to reports and forecasting tools.

3. The reliability assessment

How can we evaluate the goodness of predictive estimates? There are two fundamental parameters:

- the scientific validity of the estimates generation model
- the transparency and the precision of the information.

The Ekuota algorithms determine a range within which exchange rates are expected to fluctuate. Graphs 1 and 2 represent the expected range for the Euro/USD exchange rate and for the copper price in the Ekuota analyzes for the first half of 2018.

The expected range is a price range consisting of a minimum level, a maximum level and an average value (10th, 50th and 90th percentile). It is a forecast with an horizon of one month after the date of publication. That is the estimate valid until the end of the month following the date of publication.

Graph 1: a comparison between the range provided by Ekuota and the actual value of the Euro/Dollar exchange rate (in the period 19/01/18 – 04/07/18).

Graph 2: a comparison between the range provided by Ekuota and the actual price of copper (in the period 19/01/18 - 04/07/18) Source: LME cash $/ton.
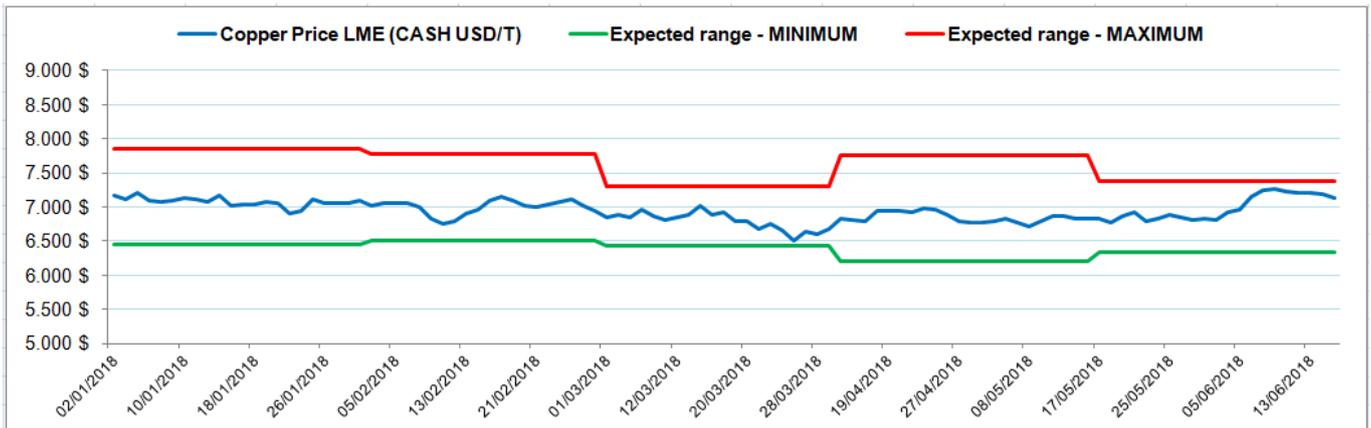

It is clear that the actual values of the Euro-Dollar exchange rate and the copper price have always remained within the expected ranges. The price ranges set by Ekuota for each month have always been met.

Graphs 3 and 4 show the expected one-month moving averages (Average expected value - 50th percentile) and the realized moving averages (MM20) for the period.

Graph 3 shows that for the Euro / USD exchange rate the expected moving average was in every period close to the one achieved. The best result was recorded in April, with a difference of just 0,0027 between the expected average value and the realized moving average, while the worst result has been equal to 0,0253 (May).

