



Casting of the skin

Containing gems like bdtronic, the core business of MAX Automation SE is in good shape and we assume a 56% growth FY 18-21e of comparable EBITDA. Non-core business is an end with terror as the closure of businesses brought massive losses in 2019 and we see some spill-over into 2020. But we estimate a jump back to a EUR 13m group net profit in FY 20e after a net loss of EUR 37m for FY 19e. Net debt likely peaked in Q3 2019 on cash generation from the core business and asset liquidation. Following a change of analyst coverage, we raise our FY 20e core EBITDA estimates by 29%. We rate the stock a Buy with a TP of EUR 7.00, up from EUR 6.10.

Hidden gems of the core business unveiled

MAX' new organization shed some light on gems hidden in the general industrial portfolio. With bdtronic and MA micro automation MAX owns companies with strong market positions, strong growth perspectives and EBITDA margins we estimate around 20%.

Non-core business – better a terrible end than unending terror

In September 2018 the company decided to exit its automotive prone engineering business. The process is nearing an end as the IWM businesses will be closed, the Max Shanghai contract ended, leaving only Elwema unsolved. While we still estimate EBITDA losses of EUR 37m for FY 19, these should drop to EUR 7m in 2020 already.

Returning to sizable net profit by FY 21e

With DOP losses cut going forward and core EBITDA growing 56% from FY 18-21e, net income margin in FY 21e is estimated at 5.0% again. We rate the stock a Buy, raise our EBITDA 29% for FY 20e respectively and lift TP from EUR 6.10 to EUR 7.00

EURm	2017	2018	2019e	2020e	2021e
Revenues	376	277	407	402	373
EBITDA	29	24	(4)	28	38
EBIT	20	12	(29)	20	29
EPS	0.51	(1.05)	(1.27)	0.45	0.65
EPS adj	0.54	(0.92)	(0.23)	0.63	0.65
DPS	0.15	-	-	0.15	0.15
EV/EBITDA	9.6	7.6	-	6.9	4.5
EV/EBIT	13.8	14.9	-	10.0	5.9
P/E adj	15.2	-	-	7.6	7.3
P/B	1.64	1.47	2.37	1.94	1.61
ROE (%)	11.3	-	-	20.2	24.2
Div yield (%)	1.8	-	-	3.2	3.2
Net debt	47	46	81	59	33

Source: Pareto

Target price (EUR)	7.0
Share price (EUR)	4.7

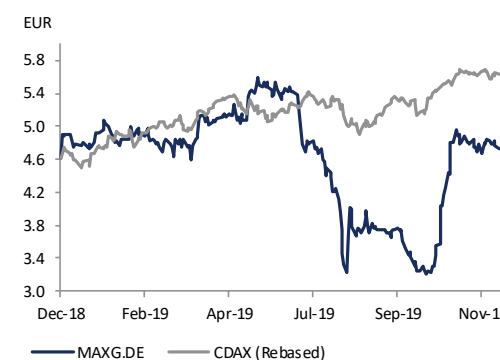
Forecast changes

%	2019e	2020e	2021e
Revenues	41	32	NM
EBITDA	NM	3	NM
EBIT adj	36	38	NM
EPS reported	NM	11	NM
EPS adj	NM	46	NM

Source: Pareto

Ticker	MAXG.DE, MXH GR
Sector	Industrials
Shares fully diluted (m)	29.5
Market cap (EURm)	139
Net debt (EURm)	82
Minority interests (EURm)	-1
Enterprise value 19e (EURm)	220
Free float (%)	44

Performance



Source: Factset

Pareto Securities AS has been paid by the issuer to produce this research report. This material is considered by Pareto Securities to qualify as an acceptable minor non-monetary benefit according to the EU MIFID 2 directive.

Analysts

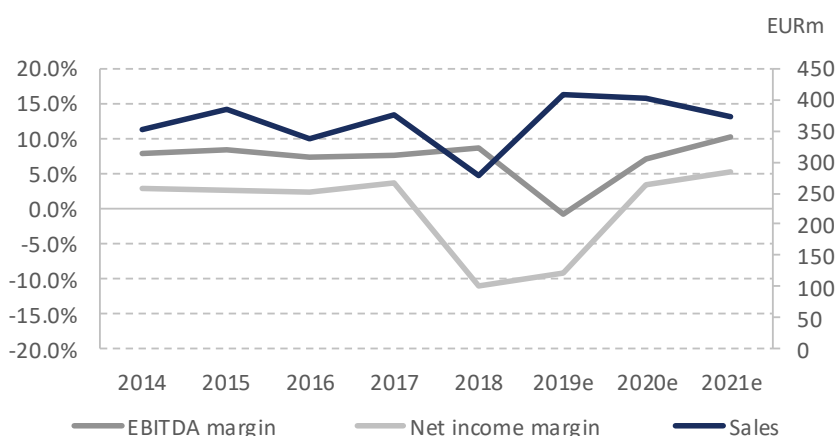
Stefan Augustin
+49 69 58997 430, stefan.augustin@paretosec.com

Investment case

Post transition we see business return to growth and superior net profitability

MAX Automation SE goes through a deep restructuring process which has two dimensions. First, the holding will more actively monitor and govern the operational business and second, roughly a third of the business is viewed as non-core, either to be finally divested or closed down. We see the company well on track to execute on the process and bring the portfolio in a new shape. Our forecast assumes that post the 2019e transition year, MAX will return to a group net profitability >200 bsp above the level 2014-2016 while generating comparative sales, despite the significant business disposals.

MAX Automation SE – development towards profitable growth



Source: Pareto, company data

Core business well on track after 9M

The core businesses, split into the three divisions Process Technologies, Environmental Technologies and Evolving Technologies, posted very solid figures for 9M 2019, growing sales by 17% and expanding core business EBITDA margins by 170 bsp. While this development might be somewhat exaggerated due to valuation effects in Q2, we view the operational development as sound and fully on track to support the company's FY 19 guidance of EBITDA margin above 8.0% for the core business. Book to bill ratio after 9M is below 1x as some larger orders were pushed into Q4 and another large order is expected for the quarter.

MAX Automation SE – Q3/9M 2019 review

MAX Automation SE	Q3 18 reported	Q3 19 reported	YoY	9M 18 reported	9M 19 reported	YoY
Process Technologies	18.7	10.6	-47%	54.9	44.0	-20%
Environmental Technologies	29.0	32.5	30%	88.9	114.6	29%
Evolving Technologies	38.6	23.9	-37%	105.9	77.5	-27%
Group Order intake	86.1	63.1	-18%	249.6	232.2	-7%
Process Technologies	12.9	20.8	29%	37.6	53.0	41%
Environmental Technologies	26.8	28.1	4%	79.3	85.3	8%
Evolving Technologies	25.2	35.5	18%	82.6	95.1	15%
Group Sales	66.7	86.7	9%	200.2	234.9	17%
Process Technologies	2.7	4.3	28%	8.0	11.0	38%
Environmental Technologies	2.6	2.6	8%	7.0	8.9	27%
Evolving Technologies	1.3	4.6	100%	5.1	11.1	118%
Holding/consolidation	0.1	-0.6	-6%	-1.8	-5.6	211%
Core business EBITDA	6.7	10.9	73%	18.3	25.4	39%
<i>Core business EBITDA margin</i>	<i>10.0%</i>	<i>12.6%</i>		<i>9.1%</i>	<i>10.8%</i>	

Source: Pareto

Bleeding from discontinued operations should stop in 2020

Less to cheer about is the non-core business (discontinued operations until 9M 2019), which is mainly exposed to the automotive industry and projects business. The business operates in a troubled environment as the insolvency of Eisenmann or the restructuring of KUKA's systems business and further profit warnings show. Losses of EUR 40m (disclosed EBITDA level) in 2018 were taken and we expect this to continue in 2019 with EBITDA losses of EUR -37m and an impact of EUR ~-50m at net income level.

The silver lining on the horizon is that most of the activities of discontinued operations will be phased out or otherwise terminated by the end of 2020. While this is indeed an end with terror, it ensures a cut in losses which we expect in a single digit amount in FY 2020e. However, liquidation of assets could bring change to this assumption.

Against an initial more positive expectation, we expect cash outflow in FY 19e to burden the group by EUR 19m, mostly driven by the non-core business. The run down of the non-core business should be cash generative in FY 2020e.

Net debt should have peaked in Q3 2019e

At the end of Q3 net debt stood at EUR 88m (ex EUR16m liabilities from IFRS 16). As we expect Q4 to show a positive FCF, we forecast a decline to EUR 81m by year end. While this is still slightly worse than the prior peak level of 2016, we forecast a further organic deleverage in 2020e.

In a nutshell, we view MAX Automation SE as an asset that is reshaped and leaves a troublesome past behind. Change in management and decision to step out of most of the automotive related business should bring the focus to the sound prospects of the core business. In our view, we near the end of that reshaping, albeit at terrible high costs. Cash flow and debt levels should not be a problem as we assume a positive FCF of EUR~22m and net debt at EUR ~59m at year end FY20e.

In the following, we will have a closer look at the operational entities of the core business and discontinued operations to have a better understanding for the construction of the forecast thereafter.

MAX Automation: a holding with sound core business and some legacy

MAX Automation Se is essentially a holding company with 11 different operational units, which do serve partially different end markets and have individual set ups. To bring a better understanding for its setup, sensitivities to market development as well as risks and opportunities we want to briefly outline the units. Next to the core business, which operates under the three divisions Process Technologies, Environmental Technologies and Evolving Technologies, there is non-core business accounted as discontinued operations. Taking account of its possible near-term impact on profit and the share price, we characterise the operational units of the non-core business as well.

Process Technologies – high margin e-mobility opportunity

Process Technologies, which has bdtronic as operational entity is expected to participate in the growth market of e-mobility while at the same time generates superior EBITDA margins in the range of ~20% due to proprietary technologies.

bdtronic offers complete systems for the automated production of electronics and electric components. Its machines and solutions have key functions in dispensing, vacuum potting, bonding, sealing or coating. Main uses are e.g. for

the production of filters or the impregnation of stators, which are part of an electric drive.

