

# Deutsche Rohstoff AG

Germany / Raw materials  
 Frankfurt  
 Bloomberg: DR0 GR  
 ISIN: DE000A0XYG76

Update

RATING	ADD
<b>PRICE TARGET</b>	<b>€ 9.50</b>
Return Potential	3.3%
Risk Rating	High

## PRODUCTION CUT IN ANTICIPATION OF OIL PRICE RECOVERY

DRAG last week announced that it will reduce Q2/20 oil and gas production at its largest subsidiary Cub Creek to between 15% and 25% of the originally planned level at least until the end of June. The company stated at the end of February that 65% of budgeted H1/20 oil production was hedged at USD57.04/barrel. We previously forecast production of 743k barrels of oil (BO) in H1/20, suggesting hedged volume over the same period of 483k BO. Our new H1/20 oil production forecast is 421k BO. H1/20 hedged volume is reduced somewhat by the unwinding of hedges at the Elster subsidiary at the end of March. We now expect H1/20 oil production to be fully hedged. Our reworked valuation model assumes Q2/20 and H2/20 oil and gas production at Cub Creek at ca. 20% and 50% respectively of the level we previously modelled. We assume the oil and gas volume previously planned for 2020 will be produced in 2021. Our commodity price forecasts are unchanged on our note of 24 March. The Cub Creek volume transferred from 2020 to 2021 is unhedged. Our expectation that average realised unhedged oil prices in 2021 will be 20% above the 2020 level plays a role in the upward revision of our price target from €8.70 to €9.50 as do upward revisions to our production forecasts for the Salt Creek and Bright Rock subsidiaries following discussions with management. We downgrade the recommendation from Buy to Add because upside to the new price target is now lower than 25%.

**Unwinding Cub Creek hedge at <\$20 oil price would generate \$11m profit**  
 DRAG can unwind its hedges and make profits equivalent to the difference between the hedge price and the futures curve without producing oil. DRAG unwound its hedges on Elster's production when the WTI (West Texas Intermediate) spot price was USD22, thereby generating a profit of USD1.8m. DRAG's management has indicated that the hedges on Cub Creek's production will be unwound if the oil price falls below USD20. (p.t.o.)

### FINANCIAL HISTORY & PROJECTIONS

	2016	2017	2018	2019P	2020E	2021E
Revenue (€m)	9.17	53.75	109.05	41.10	38.31	57.78
Y-o-y growth	383.4%	486.1%	102.9%	-62.3%	-6.8%	50.8%
EBITDA (€m)	6.37	36.13	97.93	22.70	21.96	33.68
EBITDA margin	69.5%	67.2%	89.8%	55.2%	57.3%	58.3%
Net income (€m)	0.10	5.55	13.87	-0.65	-3.86	0.44
EPS (diluted) (€)	0.02	1.10	2.74	-0.13	-0.76	0.09
DPS (€)	0.60	0.65	0.70	0.00	0.00	0.15
FCF (€m)	-63.18	-13.93	2.47	-20.44	13.48	23.01
Net gearing	69.9%	132.6%	42.9%	99.4%	64.5%	38.6%
Liquid assets (€m)	28.09	29.70	59.99	66.13	55.11	61.42

### RISKS

Risks include negative movements in the oil price and other raw materials prices, dry well risk, mechanical failure, loss of key personnel.

### COMPANY PROFILE

Deutsche Rohstoff AG (DRAG) is a resources company with a portfolio of properties in oil/gas, so-called high tech metals such as tin and tungsten, base metals and rare earths. The business model is based on production in well explored areas in politically stable countries. DRAG is based in Mannheim, Germany.

### MARKET DATA

As of 14 Apr 2020

Closing Price	€ 9.20
Shares outstanding	5.08m
Market Capitalisation	€ 46.75m
52-week Range	€ 6.12 / 19.65
Avg. Volume (12 Months)	6,938

Multiples	2019P	2020E	2021E
P/E	n.a.	n.a.	107.4
EV/Sales	2.9	3.1	2.1
EV/EBIT	5.3	5.5	3.6
Div. Yield	0.0%	0.0%	1.6%

### STOCK OVERVIEW



### COMPANY DATA

As of 30 Sep 2019

Liquid Assets	€ 24.77m
Current Assets	€ 32.86m
Intangible Assets	€ 22.42m
Total Assets	€ 214.56m
Current Liabilities	€ 8.71m
Shareholders' Equity	€ 76.65m

### SHAREHOLDERS

Management	10.0%
Institutional shareholders	30.0%
Free float	60.0%



On the basis of the current futures curve, this would generate a profit of USD11m. But as the oil price is currently above USD20, we have not included this in our forecasts.