Graph 3: a comparison between the average forecasted by Ekuota and the actual value of the Moving Average for the Euro/Dollar exchange rate (in the period 19/01/18 - 04/07/18).
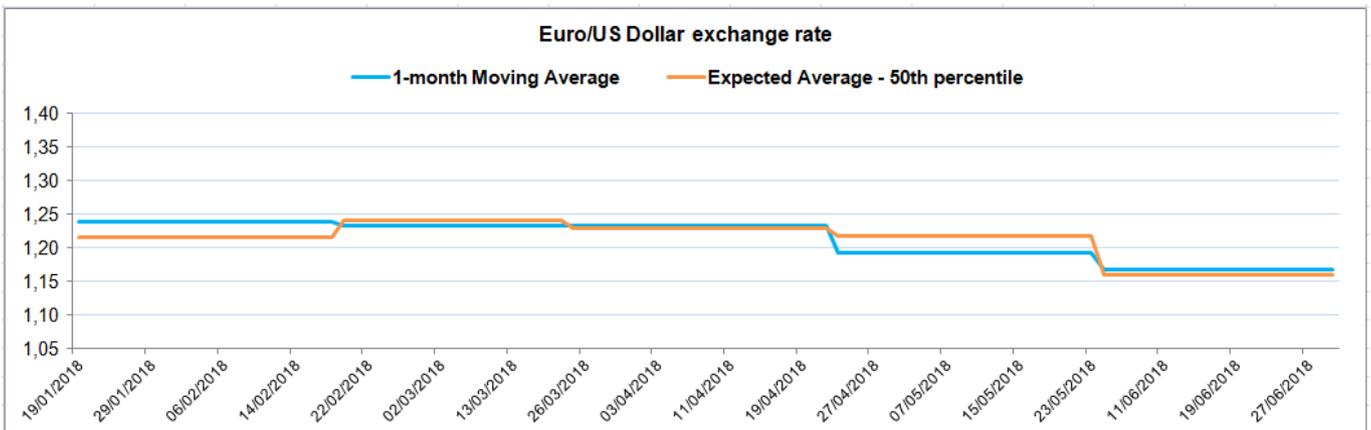
Graph 4: a comparison between the average forecasted by Ekuota and the actual value of the Moving Average for the copper price (in the period 19/01/18 - 04/07/18) Source: LME cash $/ton.
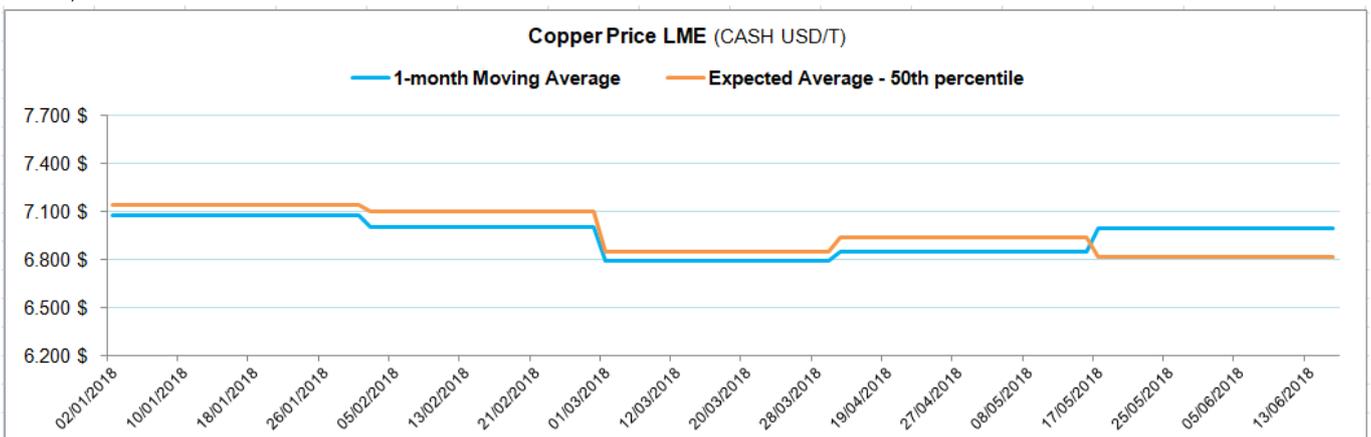
For the copper price (see graph 4), the expected moving average was in every period very close to the one realized. The best result was recorded in March, with a difference of just 58 Dollars per ton between the expected average value and the realized moving average, while the worst result has been equal to 176 $/ton (May).

On the proof of the facts, Ekuota's analysis has proved to be extremely accurate: **deviations between the forecasts and the actual values are minimal**.

Being reliable and transparent is our distinctive element.

That's why we are proud to show the accuracy of our forecasts.

4. The goodness of the operational indications

Once we have checked the accuracy and reliability of our instruments, let's focus on their usefulness.