We identify three strategic pillars to support a future profitable growth a) the installed base of 3,500 machines and the aim to grow the service business. b) MAX is actively looking for acquisitions and develops new technologies (e.g. hot riveting) to complete its product offering and c) e-mobility; as next to the impregnation of stators its dispensing technology is used to apply heat transfer paste in battery cells

bdtronic's customer base is broad and includes pioneers of e-mobility, which makes us comfortable that bdtronic will be capable to profit from that structural transition.

Impregnation line for stators



Source: Pareto Securities Research, company data

Adhesive Dispenser



Source: Pareto Securities Research, Festo

Unfortunately, there is only a limited number of listed "peers". Singapur based Micro Mechanics could be called so. More direct competitor like Scheugenpflug (to be acquired by Atlas Copco), Thumm or Plasmatreat are not listed.

Environmental Technologies – going (far) east

Vecoplan, which is the company that represents the division Environmental Technologies, produces plants and machines for shredding and processing raw materials. Its focus is on wood, plastic and recycling.

The offering ranges from mobile shredders to complete plants for e.g. pellet production. Vecoplan has a sizable business within the US, representing around 40% of sales.

Future is in industries with high energy demand like bio ethanol production, food industry or wood processing – by region, promising is Russia, which has around 20% of global wood reserves. The furniture industry moves into the direction as well, e.g. IKEA has opened its biggest factory there. To push its expansion into the Eastern countries, Vecoplan established a Polish subsidiary. China, being the world's largest furniture producer, should be a well of interest.

A main driver for the profitability of Vecoplan is its large installed base of 15-20k machines. Keep in mind that shredders have wearables and are usually designed for continuous operations. Newest products come with remote service capabilities and Vecoplan does push service by digitalization (apps, remote manager, 24/7 offering, documentation) and is one of the spearheads in its industry.

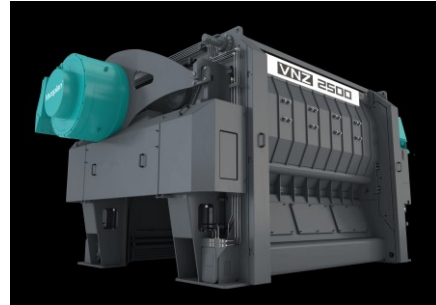
Vecoplan should profit from higher targets for recycling as well as China's efforts to reduce waste imports.

Waste wood processing



Source: Pareto Securities Research, company data

Re-shredder



Source: Pareto Securities Research, company data

The recycling industry is quite fragmented. Metso is a respective competitor in parts of its recycling business. However, Metso's focus is more on mining, which represents 51% of sales while total recycling business represents just 4%. Most other players, like US based BHS or direct European ones as Weima or Lindner are not listed.

Evolving Technologies – hidden gems and less precious stones

The third division, Evolving Technologies, consists of several companies that cover different end markets and customers. In contrast to the suggestive name, not all of them are active at technological frontiers:

MA micro automation (<150 employees) is likely the most interesting and promising company in Evolving Technologies. It should be as well the one with the highest share of revenues. MA micro automation has managed the successful transfer from automotive supplier into the healthcare industry. The business originates from Siemens AG and offers full automated (micro) lines for the production of medical products like medical inhaler, insulin pens or autoinjectors but also driver assistant cameras. Core strength of the company is on high precision and micro assembly with sensors and software being the edge. MA micro automation qualification to GMP guidelines is very supportive to the health-care business.

In 2018 MA micro automation was able to secure contracts from the health-care industry, worth EUR 60m, which reflects est. 50% of annual total division sales. In December MA micro was able to secure a large follow up order, which we estimate around EUR 20m.

Swiss based Mikron is active in the same business but has businesses also outside automation (machine tools).

AIM micro systems (15 employees) is active in field of opto-electric components and processing of semiconductors for customers in the healthcare and sensor industry. The company is often active in the early stage of the development of micro automation lines and thus has a link to MA micro automation.

iNDAT (116 employees) is mainly active in the automotive industry, offering complete production systems (turnkey) and modular systems. The company has a focus on robotic solutions, including collaborative robots and is a solutions partner to Siemens and KUKA.

The business is likely under-pricing pressure with automotive OEMs currently being aggressive. In 2018 MAX Automation SE had to write down goodwill from iNDAT from EUR 7.6m to EUR 3.4m.

Recent profit warning from KUKA and the restructuring of parts of KUKA's systems business points to the fact that the market conditions for iNDAT are quite difficult. Nevertheless, the business seems on budget and wants to tackle new markets in general industries using its knowledge in robotics and automation.

NSM Magnettechnik (213 employees). It operates in two, largely uncorrelated field of business: a) automation of presses for the automotive industry and b) as well as packaging solutions (e.g. automated palletizing) mainly for the food and beverage industry. NSM sold its subsidiary NSM Packtec GmbH (50 employees, packaging of milk products) to Chinese Le Hui. Le Hui is a competitor to Krones in brewery technology. MAX recognized an extra ordinary result of EUR 2.8m from the sales.

Its products range from handling systems for press automation (car industry), presses to packaging and filling of beverages or chemicals.

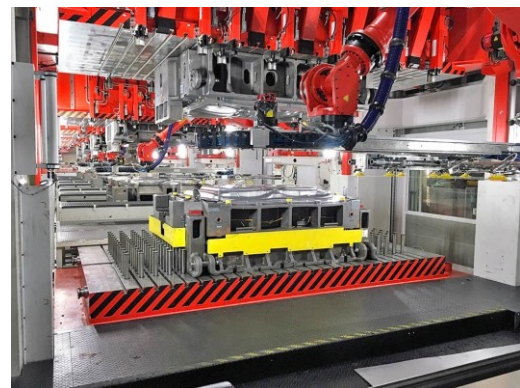
Jücker – Mess und Regeltechnik (92 employees) is mainly suppliers to NSM Magnettechnik. It acts as a systems integrator. Next to NSM's customer segments, Jücker also serves the steel and cement industry.

MA micro automation: microsystem assembly solution



Source: Pareto Securities Research, company data

NSM Magnettechnik - packaging automation - palletizer



Source: Pareto Securities Research, company data

Non-core operations – the troublemakers

Back in September 2018 MAX decided to put most of its automotive related business up for sale and started reporting it as discontinued operations. In 2013 MAX acquired the AIM Group, which consisted of Elwema, RMA Macro Assembly (IWM Bodensee), RMA Micro Assembly (MA Micro Automation) and AIM Micro Systems. Two of the four businesses of the AIM Group are now discontinued operations.

IWM Bodensee is the largest loss maker inside discontinued. It will have accounted for around EUR 30m of losses (EBITDA level) over the past two years due to ill contracts according to management statements. This is despite IWM Bodensee just having 100 employees, compared to 583 in the total discontinued operations. IWM Bodensee offered solutions for automotive production systems. As a result of a weakening business environment, MAX Automation SE management decided to close the business, which will have worked off the last projects by the end of the year 2019.

Weakening business conditions were as well the reason for tipping the scale to closing **IWM Porta Westfalica**, which has roughly 120 employees. IWM automation consists of two plants, one in Porta Westfalica, Germany, and one in Kattowice, Poland. Kattowice acts as a supplier to Porta Westfalica, but also others and will not be closed. Closing Porta Westfalica will not lead to extra closure costs but operational losses due to fade out of the business. Costs are expected in the scope of a lower double-digit amount, moving into FY 2020. On top should be a write down of goodwill in the range of EUR 5-7m. Selling assets from Porta Westfalica could lead to gains, offsetting some of the losses.

In 2018 MAX Automation SE formed a joint venture with JAN Investment Management in China, **MAX Automation Asia Pacific**. The JV then purchased the assets of Cisens Group, formerly owned by JAN Investments. The total investment was in the scope of EUR 12m. In September 2019, MAX decided to terminate the investment agreement with Roger Liuje in China, who was the owner of Cisens Group via JAN Investment. Further MAX considers legal action to the extent of reversing the transaction. However, with place of jurisdiction in China, we view such a venture as enduring with uncertain outcome. Nevertheless, operational losses should be avoided from September onwards but unfortunately in Q3 2019 guarantees and working capital financing agreements were drawn, burdening the financial results (as the stake is treated as a financial investments now) in a scope of close to EUR 10m.

Elwema is the last activity contained in discontinued operations. Elwema is active in cleaning, testing and assembly systems but has a focus on the conventional powertrain, e.g. cylinder heads or crankcases. Elwema has around 200 employees and we would estimate revenues in the range of EUR 50m in FY19e. We would expect the activities of Elwema as well under significant economic pressure.

Q3 again sound core but non-core losses

Q3 saw an ongoing strong performance in sales and EBITDA of the core business, with sales up by 30% and EBITDA up by 63%. Especially Process Technologies and Evolving Technologies contributed to this favourable development.

Q3 order intake on the other side looks light. Notably Process Technologies and Evolving Technologies showed marked declines. However, this is mainly due to projects orders. While Evolving Technologies was able to book a significant order in Q3 2018 an expected follow up order in 2019 was pushed out and booked in December. At Process Technology, the expected major order was booked in November. 9M figures show just a decline of 7% and book to bill is at 1.0x.

While the core business had a strong development in Q3, non-core business expanded its EBITDA loss slightly, but the EUR 7.7m booked in Q3 is already well below the EUR 15.8m recorded in Q2. However, Q3 saw as well the write down of the IWM Porta Westfalica goodwill of EUR 5-7m and a loss around EUR 10m from Max Shanghai, that was recorded in the financial result. At EBT level, non-core business should have caused more than EUR 20m of losses. Thus, the non-core business is the reason why net income in Q3 2019 trails the level yoy, despite the improved performance of the core business.

MAX Automation SE – Q3 2019 review

MAX Automation SE Deviation table (EUR m)	Q3 18 reported	Q3 19 reported	YoY
Process Technologies	18.7	10.6	-43%
Environmental Technologies	29.0	32.5	12%
Evolving Technologies	38.6	23.9	-38%
Non core business	18.2	18.3	0%
Core business order intake	86.1	63.1	-27%
Process Technologies	12.9	20.8	61%
Environmental Technologies	26.8	28.1	5%
Evolving Technologies	25.2	35.5	41%
Non core business	28.5	27.8	-3%
Core business sales	66.7	86.7	30%
Process Technologies	2.7	4.3	59%
Environmental Technologies	2.6	2.6	0%
Evolving Technologies	1.3	4.6	254%
Holding/consolidation	0.1	-0.6	-700%
Core business EBITDA	6.7	10.9	63%
Non core business	-6.4	-7.7	20%
Net income	-10.6	-15.9	50%
ANALYSIS GROUP			
Book-to-bill-ratio (x)	1.29	0.73	
Group EBITDA-margin (%)	10.0%	12.6%	

Source: Pareto, company data

Cash flow of the core business had improved in H1 2019 but was still negative at EUR -15.9m. Q3 saw some improvement leading to a level of EUR -11.8m after 9M 2019, despite the larger orders with significant advance payments not materializing. However, the non-business recorded a massive cash drain of EUR 26m.

