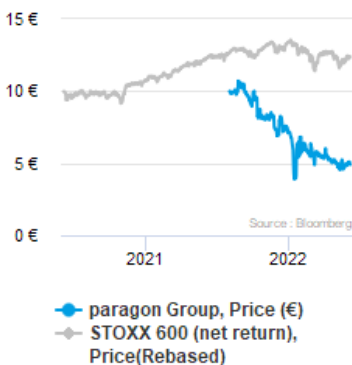


Opinion	Buy
Upside (%)	211
Price (€)	4.9
Target Price (€)	15.2
Bloomberg Code	PGN GY
Market Cap (€M)	33.1
Enterprise Value (€M)	112
Momentum	UNFAVORABLE
Fundamental Strength	0/10
Sustainability	3/10

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paragon Group

German automotive group with a Chinese focus

PROS

- A robust business model, backed by strong relationships with German premium manufacturers
- Increasing internationalisation, notably in China, i.e. the market with the strongest growth in demand for cars
- Virtually no impact of the supply chain crisis, owing to chip storage (which protects against supply bottlenecks) and a diversified product portfolio (risk spreading)

CONS

- Even though paragon is an 84% single source supplier, the appeal of the auto supply industry is undermined by the fact that investors perceive it as a commoditised market
- Tight financial situation, as recent restructuring has only spread out the high debt load for now
- Legal structure (GmbH & Co. KGaA): shareholders depend on the decisions of the Frers family that not only control the fully liable partnership but also 49% of the listed shares

KEY DATA	12/20A	12/21A	12/22E	12/23E	12/24E
Adjusted P/E (x)	-3.72	-13.4	8.84	4.17	3.12
Dividend yield (%)	0.00	0.00	0.00	0.00	0.00
EV/EBITDA(R) (x)	-16.9	7.84	4.50	3.18	2.13
Adjusted EPS (€)	-2.68	-0.66	0.55	1.17	1.57
Growth in EPS (%)	n/a	n/a	n/a	112	33.6
Dividend (€)	0.00	0.00	0.00	0.00	0.00
Sales (€M)	145	147	165	185	206
EBITDA/R margin (%)	-7.23	13.6	15.1	16.5	17.7
Attributable net profit (€M)	-27.8	-11.4	1.13	6.57	11.2
ROE (after tax) (%)	-84.5	-138	4.50	11.5	13.9
Gearing (%)	1,018	3,703	205	97.8	46.5

Baader Europe powered by AlphaValue
paragon Group (Buy)

Detailed financials at the end of this report

Key Ratios

		12/21A	12/22E	12/23E	12/24E
Adjusted P/E	x	-13.4	8.84	4.17	3.12
EV/EBITDA	x	7.84	4.50	3.18	2.13
P/Book	x	12.1	0.71	0.57	0.47
Dividend yield	%	0.00	0.00	0.00	0.00
Free Cash Flow Yield	%	-13.1	35.9	31.8	36.0
ROE (after tax)	%	-138	4.50	11.5	13.9
ROCE	%	1.96	6.55	10.0	13.8
Net debt/EBITDA	x	6.60	3.73	2.34	1.27

Consolidated P&L

		12/21A	12/22E	12/23E	12/24E
Sales	€M	147	165	185	206
EBITDA	€M	20.0	25.0	30.5	36.3
Underlying operating profit	€M	3.30	11.0	16.5	22.3
Operating profit (EBIT)	€M	0.78	8.98	14.5	20.3
Net financial expenses	€M	-6.12	-7.37	-5.07	-4.34
Pre-tax profit before exceptional items	€M	-5.34	1.61	9.39	16.0
Corporate tax	€M	-0.16	-0.48	-2.82	-4.80
Attributable net profit	€M	-11.4	1.13	6.57	11.2
Adjusted attributable net profit	€M	-2.98	3.13	8.57	13.2

Cashflow Statement

		12/21A	12/22E	12/23E	12/24E
Total operating cash flows	€M	18.4	32.5	32.1	36.6
Capital expenditure	€M	-17.5	-13.2	-14.8	-16.5
Total investment flows	€M	4.13	-7.47	-14.8	-16.5
Dividends (parent company)	€M	0.00	0.00	-1.32	-1.32
New shareholders' equity	€M		20.0	10.0	10.0
Total financial flows	€M	-24.4	-4.05	-22.1	4.41
Change in net debt position	€M	15.7	37.7	21.0	24.6
Free cash flow (pre div.)	€M	-5.23	11.9	12.2	15.8

Balance Sheet

		12/21A	12/22E	12/23E	12/24E
Goodwill	€M	21.9	21.9	21.9	21.9
Total intangible	€M	76.4	75.8	76.4	78.4
Tangible fixed assets	€M	20.7	20.5	20.7	21.2
Right-of-use	€M	17.3	16.5	15.6	14.9
WCR	€M	2.96	4.98	2.53	-0.56
Total assets (net of short term liabilities)	€M	126	131	130	130
Ordinary shareholders' equity (group share)	€M	3.30	46.7	67.7	93.4
Provisions for pensions	€M	2.93	2.89	2.77	2.65
Net debt / (cash)	€M	114	76.7	55.7	31.2
Total liabilities and shareholders' equity	€M	126	131	130	130

Per Share Data

		12/21A	12/22E	12/23E	12/24E
Adjusted EPS (bfr goodwill amort. & dil.)	€	-0.66	0.55	1.17	1.57
Net dividend per share	€	0.00	0.00	0.00	0.00
Free cash flow per share	€	-1.15	2.11	1.68	1.88
Book value per share	€	0.73	6.92	8.61	10.4
Number of diluted shares (average)	Mio	4.53	5.64	7.30	8.42

Contents

Businesses & Trends.....	4
Money Making.....	8
Valuation.....	10
DCF.....	12
NAV/SOTP.....	13
Debt.....	14
Worth Knowing.....	15
Sustainability.....	17
Governance & Management.....	18
Environment.....	20
Social.....	21
Staff & Pension matters.....	23
Updates.....	24
Graphics.....	26
Auto Parts Changes and updates.....	30
Auto Parts Story.....	31
Auto Parts Key Data.....	35
<i>Related companies: Faurecia, paragon Group, POLYTEC GROUP, Valeo</i>	
Financials.....	38
Methodology.....	48

Businesses & Trends

paragon GmbH & Co. KGaA is a German automotive company founded in 1988. It develops, produces and distributes solutions in the field of automotive electronics and body kinematics (i.e exterior body parts such as spoilers) to OEMs. With every seventh vehicle equipped with paragon technology globally, it is a well-established company, with a buoyant reputation. The portfolio comprises over 300 products, and its technology is compatible with over 220 vehicle types.

The company's activities are organised around two operating segments: 1/ Electronics (sensors, interiors, digital assistance; c.73% of FY21 revenue) and 2/ Mechanics (kinematics; c.27% of FY21 revenue).

While most of the production is in Europe (80% of the locations and 87% employees), and most direct consumers are located in Europe (European premium OEMs are used to building their highest-end vehicles in their European plants), the end-market has a high exposure to China due to exports (40% of total revenues, including 30% exports from Europe).

R&D focused

As with most of its auto supply peers, paragon is an innovation driver. As such, the group strongly focuses on R&D investments to develop products at the cutting edge of technology (R&D costs at c.14% of sales, well above Valeo's and Hella's respective 6% and 9.5% historical averages). The R&D team attempts to anticipate future trends in the fast-growing automotive electronics and electromobility segments, and design products in accordance.

The main fields of innovation identified by the company are listed below. They are reported through 5 Business Units (Sensors, Interior, Kinematics, Digital Assistance and Power):

Business Units	Sensors	Interior	Kinematics	Digital Assistance	Power
FY21 revenue (in €'000)	45,386	49,196	40,156	11,475	706
Share in %	30,9%	33,5%	27,3%	7,8%	0,5%

source: AlphaValue, paragon Annual Report 2021

#1 Sensors (c.30.9% of FY21 revenues)

The company has significant expertise in sensor development, having worked in this field for more than two decades. The main products include sensors to detect air quality and detect harmful substances inside and outside the vehicle, air quality improvers with the use of filters, and vital data sensors.

In the coming years, three factors are likely to drive growth: 1/ increased pollution and fear of COVID-19 (sensors to monitor air quality); 2/ the European act requiring all car suppliers to install advanced ADAS systems in vehicles by 2022; and 3/ the Chinese market (as the level of air pollution in China is critical).

#2 Interior (c.33.5% of FY21 revenues)

This BU offers products ranging from innovative speakers to microphones and advanced communication systems.

Factors that may have an impact on growth include the rise of electromobility (suppression of motor noise, road noise cancellation systems) and the development of autonomous driving, which will lead people to seek occupations while in the vehicle and more being attention paid to car interiors (i.e. increased demand for high-quality and innovative speakers).

#3 Digital Assistance (c.7.8% of FY21 revenues)

This BU offers AI software to assist the driver during the trip. Obviously, it has huge growth potential, correlated with the development of AI.

paragon semvox, a subsidiary of the group specialised in digital assistance, has developed its own companion-like assistant, called EDWIN, for which they have acquired a trademark. The digital assistant provides the driver and front-seat passenger with proactive tips and advice on all aspects of the vehicle, e.g. helping to find restaurants and charging stations or to arrange appointments while driving. One competitive advantage is that EDWIN is not only a receiver of commands, but can also proactively support the driver with hints and recommendations. paragon semvox has also developed an AI assistance platform called geni:OS. While EDWIN should be seen as car-native like Apple's Siri or Google Assistant, the AI platform targets carmakers aiming to self-develop their own assistants.

#4 Kinematics (c.27.3% of FY21 revenues)

Kinematics products include spoilers, wind deflectors and drives for sunroofs, which reduce combustion engine consumption for ICE and Hybrid vehicles and improve battery range on EVs. It also develops and produces seat components. The company's strong vertical integration in this BU is a differentiator. Cross functional synergies are possible as the team uses the expertise of the Interior BU to develop quiet and smart drives.

#5 Power (newest business unit; c.0.5% of FY21 revenues)

This BU offers Lithium-Ion starter, traction and buffer batteries. paragon notably uses the Flow-Shape Design technology (registered trademark), which has significant potential due to the lighter weight of its batteries, optimal use of installation spaces and significant cost-saving potential. It also provides more benefits to the battery manager by stacking battery modules for a combination of low-voltage and high-voltage, as well as intelligent balancing, resulting in lower weight and greater safety.

The sale of Voltabox AG, a strategic shift

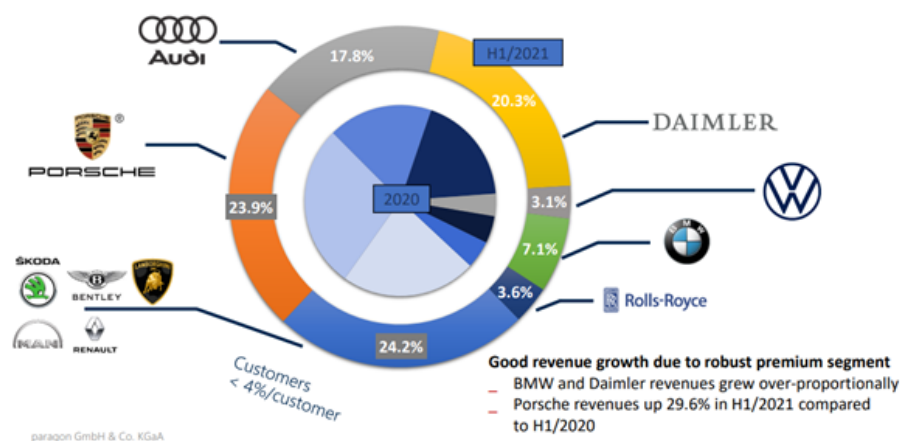
paragon had a third division named 'Electromobility', which consisted of Voltabox AG, a company built from scratch in the mid 2010s, which was partly IPOed in 2017 and then completely sold (except for a remaining <0.01% stake) in 2021.