**Figure 1: Changes to our forecasts**

All figures in € 000s	2020E New	2020E Old	Δ	2021E New	2021E Old	Δ
<b>Revenues</b>	<b>38,306</b>	<b>56,217</b>	<b>-31.9%</b>	<b>57,779</b>	<b>37,258</b>	<b>55.1%</b>
<b>EBITDA</b>	<b>21,958</b>	<b>33,016</b>	<b>-33.5%</b>	<b>33,681</b>	<b>18,061</b>	<b>86.5%</b>
Depreciation and amortisation	18,927	26,288	-28.0%	28,235	19,179	47.2%
<b>Operating income (EBIT)</b>	<b>3,031</b>	<b>6,728</b>	<b>-55.0%</b>	<b>5,446</b>	<b>-1,118</b>	<b>n.a.</b>
Net financial result	-6,268	-6,268	n.a.	-4,961	-4,961	n.a.
Pre-tax income (EBT)	-3,237	460	n.a.	485	-6,079	n.a.
Income taxes	0	0	n.a.	0	0	n.a.
<b>Net before minorities</b>	<b>-3,237</b>	<b>460</b>	<b>n.a.</b>	<b>485</b>	<b>-6,079</b>	<b>n.a.</b>
Minority interests	-623	-1,480	n.m.	-50	-745	n.a.
<b>Net income after mins.</b>	<b>-3,860</b>	<b>-1,020</b>	<b>n.a.</b>	<b>435</b>	<b>-6,824</b>	<b>n.a.</b>
<b>EPS (€)</b>	<b>-0.76</b>	<b>-0.20</b>	<b>n.a.</b>	<b>0.09</b>	<b>-1.34</b>	<b>n.a.</b>

Source: First Berlin Equity Research estimates

Figure 1 above shows changes to our forecasts. The decrease in 2020 revenues and the increase in 2021 revenues reflect the transfer of production between the two years as described above. The 2020 forecast takes into account the USD1.8m profit on the unwinding of the Elster hedges as well as cost reductions which are currently being implemented. Management has found scope to cut production costs and has also reduced salaries for management at all group companies by 25% until the end of September. As described above, our forecasts are based on Q2/20 and H2/20 oil and gas production at Cub Creek at 20% and 50% respectively of the level we previously modelled. DRAG's original 2020 guidance given in the 2018 annual report was for revenues of €75-85m and EBITDA of €55-65m. Management has withdrawn this guidance and has not yet given any new P&L guidance. The company has indicated however that the 2019 dividend is likely to be lower than 2018's €0.70 or even suspended.

**Figure 2: DCF Valuation of Cub Creek Energy\***

USD 000s	2020E	2021E	2022E	2023E	2024E	2025E
Production (working interest): barrels of oil equivalent (000s)	894	1,839	804	1,919	1,089	826
Unhedged average oil price for period (WTI -USD/barrel)	38.03	45.40	49.41	52.11	54.23	55.95
<b>Net revenue (working interest after royalty and ad valorem tax)</b>	<b>27,916</b>	<b>53,619</b>	<b>24,507</b>	<b>66,255</b>	<b>36,715</b>	<b>27,064</b>
Cash operating costs	13,016	22,097	12,730	23,574	13,064	8,262
EBITDA	14,900	31,522	11,777	42,681	23,652	18,803
Depreciation	12,010	24,745	10,857	22,387	12,827	9,671
<b>EBIT</b>	<b>2,890</b>	<b>6,777</b>	<b>920</b>	<b>20,294</b>	<b>10,824</b>	<b>9,131</b>
NOPLAT	2,283	5,354	727	16,032	8,551	7,214
Tax Rate (%)	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
<b>CAPEX</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>47,688</b>	<b>0</b>	<b>0</b>
Working capital expenditure	-945	-3,856	4,367	-6,262	4,431	1,448
<b>Free cashflow</b>	<b>13,348</b>	<b>26,243</b>	<b>15,951</b>	<b>-15,532</b>	<b>25,809</b>	<b>18,333</b>
PV free cashflow (10% discount rate)	12,472	22,292	12,317	-10,903	16,471	10,636
<b>Sum PV free cashflows</b>	<b>103,198</b>					