Constructing the forecast – P&L by division

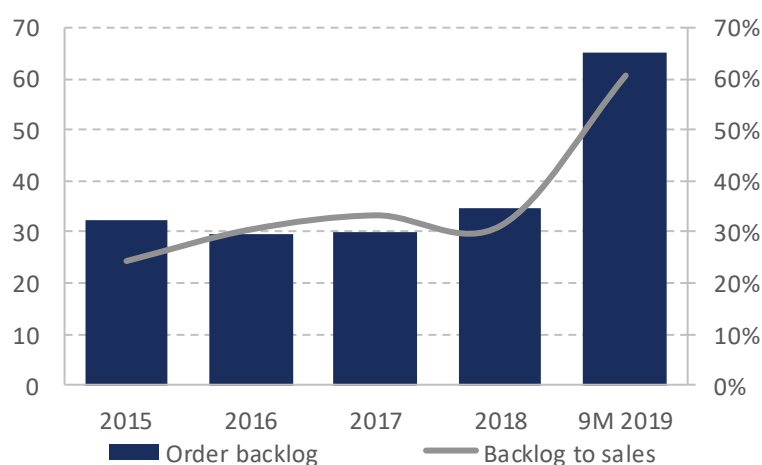
Environmental – return to double digit margins on backlog supported growth

The Environmental Technologies division should be well positioned to climb back to 2015 sales levels. The product line-up is overhauled and the division's products should see continued demand from customers. E.g. the fact that the EU has ambitious recycling targets (a 55% for plastics, 65% for municipals and 75% for packaging) and the Chinese National Sword initiative from 2017 to reduce foreign waste import should support demand for Vecoplan's products.

Frost & Sullivan estimates investment needs for US material recovery factories to grow by 6.6% from 2017-2024. Another theme that should support future demand is automation. Paper/Wood shredders have a very low automation degree so far and thus respective upgrade potential. Here Frost & Sullivan estimates a CAGR of 7.2% in the EU. The huge installed base and respective development of service business should be another driver to the topline of Vecoplan.

Order backlog of Environmental Technologies has nearly doubled by 9M 2019 as a result of strong market demand and the appealing product portfolio. Strongest growth came from US and Asia. This should place the division in the position to expand revenues significantly in FY 18 to FY21e.

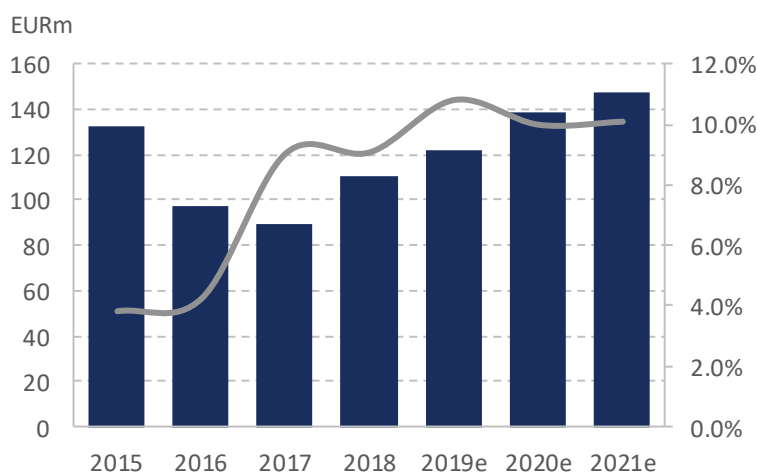
Environmental Technologies – backlog up on strong Asian and US business



Source: Pareto, company data

The higher factory load as a result of the expanding topline as well as a continued strong service business is the basis for our expectation that EBITDA-margin should be stable around the level of 10%. While we assume that the main profit contributor is the service business, we estimate that an operating leverage of 10% for the machinery and project part is achievable.

Environmental Technologies - sales and EBITDA margin development



Source: Pareto, company data

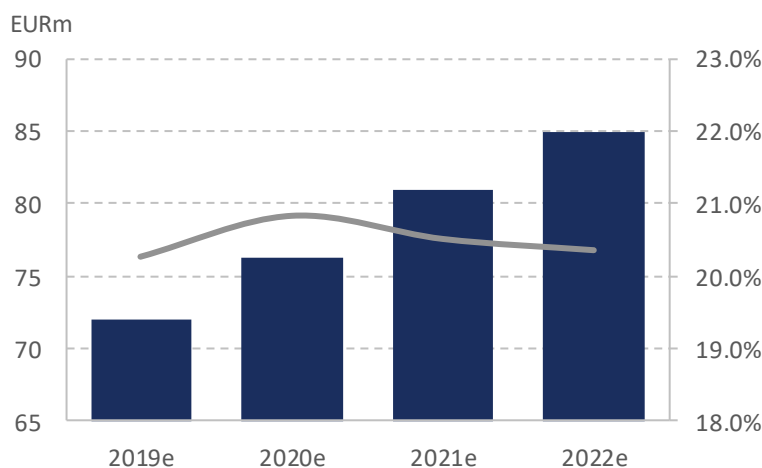
Process Technologies – healthy growth at stable margins

We see bdtronic well placed to profit from the transition to e-mobility. The fact that bdtronic has several business fields to participate in market e.g. impregnating stators or dispensing technology for battery production, gives us confidence that it can generate positive revenue growth rates over the next years. In addition, the company has a broad customer base and calls the leading EV-producers its customers as well.

We estimate a CAGR of c. 6% for the period 2019e-2022e. This might be conservative, but order intake can be volatile and we want to be conservative with our expectations for future car demand. Smaller bolt on acquisitions like RCM Reatina in 2018 could bring a further acceleration to revenue growth but we did not include these in our forecast.

Thanks to its strong technology position, like patented technology for impregnating stators, we believe that bdtronic will be able to largely defend its superior EBITDA margins around 20%.

Process Technologies - sales and EBITDA margin development



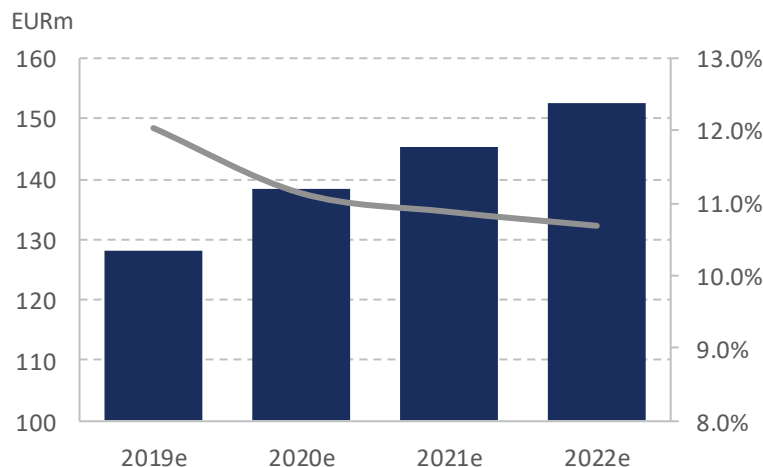
Source: Pareto

Evolving Technologies – growth at MA micro but possible weakness at iNDAT

Evolving Technologies is a bit mixed bag to us. We regard business prospects for MA micro automation as very positive given the large contract the company had acquired in 2018 (volume EUR 33m). A follow up contract is currently negotiated and a tranche we estimate around EUR 20m was booked in December. To the contrast, iNDAT seems more connected to general capex trends in the automotive industry, which is currently under pressure in our view. Most recently, Indus Holding had warned for this area as well. The weakness in automotive is on the other hand a further push for the company to develop more opportunities in the area of automation in general industries. NSM (and as a sub supplier Jücker) do as well have an exposure to the automotive industry (tooling, presses) and should therefore be partially exposed. However, the press business is not dependent on the powertrain of the car. Nevertheless, general constrains on capex spending should be felt. On the other hand, demand for the packaging business should still be supportive as Kronos, which is also active in the dry part of beverage filling, reports about continued good demand.

We assume a 6% revenue CAGR from 2019e-2022e due to a strong contribution by MA micro automation. However, we forecast the EBITDA margin to slightly decline. The strong development of MA micro automation with, in our view clear over-proportional margins, should be subdued by a more difficult development from iNDAT and partially NSM. iNDAT had to write down some goodwill in FY 2018, which is as well a clear signal that the current environment is still challenging. Nevertheless, we forecast EBITDA margin in the range of 10%.

Evolving Technologies - sales and EBITDA margin development



Source: Pareto

Non-core business – some spill over into 2020 but the end in sight

We assume that the non-core business will post high losses for 2019e again. We estimate these to be around EUR 37m at EBITDA level, after EUR 40m in 2018. As IWM Bodensee will end operations by year end 2019 the cause for around EUR 30m losses in total is fixed and result include closing costs. The investment agreement for the Asian ventures of Max was terminated as well. Total losses consisting of goodwill write-down and the termination of a financial agreement were booked by Q3 2019. In turn there is only a minor amount to be expected for advisors as Max will try to get compensation from its former business partner.

For the remaining business, management expects in 2020e to be at around break even at operational EBITDA level and as well as with respect to free cash flow. However, this statement was before the announcements for closing Porta Westfalica and terminating the agreement of MAX Automation Shanghai. We assume now a EUR 7m burden for FY 2020 on the fade out of Porta Westfalica.

