

Deutsche Rohstoff AG

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

Update

RATING PRICE TARGET

BUY € 8.70

Return Potential 30.6% Risk Rating High

LOW COSTS/LONG-DATED DEBT MEAN DRAG CAN RIDE OUT CRISIS

The lowest oil price since 2001 has pushed DRAG's share price to its lowest level since the company listed in 2010. However, current cash operating costs are under USD15/BOE (barrel of oil equivalent). Given that CAPEX will be small as long as the oil price remains depressed, we expect DRAG to be able to generate free cashflow even at an oil price of USD20. We estimate that the company currently has a net debt position of €74m (€122m in bonds and bank debt; €49m in cash and securities). The largest element of the debt position is €115m of bonds. But none of the bonds mature this year and 75% of the total mature in December 2024. The weighted average coupon is 5.2%. The low cost of production from existing wells as well as long-dated debt suggest that DRAG will be able to withstand a prolonged period of low commodity prices. Furthermore, we note that at the lowpoint of the three deepest oil price downturns so far this century, in 2001, 2008 and 2016, the futures market underestimated the average oil price over the following four years by 92%, 46% and 37% respectively. We have taken this into account in our current valuation and assume an average oil price 35% above the futures curve from January 2021. Our new price target is €8.70 (previously: €18.10), and we maintain our Buy recommendation.

2019 sales down ahead of late December production start at new wells DRAG's preliminary 2019 results showed a 62.3% decline in sales to €41.1m (2018: €109.1m) and a 76.8% fall in EBITDA to €22.7m (2018: €97.9m). The decline in sales and profits was the consequence of lower output at the company's Cub Creek, Elster and Salt Creek subsidiaries. Both Cub Creek and Elster started production at new unconventional wells in 2018 but Elster added no new wells in 2019 and new production at Cub Creek did not begin until the final days of the year. Output from an unconventional well falls at a hyperbolic rate during the first few years of its life. So in order to maintain or increase output, DRAG has to continually drill new wells. At Salt Creek the decline in sales was the result of the subsidiary's sale of most of its wells in mid-2018. (p.t.o.)

FINANCIAL HISTORY & PROJECTIONS

2016	2017	2018	2019P	2020E	2021E
9.17	53.75	109.05	41.10	56.22	37.26
383.4%	486.1%	102.9%	-62.3%	36.8%	-33.7%
6.37	36.13	97.93	22.70	33.02	18.06
69.5%	67.2%	89.8%	55.2%	58.7%	48.5%
0.10	5.55	13.87	-0.65	-1.02	-6.82
0.02	1.10	2.74	-0.13	-0.20	-1.34
0.60	0.65	0.70	0.00	0.00	0.00
-63.18	-13.93	2.47	-20.44	21.58	13.73
69.9%	132.6%	42.9%	99.4%	53.3%	41.2%
28.09	29.70	59.99	66.13	63.21	60.24
	9.17 383.4% 6.37 69.5% 0.10 0.02 0.60 -63.18 69.9%	9.17 53.75 383.4% 486.1% 6.37 36.13 69.5% 67.2% 0.10 5.55 0.02 1.10 0.60 0.65 -63.18 -13.93 69.9% 132.6%	9.17 53.75 109.05 383.4% 486.1% 102.9% 6.37 36.13 97.93 69.5% 67.2% 89.8% 0.10 5.55 13.87 0.02 1.10 2.74 0.60 0.65 0.70 -63.18 -13.93 2.47 69.9% 132.6% 42.9%	9.17 53.75 109.05 41.10 383.4% 486.1% 102.9% -62.3% 6.37 36.13 97.93 22.70 69.5% 67.2% 89.8% 55.2% 0.10 5.55 13.87 -0.65 0.02 1.10 2.74 -0.13 0.60 0.65 0.70 0.00 -63.18 -13.93 2.47 -20.44 69.9% 132.6% 42.9% 99.4%	9.17 53.75 109.05 41.10 56.22 383.4% 486.1% 102.9% -62.3% 36.8% 6.37 36.13 97.93 22.70 33.02 69.5% 67.2% 89.8% 55.2% 58.7% 0.10 5.55 13.87 -0.65 -1.02 0.02 1.10 2.74 -0.13 -0.20 0.60 0.65 0.70 0.00 0.00 -63.18 -13.93 2.47 -20.44 21.58 69.9% 132.6% 42.9% 99.4% 53.3%

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 23 Mar 2020
Closing Price	€ 6.66
Shares outstanding	5.08m
Market Capitalisation	€ 33.84m
52-week Range	€ 6.12 / 19.65
Ava Volume (12 Months)	6 323

Multiples	2019P	2020E	2021E
P/E	n.a.	n.a.	n.a.
EV/Sales	2.6	1.9	2.9
EV/EBIT	4.7	3.3	6.0
Div Vield	0.0%	0.0%	0.0%