Source: DRAG; First Berlin Equity Research estimates

**Figure 3: DCF Valuation of Elster Oil & Gas\***

USD 000s	2020E	2021E	2022E	2023E	2024E	2025E
Production (working interest): barrels of oil equivalent (000s)	395	270	166	144	127	114
Unhedged average oil price for period (WTI -USD/barrel)	38.03	45.40	49.41	52.11	54.23	55.95
<b>Net revenue (working interest after royalty and ad valorem tax)</b>	<b>9,779</b>	<b>7,253</b>	<b>5,499</b>	<b>4,933</b>	<b>4,489</b>	<b>4,017</b>
Cash operating costs	5,756	3,241	2,630	1,763	1,525	1,143
EBITDA	4,023	4,011	2,869	3,170	2,963	2,873
Depreciation	6,260	4,259	2,616	2,258	1,996	1,795
<b>EBIT</b>	<b>-2,236</b>	<b>-247</b>	<b>253</b>	<b>911</b>	<b>967</b>	<b>1,079</b>
NOPLAT	-1,767	-196	200	720	764	852
Tax Rate (%)	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
<b>CAPEX</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
Working capital expenditure	1,579	379	263	85	67	71
<b>Free cashflow</b>	<b>6,072</b>	<b>4,442</b>	<b>3,079</b>	<b>3,063</b>	<b>2,827</b>	<b>2,718</b>
PV free cashflow (10% discount rate)	5,674	3,773	2,378	2,150	1,804	1,577
<b>Sum PV free cashflows</b>	<b>22,991</b>					

Source: DRAG; First Berlin Equity Research estimates

\* Our valuation models for CCE and EOG extend to 2039 but for reasons of space we show numbers only out to 2025

**Figure 4: Sum of the parts model**

€m	New	Old	% Δ
DCF valuation Cub Creek Energy (DRAG's stake 88.5%)	84.2	82.7	1.8%
DCF valuation Elster Oil & Gas (DRAG's stake: 93.0%)	19.7	19.2	2.6%
DCF valuation Salt Creek Oil & Gas/Bright Rock Energy (DRAG's stakes: 100.0%/ 97.6%)	7.3	5.5	32.7%
<b>Subtotal: US oil and gas activities</b>	<b>111.2</b>	<b>107.4</b>	<b>3.5%</b>
Almonty (12.8% equity stake plus promissory notes and debentures)	12.0	11.8	
Northern Oil and Gas	4.5	4.2	
Tin International (DRAG's stake: 74.1%)	1.0	1.0	
Rhein Petroleum (DRAG's stake: 10%)	3.0	3.0	
Ceritech (DRAG's stake: 63.7%)	0.0	0.0	
Hammer Metals (DRAG's stake: 12.63%)	0.3	0.2	
Holding company costs	-10.0	-10.0	
<b>Total enterprise value</b>	<b>121.9</b>	<b>117.6</b>	<b>3.7%</b>
Cash and securities held in current assets	48.6	48.6	
Bonds	114.5	114.5	
Other debt	7.8	7.8	
Net debt	73.7	73.7	
<b>Total equity value</b>	<b>48.3</b>	<b>44.0</b>	<b>9.8%</b>
No shares (m)	5.08	5.08	
<b>Equity value per share (€)</b>	<b>9.50</b>	<b>8.65</b>	<b>9.8%</b>

Source: First Berlin Equity Research estimates

### Price target raised from €8.70 to €9.50 but recommendation lowered from Buy to Add

Our expectation that average realised unhedged oil prices in 2021 will be 20% above the 2020 level plays a role in the upward revision of our price target from €8.70 to €9.50 as do upward revisions to our production forecasts for the Salt Creek and Bright Rock subsidiaries following discussions with management. We downgrade the recommendation from Buy to Add because upside to the new price target is now lower than 25%.