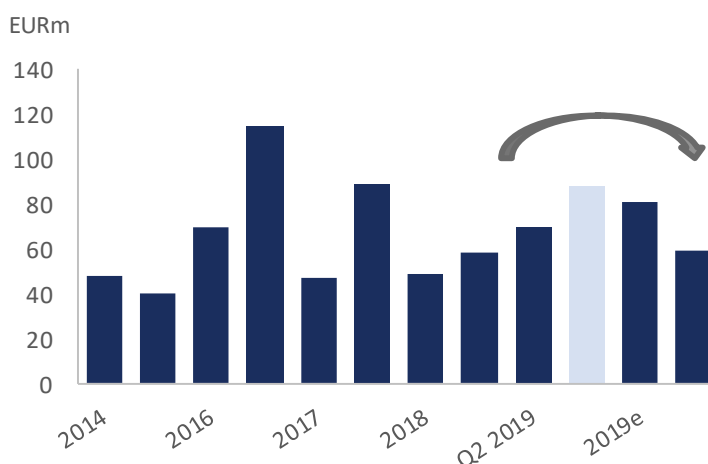
Elwema and the plant in Kattowice should stay with MAX Automation SE for the time being. While the business situation at Elwema is better than at IWM Bodensee or IWM Porta Westfalica, we believe that the business is loss making. Business prospects for new cleaning lines and assembly solution is quite dim, which currently does prolong the selling process for the entity. For Elwema we could even envision a cash out business model with a focus on the service of the installed base. Other parts of the product portfolio show better prospects, e.g. testing equipment or solutions for the e-motors (e.g. for stators where a combined market approach with bdtronic could be possible). For FY 20e we assume a break even and in the end a disposal of the business.

No fear on cash flow and net debt development

At least temporary the market was irritated about the possible impact from the non-core businesses on the financial framework of the company. However, we believe that cash flow and debt levels are not a threat. By the end of Q3, net debt surpassed the level of year end 2016, which was followed by a capital increase in 2017. However, by comparison Q3 2019 net debt is still below the peak of Q2 2017, immediately before capital increase. The chart below shows that net debt has a typical seasonal development with H1 be cash consuming and H2 being highly cash generative.

Management indicates a strong cash generation of the core business in the remaining Q4 2019 driven by expected down payments for larger orders booked and assumed in Q4. Final execution of orders in the non-core business and subsequent assets utilization should further contribute to delivering.

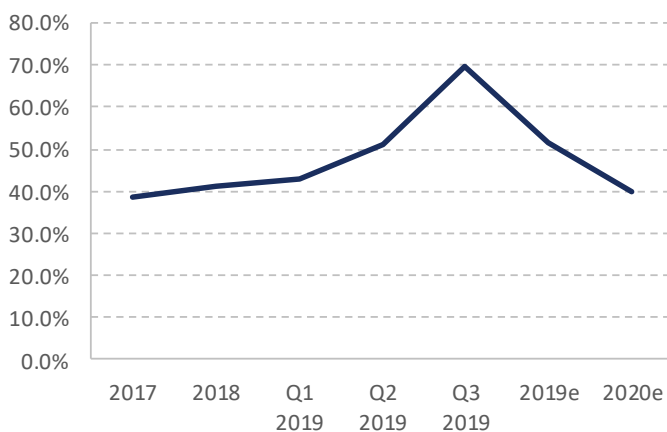
Net debt (incl. non-core business) development 2014- 2020



Source: Pareto, company data

Since 2017 MAX Automation SE has a credit line of EUR 190m in place, which is for cash and guarantees. The chart shows the utilization of this credit line using (projected) gross debt levels. We lack the split of cash line to guarantee volume of the credit line, but expect the headroom as sufficient.

Utilization of credit line

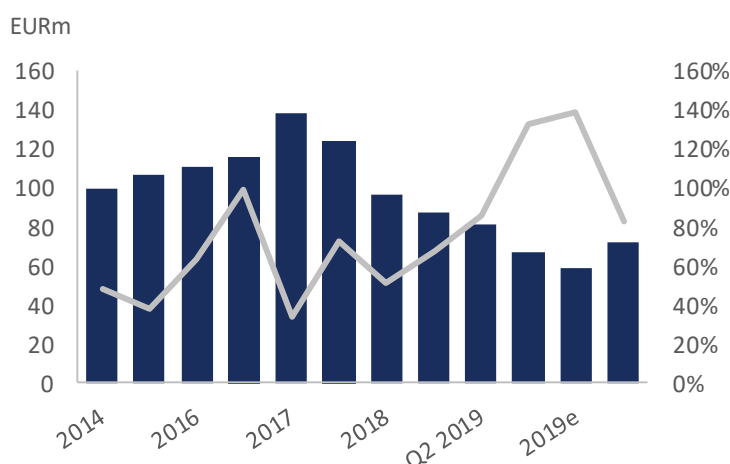


Source: Pareto, company data

Based on LTM EBITDA for the core business, net debt / EBITDA multiple was 2.8x in Q3 2019, a level which would not be a threat. However, things do look somewhat different if one would include DOP losses as the LTM EBITDA would be negative. In our view a threat to covenants to the credit facility stems rather from the equity and gearings side.

We lack details of the credit agreement, but the chart below clearly shows the drag on equity that the development over the past two years had as well as the respective impact on gearing. 2019 should bring the low-point of the development as a) ongoing good operational result of the core business in Q4 b) drag of the non-core business to diminish and c) larger order bookings in Q4 should have a positive impact on advance payments and thus NWC.

Equity and gearing 2014 – 2020e



Source: Pareto, company data

Raising 2020e EBITDA by 29%

Following the change in analyst coverage we make some adaptations to our forecast. However, headline changes to forecasts do not really compare as now the group figures include the non-core business, which was prior reported as discontinued operations.

While our headline forecast drops from a positive EBITDA to a loss on the now included high losses from the non-business. Just looking on the core business, we are significantly more prospective now. For FY 20e we have increased our estimates for sales by 16% and for EBITDA by 29%.

Max Automation SE- changes to our estimates – only core business

	2019e			2020e		
	Old	New	Chg.	Old	New	Chg.
Revenues	288.7	322.0	11.5%	304.6	353.6	16.1%
EBITDA	26.1	33.4	27.8%	27.5	35.4	28.8%
EBITDA - margin	9.1%	10.4%		9.0%	10.0%	
EBIT	17.0	25.6	50.2%	18.7	26.6	42.3%

Source: Pareto

Max Automation SE- changes to our estimates – group total

	2019e			2020e		
	Old	New	Chg.	Old	New	Chg.
Revenues	288.7	407.0	41.0%	304.6	401.6	31.9%
EBITDA	26.1	-3.6	-113.8%	27.5	28.4	3.3%
EBITDA - margin	9.1%	-0.9%		9.0%	7.1%	
EBIT	17.0	-18.9	-210.9%	18.7	19.6	4.9%
Net result adj	11.3	8.1	-28.1%	12.6	18.5	46.3%
EPS	0.36	-1.27	n.m.	0.40	0.45	10.9%

Source: Pareto

Our estimates for the divisions in detail are:

MAX Automation SE forecast 2019-2021e – divisional breakdown

MAX Automation SE	2019e	2020e	2021e	2019	2020	2021
	PAsE			YoY		
Group Order intake	417	406	412	28.0%	-2.5%	1.5%
Process Technologies	72	78	86	20.0%	8.3%	10.3%
Environmental Technologies	148	152	165	27.6%	2.7%	8.6%
Evolving Technologies	139	146	161	15.5%	5.3%	10.3%
Non core business	58	30	0	-29.4%	-48.3%	n.m.
Group Sales	407	402	373	46.7%	-1.3%	-7.0%
Process Technologies	72	76	81	20.0%	6.0%	6.0%
Environmental Technologies	122	139	147	10.3%	14.0%	6.0%
Evolving Technologies	128	138	145	16.4%	8.0%	5.0%
Non core business	85	48	0	-33.4%	-43.5%	n.m.
Group EBITDA	-3.6	28.4	37.7	-115.0%	-889.1%	32.7%
Process Technologies	14.6	15.9	16.6	n.a.	8.9%	4.4%
Environmental Technologies	13.2	13.9	14.9	31.4%	5.4%	7.1%
Evolving Technologies	15.4	15.4	15.8	n.a.	0.0%	2.6%
Non core business	-37.0	-7.0	0.0			
Holding/consolidation	-9.8	-9.8	-9.6	n.m.	0.0%	-2.0%
<i>Core business EBITDA margin</i>	<i>10.4%</i>	<i>10.0%</i>	<i>10.1%</i>			
Group net income	-37.3	13.2	20.5	21.1%	n.m.	55.0%

Source: Pareto

Comparison to consensus forecasts is difficult as the wind down of the non-core business seems not included on the one side and depreciation figures look too high on the other side.

Pareto forecast vs consensus

	2019e			2020e			2021e		
	PAS	Cons.	Delta	PAS	Cons.	Delta	PAS	Cons.	Delta
Revenues	407.0	410.0	-0.7%	401.6	451.0	-10.9%	373.5	496.1	-24.7%
EBITDA	-3.6	-7.8	-53.8%	28.4	35.8	-20.6%	37.7	39.2	-3.9%
EBIT	-18.9	-20.9	-9.6%	19.6	21.0	-6.6%	28.9	22.8	26.7%
Net result	-37.3	-47.7	-21.8%	13.2	11.9	11.0%	19.2	13.1	46.4%
EPS	-1.27	-1.68	-24.6%	0.45	0.42	6.7%	0.65	0.46	41.5%

Source: Pareto, Factset

Target price of EUR 7.00

We stick to our methodology to derive the target price for MAX Automation SE by a combination of a peer group approach and a DCF approach. We use two different peer groups with one consisting of other Germany holding companies and mainly small company holdings and the other consisting of companies that have similarities to the operational businesses of MAX Automation SE. Based on a fair value of EUR 7.92 (25% weight) from the holding peer group, EUR 9.34 (25% weight) from the operational peer group and EUR 7.76 (50% weight) from the DCF model, we set our TP for MAX Automation SE at EUR 7.00 as we round down following the use of a 10% discount which we apply due the negative earnings surprises that appeared winding down the non-core business so far.

MAX Automation SE – Valuation summary

Method	Fair value, EUR	Weight
Discounted Cash flow	7.76	50%
Peer-group multiples	8.63	50%
Fair value per share, EUR	8.19	100%
discount	10%	
Target Price, EUR	7.00	

Source: Pareto, company data

Nevertheless, the approach implies a massive upside potential to the share and consequently have a Buy recommendation on the share with an upside potential near 50%.