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%

Figure 1: Recent quarterly results

€ 000's	2018A	Q1 19A	Q2 19A	Q3 19A	Q4 19P	FY 19P
Revenue	109,052	14,665	9,492	6,998	9,945	41,100
change	102.9%	-6.4%	-75.3%	-79.6%	-51.8%	-62.3%
EBITDA	97,933	12,838	2,342	4,006	3,513	22,700
margin	89.8%	87.5%	24.7%	57.2%	35.3%	55.2%
Depreciation on fixed/intangible assets	-58,037	-7,085	-245	-3,744	-2,800	-13,874
Amortisation of financial assets	-7,205	-522	142	-481	-1,300	-2,162
EBIT	32,691	5,231	2,239	-209	-587	6,665
margin	30.0%	35.7%	23.6%	-3.0%	-5.9%	16.2%

Source: DRAG

New production came on stream in 2019 at DRAG's Bright Rock subsidiary and also at Salt Creek, but this was not enough to compensate for the 2018 disposals at Salt Creek and falling output at Cub Creek and Elster.

Figure 2: Recent oil/gas output by subsidiary and forecasts to 2021

вое	FY/18A	Q1/19A	Q2/19A	Q3/19A	Q4/19E	FY/19E	FY/20E	FY/21E
Cub Creek	1,707,443	247,838	205,733	179,142	192,501	825,214	1,544,100	1,143,418
change (%)	22.6%	-8.0%	-56.1%	-67.6%	-53.8%	-51.7%	87.1%	-25.9%
of which:								
oil	781,425	92,584	78,283	63,126	68,338	302,331	999,201	576,718
gas	926,018	155,254	127,450	116,016	124,163	522,883	544,900	566,700
gas as % total	54.2%	62.6%	61.9%	64.8%	64.5%	63.4%	35.3%	49.6%
Elster	1,600,180	285,192	186,882	91,000	155,000	718,074	394,732	252,934
change (%)	861.9%	147.1%	-71.4%	-80.8%	-56.6%	-55.1%	-45.0%	-35.9%
of which:								
oil	937,000	137,711	71,297	35,490	60,450	304,948	155,087	118,418
gas	663,180	147,481	115,585	55,510	94,550	413,126	239,645	134,517
gas as % total	41.4%	51.7%	61.8%	61.0%	61.0%	57.5%	60.7%	53.2%
Salt Creek	184,717	26,670	5,797	13,000	12,000	57,467	34,480	22,863
change (%)	-40.9%	-74.9%	-92.6%	n.a.	n.a.	-68.9%	-40.0%	-33.7%
of which:								
oil	151,428	17,915	4,785	8,840	7,800	39,340	23,604	14,162
gas	33,289	8,755	1,012	4,160	4,200	18,127	10,876	8,701
gas as % total	18.0%	32.8%	17.5%	32.0%	35.0%	31.5%	31.5%	38.1%
Bright Rock	0	6,300	11,260	13,000	30,000	60,560	48,448	38,758
change (%)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-20.0%	-20.0%
of which:								
oil	0	4,790	8,562	9,490	21,000	43,842	35,074	28,059
gas	0	1,510	2,698	3,510	9,000	16,718	13,374	10,700
gas as % total	n.a.	24.0%	24.0%	27.0%	30.0%	27.6%	27.6%	27.6%
Total	3,492,340	566,000	409,671	296,142	389,501	1,661,315	2,021,760	1,457,974
change (%)	86.6%	15.3%	-65.9%	-71.2%	-49.5%	-52.4%	21.7%	-27.9%
of which:								
oil	1,869,853	253,000	162,927	116,946	157,588	690,461	1,212,966	737,357
gas	1,622,487	313,000	246,744	179,196	231,913	970,854	808,795	720,617
gas as % total	46.5%	55.3%	60.2%	60.5%	59.5%	58.4%	40.0%	49.4%

Source: DRAG, First Berlin Equity Research estimates

New production at Cub Creek to drive 22% increase in group output in 2020 Cub Creek drilled and completed 11 new wells, each with a two-mile horizontal length, at its Olander well pad between mid-June and December 2019. The new wells began producing at the end of December. Cub Creek's management decided to start production at Olander at a slower rate than at previous well pads to ensure more consistent output during the early months of production. Management has also indicated that Cub Creek may restrict production volumes while the oil price remains low. Daily production at the beginning of March was about 5,200 BOE (barrels of oil equivalent) and was trending up strongly. An update on production at Olander is likely during the first half of April. We estimate that output at DRAG fell by 52% to 1.66m BOE in 2019.

Although management is unlikely to let production at Olander grow as fast as it would do in a stronger oil price environment, we still expect new production from the Olander wells to raise overall output by 22% to 2.02m BOE in 2020 (2019E: 1.66m BOE).