Graph 5: a comparison among the average forecasted by Ekuota, the actual value of the Moving Average and the daily copper price (in the period 19/01/18 - 04/07/18) Source: LME cash $/ton.
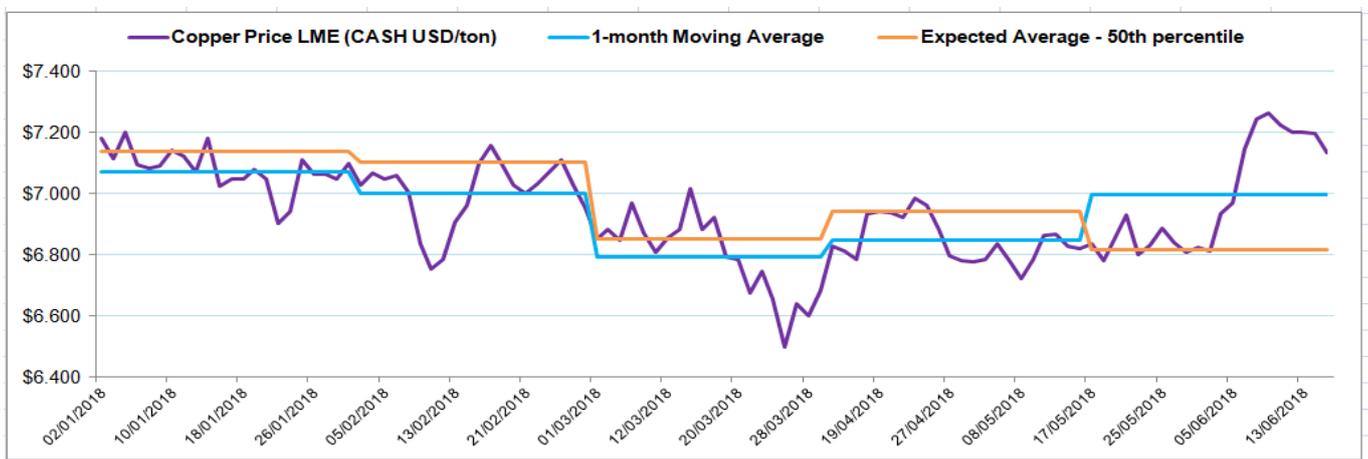
Let's start with the raw materials (see graph 6), whose purchase decisions are associated with a prospective analysis on the evolution of their quotations on international markets. The estimates that Ekuota provides to companies are the support to make effective operational decisions for the purchase of raw materials, especially in terms of timing.

When the forecast provided by Ekuota is higher than the price of the day, the indication is to buy.

Graph 6: the strategy provided by Ekuota recommends to buy when the price is below the expected average (Average Expected Value - 50th percentile).
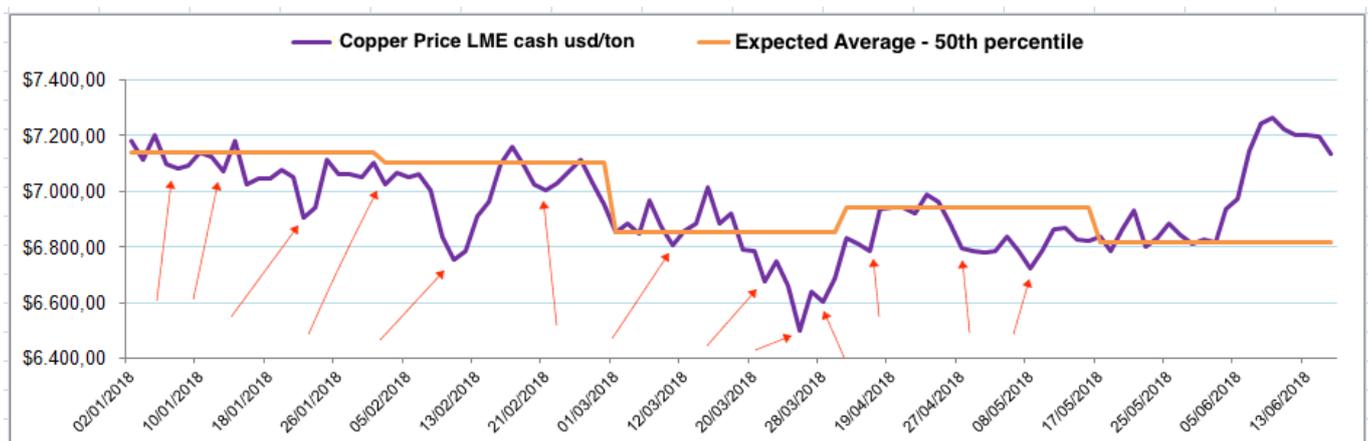
Let's look at copper: in January, the average forecast was equal to $ 7.139 but the market price has been lower for 18 days. Buying copper in the days in which the market price has been lower than the average monthly estimate, produced a monthly savings of $ 14.47 per ton. In the six months considered, the total savings amounted to $ 333.7 / ton (see table below).