The subgroup, which was specialised in industrial application (production of lithium-ion battery systems), had accounted for c.12% of FY20 revenue and c.29.5% of FY19 revenue but had a disabling dilutive effect on margins.

paragon announced the sale of Voltabox in March 2020 with the deal closing in November 2021. The sale was good for paragon as Voltabox was not in great shape and its business model was more volatile compared to paragon's core Automotive business.

As of FY21, Voltabox was classified under 'discontinued operations'.

paragon Automotive customer structure



source: paragon presentation, September 2021

The figures remained the same for the entire fiscal year 2021.

In 2021, paragon's client portfolio mainly comprised premium automotive manufacturers (mostly German premium). This is not surprising, as OEMs are focusing on higher-value-added models in the current context.

The group derives around 10% of its annual revenues from Asian clients, including Komatsu, Midea, FAW Jiefang, Changqing, SAIC motor, Guangzhou Aut and Sanoen Hld.

The group expects the share of German OEMs in its client portfolio to decrease from 80% to 60%, non-German European OEMs to increase from 10% to 20% and US OEMs from 5% to 10%.

Increasing internationalisation

paragon and its subsidiaries operate in 10 locations worldwide including 7 in Germany, one in China (for products specially destined for the Chinese market), one in Croatia (for kinematics) and one in India.

As mentioned above, c.40% of group revenues are directly or indirectly generated in China. These break down as follows:

- 5% of sales through direct supply to the Chinese market
- 5% China via CKD unloading points via vehicle imports (mainly premium vehicles: Porsche etc.)
- 30% imported to China via vehicle imports (mainly premium vehicles: Porsche etc.).

Note that, thanks to its exposure to the Chinese market, paragon recovered more quickly from the COVID-19 crisis, and H2 20 was the best semester in the history of the company in terms of revenues.

Aside from China, 46% of revenues are generated in Europe and 14% in the

paragon Group (Buy)

US.

By 2023, the company expects to expand its geographical footprint, with China accounting for 50% of FY23e total revenues, the US for 20%, and Europe being reduced to 30%. It also plans to expand its R&D operations in India and China.

Competition

paragon operates in a highly competitive environment. Its main competitors include:

- For air quality: Hella, AMS
- For hands free microphone: Valeo, AKG
- For instrumentation: Continental, Visteon
- For media: Valeo
- For digital assistance: Cerence, SoundHound

Divisional Breakdown Of Revenues

Sector	12/21A	12/22E	12/23E	12/24E	Change 22E/21		Change 23E/22E		
					€M	of % total	€M	of % total	
Total sales	147	165	185	206	18 ↑	100%	20 ↑	100%	
Electronics	Auto Parts	110	121	133	146	11 ↑	61%	12 ↑	60%
Mechanics	Auto Parts	40.2	49.0	56.3	64.8	9 ↑	49%	7 ↑	37%
Electromobility (discontinued ...)	Auto Parts	0.00	0.00	0.00	0.00	0 ↑	0%	0 ↑	0%
Other		-2.95	-5.00	-5.00	-5.00	-2 ↓	-11%	0 ↑	0%

Key Exposures

	Revenues	Costs	Equity
Dollar	1.0%	0.0%	0.0%
Emerging currencies	0.0%	1.0%	0.0%
Long-term global warming	2.0%	0.0%	0.0%
Long-term interest rates	0.0%	10.0%	10.0%
Renminbi	10.0%	2.0%	0.0%

Sales By Geography

Germany	64.8%
Europe	20.0%
Other	15.0%

We address exposures (eg. how much of the turnover is exposed to the \$) rather than sensitivities (say, how much a 5% move in the \$ affects the bottom line). This is to make comparisons easier and provides useful tools when extracting relevant data.

Actually, the subject is rather complex on the ground. The default position is one of an investor managing in €. An investor in £ will obviously not react to a £ based stock trading party in € as would a € based investor. In addition, certain circumstances can prove difficult to unravel such as for eg. a € based investor confronted to a Swiss company reporting in \$ but with a quote in CHF... Sales exposure is probably straightforward but one has to be careful with deep cyclicals. Costs exposure is a bit less easy to determine (we do not allow for hedges as they can only be postponing the day of reckoning). How much of the equity is exposed to a given subject is rarely straightforward but can be quite telling

In addition, subjects are frequently intertwined. A \$ exposure may encompass all revenues in \$ pegged currencies and an emerging currency exposure is likely to include \$ pegged currencies as well.

Exposure to global warming issues is frequently indirect and may require to stretch a bit imagination.

Money Making

paragon generates most of its revenues through the sale of standardised products produced in-house for automobile manufacturers. In the Digital Assistance unit, revenue is also generated through software license revenues (recurring revenues).

Divisional split

Electronics is the most profitable division (EBITDA margin at 17.4% in FY21) and generates the bulk of revenue (73% of FY21 sales). Mechanics, on the other hand, accounts for only 27% of total revenues and has an EBITDA margin oscillating around 1-2%. Thus, the company's margins are primarily derived from the sale of electronic products. These products include products from the Sensors BU (air quality sensors with AI, electric virus-filter, etc), the Interior BU (microphones, loudspeakers, etc), and the Digital Assistance BU (support systems and AI help).

Better off without Voltabox

Until November 2021, paragon had a third division named 'Electromobility', which consisted of Voltabox AG. It was specialised in industrial application and accounted for 12% of FY20 revenues.

Due to the aggressive R&D costs incurred in developing this segment, its negative EBITDA used to weigh heavily on the group's consolidated accounts. Voltabox sales slumped from €56.6m in FY19 to €17.8m in FY20, and the company was facing liquidity issues: liquid assets stood at €2.3m at end-2020, while the net debt was at €11.5m. This was affecting the group's overall financial situation, with paragon's net debt amounting to €130m at the end of 2020, equivalent to c.90% of its annual revenue.

Voltabox was eventually sold in FY21, a move which significantly improved the group's margins. They returned to positive territory in FY21 and are expected to be above 15% in FY22e, and 20% by FY26e (paragon guidance).

The proceeds of the sale have been used to invest in the core Automotive business (on which the company intends to focus) and to repay debt.

The table below compares paragon's key figures with Voltabox (as reported for FY19 and FY20) and without Voltabox (pro-forma), highlighting the former division's dilutive impact on margins in recent years:

€m	FY19		FY20		FY21
	With Voltabox	Without Voltabox	With Voltabox	Without Voltabox	Without Voltabox
Revenues	192,2	135,9	145,0	127,2	146,9
EBITDA	-8,4	9,2	-10,5	13,8	20,0
EBITDA margin in %	-4,4%	6,8%	-7,2%	10,8%	13,6%
EBIT	-119,9	-15,5	-49,2	-10,6	0,8
EBIT margin in %	-62,4%	-11,4%	-33,9%	-8,4%	0,5%
Free cash flow	-51,7	-26,2	5,9	7,0	-3,8

source: AlphaValue, paragon key financial figures

R&D-driven company

To offer the cutting-edge technologies that characterise paragon, the group invests aggressively in R&D. More than 20% of paragon's workforce works in

paragon Group (Buy)

this field, and the share of R&D costs as a percentage of sales progressively increased from 8.3% in FY11 to 14% in FY21, well above other automotive suppliers such as Hella, Valeo and Continental (c.9-10% of revenues). At the end of the day, this is a viable strategy as the group achieved an EBITDA margin of 13.6% in FY21, so equal to or better than the afore-mentioned peers.

Particularity of the Auto Parts sector

Car component manufacturers operate in a highly competitive environment. They are under price pressure from their clients (i.e. the OEMs, which are themselves under margin pressure) and, albeit to a lesser degree, from their suppliers. As car production volume was down in 2019, paragon's margins dropped sharply from 16% to -4%, and to -7% the following year due to a further production fall in FY20.

Rising costs for microcontrollers, logistics, and materials such as plastic are expected to put pressure on margins in FY21e. In FY22e, despite a sharp increase in energy costs, margins should recover owing to higher prices. However, price hikes negotiated with customers take time show up in the P&L which implies back-end-loaded compensation for the current higher costs.

Production sites

Currently, the group operates in 10 production sites: 7 in Germany, one in China (for products specially destined for the Chinese market), one in Croatia (for kinematics), and one in India (on stream in 2021). So, for the time being, the bulk of production is in Germany although the group also intends to produce in other geographies from 2023 onwards.

Producing in Europe, particularly in Germany, has become prohibitively expensive. This has motivated automotive suppliers to progressively move to other geographies to reduce production costs. However, this is not what is driving paragon to internationalise its production (the group has highly automated electronics production lines – to this extent, labor costs in Germany are not a priority). The goal is to deliver components on the spot to clients' foreign car production plants, which is becoming a requirement in the industry.

Divisional EBITDA/R

	12/21A	12/22E	12/23E	12/24E	Change 22E/21		Change 23E/22E	
					€M	of % total	€M	of % total
Total	20.0	25.0	30.5	36.3	5 +	100%	6 +	100%
Electronics	19.1	24.2	29.3	35.0	5 +	102%	5 +	93%
Mechanics	0.67	0.73	1.13	1.30	0 +	1%	0 +	7%
Electromobility (discontinued operations)	0.00	0.00	0.00	0.00	0 +	0%	0 +	0%
Other/cancellations	0.18	0.00	0.00	0.00	0 -	-4%	0 +	0%

Divisional EBITDA/R margin

	12/21A	12/22E	12/23E	12/24E
Total	13.6%	15.1%	16.5%	17.7%
Electronics	17.4%	20.0%	22.0%	24.0%
Mechanics	1.68%	1.50%	2.00%	2.00%
Electromobility (discontinued operations)				

Valuation

paragon's share price has plummeted since 2018, the year that marked an end to the auto industry's massive boom that lasted for the better part of a decade. This was exacerbated by the group's mounting financial difficulties (low cash generation vs. very high debt), primarily due to its former subsidiary Voltabox (struggling business model in a weak market environment).

We believe that the divestment of Voltabox is a major positive for paragon and should boost the stock price in the mid-term, as the financial performance improves.

Peer group

The peers we select are: Valeo, Hella, Faurecia, and Continental. These peers closely resemble the business of paragon, while bearing their respective market capitalisation sizes in mind. It is also worth highlighting that Continental is something of a UFO; half of its activities are focused on auto parts while the other half concentrates on manufacturing tyres and other rubber-based products. At the end of the day, the company's multiples average somewhere between a Valeo and a Michelin. In all, we decided not to add a premium or discount to paragon's multiples given the fair representativeness of our peer group.

SOTP

Our SOTP valuation is based on an average EV/EBITDA multiple of 8.0x for the leading Electronics division and a multiple of 6.0x for the Mechanics unit. As such, while the first encompasses growth prospects comparable to the latest M&A operations in the industry (including the acquisition of the German Hella by the French Faurecia), the valuation of the second reflects the lower growth potential but the benefit of niche positioning. Unsurprisingly, the key drag on our valuation remains the sky-high debt which accounts for close to 74% of our estimated EV. Therefore, any improvement in the group's financial situation should substantially improve our NAV/SOTP-based target price.