## INCOME STATEMENT

All figures in € 000s	2016A	2017A	2018A	2019P	2020E	2021E
<b>Revenues</b>	<b>9,170</b>	<b>53,746</b>	<b>109,052</b>	<b>41,100</b>	<b>38,306</b>	<b>57,779</b>
Cost of purchased services	4	8,069	19,019	7,168	6,681	10,077
Personnel expenses	3,457	4,711	3,919	4,115	4,238	4,366
Net other operating income	665	-4,840	11,819	-7,117	-5,429	-9,656
<b>EBITDA</b>	<b>6,374</b>	<b>36,126</b>	<b>97,933</b>	<b>22,700</b>	<b>21,958</b>	<b>33,681</b>
Depreciation and amortisation	6,915	30,822	58,037	16,035	18,927	28,235
<b>Operating income (EBIT)</b>	<b>-541</b>	<b>5,304</b>	<b>39,896</b>	<b>6,665</b>	<b>3,031</b>	<b>5,446</b>
Net financial result	-1,413	-4,011	-13,432	-5,279	-6,268	-4,961
<b>Pre-tax income (EBT)</b>	<b>-1,953</b>	<b>1,293</b>	<b>26,464</b>	<b>1,386</b>	<b>-3,237</b>	<b>485</b>
Taxes	2,028	6,379	-8,520	-1,164	0	0
Profit before minorities	75	7,672	17,944	222	-3,237	485
Minority interests	28	-2,124	-4,072	-871	-623	-50
<b>Net income / loss</b>	<b>103</b>	<b>5,548</b>	<b>13,872</b>	<b>-650</b>	<b>-3,860</b>	<b>435</b>
<b>EPS (in €)</b>	<b>0.02</b>	<b>1.10</b>	<b>2.74</b>	<b>-0.13</b>	<b>-0.76</b>	<b>0.09</b>
<b>Ratios</b>						
EBITDA margin on revenues	69.5%	67.2%	89.8%	55.2%	57.3%	58.3%
EBIT margin on revenues	-5.9%	9.9%	36.6%	16.2%	7.9%	9.4%
Net margin on revenues	1.1%	10.3%	12.7%	-1.6%	-10.1%	0.8%
Tax rate	103.8%	-493.3%	32.2%	84.0%	0.0%	0.0%
<b>Y-Y Growth</b>						
Revenues	383.4%	486.1%	102.9%	-62.3%	-6.8%	50.8%
Operating income	n.m.	n.m.	652.2%	-83.3%	-54.5%	79.7%
Net income/ loss	-91.1%	5311.9%	150.0%	n.m.	n.m.	n.m.



## BALANCE SHEET

All figures in € 000s	2016A	2017A	2018A	2019P	2020E	2021E
<b>Assets</b>						
<b>Current assets, total</b>	<b>51,874</b>	<b>42,502</b>	<b>75,860</b>	<b>74,737</b>	<b>63,335</b>	<b>73,830</b>
Cash and cash equivalents	28,090	29,699	59,990	66,127	55,108	61,421
Inventories	139	170	156	200	191	288
Receivables	7,794	9,090	13,443	6,500	6,211	9,368
Prepayments	495	833	711	525	502	757
Other current assets	15,105	1,324	337	1,385	1,323	1,996
Deferred tax assets	251	1,386	1,223	0	0	0
<b>Non-current assets, total</b>	<b>141,598</b>	<b>171,072</b>	<b>148,985</b>	<b>200,663</b>	<b>184,735</b>	<b>159,500</b>
Intangible assets	40,614	33,837	16,932	22,300	21,300	20,300
Land and buildings	0	0	0	0	0	0
Producing oil plants	76,172	73,760	107,878	113,303	101,284	81,771
Exploration and evaluation	3,493	40,557	2,048	27,000	24,136	19,486
Plant and machinery	173	99	36	20	18	14
Other equipment	103	108	91	400	358	289
Equity investments	12,542	15,569	14,385	16,843	16,843	16,843
Loans to other investors	913	1,724	1,724	1,724	1,724	1,724
Securities classified as fixed assets	7,588	5,418	5,891	19,073	19,073	19,073
<b>Total assets</b>	<b>193,472</b>	<b>213,574</b>	<b>224,845</b>	<b>275,400</b>	<b>248,070</b>	<b>233,331</b>
<b>Shareholders' equity &amp; debt</b>						
<b>Current liabilities, total</b>	<b>33,904</b>	<b>31,121</b>	<b>38,912</b>	<b>34,600</b>	<b>43,907</b>	<b>28,683</b>
Bank debt	0	55	16,086	7,800	0	0
Bond debt	0	15,741	0	0	16,700	0
Accounts payable	29,915	5,236	6,840	8,500	8,629	9,097
Other current liabilities	3,989	10,089	15,986	18,300	18,578	19,586
<b>Long-term liabilities, total</b>	<b>75,243</b>	<b>90,780</b>	<b>77,299</b>	<b>131,200</b>	<b>97,800</b>	<b>97,800</b>
Bond debt	66,705	66,599	66,599	131,200	97,800	97,800
Bank debt	8,538	24,181	10,700	0	0	0
Other long term liabilities	0	0	0	0	0	0
Provisions	5,308	27,997	19,312	23,000	2,000	2,000
Difference from capital consolidation	0	195	0	0	0	0
Minority interests	9,698	7,427	8,087	8,000	8,623	8,673
Shareholders' equity	56,423	49,248	65,750	63,600	80,740	81,175
<b>Consolidated equity</b>	<b>66,121</b>	<b>56,675</b>	<b>73,837</b>	<b>71,600</b>	<b>89,363</b>	<b>89,848</b>
Deferred tax liabilities	12,896	6,806	15,485	15,000	15,000	15,000
<b>Total consolidated equity and debt</b>	<b>193,472</b>	<b>213,574</b>	<b>224,845</b>	<b>275,400</b>	<b>248,070</b>	<b>233,331</b>
<b>Ratios</b>						
Current ratio (x)	1.53	1.37	1.95	2.16	1.44	2.57
Quick ratio (x)	1.53	1.36	1.95	2.15	1.44	2.56
Financial leverage	69.9%	132.6%	42.9%	99.4%	64.5%	38.6%
Book value per share (€)	11.15	9.73	12.99	12.57	15.96	16.04
Net cash (debt)	-46,240	-75,153	-31,671	-71,149	-57,668	-34,655
Return on equity (ROE)	0.1%	12.5%	27.5%	0.3%	-4.0%	0.0%