Q4/19 sales 42.1% above Q3/19 level due to Elster production rebound/better realised gas prices In the 2018 annual report management guided towards 2019 sales of €40-50m and EBITDA of €25-35m. However, the company indicated in the 9M/19 report that temporary gas processing problems at Elster and low realised gas prices during Q3 as well as the costs of the November 2019 €87.1m bond issue (which were not taken into account in the original guidance) would push full year EBITDA below €25m. Gas production at Elster and realised gas prices both rebounded during the last three months of 2019 and Q4/19 revenue at €9.9m was 42.1% above the Q3/19 level of €7.0m. However, FY EBITDA of €22.7m was below original guidance.

We forecast cash cost/BOE of USD12.62 this year While an oil price of over USD40 is required to justify investment in new wells, we estimate that EBITDA breakeven for existing wells will be USD12.62 this year. On the basis of the recently published preliminary results, we can calculate DRAG's cash operating costs i.e. sales minus EBITDA. On a normalised basis (excluding net exchange rate gains and bond issue costs), we estimate these at USD13.81/BOE in 2019 (2018: USD8.53/BOE). Normalised unit cash operating costs rose in 2019 due to scale diseconomies as output fell 52% to an estimated 1.66m BOE (2018: 3.49m BOE). We pencil in cash costs of USD12.62/BOE for 2020 and USD14.48/BOE for 2021 to reflect rising production this year followed by a decline next year. Given that the oil futures curve slopes upward from the current spot price of USD22.40, we expect DRAG to continue to generate positive operating cashflow.

55% of 2020 oil production is hedged at USD57.12 The oil price (West Texas Intermediate) averaged USD57.02 during 2019 but has fallen to USD22.40 since the end of February as a result of a price war between Russia and Saudi Arabia and fears of recession. Ca. 80% of DRAG's Q1/20 production is hedged at USD57.48. For the full year 2020 these figures are 55% and USD57.12.

Over 75% of €115m outstanding bond volume matures in December 2024 DRAG had bank balances and securities held as current and non-current assets of ca. €85.2m at the end of 2019. On the liabilities side of the balance sheet, the company had €131.2m of bonds. In January DRAG used €17.5m to repay half of the €334m outstanding of the 5.63% 2016/21 bond at 102% of the principal amount plus accrued interest. We estimate cash and securities held as current assets to now be €48.6m. Amounts currently outstanding, coupons and maturities of DRAG's bonds are shown in figure 3.

Figure 3: Currently outstanding Deutsche Rohstoff AG bonds

	Bond 2016/21	Convertible bond 2018/23	Bond 2019/24
Issue Date	18 July 2016	23 March 2018	4 December 2019
Outstanding volume (€m)	16.7	10.7	87.1
Coupon	5.63%	3.63%	5.25%
Tenor	5 years	5 years	5 years

Source: DRAG

Cub Creek had planned to drill a further 12 wells, each with a 2.5-mile horizontal length, at its Knight well pad for a projected late 2020 production start. However, an average oil price of USD40-50 is required to generate the required return on investment. In the current low oil price environment, we expect DRAG to postpone drilling at the Knight well pad. We now assume the start of production from the Knight well pad in early 2023 (previously: January 2021).

Figure 4: Changes to our forecasts

All figures in € 000s	2020E New	2020E Old	Δ	2021E New	2021E Old	Δ
Revenues	56,217	75,904	-25.9%	37,258	86,220	-56.8%
EBITDA	33,016	57,681	-42.8%	18,061	67,693	-73.3%
Depreciation and amortisation	26,288	31,901	-17.6%	19,179	32,130	-40.3%
Operating income (EBIT)	6,728	25,780	-73.9%	-1,118	35,563	n.a.
Net financial result	-6,268	-4,670	n.a.	-4,961	-781	n.a.
Pre-tax income (EBT)	460	21,110	-97.8%	-6,079	34,782	-117.5%
Income taxes	0	-4,433	n.a.	0	-7,304	n.a.
Net before minorities	460	16,677	-97.2%	-6,079	27,478	n.a.
Minority interests	-1,480	-2,866	n.m.	-745	-4,013	n.a.
Net income after mins.	-1,020	13,810	n.a.	-6,824	23,465	n.a.
EPS (€)	-0.20	2.73	n.a.	-1.34	4.64	n.a.

Source: First Berlin Equity Research estimates

Figure 4 above shows changes to our forecasts compared with our most recent study of 30 September 2019. Our new numbers for 2020 reflect a 13% reduction in our average oil price assumption from USD56.33/barrel to USD48.77/barrel as well as an 8% group BOE volume reduction to reflect a slower ramp-up in production at Cub Creek's Olander well pad than we had previously modelled. For 2021 our oil price assumption at USD45.93 is also 13% lower while the postponement of the start of production at the Knight pad reduces our group BOE output assumption by 45%.