MAX Automation SE – holding company peer group I

Company	Price	FX	EV/Sales 2020e	EV/Sales 2021e	EV/EBITDA 2020e	EV/EBITDA 2021e	EV/EBIT 2020e	EV/EBIT 2021e	P/FCF 2020e	P/FCF 2021e	PE 2020e	PE 2021e	PB 2020e	PB 2021e
MAX Automation SE	4.8	EUR	0.48x	0.41x	6.08x	5.19x	10.37x	8.91x	8.60x	7.46x	11.33x	10.35x	2.38x	2.07x
GESCO AG	18.3	EUR	0.57x	0.53x	5.48x	4.84x	10.22x	8.30x	9.00x	8.00x	11.88x	9.77x	0.77x	0.73x
INDUS Holding AG	39.1	EUR	0.86x	0.83x	6.72x	6.08x	10.97x	9.62x	11.60x	16.25x	12.71x	10.88x	1.25x	1.18x
MBB SE	70.3	EUR	0.48x	0.42x	4.69x	3.97x	7.00x	5.77x	45.84x	14.48x	20.60x	18.01x	0.84x	0.80x
MS Industrie AG	2.1	EUR	0.54x	0.50x	6.23x	5.36x	14.80x	13.03x	36.06x	11.69x	13.27x	12.92x	nm	nm
Average			0.61x	0.57x	5.8x	5.1x	10.7x	9.2x	25.6x	12.6x	14.6x	12.9x	1.0x	0.9x
Median			0.56x	0.52x	5.9x	5.1x	10.6x	9.0x	23.8x	13.1x	13.0x	11.9x	0.8x	0.8x
Max			0.86x	0.83x	6.7x	6.1x	14.8x	13.0x	45.8x	16.2x	20.6x	18.0x	1.3x	1.2x
Min			0.48x	0.42x	4.7x	4.0x	7.0x	5.8x	9.0x	8.0x	11.9x	9.8x	0.8x	0.7x

Source: Pareto, Factset

MAX Automation SE – holding company peer group II

Company	Price	FX	EBIT CAGR 3Y forecast	EPS CAGR 3Y forecast	ROIC** 5Y* hist. avg.	ROE 5Y* hist. avg.	EBIT adj. (%) 3Y* hist. avg.	Dividend Yield 2020e
MAX Automation SE	4.8	EUR	5.0%	-175.6%	11.7%	10.6%	6.1%	3.2%
GESCO AG	18.3	EUR	-7.3%	-8.6%	12.3%	8.2%	6.2%	3.0%
INDUS Holding AG	39.1	EUR	1.0%	3.7%	15.3%	12.1%	9.4%	3.8%
MBB SE	70.3	EUR	9.9%	13.6%	nm	11.5%	nm	1.2%
MS Industrie AG	2.1	EUR	-8.1%	-12.0%	10.0%	10.4%	3.6%	5.8%
Average			0.1%	-35.8%	12.3%	10.5%	6.3%	3.4%
Median			1.0%	-8.6%	12.0%	10.6%	6.1%	3.2%
Max			10%	14%	15%	12%	9%	6%
Min			-8.1%	-175.6%	10.0%	8.2%	3.6%	1.2%

Source: Pareto, Factset

To derive the fair value, we use 2020e forecasts and multiples and equal weight PE and EV/EBIT. Using the holdings peer group, fair value amounts to EUR 7.92.

MAX Automation SE – valuation based on holdings peer group

Company	PE 2020e	PE 2021e	EV/EBIT 2020e	EV/EBIT 2021e
GESCO AG	11.9	9.8	10.2	8.3
INDUS Holding AG	12.7	10.9	11.0	9.6
MBB SE	20.6	18.0	7.0	5.8
MS Industrie AG	13.3	12.9	14.8	13.0
Median	13.0	11.9	10.6	9.0
MAX Automation SE	5.9	5.7	5.5	4.3
relative	45.6%	47.9%	52.0%	47.6%
Forecasts Adjusted EPS / Adjusted EBIT	0.63	0.65	27.1	28.9
Forecasts Net debt (incl. pensions)			60.1	33.9
No. Shares at year end	29.5	29.5	29.5	29.5
Fair value per share at peer median	8.1	7.7	7.7	7.6
Fair value / share (av.)	7.92			

Source: Pareto, Factset

The operational peer group is somewhat split into two groups. The one consisting of ATS, IMA and Micro Mechanics is trading on significantly higher multiples and has good performance figures. Their businesses do rather correspond to Process Technologies (bdtronic) or MA micro automation, which we would also estimate to have a similar performance. The rest of the peer group as well as the corresponding MAX Automation SE businesses have somewhat lower multiples.

MAX Automation SE – operational peer group II

Company	Price	FX	EV/Sales 2020e	EV/Sales 2021e	EV/EBITDA 2020e	EV/EBITDA 2021e	EV/EBIT 2020e	EV/EBIT 2021e	P/FCF 2020e	P/FCF 2021e	PE 2020e	PE 2021e	PB 2020e	PB 2021e
MAX Automation SE	4.8	EUR	0.48x	0.41x	6.1x	5.2x	10.4x	8.9x	8.6x	7.5x	11.3x	10.3x	2.4x	2.1x
ANDRITZ AG	36.6	EUR	0.59x	0.55x	6.5x	5.8x	9.6x	8.1x	10.9x	8.8x	11.8x	10.7x	2.7x	2.4x
ATS Automation Tooling Systems	20.0	CAD	1.29x	1.15x	8.5x	7.5x	9.7x	10.3x	12.3x	11.8x	17.5x	16.0x	nm	nm
Durr AG	27.4	EUR	0.57x	0.53x	6.6x	5.9x	8.7x	7.8x	13.3x	11.3x	11.6x	10.5x	1.7x	1.5x
I.M.A. Industria Macchine Automæ	66.8	EUR	1.99x	1.89x	11.1x	10.3x	14.3x	13.2x	19.7x	17.4x	19.8x	18.7x	5.0x	4.9x
Krones AG	63.2	EUR	0.53x	0.49x	7.5x	5.8x	13.6x	9.9x	15.3x	12.1x	17.9x	13.0x	1.3x	1.2x
Metso Oyj	33.7	EUR	1.32x	1.26x	9.1x	8.6x	10.6x	10.0x	15.7x	13.9x	14.6x	13.9x	3.1x	2.8x
Micro-Mechanics (Holdings) Ltd	1.8	SGD	3.79x	3.71x	9.8x	9.3x	13.1x	12.2x	nm	nm	17.9x	16.7x	4.4x	4.4x
Average			1.32x	1.25x	8.1x	7.3x	11.3x	10.1x	13.7x	11.8x	15.3x	13.7x	2.9x	2.8x
Median			0.94x	0.85x	8.0x	6.7x	10.5x	9.9x	13.3x	11.8x	16.0x	13.4x	2.7x	2.4x
Max			3.79x	3.71x	11.1x	10.3x	14.3x	13.2x	19.7x	17.4x	19.8x	18.7x	5.0x	4.9x
Min			0.48x	0.41x	6.1x	5.2x	8.7x	7.8x	8.6x	7.5x	11.3x	10.3x	1.3x	1.2x

Source: Pareto, Factset

MAX Automation SE – operational peer group II

Company	Price	FX	EBIT CAGR 3Y forecast	EPS CAGR 3Y forecast	ROIC** 5Y* hist. avg.	ROE 5Y* hist. avg.	EBIT adj. (%) 3Y* hist. avg.	Dividend Yield 2020e
MAX Automation SE	4.8	EUR	5.0%	-175.6%	11.7%	10.6%	6.1%	3.2%
ANDRITZ AG	36.6	EUR	10.3%	8.9%	20.8%	21.0%	6.4%	4.0%
ATS Automation Tooling Systems	20.0	CAD	4.7%	8.3%	13.2%	6.9%	11.4%	nm
Durr AG	27.4	EUR	-0.1%	4.9%	22.1%	23.0%	7.6%	3.2%
I.M.A. Industria Macchine Automæ	66.8	EUR	5.9%	9.7%	35.3%	42.7%	13.1%	3.3%
Krones AG	63.2	EUR	-3.5%	0.6%	19.1%	13.9%	6.5%	1.8%
Metso Oyj	33.7	EUR	15.1%	16.7%	16.1%	16.4%	10.0%	3.8%
Micro-Mechanics (Holdings) Ltd	1.8	SGD	-3.4%	-3.7%	nm	25.9%	nm	5.4%
Average			4.1%	6.5%	21.1%	21.4%	9.2%	3.6%
Median			4.7%	8.3%	19.9%	21.0%	8.8%	3.5%
Max			15%	17%	35%	43%	13%	5%
Min			-3.5%	-3.7%	13.2%	6.9%	6.4%	1.8%

Source: Pareto, Factset

Likewise, we calculate the fair value of using equal weighted PE and EV/EBIT based on FY 20e forecasts. The operational peer group approach results in a fair value of EUR 9.34.

MAX Automation SE – peer group model

Company	PE 2020e	PE 2021e	EV/EBIT 2020e	EV/EBIT 2021e
ANDRITZ AG	11.8	10.7	9.6	8.1
ATS Automation Tooling Systems Inc.	17.5	16.0	9.7	10.3
Durr AG	11.6	10.5	8.7	7.8
I.M.A. Industria Macchine Automatiche S.p.A.	19.8	18.7	14.3	13.2
Krones AG	17.9	13.0	13.6	9.9
Metso Oyj	14.6	13.9	10.6	10.0
Micro-Mechanics (Holdings) Ltd	17.9	16.7	13.1	12.2
Median	17.5	13.9	10.6	10.0
MAX Automation SE (adj.)	13.5	5.9	7.0	5.5
relative	76.9%	42.7%	66.4%	55.4%
Forecasts Adjusted EPS / Adjusted EBIT	0.63	0.65	27.1	28.9
Forecasts Net debt (incl. pensions)			60.1	33.9
No. Shares at year end	29.46	29.46	29.46	29.46
Fair value per share at peer median, EUR	10.96	9.02	7.71	8.61
Fair value / share (av.), EUR	9.34			

Source: Pareto

Next to the peer multiple approaches we look at a DCF model. We exclude IFRS 16 depreciation and corresponding liabilities. Our WACC stands at 7.97%.