Table: monthly savings report. The average purchase prices correspond to the prices at which copper was bought on the dates when the fixing was lower than the average expected by Ekuota.

	Average expected value	Average purchase price*	SAVINGS ($/ton)
January	$7.139,00	$7.059,03	$14,47
February	$7.104,00	$6.987,00	$15,00
March	$6.852,00	$6.703,73	$90,27
April	$6.941,00	$6.829,53	$20,47
May	$6.818,40	$6.801,88	$193,45
* = average of the prices of the purchases made when the daily price was lower than the expected average	**Total Savings**		**$333,67**

Continuing with the currencies, it is good to know that covering all exposures is not the same as eliminating foreign exchange losses. In fact, the difference between the fixed exchange rate and the real exchange rate at the end must always be verified. Ekuota has developed a financial coverage management system that highlights the most effective financial hedges according to the expected developments in the financial markets.

Every month, Ekuota publishes a report with a list of selected covers based on the best odds of positive results. The validity of these forecasts is measurable: the month following the publication, it is possible to compare the results to see what happened and how accurate the suggested hedging strategies were.

Requesting accuracy and expecting effectiveness is the need of modern, competitive companies that do not want to passively undergo the fluctuations of the financial markets. And that's why we make transparency our absolute priority: ex ante, Ekuota publicly exposes its forecast to allow our customers to evaluate our work.

In conclusion, it can be said that the estimates provided by Ekuota have a considerable precision.

The fixing of the exchange rate (graphs 7 and 8) remains always within the expected range and the moving average does not differ significantly from the expected average value. In the case of the Pound Sterling (graph 7), the difference between the expected average value and the realized moving average (May and June) is excellent: 0.0001!