DCF

In our DCF valuation, we use revenue and EBITDA growth rates of 5% and 6%, respectively, which yield a conservative out-year EBITDA margin of 19%, a level paragon aims to exceed by FY26e (guidance: c.20%), and which had already been reached in 2010-11. We expect margins to benefit from: 1/ the disposal of Voltabox, and 2/ increasing optimisation of the cost base triggered by a ramp-up in order volumes. Finally, capex is expected to average c.8% of sales in the coming years. This ratio has historically been higher due to the aggressive spending incurred to develop the – now divested – Electromobility segment, alleviating the pressure on FCF generation.

paragon Group (Buy)

Valuation Summary

Benchmarks		Values (€)	Upside	Weight
DCF		26.8	446%	35%
NAV/SOTP per share		18.4	276%	20%
EV/Ebitda	Peers	5.35	9%	20%
P/E	Peers	7.21	47%	10%
Dividend Yield	Peers	0.00	-100%	10%
P/Book	Peers	7.78	59%	5%
Target Price		15.2	211%	



Calculate your Target Price

Edit and modify weightings
to match your valuation principles

Comparison based valuation

Computed on 18 month forecasts	P/E (x)	Ev/Ebitda (x)	P/Book (x)	Yield(%)
Peers ratios	7.98	3.89	0.99	2.87
paragon Group's ratios	5.42	3.78	0.63	0.00
Premium	0.00%	0.00%	0.00%	0.00%
Default comparison based valuation (€)	7.21	5.35	7.78	0.00
Continental	11.1	4.88	1.06	2.65
Hella	15.3	7.57	3.25	1.60
Valeo	7.54	3.24	1.19	2.58
Faurecia	3.82	3.06	0.66	4.23

paragon Group (Buy)

DCF Valuation Per Share

WACC	%	9.11	Avg net debt (cash) at book value	€M	66.2
PV of cashflow FY1-FY11	€M	112	Provisions	€M	2.89
FY11CF	€M	30.7	Unrecognised actuarial losses (gains)	€M	0.00
Normalised long-term growth "g"	%	2.00	Financial assets at market price	€M	0.20
Sustainability "g"	%	2.05	Minorities interests (fair value)	€M	0.00
Terminal value	€M	435	Equity value	€M	225
PV terminal value	€M	182	Number of shares	Mio	8.42
<i>PV terminal value in % of total value</i>	%	<i>61.8</i>	Implied equity value per share	€	26.8
Total PV	€M	294	Sustainability impact on DCF	%	0.57

Assessing The Cost Of Capital

Synthetic default risk free rate	%	3.50	Company debt spread	bp	500
Target equity risk premium	%	5.00	Marginal Company cost of debt	%	8.50
Tax advantage of debt finance (normalised)	%	30.0	Company beta (leveraged)	x	2.23
Average debt maturity	Year	5	Company gearing at market value	%	224
Sector asset beta	x	1.00 ⁽¹⁾	Company market gearing	%	69.1
Debt beta	x	1.00	Required return on geared equity	%	14.6
Market capitalisation	€M	34.3	Cost of debt	%	5.95
Net debt (cash) at book value	€M	76.7	Cost of ungeared equity	%	8.50
Net debt (cash) at market value	€M	60.1	WACC	%	9.11

1. Technical adjustment to our sector Beta following the methodology change in accounting for the net debt position across all OEMs, excluding the debt related to the financing activity.

DCF Calculation

		12/21A	12/22E	12/23E	12/24E	Growth	12/25E	12/32E
Sales	€M	147	165	185	206	5.00%	216	304
EBITDA	€M	20.0	25.0	30.5	36.3	6.00%	38.5	57.9
<i>EBITDA Margin</i>	%	<i>13.6</i>	<i>15.1</i>	<i>16.5</i>	<i>17.7</i>		<i>17.8</i>	<i>19.0</i>
Change in WCR	€M	-1.25	-2.02	2.45	3.09	5.00%	3.25	4.57
Total operating cash flows (pre tax)	€M	18.6	33.0	34.9	41.4		41.8	62.5
Corporate tax	€M	-0.16	-0.48	-2.82	-4.80	4.00%	-4.99	-6.57
Net tax shield	€M	-1.84	-2.21	-1.52	-1.30	2.00%	-1.33	-1.53
Capital expenditure	€M	-17.5	-13.2	-14.8	-16.5	5.00%	-17.3	-24.3
<i>Capex/Sales</i>	%	<i>-11.9</i>	<i>-8.00</i>	<i>-8.00</i>	<i>-8.00</i>		<i>-8.00</i>	<i>-8.00</i>
Pre financing costs FCF (for DCF purposes)	€M	-0.94	17.0	15.8	18.9		18.2	30.1
Various add backs (incl. R&D, etc.) for DCF purposes	€M				-4.12		-4.33	
Free cash flow adjusted	€M	-0.94	17.0	15.8	14.7		13.8	30.1
Discounted free cash flows	€M	-0.94	17.0	14.5	12.4		10.6	12.6
Invested capital	€	118	118	115	114		115	126

paragon Group (Buy)

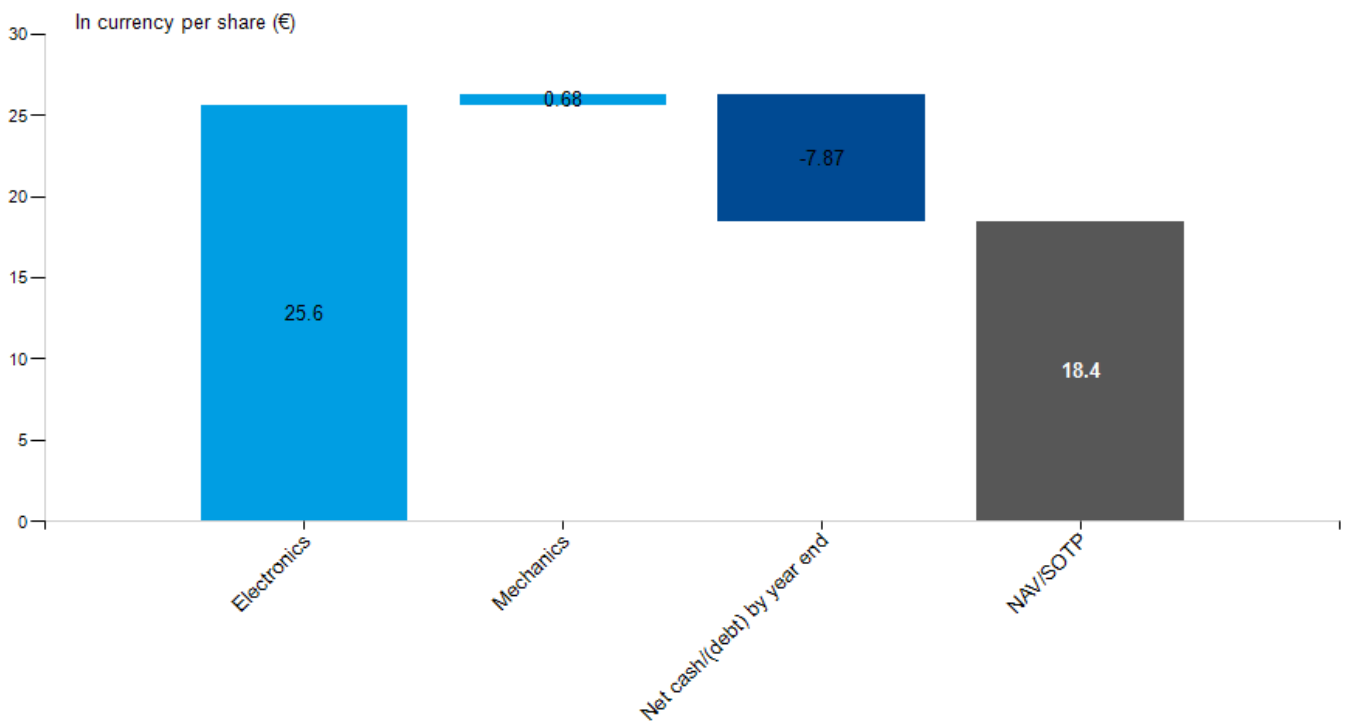


NAV/SOTP fine tuning


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NAV/SOTP Calculation

	% owned	Valuation technique	Multiple used	Valuation at 100% (€M)	Stake valuation (€M)	In currency per share (€)	% of gross assets
Electronics	100%	EV/EBITDA	8	216	216	25.6	97.4%
Mechanics	100%	EV/EBITDA	6	5.75	5.75	0.68	2.60%
Other							
Total gross assets					221	26.3	100%
Net cash/(debt) by year end					-66.2	-7.87	-29.9%
Commitments to pay							
Commitments received							
NAV/SOTP					155	18.4	70.1%
Number of shares net of treasury shares - year end (Mio)					8.42		
NAV/SOTP per share (€)						18.4	
Current discount to NAV/SOTP (%)						73.4	



Debt

paragon was facing severe liquidity issues at end-2020: its net debt amounted to €130m, equivalent to c.90% of its annual revenue, and implying a gearing of 1,018%. Because cash flow from operating activities was unable to cover the company's future financing needs in full, the company was looking for another way to repay its debt, specifically a €50m bond which had been due to mature in July 2022.

In January 2022, paragon announced that it had extended the maturity date on its €50m bond by 5 years, until 5 July 2027, with an increased interest rate from 4.5% to 6.75% paid semi-annually (paid annually previously). In future, this interest rate will gradually decrease depending on the company's targeted reduction in the debt ratio (6.25% if the net debt ratio is < 3.5x). The maturities are as follows: €5m in April 2023, €10m in 2025, €10m in 2026 and €25m in 2027.

paragon also shortened the term of its CHF35m bond to four years (CHF5.25m already repaid; CHF8.75m due in April 2022 and CHF21m in April 2023).

The sale of Voltabox, combined with asset disposals, will help to repay the maturities in FY22e. If FCF in connection with the afore-mentioned divestments is unable to generate sufficient funds, the group is considering a capital increase of €20m to €30m within the next 18 months (which we have incorporated into our conservative projections).

Detailed financials at the end of this report

Funding - Liquidity

		12/21A	12/22E	12/23E	12/24E
EBITDA	€M	20.0	25.0	30.5	36.3
Funds from operations (FFO)	€M	15.0	27.2	24.6	29.3
Ordinary shareholders' equity	€M	3.30 ⁽²⁾	46.7 ⁽³⁾	67.7 ⁽⁴⁾	93.4
Gross debt	€M	116	99.1	73.4	73.4
+ Gross Cash	€M	1.46	22.4	17.6	42.2
= Net debt / (cash)	€M	114	76.7	55.7	31.2
Gearing (at book value)	%	3,703	205	97.8	46.5
Equity/Total asset (%)	%	2.61	35.7	52.1	71.8
Adj. Net debt/EBITDA(R)	x	6.60	3.73	2.34	1.27
Adjusted Gross Debt/EBITDA(R)	x	5.95	4.08	2.50	2.09
Adj. gross debt/(Adj. gross debt+Equity)	%	97.3	68.6	52.9	44.9
Ebit cover	x	0.54	1.50	3.29	5.24
FFO/Gross Debt	%	12.6	26.6	32.4	38.5
FFO/Net debt	%	13.1	35.4	44.2	94.0
FCF/Adj. gross debt (%)	%	-4.40	11.6	16.1	20.8
(Gross cash+ "cash" FCF+undrawn)/ST debt	x	-0.04	1.33		5.81
"Cash" FCF/ST debt	x	-0.04	0.46		1.59

2. The reduction in equity is largely attributable to the losses from discontinued operations (Voltabox AG)

3. Capital increase (estimated at €20m)

4. Capital increase (estimated at €10m)

Worth Knowing

History

Klaus Dieter Frers founded paragon in 1988. It began as a company providing Electronic Contract Manufacturing (ECM) services. Then, because of the strong success and the liquidity to hand, the company quickly diversified and started to operate in the automotive electronics segment (specializing in sensors).

Since then the company has expanded its operations into new business segments, such as the establishment of an electromobility division (car media system, battery pack production, or spoiler systems, for example), and into new geographical segments, such as the expansion into the US and China. Note that the electromobility business was later sold (in 2021) because it was no longer a good fit with the group's strategy.

Group structure

paragon GmbH & Co KGaA is the parent company of the paragon Group.

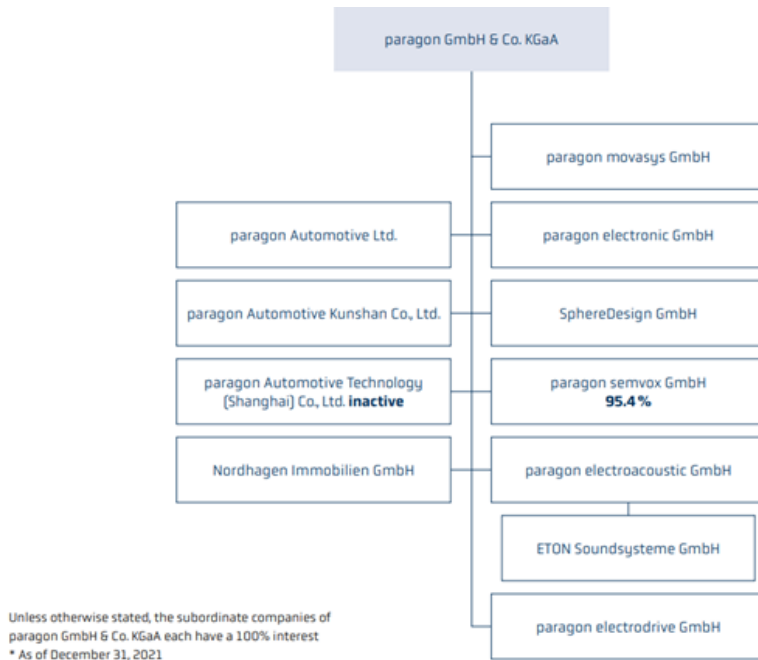
In addition to the parent company, the scope of consolidation for the paragon Group includes the German subsidiaries paragon movasys GmbH, paragon semvox GmbH, paragon electronic GmbH, SphereDesign GmbH, paragon electroacoustic GmbH, ETON Soundsystem GmbH, paragon electrodrive GmbH and Nordhagen GmbH.