MAX Automation SE – DCF model

EUR m	Phase I					Phase II					Phase III		
	2019e	2020e	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e			
Revenues	407.0	401.6	373.5	390.6	406.2	421.0	435.0	448.0	459.9	470.6			
growth rate	46.7%	-1.3%	-7.0%	4.6%	4.0%	3.6%	3.3%	3.0%	2.7%	2.3%			
EBIT	-18.9	19.6	28.9	30.7	31.6	31.7	31.6	31.4	31.1	30.6			
EBIT margin	-4.6%	4.9%	7.7%	7.9%	7.8%	7.5%	7.3%	7.0%	6.8%	6.5%			
Tax	-4.7	-5.9	-8.7	-9.2	-9.5	-9.5	-9.5	-9.4	-9.3	-9.2			
Tax rate	-25%	30%	30%	30%	30%	30%	30%	30%	30%	30%			
Depr. & Amort. (ex IFRS 16)	15.3	8.8	8.8	8.7	8.8	9.7	10.3	10.7	11.1	11.4			
% of sales	3.8%	2.2%	2.4%	2.2%	2.2%	2.3%	2.4%	2.4%	2.4%	2.4%			
Capex	-9.8	-11.5	-10.7	-10.6	-10.3	-10.7	-11.1	-11.4	-11.7	-12.0			
% of sales	2.4%	2.9%	2.9%	2.7%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%			
Change in WC & P	20.0	13.0	13.5	-1.7	-3.3	-3.4	-3.5	-3.6	-3.7	-3.8			
% of sales	-4.9%	-3.2%	-3.6%	0.4%	0.8%	0.8%	0.8%	0.8%	0.8%	0.8%			
Free Cash Flow	1.9	24.0	31.8	17.9	17.3	17.7	17.8	17.7	17.4	17.1	291.5		
growth rate	nm	nm	32.7%	-43.8%	-3.2%	2.4%	0.5%	-0.7%	-16%	-2.1%	2.0%		
Present Value FCF	1.9	22.1	27.2	14.1	12.7	12.0	11.2	10.3	9.4	8.5	145.5		
PV Phase I		78.0				Risk free rate	3.50%		Targ. equity ratio	80%			
PV Phase II		51.4				Premium Equity	5.00%		Beta	1.1			
PV Phase III		145.5				Premium Debt	2.00%		WACC	7.97%			
Enterprise value		275.0				Sensitivity			Growth in phase III				
- Net Debt (Cash)		46.0							1.0%	1.5%	2.0%	2.5%	3.0%
- Pension Provisions		1.0				7.17%	8.0	8.5	9.0	9.7	10.6		
- Minorities & Peripherals		-0.5				7.57%	7.5	7.9	8.4	8.9	9.6		
+ MV of financial assets						WACC	7.97%	7.0	7.4	7.8	8.2	8.8	
- Paid-out dividends for last FY		0.0				8.37%	6.6	6.9	7.2	7.6	8.1		
+/- Other EV items						8.77%	6.2	6.5	6.8	7.1	7.5		
Equity value		228.5											
Number of shares		29.5											
Value per share (€)		7.76											

Source: Pareto

PROFIT & LOSS (fiscal year) (EURm)	2014	2015	2016	2017	2018	2019e	2020e	2021e
Revenues	351	384	337	376	277	407	402	373
EBITDA	28	32	24	29	24	(4)	28	38
Depreciation & amortisation	(10)	(12)	(12)	(9)	(10)	(15)	(9)	(9)
EBIT	18	20	12	20	12	(29)	20	29
Net interest	(4)	(4)	(3)	(3)	(3)	(2)	(3)	(2)
Other financial items	-	-	-	-	-	-	-	-
Profit before taxes	14	16	10	17	10	(31)	17	27
Taxes	(4)	(6)	(1)	(3)	2	(8)	(5)	(8)
Minority interest	-	-	(0)	(0)	5	1	1	-
Net profit	10	10	8	14	(31)	(37)	13	19
EPS reported	0.37	0.38	0.31	0.51	(1.05)	(1.27)	0.45	0.65
EPS adjusted	0.47	0.52	0.44	0.54	(0.92)	(0.23)	0.63	0.65
DPS	0.15	0.15	0.15	0.15	-	-	0.15	0.15
BALANCE SHEET (EURm)	2014	2015	2016	2017	2018	2019e	2020e	2021e
Tangible non current assets	39	33	32	32	25	29	32	34
Other non-current assets	72	85	79	80	63	66	66	67
Other current assets	132	144	173	186	245	225	204	204
Cash & equivalents	52	21	23	26	32	17	39	65
Total assets	295	283	306	323	364	337	341	369
Total equity	100	107	111	139	92	57	69	84
Interest-bearing non-current debt	100	61	93	73	78	98	98	98
Interest-bearing current debt	-	-	-	-	-	-	-	-
Other Debt	94	114	101	110	194	181	173	186
Total liabilities & equity	295	283	306	323	364	337	341	369
CASH FLOW (EURm)	2014	2015	2016	2017	2018	2019e	2020e	2021e
Cash earnings	3	41	(0)	26	(59)	(46)	21	28
Change in working capital	15	(7)	(16)	(7)	80	20	13	14
Cash flow from investments	(2)	(16)	(9)	(7)	(13)	(10)	(12)	(11)
Cash flow from financing	10	(50)	26	(8)	0	20	-	(4)
Net cash flow	26	(31)	2	3	7	(15)	22	26
CAPITALIZATION & VALUATION (EURm)	2014	2015	2016	2017	2018	2019e	2020e	2021e
Share price (EUR end)	4.14	5.6	5.6	8.1	4.80	4.73	4.73	4.73
Number of shares end period	27	27	27	28	29	29	29	29
Net interest bearing debt	48	40	70	47	46	81	59	33
Enterprise value	160	191	221	276	184	220	197	171
EV/Sales	0.5	0.5	0.7	0.7	0.7	0.5	0.5	0.5
EV/EBITDA	5.7	6.0	9.1	9.6	7.6	-	6.9	4.5
EV/EBIT	8.9	9.6	17.9	13.8	14.9	-	10.0	5.9
P/E reported	11.1	14.7	18.0	16.1	-	-	10.6	7.3
P/E adjusted	8.7	10.8	12.7	15.2	-	-	7.6	7.3
P/B	1.1	1.4	1.4	1.6	1.5	2.4	1.9	1.6
FINANCIAL ANALYSIS & CREDIT METRICS	2014	2015	2016	2017	2018	2019e	2020e	2021e
ROE adjusted (%)	13.0	13.4	10.8	12.0	-	-	29.2	25.0
Dividend yield (%)	3.6	2.7	2.7	1.8	-	-	3.2	3.2
EBITDA margin (%)	8.0	8.3	7.2	7.7	8.7	-	7.1	10.1
EBIT margin (%)	5.1	5.2	3.7	5.3	4.4	-	4.9	7.7
NIBD/EBITDA	1.72	1.25	2.86	1.63	1.91	(22.58)	2.08	0.87
EBITDA/Net interest	7.35	8.78	8.56	9.75	8.93	-	10.93	25.13

Disclaimer and legal disclosures

Origin of the publication or report

This publication or report originates from Pareto Securities AS ("Pareto Securities"), reg. no. 956 632 374 (Norway), Pareto Securities AB, reg. no. 556206-8956 (Sweden) or Pareto Securities Limited, reg. no. 3994976, (United Kingdom) (together the Group Companies or the "Pareto Securities Group") acting through their common unit Pareto Securities Research. The Group Companies are supervised by the Financial Supervisory Authority of their respective home countries.

Content of the publication or report

This publication or report has been prepared solely by Pareto Securities Research.

Opinions or suggestions from Pareto Securities Research may deviate from recommendations or opinions presented by other departments or companies in the Pareto Securities Group. The reason may typically be the result of differing time horizons, methodologies, contexts or other factors.

Sponsored research

Please note that if this report is labelled as "sponsored research" on the front page, Pareto Securities has entered into an agreement with the company about the preparation of research reports and receives compensation from the company for this service. Sponsored research is prepared by the Research Department of Pareto Securities without any instruction rights by the company. Sponsored research is however commissioned for and paid by the company and such material is considered by Pareto Securities to qualify as an acceptable minor non-monetary benefit according to the EU MiFID II Directive.

Basis and methods for assessment

Opinions and price targets are based on one or more methods of valuation, for instance cash flow analysis, use of multiples, behavioral technical analyses of underlying market movements in combination with considerations of the market situation and the time horizon. Key assumptions of forecasts, price targets and projections in research cited or reproduced appear in the research material from the named sources. The date of publication appears from the research material cited or reproduced. Opinions and estimates may be updated in subsequent versions of the publication or report, provided that the relevant company/issuer is treated anew in such later versions of the publication or report.

Pareto Securities Research may provide credit research with more specific price targets based on different valuation methods, including the analysis of key credit ratios and other factors describing the securities creditworthiness, peer group analysis of securities with similar creditworthiness and different DCF-valuations. All descriptions of loan agreement structures and loan agreement features are obtained from sources which Pareto Securities Research believes to be reliable, but Pareto Securities Research does not represent or warrant their accuracy. Be aware that investors should go through the specific complete loan agreement before investing in any bonds and not base an investment decision based solely on information contained in this publication or report.

Pareto Securities Research has no fixed schedule for updating publications or reports.

Unless otherwise stated on the first page, the publication or report has not been reviewed by the issuer before dissemination. In instances where all or part of a report is presented to the issuer prior to publication, the purpose is to ensure that facts are correct.

Validity of the publication or report

All opinions and estimates in this publication or report are, regardless of source, given in good faith and may only be valid as of the stated date of this publication or report and are subject to change without notice.

No individual investment or tax advice

The publication or report is intended only to provide general and preliminary information to investors and shall not be construed as the basis for any investment decision. This publication or report has been prepared by Pareto Securities Research as general information for private use of investors to whom the publication or report has been distributed, but it is not intended as a personal recommendation of particular financial instruments or strategies and thus it does not provide individually tailored investment advice, and does not take into account the individual investor's particular financial situation, existing holdings or liabilities, investment knowledge and experience, investment objective and horizon or risk profile and preferences. The investor must particularly ensure the suitability of an investment as regards his/her financial and fiscal situation and investment objectives. The investor bears the risk of losses in connection with an investment.