## CASH FLOW STATEMENT

All figures in € 000s	2016A	2017A	2018A	2019P	2020E	2021E
<b>Net profit before minorities</b>	<b>74</b>	<b>7,672</b>	<b>17,944</b>	<b>222</b>	<b>-3,237</b>	<b>485</b>
Writedowns/writeups of fixed assets	6,874	30,500	59,637	16,035	18,927	28,235
Increase/decrease in provisions	4,232	-107	7,316	0	0	0
Changes in working capital	-5,809	-2,577	-889	10,011	790	-2,707
Gains/losses from disposal of fixed assets	1,310	-3	-15,132	0	0	0
Interest expense/income	1,413	4,012	6,227	0	0	0
Tax paid/received	-2,028	-6,379	8,519	0	0	0
Income tax payments	3,752	11,317	218	0	0	0
Other	-6,904	-6,587	-15,166	0	0	0
<b>Operating cash flow</b>	<b>2,914</b>	<b>37,848</b>	<b>68,674</b>	<b>26,268</b>	<b>16,481</b>	<b>26,013</b>
Investment in property, plant equipment	-47,182	-49,733	-63,754	-46,705	-3,000	-3,000
Investment in intangible assets	-18,916	-2,042	-2,454	0	0	0
<b>Free cash flow</b>	<b>-63,184</b>	<b>-13,927</b>	<b>2,466</b>	<b>-20,437</b>	<b>13,481</b>	<b>23,013</b>
Proceeds from disposal of intangible assets	2,878	57	38,391	0	0	0
Management of short term financial assets, other	24,429	453	-451	0	0	0
<b>Investing cash flow</b>	<b>-38,791</b>	<b>-51,265</b>	<b>-28,268</b>	<b>-46,705</b>	<b>-3,000</b>	<b>-3,000</b>
Equity financing	1,241	-740	-493	0	0	0
Debt financing	39,233	33,072	15,241	64,601	0	0
Debt repayment	-22,148	0	-30,239	-18,986	8,900	-16,700
Interest paid	-3,981	-4,636	-6,925			
Dividends, share buybacks	-2,714	-2,961	-6,210	-3,544	0	0
Other	-115	0	0	0	0	0
<b>Financing cash flow</b>	<b>11,516</b>	<b>24,735</b>	<b>-28,626</b>	<b>42,071</b>	<b>8,900</b>	<b>-16,700</b>
Other	-19,175	-9,709	18,511	-15,496	-33,400	0
<b>Change in cash and equivalents</b>	<b>-43,536</b>	<b>1,609</b>	<b>30,291</b>	<b>6,137</b>	<b>-11,019</b>	<b>6,313</b>
FX/consolidation effects	585	0	0	0	0	0
<b>Cash and cash equivalents, start of the year</b>	<b>71,041</b>	<b>28,090</b>	<b>29,699</b>	<b>59,990</b>	<b>66,127</b>	<b>55,108</b>
<b>Cash and cash equivalents, end of the year</b>	<b>28,090</b>	<b>29,699</b>	<b>59,990</b>	<b>66,127</b>	<b>55,108</b>	<b>61,421</b>
<b>EBITDA/share (in €)</b>	<b>1.26</b>	<b>7.14</b>	<b>19.35</b>	<b>4.49</b>	<b>4.34</b>	<b>6.66</b>
<b>Y-Y Growth</b>						
Operating cash flow	144.1%	1198.8%	81.4%	-61.8%	-37.3%	57.8%
Free cash flow	n.m.	n.m.	n.m.	n.m.	n.m.	70.7%
EBITDA/share	29.9%	466.8%	171.1%	-76.8%	-3.3%	53.4%