Graphs 7-8: a comparison between the average forecasted by Ekuota and the actual value of the Moving Average for the Euro/Pound exchange rate and the Euro/Swiss Franc exchange rate (in the period 19/01/18 - 04/07/18).
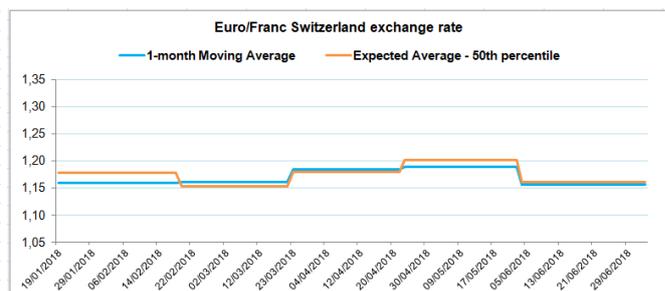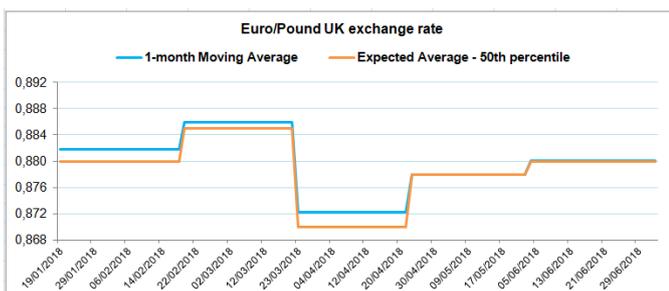
Graphs 9-10: a comparison between the average forecasted by Ekuota and actual value of the Moving Average for the Euro/Australian Dollar exchange rate and the Euro/Japanese Yen exchange rate (in the period 19/01/18 - 04/07/18).
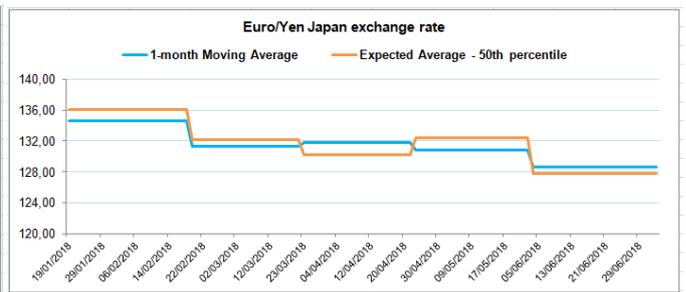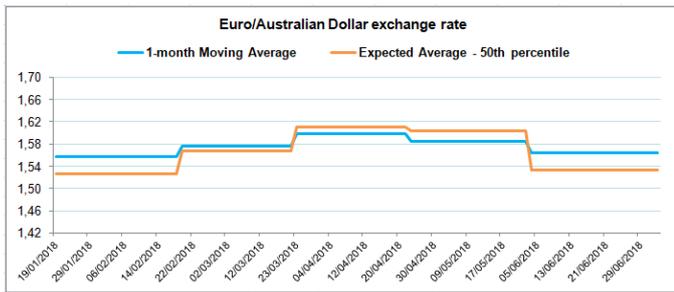
Graphs 11-12: a comparison between the range forecasted by Ekuota and the actual value of the Euro/Turkish Lira exchange rate and a comparison between the average forecasted by Ekuota and the actual value of the Moving Average for the Euro/Turkish Lira exchange rate (in the period 19/01/18 - 04/07/18).

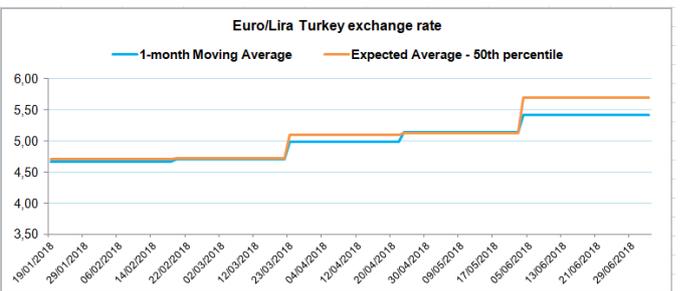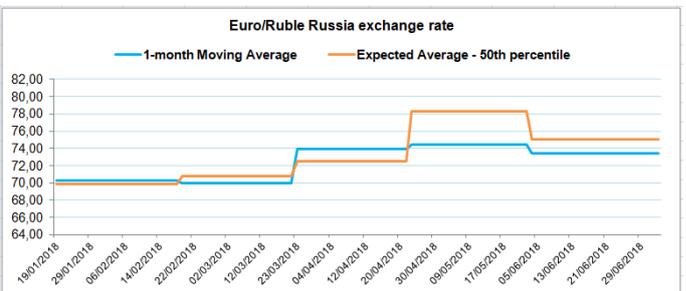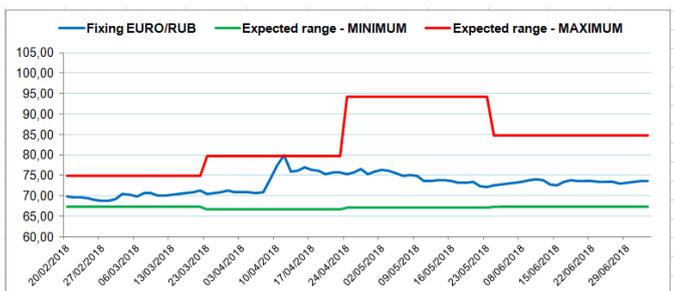Graphs 13-14: a comparison between the range forecasted by Ekuota and the actual value of the Euro/Ruble exchange rate and a comparison between the average forecasted by Ekuota and the actual value of the Moving Average for the Euro/Ruble exchange rate (in the period 19/01/18 - 04/07/18).