Before acting on any information in this publication or report, we recommend consulting your financial advisor.

The information contained in this publication or report does not constitute advice on the tax consequences of making any particular investment decision. Each investor shall make his/her own appraisal of the tax and other financial merits of his/her investment.

Sources

This publication or report may be based on or contain information, such as opinions, recommendations, estimates, price targets and valuations which emanate from Pareto Securities Research' analysts or representatives, publicly available information, information from other units or companies in the Group Companies, or other named sources.

To the extent this publication or report is based on or contains information emanating from other sources ("Other Sources") than Pareto Securities Research ("External Information"), Pareto Securities Research has deemed the Other Sources to be reliable but neither the companies in the Pareto Securities Group, others associated or affiliated with said companies nor any other person, guarantee the accuracy, adequacy or completeness of the External Information.

Ratings

Equity ratings:	"Buy"	Pareto Securities Research expects this financial instrument's total return to exceed 10% over the next 12 months
	"Hold"	Pareto Securities Research expects this financial instrument's total return to be between -10% and 10% over the next 12 months
	"Sell"	Pareto Securities Research expects this financial instrument's total return to be negative by more than 10% over the next 12 months

Analysts Certification

The research analyst(s) whose name(s) appear on research reports prepared by Pareto Securities Research certify that: (i) all of the views expressed in the research report accurately reflect their personal views about the subject security or issuer, and (ii) no part of the research analysts' compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the research analysts in research reports that are prepared by Pareto Securities Research.

The research analysts whose names appears on research reports prepared by Pareto Securities Research received compensation that is based upon various factors including Pareto Securities' total revenues, a portion of which are generated by Pareto Securities' investment banking activities.

Limitation of liability

Pareto Securities Group or other associated and affiliated companies assume no liability as regards to any investment, divestment or retention decision taken by the investor on the basis of this publication or report. In no event will entities of the Pareto Securities Group or other associated and affiliated companies be liable for direct, indirect or incidental, special or consequential damages resulting from the information in this publication or report.

Neither the information nor any opinion which may be expressed herein constitutes a solicitation by Pareto Securities Research of purchase or sale of any securities nor does it constitute a solicitation to any person in any jurisdiction where solicitation would be unlawful. All information contained in this research report has been compiled from sources believed to be reliable. However, no representation or warranty, express or implied, is made with respect to the completeness or accuracy of its contents, and it is not to be relied upon as authoritative.

Risk information

The risk of investing in certain financial instruments, including those mentioned in this document, is generally high, as their market value is exposed to a lot of different factors such as the operational and financial conditions of the relevant company, growth prospects, change in interest rates, the economic and political environment, foreign exchange rates, shifts in market sentiments etc. Where an investment or security is denominated in a different currency to the investor's currency of reference, changes in rates of exchange may have an adverse effect on the value, price or income of or from that investment to the investor. Past performance is not a guide to future performance. Estimates of future performance are based on assumptions that may not be realized. When investing in individual shares, the investor may lose all or part of the investments.

Conflicts of interest

Companies in the Pareto Securities Group, affiliates or staff of companies in the Pareto Securities Group, may perform services for, solicit business from, make a market in, hold long or short positions in, or otherwise be interested in the investments (including derivatives) of any company mentioned in the publication or report. In addition Pareto Securities Group, or affiliates, may from time to time have a broking, advisory or other relationship with a company which is the subject of or referred to in the relevant Research, including acting as that company's official or sponsoring broker and providing investment banking or other financial services. It is the policy of Pareto to seek to act as corporate adviser or broker to some of the companies which are covered by Pareto Securities Research. Accordingly companies covered in any Research may be the subject of marketing initiatives by the Investment Banking Department.

To limit possible conflicts of interest and counter the abuse of inside knowledge, the analysts of Pareto Securities Research are subject to internal rules on sound ethical conduct, the management of inside information, handling of unpublished research material, contact with other units of the Group Companies and personal account dealing. The internal rules have been prepared in accordance with applicable legislation and relevant industry standards. The object of the internal rules is for example to ensure that no analyst will abuse or cause others to abuse confidential information. It is the policy of Pareto Securities Research that no link exists between revenues from capital markets activities and individual analyst remuneration. The Group Companies are members of national stockbrokers' associations in each of the countries in which the Group Companies have their head offices. Internal rules have been developed in accordance with recommendations issued by the stockbrokers associations. This material has been prepared following the Pareto Securities Conflict of Interest Policy.

The guidelines in the policy include rules and measures aimed at achieving a sufficient degree of independence between various departments, business areas and sub-business areas within the Pareto Securities Group in order to, as far as possible, avoid conflicts of interest from arising between such departments, business areas and sub-business areas as well as their customers. One purpose of such measures is to restrict the flow of information between certain business areas and sub-business areas within the Pareto Securities Group, where conflicts of interest may arise and to safeguard the impartialness of the employees. For example, the Investment Banking departments and certain other departments included in the Pareto Securities Group are surrounded by arrangements, so-called Chinese Walls, to restrict the flows of sensitive information from such departments. The internal guidelines also include, without limitation, rules aimed at securing the impartialness of, e.g., analysts working in the Pareto Securities Research departments, restrictions with regard to the remuneration paid to such analysts, requirements with respect to the independence of analysts from other departments within the Pareto Securities Group rules concerning contacts with covered companies and rules concerning personal account trading carried out by analysts.

Distribution restriction

The securities referred to in this publication or report may not be eligible for sale in some jurisdictions and persons into whose possession this document comes should inform themselves about and observe any such restrictions. This publication or report is not intended for and must not be distributed to private customers in the US, or retail clients in the United Kingdom, as defined by the Financial Conduct Authority (FCA).

This research is only intended for and may only be distributed to institutional investors in the United States and U.S entities seeking more information about any of the issuers or securities discussed in this report should contact Pareto Securities Inc. at 150 East 52nd Street, New York, NY 10022, Tel. 212 829 4200.

Pareto Securities Inc. is a broker-dealer registered with the U.S. Securities and Exchange Commission and is a member of FINRA & SIPC. U.S. To the extent required by applicable U.S. laws and regulations, Pareto Securities Inc. accepts responsibility for the contents of this publication. Investment products provided by or through Pareto Securities Inc. or Pareto Securities Research are not FDIC insured, may lose value and are not guaranteed by Pareto Securities Inc. or Pareto Securities Research. Investing in non-U.S. securities may entail certain risks. This document does not constitute or form part of any offer for sale or subscription, nor shall it or any part of it form the basis of or be relied on in connection with any contract or commitment whatsoever. The securities of non-U.S. issuers may not be registered with or subject to SEC reporting and other requirements. The information available about non-U.S. companies may be limited, and non-U.S. companies are generally not subject to the same uniform auditing and reporting standards as U.S. companies. Market rules, conventions and practices may differ from U.S. markets, adding to transaction costs or causing delays in the purchase or sale of securities. Securities of some non-U.S. companies may not be as liquid as securities of comparable U.S. companies. Fluctuations in the values of national currencies, as well as the potential for governmental restrictions on currency movements, can significantly erode principal and investment returns.

Pareto Securities Research may have material conflicts of interest related to the production or distribution of this research report which, with regard to Pareto Securities Research, are disclosed herein.

Distribution in Singapore

Pareto Securities Pte Ltd holds a Capital Markets Services License is an exempt financial advisor under Financial Advisers Act, Chapter 110 ("FAA") of Singapore and a subsidiary of Pareto Securities AS.

This report is directed solely to persons who qualify as "accredited investors", "expert investors" and "institutional investors" as defined in section 4A(1) Securities and Futures Act, Chapter 289 ("SFA") of Singapore. This report is intended for general circulation amongst such investors and does not take into account the specific investment objectives, financial situation or particular needs of any particular person. You should seek advice from a financial adviser regarding the suitability of any product referred to in this report, taking into account your specific financial objectives, financial situation or particular needs before making a commitment to purchase any such product. Please contact Pareto Securities Pte Ltd, 16 Collyer Quay, # 2 7-02 Income at Raffles, Singapore 049318, at +65 6408 9800 in matters arising from, or in connection with this report.

Additional provisions on Recommendations distributed in the Canada

Canadian recipients of this research report are advised that this research report is not, and under no circumstances is it to be construed as an offer to sell or a solicitation of or an offer to buy any securities that may be described herein. This research report is not, and under no circumstances is it to be construed as, a prospectus, offering memorandum, advertisement or a public offering in Canada of such securities. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon this research report or the merits of any securities described or discussed herein and any representation to the contrary is an offence. Any securities described or discussed within this research report may only be distributed in Canada in accordance with applicable provincial and territorial securities laws. Any offer or sale in Canada of the securities described or discussed herein will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by a dealer properly registered under applicable securities laws or, alternatively, pursuant to an exemption from the dealer registration requirement in the relevant province or territory of Canada in which such offer or sale is made. Under no circumstances is the information contained herein to be construed as investment advice in any province or territory of Canada nor should it be construed as being tailored to the needs of the recipient. Canadian recipients are advised that Pareto Securities AS, its affiliates and its authorized agents are not responsible for, nor do they accept, any liability whatsoever for any direct or consequential loss arising from any use of this research report or the information contained herein.

Distribution in United Kingdom

This publication is issued for the benefit of persons who qualify as eligible counterparties or professional clients and should be made available only to such persons and is exempt from the restriction on financial promotion in s21 of the Financial Services and Markets Act 2000 in reliance on provision in the FPO.

Copyright

This publication or report may not be mechanically duplicated, photocopied or otherwise reproduced, in full or in part, under applicable copyright laws. Any infringement of Pareto Securities Research's copyright can be pursued legally whereby the infringer will be held liable for any and all losses and expenses incurred by the infringement.

Appendix A

Disclosure requirements pursuant to the Norwegian Securities Trading Regulations section 3-10 (2) and section 3-11 (1), letters a-b

The below list shows companies where Pareto Securities AS - together with affiliated companies and/or persons – own a portion of the shares exceeding 5% of the total share capital in any company where a recommendation has been produced or distributed by Pareto Securities AS.