The scope of consolidation also includes the foreign subsidiaries paragon Automotive Kunshan Co Ltd and paragon Automotive Technology (Shanghai) Co Ltd.

Except for paragon semvox GmbH, of which it owns 95.4%, paragon owns 100% of each subsidiary.

Until 2021, the group's scope of consolidation also included Voltabox AG (listed on FSE's Prime Standard segment) and its subsidiaries Voltabox of North America Inc, Voltabox of Texas Inc and Voltabox Kunshan Co Ltd. This business was sold in November 2021.

paragon Group (Buy)



source: paragon annual report 2021

Shareholders

Name	% owned	Of which % voting rights	Of which % free to float
Frers Klaus Dieter	49.3%	50.0%	0.00%
Apparent free float			50.7%

Sustainability

In terms of sustainability, the automotive industry's main challenge is to manage the transition to environmentally friendly mobility in both the upstream and the downstream ends of the auto value chain. This transition includes increased digitalisation, increased use of electronics, and a shift towards electromobility. As paragon does not have any exposure to the powertrain system, it is not affected by this transition.

While paragon does not disclose audited ESG figures (as is common for a company of its size), it does publish a consolidated non-financial report in which it communicates about corporate responsibility, environment and social matters. According to the company, it only purchases raw materials and semi-finished products from certified suppliers.

Additionally, its portfolio skewed towards high-end products contributes to reducing overall carbon emissions. paragon is particularly focused on the development of products in the areas of artificial intelligence, loudspeakers for electric vehicles, digital assistance, sunroof kinematics, etc.

Since most of its products are adaptable to electric vehicles, paragon is not overly reliant on the production of ICEs (thermal cars). This means that there is less risk of the company going out of business, and thus less risk of large restructuring layoffs due to a lack of competence in terms of electric vehicles.

Sustainability score

Sustainability is made of analytical items contributing to the E, the S and the G, that can be highlighted as sustainability precursors and can be combined in an intellectually acceptable way. This is the only scale made available

	Score	Weight
Governance		
Independent directors rate	3/10	25%
Board geographic diversity	0/10	20%
Chairman vs. Executive split	✓	5%
Environment		
CO ² Emission	2/10	25%
Water withdrawal	2/10	10%
Social		
Wage dispersion trend	8/10	5%
Job satisfaction	0/10	5%
Internal communication	10/10	5%
Sustainability score	2.9/10	100%

Governance & Management

Klaus Dieter Frers is the founder, primary shareholder (49% of shares; 50% of voting rights) and CEO of paragon GmbH & Co. KGaA. The group's legal structure is not straight-forward. Free-float shareholders are actually limited liability partners whereas the Frers family (Klaus Dieter Frers, his wife Brigitte Frers and his son Niklas Frers) are fully liable partners.

paragon does not have an Audit, Nomination or Compensation committee; the Supervisory Board handles all issues as a single body. This Board is made up of three very experienced business persons, two of whom we do not consider to be independent due to their seniority on the Board (more than 7 years). For the same reason, the former chairman (Prof. Dr. Lutz Eckstein) was not regarded as independent. Prof. Dr.-Ing. Iris Gräßler replaced Prof. Dr. Lutz Eckstein as Chairman in August 2021, following his appointment to the Board of Academic Advisers to the Federal Minister of Transport and Digital Infrastructure. This was very positive ESG-wise because, unlike the former incumbent, we consider the new Chair to be independent on our criteria. Another positive is that the CEO is not a member of the Board (management/supervisory board split). Moreover, the company discloses all the compensation components for its executive management and board of directors.

paragon is currently strengthening its management team. After appointing a new CFO (Martin Esser) and a new CSO (Carsten Block), the company plans to hire an additional CTO and a COO this year.

Governance score

Company (Sector)

5.6_(5.9)

Independent board





No

Parameters	Company	Sector	Score	Weight
Number of board members	3	11	10/10	5.0%
Board feminization (%)	33	33	6/10	5.0%
Board domestic density (%)	100	57	0/10	5.0%
Average age of board's members	67	60	2/10	5.0%
Type of company : Large cap, not controlled			10/10	25.0%
Independent directors rate	33	39	3/10	20.0%
One share, one vote			✗	5.0%
Chairman vs. Executive split			✓	5.0%
Chairman not ex executive			✓	5.0%
Full disclosure on mgt pay			✓	5.0%
Disclosure of performance anchor for bonus trigger			✗	5.0%
Compensation committee reporting to board of directors			✗	5.0%
Straightforward, clean by-laws			✗	5.0%
Governance score			5.6/10	100.0%







Baader Europe powered by AlphaValue

paragon Group (Buy)

Management

Name		Function	Birth date	Date in	Date out	Compensation, in k€ (year)	
						Cash	Equity linked
Klaus Dieter FRERS	M	 CEO	1953	1988		718	(2021)
Martin ESSER	M	 CFO	1973	2020			
Carsten BLOCK	M	 Member of the management board	1971	2022			
Matthias SCHÖLLMANN	M	 Member of the management board	1969	2018	2022	431	(2021)

Board of Directors

Name		Indep.	Function	Completion of current mandate	Birth date	Date in	Date out	Fees / indemnity, in k€ (year)	Value of holding, in k€ (year)
Iris GRÄBLER	F	 	President/Chairman of th...			2021		20.0	(2021)
Hermann BOERNEMEIER	M	 	Deputy Chairman		1955	2010		30.0	(2021)
Walter SCHÄFERS	M	 	Member		1954	2010		30.0	(2021)

paragon Group (Buy)

Environment

Unfortunately, paragon does not provide any quantitative data on its carbon emissions or other environmental metrics. Hence, the score granted to the firm. We expect the score to improve as the group grows and begins to report on its environmental impact.

The company however claims to be very concerned about waste management. It states that careful precautions are taken in all production stages to ensure that the use of plastics, metals, energy, and packaging (in reusable containers) is consistently minimised, including through the use of technologically-advanced equipment. paragon strives to recycle as much waste generated throughout the manufacturing process as feasible. When recycling is impossible, the waste is incinerated. The company also claims to have implemented extensive efforts to efficiently use energy and reduce its carbon footprint, such as the use of absorption refrigeration from the need for molecular nitrogen in the cooling circuit, which saved roughly 22k kWh of electricity in FY19.

Environmental Score

Data sets evaluated as trends on rolling calendar, made sector relative
















Parameters	Score	Sector	Weight
Energy	3/10	5/10	25%
CO ² Emission	2/10	4/10	30%
Waste	4/10	6/10	15%
Water withdrawal	2/10	5/10	30%

Company (Sector)

2.55 (5.06)

Environmental metrics

Sector figures

Company	Country	Environment score	Energy (total, in GJ)	CO2 Emissions (in tons)	Water Withdrawal (in m3)	Waste (total, (in tons)
paragon Group		3/10				
Mercedes-Benz Group		8/10	24,429,600	1,147,000	7,454,000	651,000
Volkswagen		7/10	77,724,000	7,140,000	41,750,000	2,489,035
Renault		6/10	16,763,911	950,104	10,679,000	678,669
Stellantis		5/10	35,575,019	2,913,217	15,751,000	635,875
BMW		8/10	20,572,596	727,142	4,722,310	775,459
Continental		5/10	31,320,000	990,000	17,300,000	341,513
Michelin		3/10	35,046,000	2,470,000	23,746,000	271,232
Volvo		9/10	6,530,400	270,000	5,218,000	278,433
Nokian Renkaat		4/10	2,144,000	115,410	7,425,900	15,242
Pirelli		5/10	9,373,179	676,548	5,871,790	95,470
Valeo		4/10	8,838,000	1,059,500	3,275,000	258,800
Faurecia		5/10	6,330,442	779,000	2,710,153	197,826
POLYTEC GROUP		5/10	680,454	25,783	96,300	8,424
CNH Industrial N.V.		7/10	6,783,826	450,004	4,627,000	217,266

Social

Unlike many other companies of its size, paragon communicates about its social policies. There are obviously some gaps, but we expect them to be filled as the reporting improves.

Since it produces only a few ICE specific components, paragon is unlikely to start divesting what the industry calls the “non-core legacy activities” (read: “declining activities that hardly anybody will want to buy”). This should also prevent it from firing “no-more skilled enough” employees or spending cash to re-train them, which is the major concern in the industry through the EV transition.

Social score

Company (Sector)

6.6 (6.2)

Quantitative metrics (67%)

Set of staff related numerical metrics available in AlphaValue proprietary modelling aimed at ranking on social/HR matters

Parameters	Score	Weight
Staffing Trend	8/10	15%
Average wage trend	7/10	30%
Share of added value taken up by staff cost	9/10	20%
Share of added value taken up by taxes	5/10	15%
Wage dispersion trend	8/10	20%
Pension bonus (0 or 1)	0	
Quantitative score	7.5/10	100%

Qualitative metrics (33%)

Set of listed qualitative criterias and for the analyst to tick

Parameters	Score	Weight
Accidents at work	4/10	25%
Human resources development	8/10	35%
Pay	0/10	20%
Job satisfaction	0/10	10%
Internal communication	10/10	10%
Qualitative score	4.8/10	100%

Baader Europe powered by AlphaValue
paragon Group (Buy)

AlphaValue analysts tick boxes on essential components of the social/HR corporate life. Decision about ticking Yes or No is very much an assessment that combines the corporate's communication on relevant issue and the analyst's better judgment from experience.

Qualitative score

Parameters	Yes  / No 	Weight
Accidents at work		25%
Set targets for work safety on all group sites?		10.0%
Are accidents at work declining?		15.0%
Human resources development		35%
Are competences required to meet medium term targets identified?		3.5%
Is there a medium term (2 to 5 years) recruitment plan?		3.5%
Is there a training strategy tuned to the company objectives?		3.5%
Are employees trained for tomorrow's objectives?		3.5%
Can all employees have access to training?		3.5%
Has the corporate avoided large restructuring lay-offs over the last year to date?		3.5%
Have key competences stayed?		3.5%
Are managers given managerial objectives?		3.5%
If yes, are managerial results a deciding factor when assessing compensation level?		3.5%
Is mobility encouraged between operating units of the group?		3.5%
Pay		20%
Is there a compensation committee?		6.0%
Is employees' performance combining group AND individual performance?		14.0%
Job satisfaction		10%
Is there a measure of job satisfaction?		3.3%
Can anyone participate ?		3.4%
Are there action plans to prop up employees' morale?		3.3%
Internal communication		10%
Are strategy and objectives made available to every employee?		10.0%
Qualitative score	4.8/10	100.0%

Staff & Pension matters

In FY21, paragon employed 900 people on average, of whom over 23% worked in R&D.

As a German automotive supplier, paragon's labour costs of c.€50k per head are slightly higher but relatively comparable to peers (Continental's are €49.8k and Hella's €42.6k).

The present value of the pension obligations was €3,382m at end-2021, of which €0,451m was funded by plan assets, i.e. the gross obligations were just over €2,900 per head.