Figure 5: DCF Valuation of Cub Creek Energy*

USD 000s	2020E	2021E	2022E	2023E	2024E	2025E
Production (working interest): barrels of oil equivalent (000s)	1,544	1,143	785	1,824	1,041	792
Unhedged average oil price for period (WTI -USD/barrel)	38.56	45.93	49.94	52.64	54.76	56.48
No. 1 mile-lateral equivalent wells period end (working interest)	56.9	56.9	56.9	77.4	77.4	77.4
Net revenue (working interest after royalty and ad valorem tax)	49,651	32,100	24,155	63,424	35,347	26,120
Cash operating costs	19,492	16,561	12,580	23,166	12,487	7,916
EBITDA	30,159	15,539	11,575	40,258	22,860	18,203
Depreciation	20,629	15,396	10,800	22,358	12,785	9,627
EBIT	9,530	143	774	17,900	10,075	8,577
NOPLAT	7,529	113	612	14,141	7,959	6,775
Tax Rate (%)	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
CAPEX	0	0	0	47,688	0	0
Working capital expenditure	-4,206	2,633	1,192	-5,890	4,212	1,384
Free cashflow	23,952	18,142	12,604	-17,080	24,956	17,786
PV free cashflow (10% discount rate)	22,251	15,322	9,677	-11,921	15,835	10,260
Sum PV free cashflows	100,033			·	·	

Source: DRAG; First Berlin Equity Research estimates

Figure 6: DCF Valuation of Elster Oil & Gas*

USD 000s	2020E	2021E	2022E	2023E	2024E	2025E
Production (working interest): barrels of oil equivalent (000s)	395	253	156	135	119	107
Unhedged average oil price for period (WTI -USD/barrel)	38.56	45.93	49.94	52.64	54.76	56.48
No. 1 mile-lateral equivalent wells period end (working interest)	23.1	23.1	23.1	23.1	23.1	23.1
Net revenue (working interest after royalty and ad valorem tax)	9,355	6,856	5,201	4,664	4,242	3,796
Direct op. costs (working interest)	4,983	1,619	996	861	763	686
Cash operating costs	4,983	3,663	2,495	1,710	1,430	1,072
EBITDA	4,372	3,192	2,706	2,954	2,812	2,724
Depreciation	6,627	4,228	2,598	2,242	1,982	1,782
EBIT	-2,255	-1,036	108	712	830	942
NOPLAT	-1,781	-818	85	562	656	744
Tax Rate (%)	21.0%	21.0%	21.0%	21.0%	21.0%	21.0%
CAPEX	0	0	0	0	0	0
Working capital expenditure	1,643	375	248	81	63	67
Free cashflow	6,488	3,785	2,932	2,885	2,701	2,593
PV free cashflow (10% discount rate)	6,028	3,196	2,251	2,014	1,714	1,496
Sum PV free cashflows	22,036			·	·	

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 7: Sum of the parts model

24 March 2020

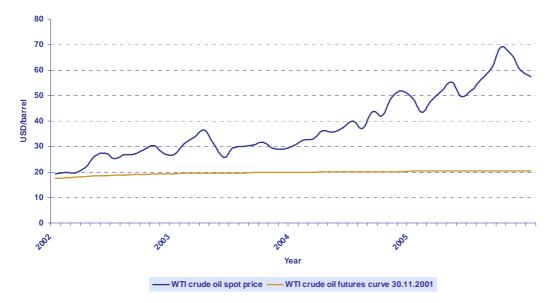
€m	New	Old	% ∆
DCF valuation Cub Creek Energy (DRAG's stake 88.5%)	82.7	70.8	16.9%
DCF valuation Elster Oil & Gas (DRAG's stake: 93.0%)	19.2	35.7	-46.4%
DCF valuation Salt Creek Oil & Gas/Bright Rock Energy	5.5	12.0	-54.1%
(DRAG's stakes: 100.0%/ 97.6%)			
Subtotal: US oil and gas activities	107.4	118.5	-9.4%
Almonty (12.8% equity stake	11.8	17.4	
plus promissory notes and debentures)			
Northern Oil and Gas	4.2	11.6	
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	1.5	
Hammer Metals (DRAG's stake: 12.63%)	0.2	0.6	
Holding company costs	-10.0	-10.0	
Total enterprise value	117.6	143.6	-18.1%
Cash and securities held in current assets	48.6	35.4	
Bonds	114.5	77.3	
Other debt	7.8	10.3	
Net debt	73.7	52.2	
Total equity value	44.0	91.4	-51.9%
No shares (m)	5.08	5.06	
Equity value per share (€)	8.65	18.06	-52.1%

Source: First Berlin Equity Research estimates

We maintain our Buy recommendation but lower the price target from €18.10 to €8.70

Figure 7 above shows changes to our sum of the parts model. Our valuations of Elster and Salt Creek fall because of lower commodity price assumptions detailed above. The increase in valuation of Cub Creek is a function of the transfer of CAPEX in connection with the new production at the Olander well pad to group net debt following completion of the wells. We note that at the low point of the three deepest oil price downturns so far this century, in 2001, 2008 and 2016, the futures market underestimated the average oil price over the following four years by 92%, 46% and 37% respectively (see figures 8, 9 and 10 below). We have taken this into account in our current valuation and assume an average oil price 35% above the futures curve from January 2021. Our new price target is €8.70 (previously: €18.10) and we maintain our Buy recommendation.