**FIRST BERLIN RECOMMENDATION & PRICE TARGET HISTORY**

Report No.:	Date of publication	Previous day closing price	Recommendation	Price target
Initial Report	22 July 2010	€7.45	Buy	€13.20
2...30	↓	↓	↓	↓
31	14 May 2019	€17.20	Buy	€23.00
32	30 September 2019	€13.85	Buy	€18.10
33	24 March 2020	€6.66	Buy	€8.70
34	Today	€9.20	Add	€9.50

**Authored by: Simon Scholes, Analyst**

**Company responsible for preparation:**

**First Berlin Equity Research GmbH**

Mohrenstraße 34  
10117 Berlin

Tel. +49 (0)30 - 80 93 96 94 Fax +49 (0)30 - 80 93 96 87

info@firstberlin.com

www.firstberlin.com

**Person responsible for forwarding or distributing this financial analysis: Martin Bailey**

**Copyright© 2020 First Berlin Equity Research GmbH** No part of this financial analysis may be copied, photocopied, duplicated or distributed in any form or media whatsoever without prior written permission from First Berlin Equity Research GmbH. First Berlin Equity Research GmbH shall be identified as the source in the case of quotations. Further information is available on request.

**INFORMATION PURSUANT TO SECTION 34B OF THE GERMAN SECURITIES TRADING ACT [WPHG], TO REGULATION (EU) NO 596/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF APRIL 16, 2014, ON MARKET ABUSE (MARKET ABUSE REGULATION) AND TO THE GERMAN ORDINANCE ON THE ANALYSIS OF FINANCIAL INSTRUMENTS [FINANV]**

First Berlin Equity Research GmbH (hereinafter referred to as: "First Berlin") prepares financial analyses while taking the relevant regulatory provisions, in particular the German Securities Trading Act [WpHG], Regulation (EU) No 596/2014 of the European Parliament and of the Council of April 16, 2014, on market abuse (market abuse regulation) and the German Ordinance on the Analysis of Financial Instruments [FinAnV] into consideration. In the following First Berlin provides investors with information about the statutory provisions that are to be observed in the preparation of financial analyses.

**CONFLICTS OF INTEREST**

In accordance with Section 34b Paragraph 1 of the German Securities Trading Act [WpHG] and Regulation (EU) No 596/2014 of the European Parliament and of the Council of April 16, 2014, on market abuse (market abuse regulation) financial analyses may only be passed on or publicly distributed if circumstances or relations which may cause conflicts of interest among the authors, the legal entities responsible for such preparation or companies associated with them are disclosed along with the financial analysis.

First Berlin offers a range of services that go beyond the preparation of financial analyses. Although First Berlin strives to avoid conflicts of interest wherever possible, First Berlin may maintain the following relations with the analysed company, which in particular may constitute a potential conflict of interest (further information and data may be provided on request):

- The author, First Berlin, or a company associated with First Berlin holds an interest of more than five percent in the share capital of the analysed company;
- The author, First Berlin, or a company associated with First Berlin provided investment banking or consulting services for the analysed company within the past twelve months for which remuneration was or was to be paid;
- The author, First Berlin, or a company associated with First Berlin reached an agreement with the analysed company for preparation of a financial analysis for which remuneration is owed;
- The author, First Berlin, or a company associated with First Berlin has other significant financial interests in the analysed company;

In order to avoid and, if necessary, manage possible conflicts of interest both the author of the financial analysis and First Berlin shall be obliged to neither hold nor in any way trade the securities of the company analyzed. The remuneration of the author of the financial analysis stands in no direct or indirect connection with the recommendations or opinions represented in the financial analysis. Furthermore, the remuneration of the author of the financial analysis is neither coupled directly to financial transactions nor to stock exchange trading volume or asset management fees.