Monthly track record of Ekuota forecasting accuracy for currencies:

FEBRUARY	1 MONTH FORECAST (50th perc)	FIXING as at 19th February 2018	Moving Average 20 as at 19th February 2018	% Error	MAPE	Forecast Accuracy (1-MAPE)
USD	1,2150	1,2410	1,2380	1,86%	1,86%	98,14%
GBP	0,8800	0,8860	0,8818	0,20%	0,20%	99,80%
CHF	1,1770	1,1513	1,1588	1,57%	1,57%	98,43%
JPY	136,1290	132,2403	134,5625	1,16%	1,16%	98,84%
AUD	1,5270	1,5675	1,5565	1,90%	1,90%	98,10%
RUB	69,8990	70,0711	70,3003	0,57%	0,57%	99,43%
TRY	4,7080	4,6641	4,6743	0,72%	0,72%	99,28%

MARCH	1 MONTH FORECAST (50 perc)	FIXING as at 19th March 2018	Moving Average 20 as at 19th March 2018	% Error	MAPE	Forecast Accuracy (1-MAPE)
USD	1,2420	1,2309	1,2326	0,76%	1,31%	98,69%
GBP	0,8850	0,8759	0,8859	0,10%	0,15%	99,85%
CHF	1,1520	1,1717	1,1600	0,69%	1,13%	98,87%
JPY	132,1830	130,6521	131,2749	0,69%	0,93%	99,07%
AUD	1,5670	1,5995	1,5761	0,58%	1,24%	98,76%
RUB	70,8140	71,3673	70,0009	1,16%	0,87%	99,13%
TRY	4,7290	4,8501	4,7163	0,27%	0,50%	99,50%

APRIL	1 MONTH FORECAST (50 perc)	FIXING as at 23rd April 2018	Moving Average 20 as at 23rd April 2018	% Error	MAPE	Forecast Accuracy (1-MAPE)
USD	1,2300	1,2238	1,2327	0,22%	0,95%	99,05%
GBP	0,8700	0,8764	0,8722	0,25%	0,19%	99,81%
CHF	1,1800	1,1941	1,1841	0,35%	0,87%	99,13%
JPY	130,1900	132,3844	131,7842	1,21%	1,02%	98,98%
AUD	1,6100	1,6010	1,5978	0,76%	1,08%	98,92%
RUB	72,5000	75,6552	73,8873	1,88%	1,20%	98,80%
TRY	5,1000	5,0174	4,9891	2,22%	1,07%	98,93%
BRL	4,0725	4,1983	4,1520	1,91%	1,91%	98,09%

MAY	1 MONTH FORECAST (50 perc)	FIXING as at 23th May 2018	Moving Average 20 as at 23rd May 2018	% Error	MAPE	Forecast Accuracy (1-MAPE)
USD	1,2230	1,1708	1,1917	2,63%	1,37%	98,63%
GBP	0,8780	0,8795	0,8779	0,01%	0,14%	99,86%
CHF	1,2010	1,1598	1,1885	1,05%	0,91%	99,09%
JPY	132,4000	128,6126	130,8092	1,22%	1,07%	98,93%
AUD	1,6040	1,5545	1,5841	1,26%	1,12%	98,88%
RUB	78,2630	72,2658	74,4766	5,08%	2,17%	97,83%
TRY	5,1310	5,3305	5,1417	0,21%	0,86%	99,14%
BRL	4,2620	4,3041	4,2689	0,16%	1,04%	98,96%

JUNE	1 MONTH FORECAST (50 perc)	FIXING as at 4th July 2018	Moving Average 20 as at 4th July 2018	% Error	MAPE	Forecast Accuracy (1-MAPE)
USD	1,1590	1,1641	1,1667	0,66%	1,23%	98,77%
GBP	0,8800	0,8810	0,8801	0,01%	0,12%	99,88%
CHF	1,1600	1,1556	1,1564	0,31%	0,79%	99,21%
JPY	127,7980	128,6339	128,5917	0,62%	0,98%	99,02%
AUD	1,5340	1,5761	1,5649	1,97%	1,29%	98,71%
RUB	75,0830	73,6611	73,4455	2,23%	2,18%	97,82%
TRY	5,6930	5,4347	5,4176	5,08%	1,70%	98,30%
BRL	4,5500	4,5343	4,4230	2,87%	1,65%	98,35%