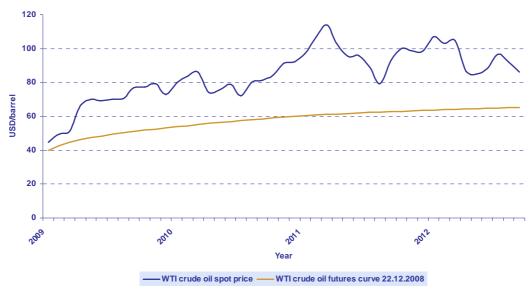
Figure 8: WTI futures curve 30.11.2001 and spot curve end 2001 to end 2005



Source: Bloomberg

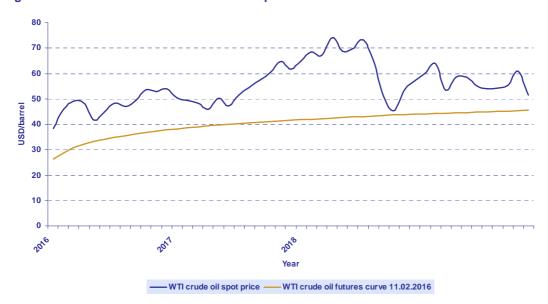


Figure 9: WTI futures curve 22.12.2008 and spot curve end 2008 to January 2013



Source: Bloomberg

Figure 10: WTI futures curve 11.02.2016 and spot curve end Feb. 2016 to Jan. 2020



Source: Bloomberg



INCOME STATEMENT

All figures in € 000s	2016A	2017A	2018A	2019P	2020E	2021E
Revenues	9,170	53,746	109,052	41,100	56,217	37,258
Cost of purchased services	4	8,069	19,019	7,168	9,804	6,498
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	-9,159	-8,334
EBITDA	6,374	36,126	97,933	22,700	33,016	18,061
Depreciation and amortisation	6,915	30,822	58,037	16,035	26,288	19,179
Operating income (EBIT)	-541	5,304	39,896	6,665	6,728	-1,118
Net financial result	-1,413	-4,011	-13,432	-5,279	-6,268	-4,961
Pre-tax income (EBT)	-1,953	1,293	26,464	1,386	460	-6,079
Taxes	2,028	6,379	-8,520	-1,164	0	0
Profit before minorities	75	7,672	17,944	222	460	-6,079
Minority interests	28	-2,124	-4,072	-871	-1,480	-745
Net income / loss	103	5,548	13,872	-650	-1,020	-6,824
EPS (in €)	0.02	1.10	2.74	-0.13	-0.20	-1.34
Ratios						
EBITDA margin on revenues	69.5%	67.2%	89.8%	55.2%	58.7%	48.5%
EBIT margin on revenues	-5.9%	9.9%	36.6%	16.2%	12.0%	-3.0%
Net margin on revenues	1.1%	10.3%	12.7%	-1.6%	-1.8%	-18.3%
Tax rate	103.8%	-493.3%	32.2%	84.0%	0.0%	0.0%
Y-Y Growth						
Revenues	383.4%	486.1%	102.9%	-62.3%	36.8%	-33.7%
Operating income	n.m.	n.m.	652.2%	-83.3%	0.9%	n.m.
Net income/ loss	-91.1%	5311.9%	150.0%	n.m.	n.m.	n.m.