Detailed financials at the end of this report

Summary Of Pension Risks

		12/21A	12/22E	12/23E	12/24E
Pension ratio	%	47.0	5.84	3.93	2.76
Ordinary shareholders' equity	€M	3.30 ⁽²⁾	46.7 ⁽³⁾	67.7 ⁽⁴⁾	93.4
Total benefits provisions	€M	2.93	2.89	2.77	2.65
<i>of which funded pensions</i>	€M	2.93	2.89	2.77	2.65
<i>of which unfunded pensions</i>	€M	0.00	0.00	0.00	0.00
<i>of which benefits / health care</i>	€M		0.00	0.00	0.00
Unrecognised actuarial (gains)/losses	€M	0.00	0.00	0.00	0.00

2. The reduction in equity is largely attributable to the losses from discontinued operations (Voltabox AG)

3. Capital increase (estimated at €20m)

4. Capital increase (estimated at €10m)

Geographic Breakdown Of Pension Liabilities

		12/21A	12/22E	12/23E	12/24E
US exposure	%				
UK exposure	%				
Euro exposure	%	93.1	93.1	93.1	93.1
Nordic countries	%				
Switzerland	%				
Other	%	6.91	6.91	6.91	6.91
Total	%	100	100	100	100

Recent updates

07/06/2022

Initiation of coverage: a technology provider to German premium OEMs

Initiation cov.

With every seventh vehicle equipped with its technology globally, paragon is a well-established auto supplier. However, its share price has plummeted since 2018, the year that marked an end to the auto industry's massive boom. This was exacerbated by the financial difficulties owing to former subsidiary Voltabox (struggling business model in a weak market environment; sold in November 2021). Now that Voltabox is no longer putting pressure on margins, renewed profitability should boost the share price.

paragon develops, produces and distributes solutions in the field of automotive electronics and body kinematics to OEMs.

It generates most of its revenues through the sale of standardised products produced in-house to automobile manufacturers. The business is organised around two segments: 1/ Electronics, which is the most profitable division (EBITDA margin at 17.4% in FY21) and generates the most revenue (73% of FY21 sales); and 2/ Mechanics, which accounts for 27% of total revenues and has an EBITDA margin oscillating around 1-2%. Therefore, the company's margins are primarily derived from the sale of electronic products, including air quality sensors with Artificial Intelligence, electric virus-filter, microphones, loudspeakers, digital assistance (support systems and AI help), etc.

To offer the cutting-edge technologies that characterise paragon, the group invests aggressively in R&D. More than 20% of paragon's workforce works in this field and the share of R&D costs as a percentage of sales progressively increased from 8.3% in FY11 to 14% in FY21, well above other automotive suppliers such as Hella, Valeo and Continental (c.9-10% of revenues). At the end of the day, this is a viable strategy as the group achieved an EBITDA margin of 13.6% in FY21, so equal to or better than the above competitors.

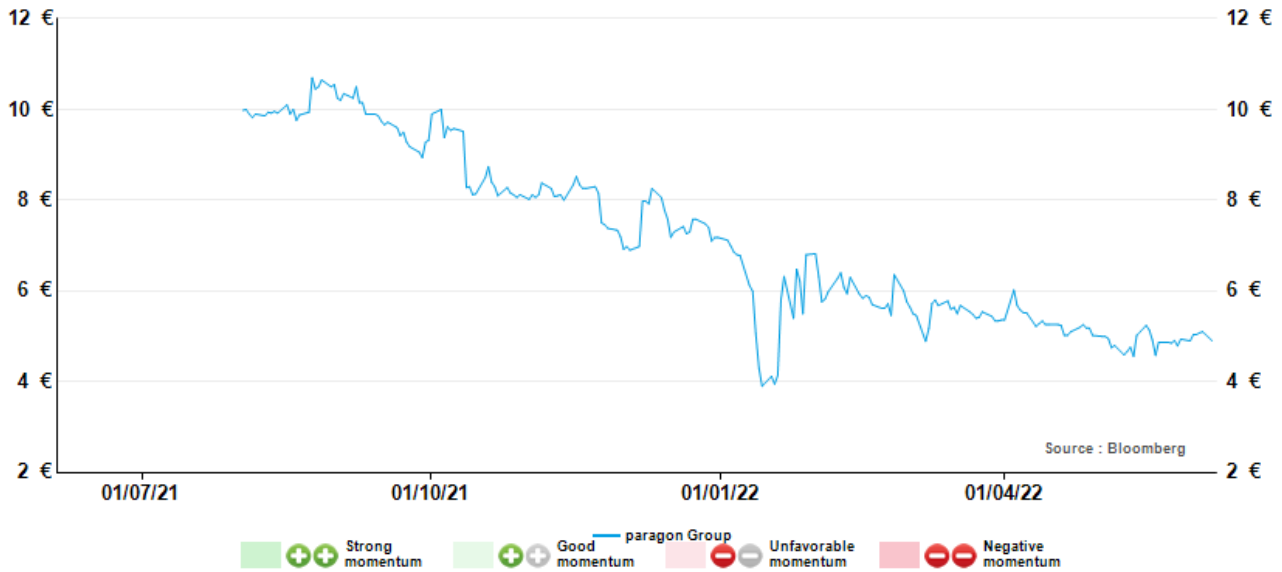
paragon's robust business model is backed by a premium client portfolio (mostly European premium OEMs) including Porsche, Mercedes-Benz, Audi, BMW and Rolls-Royce. While the majority of paragon's production is in Europe (80% of the locations and 87% of employees) and most direct consumers are located in Europe (European premium OEMs are used to build their highest-end vehicles in their European plants), the end-market breakdown is skewed to China through exports (40% of total revenues, including 30% exports from Europe). Aside from China, 46% of revenues are exposed to the European market and 14% to the US. By 2023, the company expects have expanded its geographical footprint, with China accounting for 50% of FY23e total revenues, the US for 20%, and Europe being reduced to 30%.

paragon Group (Buy)

We initiate coverage of paragon with a Buy recommendation and a target price of €15.2. We believe that the company has a robust business model (i.e. portfolio of premium clients, 84% single source supplier, increased internationalisation, diversified product portfolio). Going forward, margins should benefit from: 1/ the disposal of Voltabox and 2/ increased optimisation of the cost base triggered by a ramp-up in order volumes. Even on our conservative estimates, virtually all the valuation metrics point to significant upside.

paragon Group (Buy)

Momentum



Momentum analysis consists in evaluating the stock market trend of a given financial instrument, based on the analysis of its trading flows.

The main indicators used in our momentum tool are simple moving averages over three time frames: short term (20 trading days), medium term (50 days) and long term (150 days). The positioning of these moving averages relative to each other gives us the direction of the flows over these time frames.

For example, if the short and medium-term moving averages are above the long-term moving average, this suggests an uptrend which will need to be confirmed. Attention is also paid to the latest stock price relative to the three moving averages (advance indicator) as well as to the trend in these three moving averages - downtrend, neutral, uptrend - which is more of a lagging indicator.

The trend indications derived from the flows through moving averages and stock prices must be confirmed against trading volumes in order to confirm the signal. This is provided by a calculation based on the average increase in volumes over ten weeks together with a buy/sell volume ratio.

: Strong momentum corresponding to a continuous and overall positive moving average trend confirmed by volumes

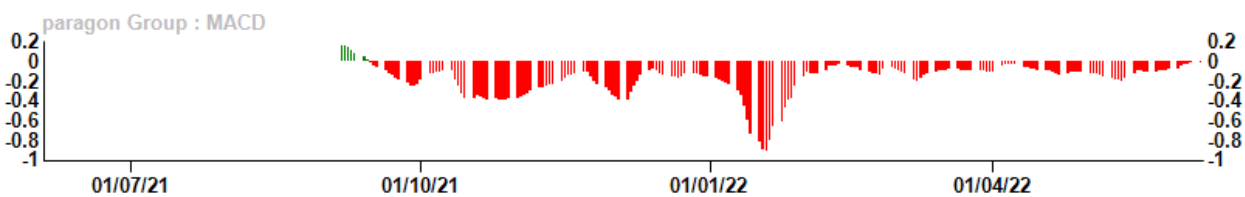
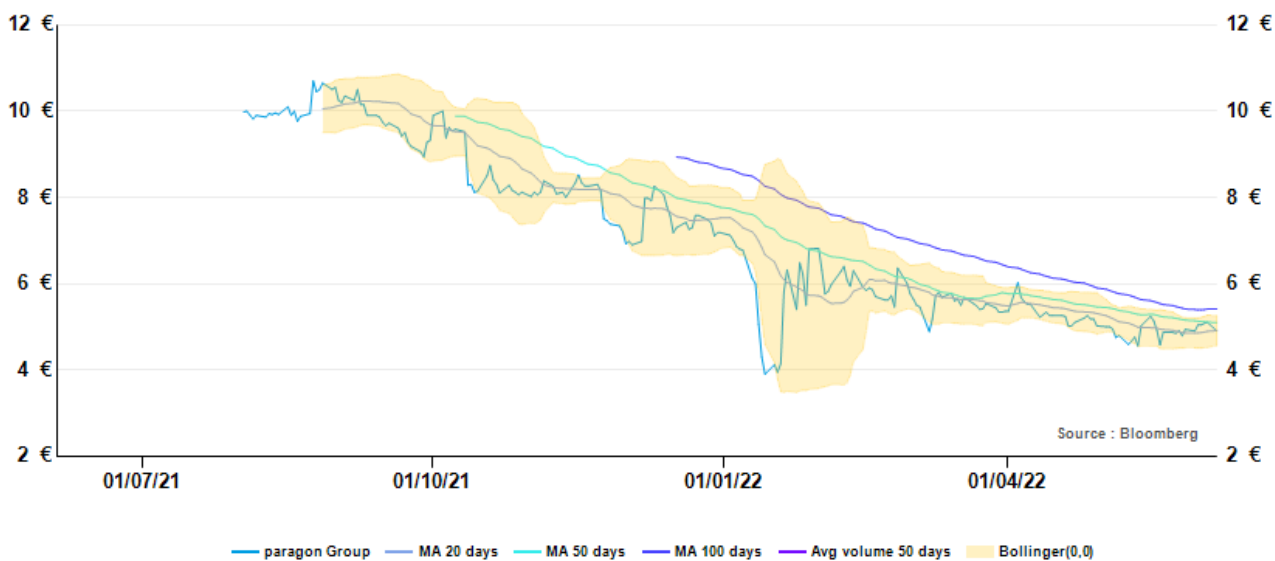
: Relatively good momentum corresponding to a positively-oriented moving average, but offset by an overbought pattern or lack of confirmation from volumes

: Relatively unfavorable momentum with a neutral or negative moving average trend, but offset by an oversold pattern or lack of confirmation from volumes

: Strongly negative momentum corresponding to a continuous and overall negative moving average trend confirmed by volumes

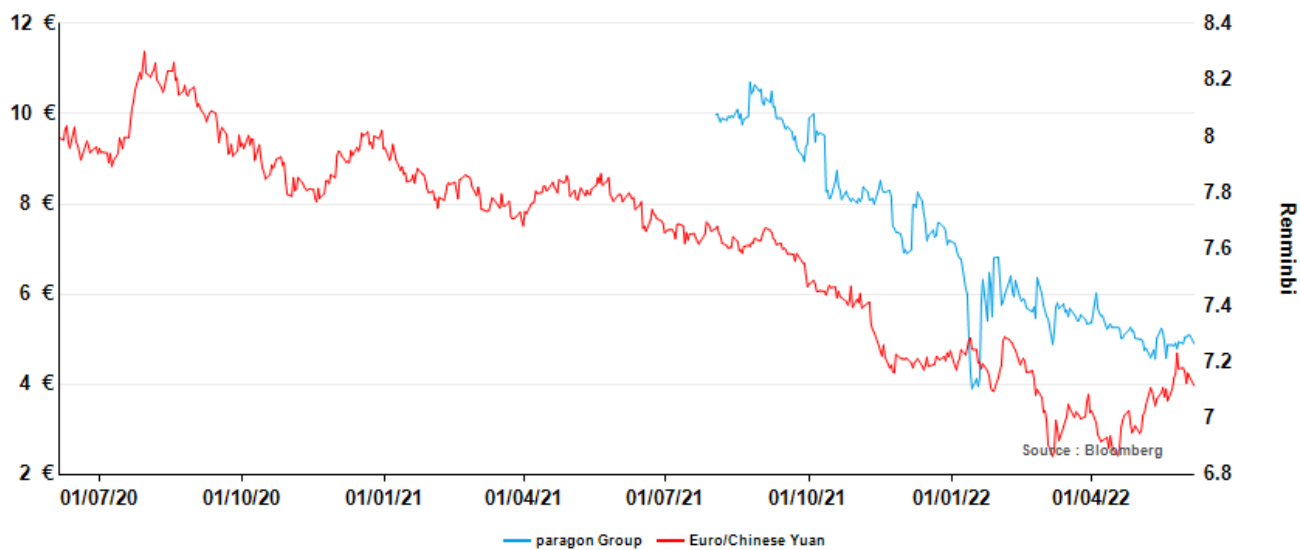
paragon Group (Buy)