Monthly track record of Ekuota forecasting accuracy for metals:

JANUARY 2018	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 31/01	Moving average 20 as at 31/01/2018	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	11.607	13.535	15.974	13.555	12.911	- 624,50	6,2%	93,8%
COPPER	6.453	7.139	7.860	7.100	7.074	- 65,50	2,2%	97,8%
ALUMINIUM	2.069	2.266	2.466	2.224	2.211	- 54,90	3,5%	96,5%
ZINC	3.248	3.580	3.938	3.589	3.456	- 124,45	3,2%	96,8%

FEBRUARY 2018	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 28/02	Moving average 20 as at 28/02/2018	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	11.624	13.455	15.608	13.800	13.577	122,00	5,1%	94,9%
COPPER	6.505	7.104	7.787	6.953	7.002	- 102,00	2,0%	98,0%
ALUMINIUM	2.069	2.251	2.434	2.158	2.185	- 66,00	3,4%	96,6%
ZINC	3.354	3.677	4.045	3.498	3.540	- 137,00	3,4%	96,6%

MARCH 2018	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 29/03	Moving average 20 as at 29/03/2018	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	12.123	13.407	14.882	13.245	13.411	4,00	4,3%	95,7%
COPPER	6.429	6.852	7.308	6.685	6.794	- 58,00	1,8%	**98,2%**
ALUMINIUM	2.027	2.152	2.276	1.997	2.076	- 76,00	3,4%	96,6%
ZINC	3.203	3.444	3.706	3.332	3.282	- 162,00	3,6%	96,4%

APRIL 2018	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 15/05	Moving average 20 as at 15/05/2018	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	11.276	13.443	16.033	14.490	14.154	711,00	3,1%	96,9%
COPPER	6.198	6.941	7.758	6.823	6.850	- 91,00	1,0%	**99,0%**
ALUMINIUM	2.044	2.276	2.537	2.313	2.134	- 142,00	3,8%	96,2%
ZINC	2.943	3.319	3.740	3.060	3.115	- 204,00	3,8%	96,2%

MAY 2018	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 15/06	Moving average 20 as at 15/06/2018	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	12.787	14.467	16.394	15.625	15.083	615,89	4,3%	95,7%
COPPER	6.340	6.818	7.372	7.136	6.995	176,93	1,9%	**98,1%**
ALUMINIUM	2.103	2.292	2.489	2.240	2.284	- 7,78	3,5%	96,5%
ZINC	2.800	3.073	3.396	3.189	3.131	58,22	3,8%	96,2%

JUNE 2018	Ekuota Forecasts			LME quote			Error	
	10th percentile	50th percentile	90th percentile	Price as at 20/07	Moving average 20 as at 20/07/2018	Moving avg-50th percentile	Mape	Forecast accuracy (1-MAPE)
NICKEL	12.336	14.991	18.364	13.420	14.089	- 902,99	4,6%	95,4%
COPPER	6.151	6.992	7.941	6.072	6.373	- 619,35	2,7%	**97,3%**
ALUMINIUM	1.986	2.229	2.529	2.075	2.128	- 100,09	3,6%	96,4%
ZINC	2.733	3.186	3.692	2.634	2.739	- 446,51	5,2%	94,8%

Important Disclaimer

Additional information available on request. The forecasts were made with a statistical model of ownership, which has a reliability index (100-Mape) on average 98.15% over one month, 96.6% over three months, 94.7% over six months. Traders can use these forecasts to determine the direction of future trends, however Ekuota recommends that this analysis be used in conjunction with fundamental analysis such as macroeconomic growth and expectations on monetary policy. Although the forecast can offer an important indication, we recommend that you always make cross-checks with a solid analysis of prices and risks associated with the discovery of significant signals in the fundamentals of price quotations over time. The content is not intended as an advice or a recommendation of any kind.