BALANCE SHEET

Assets Current assets, total 51,874 42,502 75,860 74,737 75,284 68,246 Cash and cash equivalents 28,090 29,699 59,990 66,127 63,210 60,244 Inventories 13 170 156 200 280 116 Receivabiles 77,794 9,090 13,443 6,500 9,115 6,041 77,944 9,090 13,443 6,500 9,115 6,041 77,944 9,090 13,443 6,500 9,115 6,041 77,941 78,945 73,94	All figures in € 000s	2016A	2017A	2018A	2019P	2020E	2021E
Cash and cash equivalents 28,090 29,699 59,990 66,127 63,210 00,244 Inventories 139 170 156 200 280 186 Receivables 7,794 9,090 13,443 6,500 9,115 6,041 Prepayments 495 833 711 525 736 488 Other current assets 15,105 1,324 337 1,3365 1,942 1,227 Deferred tax assets 251 1,366 1,223 0	Assets						
Inventories	Current assets, total	51,874	42,502	75,860	74,737	75,284	68,246
Receivables 7,794 9,090 13,443 6,500 9,115 6,041 Prepayments 495 833 711 525 736 488 Oher current assets 15,105 1,324 337 1,385 1,942 1,287 Deferred tax assets 251 1,386 1,223 0 10 0	Cash and cash equivalents	28,090	29,699	59,990	66,127	63,210	60,244
Prepayments 495 833 711 525 736 488 Other current assets 15,105 1,326 1,223 0 0 0 Non-current assets, total 141,598 171,072 148,985 200,663 177,375 161,196 Inangible assets 40,614 33,837 16,982 22,000 21,300 20,300 Land and bulidings 0 0 0 0 0 0 0 0 Producing oil plants 76,172 73,760 107,878 113,333 95,358 83,137 Exploration and evaluation 3,493 40,557 2,048 27,000 22,724 19,811 Plant and machinery 173 99 36 20 17 15 Other equipment 103 108 91 400 337 294 Equity investments 12,542 15,569 14,385 16,843 16,843 16,843 Loans to other investors 913 1,724 1	Inventories	139	170	156	200	280	186
Other current assets 15,105 1,324 337 1,385 1,942 1,287 Deferred tax assets 251 1,386 1,223 0 0 0 0 Non-current assets, total 141,598 171,072 148,885 200,683 177,375 161,196 Intangible assets 40,614 33,837 16,932 22,300 21,300 20,300 Land and buildings 0 <td>Receivables</td> <td>7,794</td> <td>9,090</td> <td>13,443</td> <td>6,500</td> <td>9,115</td> <td>6,041</td>	Receivables	7,794	9,090	13,443	6,500	9,115	6,041
Other current assets 15,105 1,324 337 1,385 1,942 1,287 Deferred tax assets 251 1,386 1,223 0 0 0 0 Non-current assets, total 141,598 171,072 148,985 200,663 177,375 161,196 Intangible assets 40,614 33,837 16,932 22,300 21,300 20,00 Lond and buildings 0 0 0 0 0 0 0 Producing oil plants 76,172 73,760 107,878 113,303 5,358 83,137 1,55 Exploration and evaluation 3,493 40,557 2,048 27,000 22,724 19,811 Plant and machinery 173 99 36 20 17 15 Other equipment 103 108 91 400 337 294 Equity Exploration and evaluation 103 15,242 15,569 14,385 16,843 16,843 Courrent iabilities of tall assets <td>Prepayments</td> <td>495</td> <td>833</td> <td>711</td> <td>525</td> <td>736</td> <td>488</td>	Prepayments	495	833	711	525	736	488
Name	Other current assets	15,105	1,324	337	1,385	1,942	1,287
Intangible assets	Deferred tax assets	251	1,386	1,223	0	0	0
Land and buildings 0 0 0 0 0 0 0 0 Producing oil plants 76,172 73,760 107,878 113,303 95,358 83,137 Exploration and evaluation 3,493 40,557 2,048 27,000 22,724 19,811 Plant and machinery 173 99 36 20 17 15 Chher equipment 103 108 91 400 337 294 Equity investments 12,542 15,569 14,385 16,843 16,843 16,843 Loans to other investors 913 1,724	Non-current assets, total	141,598	171,072	148,985	200,663	177,375	161,196
Producing oil plants 76,172 73,760 107,878 113,303 95,358 83,137 Exploration and evaluation 3,493 40,557 2,048 27,000 22,724 19,811 Plant and machinery 173 99 36 20 17 15 Other equipment 103 108 91 400 337 294 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 Total assets 7,588 5,418 5,891 19,073 <	Intangible assets	40,614	33,837	16,932	22,300	21,300	20,300
Exploration and evaluation 3,493 40,557 2,048 27,000 22,724 19,811 Plant and machinery 173 99 36 20 177 15 Cher equipment 103 108 91 400 337 294 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 19,074 1,724 1,724 1,724 1,724 1,724 1,724 1,724 1,724 1,724 1,724 1,724 1,724	Land and buildings	0	0	0	0	0	0
Plant and machinery	Producing oil plants	76,172	73,760	107,878	113,303	95,358	83,137
Other equipment 103 108 91 400 337 294 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 Securities classified as fixed assets 7,588 5,418 5,891 19,073 19,073 19,073 Total assets 193,472 213,574 224,845 275,400 252,659 229,442 Shareholders' equity & debt Current liabilities, total 33,904 31,121 38,912 34,600 44,799 27,661 Bank debt 0 55 16,068 7,800 0 0 0 Accounts payable 29,915 5,236 6,840 8,500 8,912 8,773 Other current liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 Bank debt 66,705 66,599 66,599 131,200 97,800 9,800	Exploration and evaluation	3,493	40,557	2,048	27,000	22,724	19,811
Equity investments 12,542 15,569 14,385 16,843 16,843 16,843 Loans to other investors 913 1,724 1,24 224,842 275,400 252,659 229,442 Sharebolders' equity & debt 0 0 15,741 0 0 16,700 0	Plant and machinery	173	99	36	20	17	15
Loan's to other investors 913 1,724 1,24 2,46 2,30 2,26,58 229,415 2,526 2,40 2,50 0	Other equipment	103	108	91	400	337	294
Securities classified as fixed assets 7,588 5,418 5,891 19,073 19,073 19,073 Total assets 193,472 213,574 224,845 275,400 252,659 229,442 Shareholders' equity & debt Current liabilities, total 33,904 31,121 38,912 34,600 44,799 27,661 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 8,912 8,773 Other current liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 Bank debt 66,755 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 0 Provisions	Equity investments	12,542	15,569	14,385	16,843	16,843	16,843
Shareholders' equity & debt <	Loans to other investors	913	1,724	1,724	1,724	1,724	1,724
Shareholders' equity & debt Current liabilities, total 33,904 31,121 38,912 34,600 44,799 27,661 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 8,912 8,773 Other current liabilities 3,989 10,089 15,986 18,300 19,187 18,888 Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 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 0 Other long term liabilities 0 0 0 0 0 0 0 Provisions 5,308 27,997 19,312 23,000 2,000 2,000 Difference from capital	Securities classified as fixed assets	7,588	5,418	5,891	19,073	19,073	19,073
Current liabilities, total 33,904 31,121 38,912 34,600 44,799 27,661 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 8,912 8,773 Other current liabilities 3,989 10,089 15,986 18,300 19,187 18,888 Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 Bond debt 66,705 66,599 66,599 131,200 97,800 97,800 Bank debt 8,538 24,181 10,700 0	Total assets	193,472	213,574	224,845	275,400	252,659	229,442