Moving Average MACD & Volume



paragon Group (Buy)

Euro/Chinese Yuan sensitivity

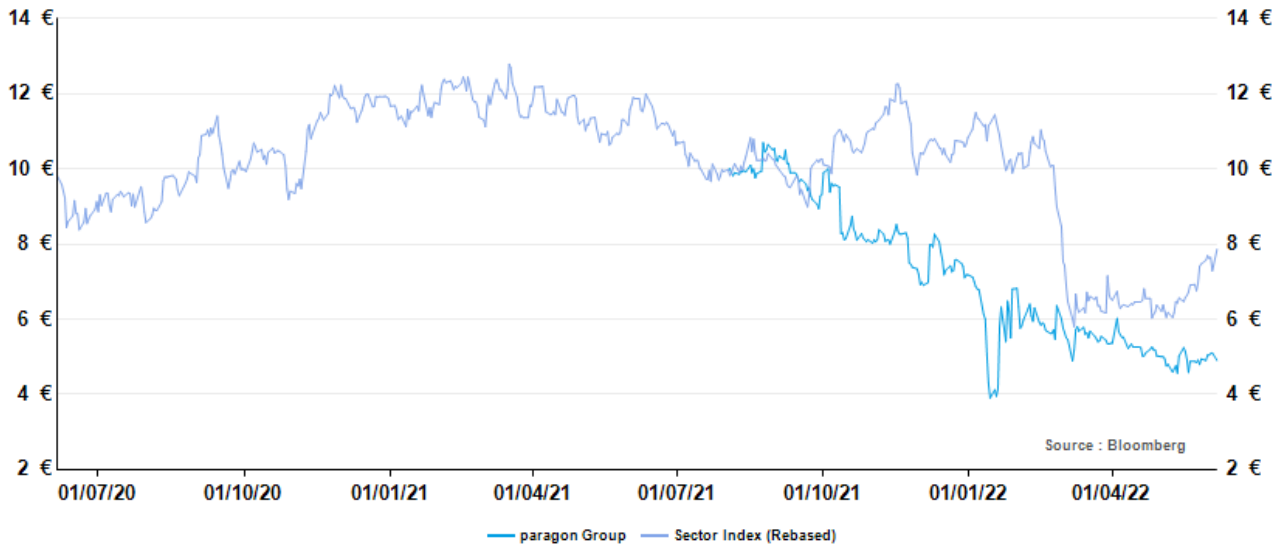


Long-term interest rates sensitivity



paragon Group (Buy)

Sector Autos



paragon Group (Buy)

Auto Parts

Opinion Change

UPGRADES		Reco	Old Reco	Target	Upside
02/03	Faurecia	Buy	Add	€ 45.0	90.3%
DOWNGRADES		Reco	Old Reco	Target	Upside
07/06	Valeo	Add	Buy	€ 26.5	24.5%

Eps Change

UPGRADES		New	Old	Var.	Reco
31/08	Valeo	€ 1.27	€ 1.20	6.13%	Add
DOWNGRADES		New	Old	Var.	Reco
07/10	Faurecia	€ 4.26	€ 4.87	-12.6%	Buy

Sector Overview

MARKET BASICS	SECTOR	AV UNIVERSE
COMPANIES	4	567
MARKET CAP	€M 8,843	€M 11,547,326
UPSIDE	50.8%	15.1%
PRICE MOMENTUM	Good	UNFAVORABLE
PERF. YTD	-27.37%	-4.74%
PE 2022	6.53 x	14.0 x
DIV. YIELD 2022	3.09%	3.29%
EARN GROWTH 2022/2021	45.7%	5.86%

Recent publications & Updates

PARAGON GROUP - Jun 07

Initiation of coverage: a technology provider to German premium OEMs

PARAGON GROUP - Jun 07

German automotive group with a Chinese focus

FAURECIA - Jun 06

One step forward in the financing of the Hella deal

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Decent volume-driven Q1 22, guidance confirmation is a plus

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Auto Parts Story

Performance Drivers

Business conditions for auto parts manufacturers depend on one hand on the growth rates of car production and on the other, but to a lesser degree, on replacement demand. In addition, suppliers that help car producers to reduce fuel consumption and emissions generate higher margins.

Deliveries to the production lines of car producers also depend on whom they are supplying, i.e. those supplying car producers with a world-wide presence have an advantage over those that concentrate on regional car producers. In addition, first-tier component manufacturers that deliver entire product groups which go directly into a car have an advantage compared to those that produce single components that go to other (first-tier) component producers. First-tier manufacturers are involved in the development of entirely new cars from the very beginning and they typically obtain a premium price in the early years of a new model's lifetime. Single component producers typically supply first-tier producers and are almost always under strong pricing pressure. Only in boom times can these latter generate reasonable profits.

Deliveries to the replacement market are a different story and this market is split into those producers that have almost direct access to end-users (via own retail chains like the tyre manufacturers) and those that again depend on the OEMs. A substantial share of car repair work is done by garages that also sell and/or service one or more auto brands. These garages have to buy replacement components from the OEMs, although some jurisdictions (like Europe) have opened the market to direct supply from the component producers. Nevertheless, even if the spare parts are sourced from the OEMs, they are willing to pay higher prices than for the products that go to the production lines. However, the highest profits can be generated once parts producers have direct access to the retail network. This is clearly visible in the tyre producers' disproportionate profit margins.

Need to know

Technological know-how (i.e. suppliers of entire systems for the production line or single component manufacturers), the kind of clients (i.e. those that are producing world-wide or only in one or two regions) that are supplied and access to end-consumers drive this industry's profits. In 2012, the industry's EBIT margins ranged from around 2.5% (Faurecia) to some 6% (Valeo and Rheinmetall) and up to around 9% (Continental), 12% (Michelin), 13% (Pirelli), and 25% (Nokian Renkaat). Through our expectations for 2018 and the next few years, almost all will have improved their margins. Faurecia (now at a good 6%), Valeo and Rheinmetall (>8%), Continental (10%), and Michelin (13%) all achieved margin improvements whereas Nokian Renkaat's margin (25%) is about unchanged. ElringKlinger's margin is also expected to fall from around 12% to less than 7% as management still hasn't got its production bottleneck act together.

All producers have tried successfully to expand their list of clients, in particular the French non-tyre producers. This has allowed them to benefit from continuing growth of production volumes of German but also of other car producers outside Western and Southern Europe. Almost all component producers have expanded their capacities considerably in Asia and, in fact, to get faster access to local car production lines, have acquired local producers there. Worldwide car producers require their first-tier suppliers to have local production facilities wherever they have their plants. This assures the quality supply they demand wherever they assemble cars.

Although large listed component producers have hardly suffered at all financially as of late, smaller ones have again come under severe pressure and some have had to go into receivership. This has caused production problems for the OEMs even if the supplier was only a single component producer. Consequently, some OEMs were willing to financially support the supplier just to keep the flow of components going. Because of this negative experience, the OEMs typically have at least two first-tier suppliers and, in addition, another supplier that can step in should one or the other of the former suffer from industrial action or other interruptions.

In the past, it was common for car producers to have their own component producers (GM owned Delphi, and PSA and FCA control Faurecia and Magneti Marelli respectively). VW has not separated its component producer but instead includes these quite extensive operations in the car production division, primarily in the VW division. While GM had to sell Delphi many years ago, FCA seems to be in the middle of a negotiation process to sell Magneti Marelli and whether PSA will continue owning a large share of Faurecia remains to be seen. We believe that PSA will sell it once the cycle turns south again.

What will happen next

The heavier a car, the more fuel it consumes and the more CO₂ it emits. This trend has to be reversed even though modern cars, in particular at the upper-end, are equipped with ever more electronic devices and electric motors. A luxury car is today equipped with, for example, numerous small motors that open and close windows and boot lids among many other applications. As smaller cars typically follow the upper-end with a time-lag, the weight of each component has to be reduced. This can be achieved by changing the components' raw material (e.g. from steel to aluminum or from aluminum to carbon, etc.). However, what must not suffer from this is the safety of the driver and passengers. As a result, component manufacturers are in a catch-22 situation. They have to develop the components together with the OEMs but rarely get an adequate and immediate compensation for this. Only if they receive the final order at the beginning of a car's lifecycle are they compensated adequately.

For tyre producers, this trend requires narrower products. The wider the tyre, the higher is roll resistance which increases fuel consumption. In future, lighter cars, which will probably have a lower speed maximum, will be equipped with narrower tyres. In our view, this will result in lower sales prices, at least for those tyres delivered directly to the OEMs' production lines.

Those component manufactures that currently concentrate on conventional powertrains or the respective components (e.g. ElringKlinger and Rheinmetall) need to re-invent themselves. Electric engines are a totally different product and will be produced by those peers that have electric know-how. Even if all cars are eventually hybrid powered, the former suppliers will incur problems as the conventional gasoline or diesel engine is likely to be much smaller than currently and, consequently, they are likely to carry a lower price tag.

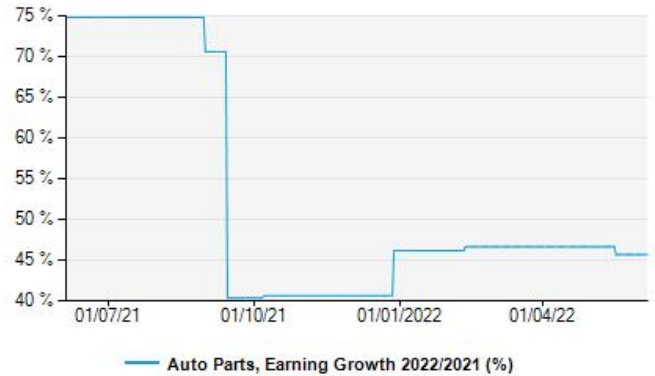
paragon Group (Buy)