Companies	No. of shares	Holdings in %	Companies	No. of shares	Holdings in %
Helgeland Sparebank	2,010,630	9.63%	SpareBank 1Østfold Akersl	1,140,010	9.20%
Pareto Bank ASA	13,685,885	19.59%	Sparebanken Vest	4,507,960	7.64%

Pareto Securities AS or its affiliates own as determined in accordance with Section 13(d) of the US Exchange Act, 1% or more of the equity securities of:

Companies	No. of shares	Holdings in %	Companies	No. of shares	Holdings in %
Helgeland Sparebank	2,010,630	9.63%	SpareBank 1Østfold Akersl	1,140,010	9.20%
Pareto Bank ASA	13,685,885	19.59%	Sparebanken Møre	305,239	3.09%
Selvaag Bolig ASA	2,172,147	2.32%	Sparebanken Sør	433,149	2.77%
SpareBank 1BV	1,650,920	2.62%	Sparebanken Vest	4,507,960	7.64%
SpareBank 1Nord-Norge	3,240,880	3.23%	Totens Sparebank	79,246	129%
SpareBank 1SMN	1,878,192	145%			

Pareto Securities AS may hold financial instruments in companies where a recommendation has been produced or distributed by Pareto Securities AS in connection with rendering investment services, including Market Making.

Please find below an overview of material interests in shares held by employees in Pareto Securities AS, in companies where a recommendation has been produced or distributed by Pareto Securities AS. "By material interest" means holdings exceeding a value of NOK 50 000.

Company	Analyst holdings*	Total holdings	Company	Analyst holdings*	Total holdings	Company	Analyst holdings*	Total holdings
AF Gruppen	0	18,475	Høegh LNG	0	3,890	Sandnes Sparebank	0	24,251
Aker	0	1,021	Jæren Sparebank	0	500	Scatec Solar	0	35,675
Aker BP	0	7,829	Komplett Bank	0	106,656	Schibsted ASA B Aksjer	0	453
AKVA Group	0	2,100	Kongsberg Gruppen	0	34,051	Seadrill	0	9,819
Atlantic Sapphire	0	3,805	KWS	75	75	Selvaag Bolig	0	3,000
Avance Gas	0	4,580	Lerøy Seafood	0	4,880	SpareBank 1BV	0	17,700
Axactor	0	8,709	Mowi	0	2,619	SpareBank 1Nord-Norge	0	26,500
BASF	270	270	NORBIT	0	18,864	SpareBank 1Ringerike Hadr	0	500
Bonheur	0	49,085	Nordic Semiconductor	0	6,000	SpareBank 1SMN	0	15,490
BRABank	0	1,371,000	Norsk Hydro	0	96,051	SpareBank 1SR-Bank	0	29,573
DNB	0	31,285	Northern Drilling	0	5,060	Sparebank 1Østfold Akersl	0	450
DNO	0	400,998	Norwegian Air Shuttle	0	40,447	SpareBank 1Østlandet	0	2,891
DNO Bull ETN	0	7,000	Norwegian Energy Compan	0	300	Sparebanken Sør	0	15,840
Entra	0	31,627	Ocean Yield	0	34,967	Sparebanken Vest	0	1,900
Equinor	0	6,431	Odjell Drilling	0	2,244	Sparebanken Øst	0	1,500
Europris	0	14,750	Okeanis Eco Tankers	0	2,228	Stolt-Nielsen	0	41,277
Fjord1	0	51,250	Orkla	0	19,148	Storebrand	0	5,565
Fjordkraft Holding	0	8,000	Panoro Energy	0	6,170	Subsea 7	0	1,162
Flex LNG	0	1,032	Pareto Bank	0	1,196,275	Telenor	0	19,111
Frontline	0	11,730	Pioneer Property	0	2,050	TGS-NOPEC	0	2,000
Gjensidige Forsikring	0	6,712	Protector Forsikring	0	14,385	XXL	0	8,879
Golden Ocean Group	0	1,744	REC Silicon	0	32,776	Yara International	0	13,545
Grieg Seafood	0	970	SalMar	0	280	Zenterio	0	78,865
Helgeland Sparebank	0	4,127						

This overview is updated monthly (last updated 18.11.2019).

*Analyst holdings refer to positions held by the Pareto Securities AS analyst covering the company.

Appendix B

Disclosure requirements pursuant to the Norwegian Securities Trading Regulation § 3-11, letters e-f, ref the Securities Trading Act Section 3-10

Overview over issuers of financial instruments where Pareto Securities AS have prepared or distributed investment recommendation, where Pareto Securities AS have been lead manager/co-lead manager or have rendered publicly known not immaterial investment banking services over the previous 12 months:

2020Bulkers	Genel Energy	Nouveau Monde Graphite
Advanzia Bank	Gfinity Plc	Ocean Yield
African Petroleum	GG. St. Kongensgade 100 og 106	OKEA
Agder Energi	Hafslund E-CO	OkeanisEco Tankers
American Tanker	HKN Energy Ltd	Otiga Group
Andfjord Salmon	Hunter Group ASA	Panoro Energy
APC Forsikringsmæglere A/S	Hörmann Industries	Pareto Bank
BelshipsASA	Ice Group	Petroleum Geo-Services
Bluewater Holding	Jactel AS	PetroTal
BRABank	KlavnessShip Holding	Pioneer Property Group
CentralNic Group	LifeFit	Point ResourcesAS
DNO	Lundin Petroleum	Questerre Energy
Dof Subsea	Magseis	Rødovre Port Holding A/S
Eco Atlantic Oil and Gas	Monobank ASA	Shamaran Petroleum
Euromicron AG	Navig8	Sparebank 1Østlandet
Exmar NV	Navigator Holdings	Stolt Nilsen
Filo Mining Corp	NGEx Resources	TEMPTON Dienstleistungen
Flex LNG	Norbit ASA	Vantage Drilling
Floatel	Norwegian Air Shuttle	

This overview is updated monthly (this overview is for the period 31.10.2018 – 31.10.2019).

Appendix C

Disclosure requirements pursuant to the Norwegian Securities Trading Regulation § 3-11(4)

Distribution of recommendations

Recommendation	% distribution
Buy	62%
Hold	33%
Sell	4%

Distribution of recommendations (transactions*)

Recommendation	% distribution
Buy	84%
Hold	11%
Sell	5%

* Companies under coverage with which Pareto Securities Group has on-going or completed public investment banking services in the previous 12 months

This overview is updated monthly (last updated 18.11.2019).

Appendix D

This section applies to research reports prepared by Pareto Securities AB.

Disclosure of positions in financial instruments

The beneficial holding of the Pareto Group is 1 % or more of the total share capital of the following companies included in Pareto Securities AB's research coverage universe: None

The Pareto Group has material holdings of other financial instruments than shares issued by the following companies included in Pareto Securities AB's research coverage universe: None

Disclosure of assignments and mandates

Overview over issuers of financial instruments where Pareto Securities AB has prepared or distributed investment recommendation, where Pareto Securities AB has been lead manager or co-lead manager or has rendered publicly known not immaterial investment banking services over the previous twelve months:

Azelio	Green Landscaping Holding	Mentice AB	Sedana Medical
Bionvent	IRRAS AB	Pledpharma AB	ShaM aran Petroleum
Climeon	Jetpak Top Holding AB		

Members of the Pareto Group provide market making or other liquidity providing services to the following companies included in Pareto Securities AB's research coverage universe:

ByggPartner i Dalarna Holding	Magnolia Bostad	Sedana Medical	Tethys Oil
Cibus Nordic Real Estate	Saltängen Property Invest	ShaM aran Petroleum	Vostok Emerging Finance
Isofol Medical	SciBase Holding		

Members of the Pareto Group have entered into agreements concerning the inclusion of the company in question in Pareto Securities AB's research coverage universe with the following companies: None

Member of the Pareto Group is providing Business Management services to the following companies:

Bosjö Fastigheter AB	Bråviken Logistik	Halmslätten	Mälårasen
Bonäsudden	Delarka	Logistri	Sydsvenska Hem

Members of the Pareto Group have entered into agreements concerning the inclusion of the company in question in Pareto Securities AB's research coverage universe with the following companies: None
This overview is updated monthly (last updated 09.12.2019).

Appendix E

Disclosure requirements pursuant to the Norwegian Securities Trading Regulation § 3-11, letter d, ref the Securities Trading Act Section 3-10

Designated Sponsor

Pareto Securities acts as a designated sponsor for the following companies, including the provision of bid and ask offers. Therefore, we regularly possess shares of the company in our proprietary trading books. Pareto Securities receives a commission from the company for the provision of the designated sponsor services.

2G Energy *	Gesco *	MAX Automation SE	SCOUT24
Aixtron *	GFT Technologies *	Merkur Bank	Siemens Healthineers AG
Baywa	Gigaset *	MLP *	SM T Scharf AG *
Biotest *	Heidelberg Pharma *	MOBOTIX AG	Surteco Group *
Brenntag	Hypoport AG	OVB Holding AG	Syzygy AG *
CORESTATE Capital Holding S.A.	init	Procredit Holding *	TAKKT AG
Daldrup & Söhne	Intershop Communications AG	PSI SOFTWARE AG *	Vapiano
Demire	ISRA Vision	PWO *	va-Q-tec *
Epigenomics AG*	Leifheit	RIB Software *	Viscom *
Euromicron AG *	Logwin *	S&T AG *	windeln.de
Eyemaxx Real Estate	Manz AG *	Schaltbau Holding AG *	

* The designated sponsor services include a contractually agreed provision of research services.

Appendix F

Disclosure requirements pursuant to the Norwegian Securities Trading Regulation § 3-11, letter g, ref the Securities Trading Act Section 3-10

Sponsored Research

Pareto Securities has entered into an agreement with these companies about the preparation of research reports and—in return—receives compensation.

Adler Modemaerkte	Eyemaxx Real Estate	Intershop Communications AG	OHB SE
Baywa	First Sensor	Leifheit	OVB Holding AG
BB Biotech	Godewind Immobilien AG	MAX Automation SE	Schaltbau Holding AG
B.R.A.I.N.	Hypoport AG	Merkur Bank	Siegfried Holding AG
comdirect	init	MOBOTIX AG	Vapiano
Daldrup & Söhne			

This overview is updated monthly (last updated 18.11.2019).