Current liabilities, total 33,904 31,121 38,912 34,600 44,799 27,661 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 8,912 8,773 Other current liabilities 3,989 10,089 15,986 18,300 19,187 18,888 Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 Bond debt 66,705 66,599 66,599 131,200 97,800 97,800 Bank debt 8,538 24,181 10,700 0	Shareholders' equity & debt						
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 8,912 8,773 Other current liabilities 3,989 10,089 15,986 18,300 19,187 18,888 Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 Bank debt 66,705 66,599 66,599 131,200 97,800 97,800 Bank debt 8,538 24,181 10,700 0 0 0 0 Other long term liabilities 0		33,904	31,121	38.912	34,600	44.799	27.661
Bond debt 0 15,741 0 0 16,700 0 Accounts payable 29,915 5,236 6,840 8,500 8,912 8,773 Other current liabilities 3,989 10,089 15,986 18,300 19,187 18,888 Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 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 0 Other long term liabilities 0 <td< td=""><td>•</td><td>•</td><td>•</td><td></td><td>•</td><td>*</td><td></td></td<>	•	•	•		•	*	
Accounts payable 29,915 5,236 6,840 8,500 8,912 8,773 Other current liabilities 3,989 10,089 15,986 18,300 19,187 18,888 Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 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 0 Other long term liabilities 0 <t< td=""><td></td><td></td><td></td><td></td><td></td><td>-</td><td>_</td></t<>						-	_
Other current liabilities 3,989 10,089 15,986 18,300 19,187 18,888 Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 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 0 Other long term liabilities 0 0 0 0 0 0 0 Other long term liabilities 0 0 0 0 0 0 0 Other long term liabilities 0 0 0 0 0 0 0 0 0 Other long term liabilities 3,580 27,997 19,312 23,000 2,000 2,000 2,000 2,000 2,000 2,000 2,000 2,000 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 <td></td> <td></td> <td></td> <td></td> <td></td> <td>*</td> <td>_</td>						*	_
Long-term liabilities, total 75,243 90,780 77,299 131,200 97,800 97,800 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 0 Other long term liabilities 0 0 0 0 0 0 0 0 0 Provisions 5,308 27,997 19,312 23,000 2,000 2,000 2,000 2,000 2,000 2,000 0	· ·					*	
Bond debt 66,705 66,599 66,599 131,200 97,800 97,800 Bank debt 8,538 24,181 10,700 0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>							
Bank debt 8,538 24,181 10,700 0 0 0 Other long term liabilities 0 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 0 Minority interests 9,698 7,427 8,087 8,000 9,480 10,225 Shareholders' equity 56,423 49,248 65,750 63,600 83,580 76,756 Consolidated equity 66,121 56,675 73,837 71,600 93,060 86,981 Deferred tax liabilities 12,896 6,806 15,485 15,000 15,000 15,000 Total consolidated equity and debt 193,472 213,574 224,845 275,400 252,659 229,442 Ratios Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46		The second secon	•		•		•
Other long term liabilities 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2,000 <td></td> <td></td> <td>,</td> <td></td> <td></td> <td>*</td> <td></td>			,			*	
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 9,480 10,225 Shareholders' equity 56,423 49,248 65,750 63,600 83,580 76,756 Consolidated equity 66,121 56,675 73,837 71,600 93,060 86,981 Deferred tax liabilities 12,896 6,806 15,485 15,000 15,000 15,000 Total consolidated equity and debt 193,472 213,574 224,845 275,400 252,659 229,442 Ratios Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€)							
Minority interests 9,698 7,427 8,087 8,000 9,480 10,225 Shareholders' equity 56,423 49,248 65,750 63,600 83,580 76,756 Consolidated equity 66,121 56,675 73,837 71,600 93,060 86,981 Deferred tax liabilities 12,896 6,806 15,485 15,000 15,000 15,000 Total consolidated equity and debt 193,472 213,574 224,845 275,400 252,659 229,442 Ratios Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	3		27,997	19,312		2,000	2,000
Shareholders' equity 56,423 49,248 65,750 63,600 83,580 76,756 Consolidated equity 66,121 56,675 73,837 71,600 93,060 86,981 Deferred tax liabilities 12,896 6,806 15,485 15,000 15,000 15,000 Total consolidated equity and debt 193,472 213,574 224,845 275,400 252,659 229,442 Ratios Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Difference from capital consolidation	0	195	0	0	0	0
Consolidated equity 66,121 56,675 73,837 71,600 93,060 86,981 Deferred tax liabilities 12,896 6,806 15,485 15,000 15,000 15,000 Total consolidated equity and debt 193,472 213,574 224,845 275,400 252,659 229,442 Ratios Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Minority interests	9,698	7,427	8,087	8,000	9,480	10,225
Deferred tax liabilities 12,896 6,806 15,485 15,000 15,000 15,000 Total consolidated equity and debt 193,472 213,574 224,845 275,400 252,659 229,442 Ratios Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Shareholders' equity	56,423	49,248	65,750	63,600	83,580	76,756
Ratios 224,845 275,400 252,659 229,442 Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Consolidated equity	66,121	56,675	73,837	71,600	93,060	86,981
Ratios 224,845 275,400 252,659 229,442 Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Deferred tax liabilities	12,896	6,806	15,485	15,000	15,000	15,000
Current ratio (x) 1.53 1.37 1.95 2.16 1.68 2.47 Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Total consolidated equity and debt	193,472	213,574	224,845	275,400	252,659	229,442
Quick ratio (x) 1.53 1.36 1.95 2.15 1.67 2.46 Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Ratios						
Financial leverage 69.9% 132.6% 42.9% 99.4% 53.3% 41.2% Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Current ratio (x)	1.53	1.37	1.95	2.16	1.68	2.47
Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Quick ratio (x)	1.53	1.36	1.95	2.15	1.67	2.46
Book value per share (€) 11.15 9.73 12.99 12.57 16.52 15.17	Financial leverage	69.9%	132.6%	42.9%	99.4%	53.3%	41.2%
	Book value per share (€)	11.15	9.73	12.99	12.57	16.52	15.17
Net cash (dept) -40,240 -73,133 -31,071 -71,149 -49,300 -30,632	Net cash (debt)	-46,240	-75,153	-31,671	-71,149	-49,566	-35,832
Return on equity (ROE) 0.1% 12.5% 27.5% 0.3% 0.6% 0.0%	Return on equity (ROE)	0.1%	12.5%	27.5%	0.3%	0.6%	0.0%