Auto Parts Charts

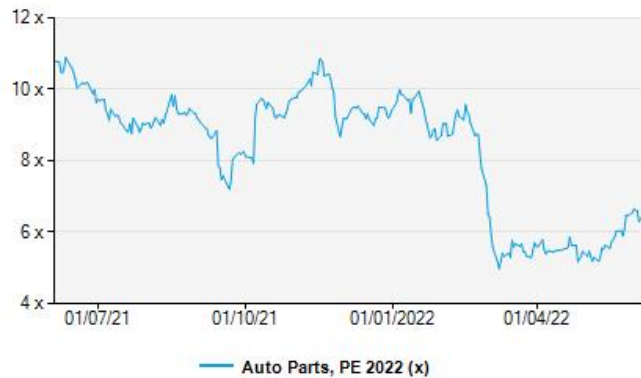
Sector Price



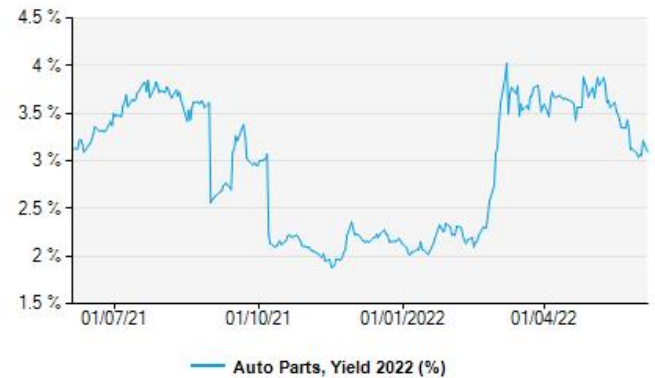
Sector Earning Growth 2022/2021



Sector PE 2022



Sector Yield 2022



Sector PBook 2022



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Aggregated sector data

		2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Operating revenues	€M	31,554	33,314	35,230	38,732	36,649	37,245	31,090	38,892	43,415	48,105
Sales growth	%	4.69	5.58	5.75	9.94	-5.38	1.63	-16.5	25.1	11.6	10.8
R&D Costs	€M	-921	-1,075	-1,246	-1,395	-1,859	-1,970	-2,038	-2,571	-2,584	-2,662
R&D costs/Sales	%	-2.92	-3.23	-3.54	-3.60	-5.07	-5.29	-6.55	-6.61	-5.95	-5.53
Ebitda	€M	2,608	3,122	3,526	4,204	4,321	4,871	3,176	5,303	5,987	6,793
Ebitda margin	%	8.74	9.88	10.6	11.4	12.5	13.1	10.2	13.6	13.8	14.1
Operating profit	€M	1,403	1,742	1,967	2,520	2,280	1,982	-542	2,120	2,547	3,168
Operating margin	%	4.52	5.37	5.76	6.53	6.25	6.26	1.09	5.67	6.02	6.49
Adj. Attrib. Net profit	€M	743	1,098	1,358	1,623	1,257	916	-1,164	901	1,358	1,879
Free cash flow	€M	1,081	1,480	1,411	1,456	1,973	817	276	1,297	1,797	2,341
Roe (return on equity) %	%	17.5	21.3	24.2	20.3	15.6	10.6	-19.1	12.2	15.9	19.3
Shareholders funds (group share)	€M	4,457	5,870	7,059	7,647	8,280	8,764	6,622	7,981	8,962	10,361
Net debt	€M	1,737	1,011	901	2,389	2,922	5,383	6,070	8,929	7,920	6,450
Capex	€M	-1,135	-1,335	-1,547	-2,015	-1,946	-3,332	-2,576	-3,055	-3,345	-3,630
ROCE	%	15.2	19.1	16.9	15.9	12.2	8.75	-0.78	6.52	9.27	11.8

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Companies

Company	Sector	Performances (%)				Mom.	Opinion	Upside	Market Cap (€M)	Country
		1W	1M	3M	YTD					
Valeo	Auto Parts	5.50	26.0	41.3	-18.5		Add	24.5%	5,113	
Faurecia	Auto Parts	1.64	30.4	2.47	-37.6		Buy	90.3%	3,586	
POLYTEC GROUP	Auto Parts	4.35	8.00	2.37	-5.68		Reduce	3.40%	145	
paragon Group	Auto Parts	0.00	2.08	-10.3	-31.8		Buy	211%	33.1	
Sector		Performances (%)				Mom.	Opinion	Upside	Market Cap (€M)	
		1W	1M	3M	YTD					
Weighted average		3.88	27.4	21.8	-27.4		Buy	50.8%		
Median		4.35	26.0	2.47	-18.5		Add	24.5%		
Total									8,843	
BD universe weighted avg		-0.30	4.14	8.06	-4.93			15.1%	11,547,326	

Valuation ratios

Company	Sector	P/E		Earnings growth		P/Book		Yield		Market Cap (€M)
		2022	2023	2022/2021	2023/2022	2022	2023	2022	2023	
Valeo	Auto Parts	9.62 x	6.21 x	87.0%	55.0%	1.28 x	1.11 x	2.35%	2.82%	5,113
Faurecia	Auto Parts	4.35 x	3.41 x	27.8%	27.4%	0.72 x	0.62 x	4.23%	4.23%	3,586
POLYTEC GROUP	Auto Parts	ns	11.6 x	-78.1%	ns	0.62 x	0.59 x	1.54%	3.09%	145
paragon Group	Auto Parts	8.84 x	4.17 x	n/a	112%	0.71 x	0.57 x	0.00%	0.00%	33.1
Sector		P/E		Earnings growth		P/Book		Yield		Market Cap (€M)
		2022	2023	2022/2021	2023/2022	2022	2023	2022	2023	
Weighted average		6.53 x	4.69 x	45.7%	39.1%	0.96 x	0.83 x	3.09%	3.39%	
Median		9.62 x	6.21 x	27.8%	55.0%	0.72 x	0.62 x	2.35%	3.09%	
BD universe weighted avg		14.0 x	13.5 x	5.86%	3.57%	1.74 x	1.65 x	3.29%	3.43%	11,547,326

Earnings

Company	Sector	Adjusted attributable net profit (€M)					Market Cap (€M)
		2021	2022	2023	Chg. 22/21	Chg. 23/22	
Valeo	Auto Parts	287	536	831	250	295	5,113
Faurecia	Auto Parts	614	822	1,047	208	225	3,586
POLYTEC GROUP	Auto Parts	7.06	1.49	12.4	-5.57	10.9	145
paragon Group	Auto Parts	-2.98	3.13	8.57	6.10	5.45	33.1
Sector		Adjusted attributable net profit (€M)					Market Cap (€M)
		2021	2022	2023	Chg. 22/21	Chg. 23/22	
Total		908	1,360	1,891	452	531	8,843

Risk ratios

Company	Sector	Gearing		Goodwill / Equity		Net Debt / Ebitda		Market Cap (€M)
		2022	2023	2022	2023	2022	2023	
Valeo	Auto Parts	64.1%	45.2%	62.9%	54.7%	1.05 x	0.73 x	5,113
Faurecia	Auto Parts	118%	88.6%	93.2%	79.9%	1.92 x	1.47 x	3,586
POLYTEC GROUP	Auto Parts	53.7%	49.6%	0.00%	0.00%	3.11 x	2.25 x	145
paragon Group	Auto Parts	205%	97.8%	46.9%	32.3%	3.73 x	2.34 x	33.1
Sector		Gearing		Goodwill / Equity		Net Debt / Ebitda		Market Cap (€M)
		2022	2023	2022	2023	2022	2023	
Weighted average		93.0%	68.9%	77.7%	67.1%	1.55 x	1.15 x	
Median		64.1%	49.6%	62.9%	54.7%	1.92 x	1.47 x	

paragon Group (Buy)

B/S data

Company	Sector	Equity (€M)		Net Debt (€M)		Goodwill (€M)		Market Cap (€M)
		2022	2023	2022	2023	2022	2023	
		Valeo	Auto Parts	3,991	4,596	2,371	1,784	
Faurecia	Auto Parts	4,972	5,765	5,549	4,665	4,634	4,606	3,586
POLYTEC GROUP	Auto Parts	237	248	127	123	0.00	0.00	145
paragon Group	Auto Parts	46.7	67.7	76.7	55.7	21.9	21.9	33.1
Sector		Equity (€M)		Net Debt (€M)		Goodwill (€M)		Market Cap (€M)
		2022	2023	2022	2023	2022	2023	
Total		9,200	10,608	8,048	6,572	7,146	7,118	8,843

EV ratios

Company	Sector	Upside	Mom.	Ev/Ebit		Ev/Ebitda(R)		Market Cap (€M)
				2022	2023	2022	2023	
				paragon Group	Auto Parts	211%		
POLYTEC GROUP	Auto Parts	3.40%		50.0 x	13.7 x	6.90 x	5.05 x	145
Faurecia	Auto Parts	90.3%		7.27 x	5.68 x	3.41 x	2.75 x	3,586
Valeo	Auto Parts	24.5%		9.04 x	6.87 x	3.58 x	2.94 x	5,113
Sector				Ev/Ebit		Ev/Ebitda(R)		Market Cap (€M)
				2022	2023	2022	2023	
Weighted average				8.09 x	6.26 x	3.51 x	2.85 x	
Median				9.04 x	6.87 x	3.58 x	2.94 x	
BD universe weighted avg				14.4 x	12.6 x	8.43 x	7.80 x	11,547,326

paragon Group (Buy)

Detailed Financials

Valuation Key Data

		12/21A	12/22E	12/23E	12/24E
Adjusted P/E	x	-13.4	8.84	4.17	3.12
Reported P/E	x	-3.49	29.4	5.86	3.92
EV/EBITDA(R)	x	7.84	4.50	3.18	2.13
EV/EBIT	x	47.5	10.2	5.88	3.47
EV/Sales	x	1.07	0.68	0.52	0.38
P/Book	x	12.1	0.71	0.57	0.47
Dividend yield	%	0.00	0.00	0.00	0.00
<i>Free cash flow yield</i>	%	-13.1	35.9	31.8	36.0
Average stock price	€	8.79	4.90	4.90	4.90

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Consolidated P&L

		12/21A	12/22E	12/23E	12/24E
Sales	€M	147	165	185	206
<i>Sales growth</i>	%	1.34	12.5	11.8	11.4
<i>Sales per employee</i>	€th	163	184	205	229
R&D Costs	€M	-20.5	-22.3	-24.9	-27.8
R&D costs as % of sales	%	-14.0	-13.5	-13.5	-13.5
Staff costs	€M	-44.6	-46.0	-50.0	-55.0
Operating lease payments	€M				
Cost of sales/COGS (indicative)	€M	-72.9	-86.7	-92.3	-103
EBITDA	€M	20.0	25.0	30.5	36.3
EBITDA(R)	€M	20.0	25.0	30.5	36.3
<i>EBITDA(R) margin</i>	%	13.6	15.1	16.5	17.7
<i>EBITDA(R) per employee</i>	€th	22.2	27.8	33.8	40.4
Depreciation	€M	-16.7	-14.0	-14.0	-14.0
<i>Depreciations/Sales</i>	%	11.4	8.47	7.58	6.80
Amortisation	€M				
Underlying operating profit	€M	3.30	11.0	16.5	22.3
<i>Underlying operating margin</i>	%	2.24	6.65	8.91	10.9
Other income/expense (cash)	€M				
Impairment charges/goodwill amortisation	€M	-2.52	-2.00	-2.00	-2.00
Operating profit (EBIT)	€M	0.78	8.98	14.5	20.3
Interest expenses	€M	-6.18	-7.44	-5.14	-4.40
<i>of which effectively paid cash interest expenses</i>	€M	-4.72			
Financial income	€M	0.06	0.06	0.06	0.06
Other financial income (expense)	€M				
Net financial expenses	€M	-6.12	-7.37	-5.07	-4.34
<i>of which related to pensions</i>	€M		-0.05	-0.07	-0.07
Pre-tax profit before exceptional items	€M	-5.34	1.61	9.39	16.0
Exceptional items and other (before taxes)	€M				
Current tax	€M	-0.16	-0.48	-2.82	-4.80
Deferred tax	€M				
Corporate tax	€M	-0.16	-0.48	-2.82	-4.80
<i>Tax rate</i>	%	-5.53	13.4	24.7	26.7
<i>Net margin</i>	%	-3.74	0.68	3.56	5.44
Equity associates	€M				
<i>Actual dividends received from equity holdings</i>	€M				
Minority interests	€M	0.00	0.00	0.00	0.00
Income from discontinued operations	€M	-5.92 ⁽⁵⁾	0.00	0.00	0.00
Attributable net profit	€M	-11.4	1.13	6.57	11.2
Impairment charges/goodwill amortisation	€M	2.52	2.00	2.00	2.00
Other adjustments	€M				
Adjusted attributable net profit	€M	-2.98	3.13	8.57	13.2
Fully diluted adjusted attr. net profit	€M	-2.98	3.13	8.57	13.2
NOPAT	€M	2.31	7.72	11.6	15.7

5. Divestment of Voltabox (51% in November 2021)

paragon Group (Buy)