If despite these measures one or more of the aforementioned conflicts of interest cannot be avoided on the part of the author or First Berlin, then reference shall be made to such conflict of interest.

**INFORMATION PURSUANT TO SECTION 64 OF THE GERMAN SECURITIES TRADING ACT [WPHG] (2ND FIMANOG) OF 23 JUNE 2017, DIRECTIVE 2014/65/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL OF 15 MAY 2014 ON MARKETS IN FINANCIAL INSTRUMENTS AND AMENDING DIRECTIVE 2002/92/EC AND DIRECTIVE 2011/61/EU, ACCOMPANIED BY THE MARKETS IN FINANCIAL INSTRUMENTS REGULATION (MIFIR, REG. EU NO. 600/2014)**

First Berlin notes that it has concluded a contract with the issuer to prepare financial analyses and is paid for that by the issuer. First Berlin makes the financial analysis simultaneously available for all interested security financial services companies. First Berlin thus believes that it fulfils the requirements of section 64 WpHG for minor non-monetary benefits.

### PRICE TARGET DATES

Unless otherwise indicated, current prices refer to the closing prices of the previous trading day.

### AGREEMENT WITH THE ANALYSED COMPANY AND MAINTENANCE OF OBJECTIVITY

The present financial analysis is based on the author's own knowledge and research. The author prepared this study without any direct or indirect influence exerted on the part of the analysed company. Parts of the financial analysis were possibly provided to the analysed company prior to publication in order to avoid inaccuracies in the representation of facts. However, no substantial changes were made at the request of the analysed company following any such provision.

### ASSET VALUATION SYSTEM

First Berlin's system for asset valuation is divided into an asset recommendation and a risk assessment.

#### ASSET RECOMMENDATION

The recommendations determined in accordance with the share price trend anticipated by First Berlin in the respectively indicated investment period are as follows:

Category		1	2
Current market capitalisation (in €)		0 - 2 billion	> 2 billion
Strong Buy <sup>1</sup>	An expected favourable price trend of:	> 50%	> 30%
Buy	An expected favourable price trend of:	> 25%	> 15%
Add	An expected favourable price trend of:	0% to 25%	0% to 15%
Reduce	An expected negative price trend of:	0% to -15%	0% to -10%
Sell	An expected negative price trend of:	< -15%	< -10%

<sup>1</sup> The expected price trend is in combination with sizable confidence in the quality and forecast security of management.

Our recommendation system places each company into one of two market capitalisation categories. Category 1 companies have a market capitalisation of €0 – €2 billion, and Category 2 companies have a market capitalisation of > €2 billion. The expected return thresholds underlying our recommendation system are lower for Category 2 companies than for Category 1 companies. This reflects the generally lower level of risk associated with higher market capitalisation companies.

#### RISK ASSESSMENT

The First Berlin categories for risk assessment are low, average, high and speculative. They are determined by ten factors: Corporate governance, quality of earnings, management strength, balance sheet and financial risk, competitive position, standard of financial disclosure, regulatory and political uncertainty, strength of brandname, market capitalisation and free float. These risk factors are incorporated into the First Berlin valuation models and are thus included in the target prices. First Berlin customers may request the models.

### INVESTMENT HORIZON

Unless otherwise stated in the financial analysis, the ratings refer to an investment period of twelve months.

### UPDATES

At the time of publication of this financial analysis it is not certain whether, when and on what occasion an update will be provided. In general First Berlin strives to review the financial analysis for its topicality and, if required, to update it in a very timely manner in connection with the reporting obligations of the analysed company or on the occasion of ad hoc notifications.

### SUBJECT TO CHANGE

The opinions contained in the financial analysis reflect the assessment of the author on the day of publication of the financial analysis. The author of the financial analysis reserves the right to change such opinion without prior notification.

#### Legally required information regarding

- key sources of information in the preparation of this research report
- valuation methods and principles
- sensitivity of valuation parameters

can be accessed through the following internet link: <http://firstberlin.com/disclaimer-english-link/>

**SUPERVISORY AUTHORITY: Bundesanstalt für Finanzdienstleistungsaufsicht (German Federal Financial Supervisory Authority) [BaFin], Graurheindorferstraße 108, 53117 Bonn and Lurgiallee 12, 60439 Frankfurt**

### EXCLUSION OF LIABILITY (DISCLAIMER)

#### RELIABILITY OF INFORMATION AND SOURCES OF INFORMATION

The information contained in this study is based on sources considered by the author to be reliable. Comprehensive verification of the accuracy and completeness of information and the reliability of sources of information has neither been carried out by the author nor by First Berlin. As a result no warranty of any kind whatsoever shall be assumed for the accuracy and completeness of information and the reliability of sources of information, and neither the author nor First Berlin, nor the person responsible for passing on or distributing the financial analysis shall be liable for any direct or indirect damage incurred through reliance on the accuracy and completeness of information and the reliability of sources of information.