CASH FLOW STATEMENT

All figures in € 000s	2016A	2017A	2018A	2019P	2020E	2021E
Net profit before minorities	74	7,672	17,944	222	460	-6,079
Writedowns/writeups of fixed assets	6,874	30,500	59,637	16,035	26,288	19,179
Increase/decrease in provisions	4,232	-107	7,316	0	0	0
Changes in working capital	-5,809	-2,577	-889	10,011	-2,165	3,634
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
Operating cash flow	2,914	37,848	68,674	26,268	24,583	16,734
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
Free cash flow	-63,184	-13,927	2,466	-20,437	21,583	13,734
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
Investing cash flow	-38,791	-51,265	-28,268	-46,705	-3,000	-3,000
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
Financing cash flow	11,516	24,735	-28,626	42,071	8,900	-16,700
Other	-19,175	-9,709	18,511	-15,496	-33,400	0
Change in cash and equivalents	-43,536	1,609	30,291	6,137	-2,917	-2,966
FX/consolidation effects	585	0	0	0	0	0
Cash and cash equivalents, start of the year	71,041	28,090	29,699	59,990	66,127	63,210
Cash and cash equivalents, end of the year	28,090	29,699	59,990	66,127	63,210	60,244
EBITDA/share (in €)	1.26	7.14	19.35	4.49	6.52	3.57
Y-Y Growth						
Operating cash flow	144.1%	1198.8%	81.4%	-61.8%	-6.4%	-31.9%
Free cash flow	n.m.	n.m.	n.m.	n.m.	n.m.	-36.4%
EBITDA/share	29.9%	466.8%	171.1%	-76.8%	45.4%	-45.3%



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
229	\downarrow	↓	\downarrow	↓
30	19 March 2019	€18.40	Buy	€23.80
31	14 May 2019	€17.20	Buy	€23.00
32	30 September 2019	€13.85	Buy	€18.10
33	Today	€6.66	Buy	€8.70

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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 [VVpHG], 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 is 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 Current market capitalisation (in €)			2
		0 - 2 billion	> 2 billion
Strong Buy ¹	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%

¹ 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 $\le 0 - \le 2$ billion, and Category 2 companies have a market capitalisation of $> \le 2$ 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

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

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