#### RELIABILITY OF ESTIMATES AND FORECASTS

The author of the financial analysis made estimates and forecasts to the best of the author's knowledge. These estimates and forecasts reflect the author's personal opinion and judgement. The premises for estimates and forecasts as well as the author's perspective on such premises are subject to constant change. Expectations with regard to the future performance of a financial instrument are the result of a measurement at a single point in time and may change at any time. The result of a financial analysis always describes only one possible future development – the one that is most probable from the perspective of the author – of a number of possible future developments.

Any and all market values or target prices indicated for the company analysed in this financial analysis may not be achieved due to various risk factors, including but not limited to market volatility, sector volatility, the actions of the analysed company, economic climate, failure to achieve earnings and/or sales forecasts, unavailability of complete and precise information and/or a subsequently occurring event which affects the underlying assumptions of the author and/or other sources on which the author relies in this document. Past performance is not an indicator of future results; past values cannot be carried over into the future.

Consequently, no warranty of any kind whatsoever shall be assumed for the accuracy of estimates and forecasts, and neither the author nor First Berlin, nor the person responsible for passing on or distributing the financial analysis shall be liable for any direct or indirect damage incurred through reliance on the correctness of estimates and forecasts.

**INFORMATION PURPOSES, NO RECOMMENDATION, SOLICITATION, NO OFFER FOR THE PURCHASE OF SECURITIES**

The present financial analysis serves information purposes. It is intended to support institutional investors in making their own investment decisions; however in no way provide the investor with investment advice. Neither the author, nor First Berlin, nor the person responsible for passing on or distributing the financial analysis shall be considered to be acting as an investment advisor or portfolio manager vis-à-vis an investor. Each investor must form his own independent opinion with regard to the suitability of an investment in view of his own investment objectives, experience, tax situation, financial position and other circumstances.

The financial analysis does not represent a recommendation or solicitation and is not an offer for the purchase of the security specified in this financial analysis. Consequently, neither the author nor First Berlin, nor the person responsible for passing on or distributing the financial analysis shall as a result be liable for losses incurred through direct or indirect employment or use of any kind whatsoever of information or statements arising out of this financial analysis.

A decision concerning an investment in securities should take place on the basis of independent investment analyses and procedures as well as other studies including, but not limited to, information memoranda, sales or issuing prospectuses and not on the basis of this document.

**NO ESTABLISHMENT OF CONTRACTUAL OBLIGATIONS**

By taking note of this financial analysis the recipient neither becomes a customer of First Berlin, nor does First Berlin incur any contractual, quasi-contractual or pre-contractual obligations and/or responsibilities toward the recipient. In particular no information contract shall be established between First Berlin and the recipient of this information.

**NO OBLIGATION TO UPDATE**

First Berlin, the author and/or the person responsible for passing on or distributing the financial analysis shall not be obliged to update the financial analysis. Investors must keep themselves informed about the current course of business and any changes in the current course of business of the analysed company.

**DUPLICATION**

Dispatch or duplication of this document is not permitted without the prior written consent of First Berlin.

**SEVERABILITY**

Should any provision of this disclaimer prove to be illegal, invalid or unenforceable under the respectively applicable law, then such provision shall be treated as if it were not an integral component of this disclaimer; in no way shall it affect the legality, validity or enforceability of the remaining provisions.

**APPLICABLE LAW, PLACE OF JURISDICTION**

The preparation of this financial analysis shall be subject to the law obtaining in the Federal Republic of Germany. The place of jurisdiction for any disputes shall be Berlin (Germany).

**NOTICE OF DISCLAIMER**

By taking note of this financial analysis the recipient confirms the binding nature of the above explanations.

By using this document or relying on it in any manner whatsoever the recipient accepts the above restrictions as binding for the recipient.

**QUALIFIED INSTITUTIONAL INVESTORS**

First Berlin financial analyses are intended exclusively for qualified institutional investors.

**This report is not intended for distribution in the USA and/or Canada.**