Cashflow Statement

		12/21A	12/22E	12/23E	12/24E
EBITDA	€M	20.0	25.0	30.5	36.3
Change in WCR	€M	-1.25	-2.02	2.45	3.09
<i>of which (increases)/decr. in receivables</i>	€M	0.14	-2.27	0.48	0.25
<i>of which (increases)/decr. in inventories</i>	€M	-2.37	-4.10	1.25	1.44
<i>of which increases/(decr.) in payables</i>	€M	0.93	4.24	-1.41	-0.91
<i>of which increases/(decr.) in other curr. liab.</i>	€M	0.05	0.11	2.13	2.31
Actual dividends received from equity holdings	€M	0.00	0.00	0.00	0.00
Paid taxes	€M	-0.47	-0.48	-2.82	-4.80
Exceptional items	€M				
Other operating cash flows	€M	0.18	10.0	2.00	2.00
Total operating cash flows	€M	18.4	32.5	32.1	36.6
Capital expenditure	€M	-17.5	-13.2	-14.8	-16.5
<i>Capex as a % of depreciation & amort.</i>	%	105	94.4	106	118
Net investments in shares	€M	9.79 ⁽⁶⁾	0.50	0.00	0.00
Other investment flows	€M	11.9 ⁽⁷⁾	5.25	0.00	0.00
Total investment flows	€M	4.13	-7.47	-14.8	-16.5
Net interest expense	€M	-6.12	-7.37	-5.07	-4.34
<i>of which cash interest expense</i>	€M	-4.72	-7.32	-5.00	-4.27
Dividends (parent company)	€M	0.00	0.00	-1.32	-1.32
Dividends to minorities interests	€M	0.00	0.00	0.00	0.00
New shareholders' equity	€M		20.0 ⁽⁸⁾	10.0	10.0
<i>of which (acquisition) release of treasury shares</i>	€M				
(Increase)/decrease in net debt position	€M	-19.7	-16.7	-25.8	0.00
Other financial flows	€M	0.00	0.00	0.00	0.00
Total financial flows	€M	-24.4	-4.05	-22.1	4.41
Change in scope of consolidation, exchange rates & other	€M	-2.17	0.00	0.00	0.00
Change in cash position	€M	-4.04	21.0	-4.76	24.6
Change in net debt position	€M	15.7	37.7	21.0	24.6
Free cash flow (pre div.)	€M	-5.23	11.9 ⁽⁹⁾	12.2	15.8
Operating cash flow (clean)	€M	18.4	32.5	32.1	36.6
<i>Reinvestment rate (capex/tangible fixed assets)</i>	%	84.9	64.5	71.5	77.8

6. Sale of Voltabox

7. Disposal of PP&E

8. paragon is considering a capital increase of €20m to €30m (presentation March 2022)

9. Guidance: €12m

paragon Group (Buy)

Balance Sheet

		12/21A	12/22E	12/23E	12/24E
Goodwill	€M	21.9	21.9	21.9	21.9
Other intangible assets	€M	54.5	53.9	54.5	56.5
Total intangible	€M	76.4	75.8	76.4	78.4
Tangible fixed assets	€M	20.7	20.5	20.7	21.2
Right-of-use	€M	17.3	16.5	15.6	14.9
Financial fixed assets (part of group strategy)	€M	0.57	0.20	0.20	0.20
Other financial assets (investment purpose mainly)	€M				
WCR	€M	2.96	4.98	2.53	-0.56
<i>of which trade & receivables (+)</i>	€M	10.9	13.1	12.7	12.4
<i>of which inventories (+)</i>	€M	24.0	28.1	26.8	25.4
<i>of which payables (+)</i>	€M	13.9	18.1	16.7	15.8
<i>of which other current liabilities (+)</i>	€M	18.0	18.1	20.2	22.6
Other current assets	€M	8.41	12.9	14.4	16.1
<i>of which tax assets (+)</i>	€M	0.00	0.00	0.00	0.00
Total assets (net of short term liabilities)	€M	126	131	130	130
Ordinary shareholders' equity (group share)	€M	3.30 ⁽²⁾	46.7 ⁽³⁾	67.7 ⁽⁴⁾	93.4
Minority interests	€M				
Provisions for pensions	€M	2.93	2.89	2.77	2.65
Other provisions for risks and liabilities	€M				
Deferred tax liabilities	€M	5.69	4.55	3.64	2.91
Other liabilities	€M	0.00	0.00	0.00	0.00
Net debt / (cash)	€M	114	76.7	55.7	31.2
Total liabilities and shareholders' equity	€M	126	131	130	130
Average net debt / (cash)	€M	122	95.6	66.2	43.5

2. The reduction in equity is largely attributable to the losses from discontinued operations (Voltabox AG)

3. Capital increase (estimated at €20m)

4. Capital increase (estimated at €10m)

EV Calculations

		12/21A	12/22E	12/23E	12/24E
EV/EBITDA(R)	x	7.84	4.50	3.18	2.13
EV/EBIT	x	47.5	10.2	5.88	3.47
EV/Sales	x	1.07	0.68	0.52	0.38
EV/Invested capital	x	1.33	0.95	0.84	0.68
Market cap	€M	39.8	33.1	38.5	44.0
+ Provisions (including pensions)	€M	2.93	2.89	2.77	2.65
+ Unrecognised actuarial losses/(gains)	€M	0.00	0.00	0.00	0.00
+ Net debt at year end (ex Right-of-use from 2019)	€M	97.1	60.3	40.1	16.3
+ Right-of-use (from 2019)/Leases debt equivalent	€M	17.3	16.5	15.6	14.9
- Financial fixed assets (fair value) & Others	€M	0.57	0.20	0.20	0.20
+ Minority interests (fair value)	€M	0.00	0.00	0.00	0.00
= Enterprise Value	€M	157	112	96.8	77.6

paragon Group (Buy)

Per Share Data

		12/21A	12/22E	12/23E	12/24E
Adjusted EPS (bfr goodwill amort. & dil.)	€	-0.66	0.55	1.17	1.57
<i>Growth in EPS</i>	%	<i>n/a</i>	<i>n/a</i>	112	33.6
Reported EPS	€	-2.52	0.17	0.84	1.25
Net dividend per share	€	0.00	0.00	0.00	0.00
Free cash flow per share	€	-1.15	2.11	1.68	1.88
Operating cash flow per share	€	4.07	5.76	4.39	4.35
Book value per share	€	0.73	6.92	8.61	10.4
Number of ordinary shares	Mio	4.53	6.75	7.86	8.97
Number of equivalent ordinary shares (year end)	Mio	4.53	6.75	7.86	8.97
Number of shares market cap.	Mio	4.53	0.00	7.86	8.97
Treasury stock (year end)	Mio				
Number of shares net of treasury stock (year end)	Mio	4.53	6.75	7.86	8.97
Number of common shares (average)	Mio	4.53	5.64	7.30	8.42
Conversion of debt instruments into equity	Mio				
Settlement of cashable stock options	Mio				
Probable settlement of non mature stock options	Mio				
Other commitments to issue new shares	Mio				
Increase in shares outstanding (average)	Mio	0.00	0.00	0.00	0.00
Number of diluted shares (average)	Mio	4.53	5.64	7.30	8.42
Goodwill per share (diluted)	€	0.56	0.35	0.27	0.24
EPS after goodwill amortisation (diluted)	€	-1.21	0.20	0.90	1.33
EPS before goodwill amortisation (non-diluted)	€	-2.52	0.20	0.90	1.33
Payout ratio	%	0.00	0.00	0.00	0.00
Capital payout ratio (div +share buy back/net income)	%	0.00	42.3	15.4	

paragon Group (Buy)

Funding - Liquidity

		12/21A	12/22E	12/23E	12/24E
EBITDA	€M	20.0	25.0	30.5	36.3
Funds from operations (FFO)	€M	15.0	27.2	24.6	29.3
Ordinary shareholders' equity	€M	3.30 ⁽²⁾	46.7 ⁽³⁾	67.7 ⁽⁴⁾	93.4
Gross debt	€M	116	99.1	73.4	73.4
o/w Less than 1 year - Gross debt	€M	96.2	25.8	0.00	10.0
o/w 1 to 5 year - Gross debt	€M	15.8	69.5	69.5	59.5
of which Y+2	€M			10.0	10.0
of which Y+3	€M		10.0	10.0	25.0
of which Y+4	€M		10.0	25.0	
of which Y+5	€M		25.0		
o/w Beyond 5 years - Gross debt	€M	3.91	3.91	3.91	3.91
+ Gross Cash	€M	1.46	22.4	17.6	42.2
= Net debt / (cash)	€M	114	76.7	55.7	31.2
Bank borrowings	€M	24.8	7.91	7.91	7.91
Issued bonds	€M	79.0	79.9	54.1	54.1
Financial leases liabilities	€M	12.1	11.3	11.3	11.3
Other financing	€M	0.00	0.00	0.00	0.00

2. The reduction in equity is largely attributable to the losses from discontinued operations (Voltabox AG)

3. Capital increase (estimated at €20m)

4. Capital increase (estimated at €10m)

Gearing (at book value)	%	3,703	205	97.8	46.5
Equity/Total asset (%)	%	2.61	35.7	52.1	71.8
Adj. Net debt/EBITDA(R)	x	6.60	3.73	2.34	1.27
Adjusted Gross Debt/EBITDA(R)	x	5.95	4.08	2.50	2.09
Adj. gross debt/(Adj. gross debt+Equity)	%	97.3	68.6	52.9	44.9
Ebit cover	x	0.54	1.50	3.29	5.24
FFO/Gross Debt	%	12.6	26.6	32.4	38.5
FFO/Net debt	%	13.1	35.4	44.2	94.0
FCF/Adj. gross debt (%)	%	-4.40	11.6	16.1	20.8
(Gross cash+ "cash" FCF+undrawn)/ST debt	x	-0.04	1.33		5.81
"Cash" FCF/ST debt	x	-0.04	0.46		1.59

ROE Analysis (Dupont's Breakdown)

		12/21A	12/22E	12/23E	12/24E
Tax burden (Net income/pretax pre expc income)	x	2.14	0.70	0.70	0.70
EBIT margin (EBIT/sales)	%	0.53	5.43	7.83	9.88
Assets rotation (Sales/Avg assets)	%	105	128	142	158
Financial leverage (Avg assets /Avg equity)	x	16.9	5.15	2.28	1.61
ROE	%	-138	4.50	11.5	13.9
ROA	%	0.78	8.87	14.5	20.6

Shareholder's Equity Review (Group Share)

		12/21A	12/22E	12/23E	12/24E
Y-1 shareholders' equity	€M	13.2	3.30	46.7	67.7
+ Net profit of year	€M	-11.4	1.13	6.57	11.2
- Dividends (parent cy)	€M	0.00	0.00	-1.32	-1.32
+ Additions to equity	€M	0.00	20.0	10.0	10.0
o/w reduction (addition) to treasury shares	€M	0.00	0.00	0.00	0.00
- Unrecognised actuarial gains/(losses)	€M	0.00	0.00	0.00	0.00
+ Comprehensive income recognition	€M	1.49	22.3	5.78	5.78
= Year end shareholders' equity	€M	3.30 ⁽²⁾	46.7	67.7	93.4

2. The reduction in equity is largely attributable to the losses from discontinued operations (Voltabox AG)

paragon Group (Buy)

Staffing Analytics

		12/21A	12/22E	12/23E	12/24E
Sales per staff	€th	163	184	205	229
Staff costs per employee	€th	-49.5	-51.2	-55.6	-61.2
Change in staff costs	%	-4.09	3.28	8.69	9.99
Change in unit cost of staff	%	14.9	3.28	8.69	9.99
Staff costs/(EBITDA+Staff costs)	%	69.1	64.8	62.2	60.2

Average workforce	unit	900	900	900	900
Europe	unit	781	781	681	681
North America	unit	0.00	0.00	0.00	0.00
South Americas	unit	0.00	0.00	0.00	0.00
Asia	unit	58.0	58.0	58.0	58.0
Other key countries	unit	0.00	0.00	100	100
Total staff costs	€M	-44.6	-46.0	-50.0	-55.0
Wages and salaries	€M	-44.6	-46.0	-50.0	-55.0
of which social security contributions	€M	-6.78	-6.84	-6.91	-6.98
Pension related costs	€M		-0.04	-0.04	-0.04

Divisional Breakdown Of Revenues

		12/21A	12/22E	12/23E	12/24E
Total sales	€M	147	165	185	206
Electronics	€M	110	121	133	146
Mechanics	€M	40.2	49.0	56.3	64.8
Electromobility (discontinued operations)	€M	0.00	0.00	0.00	0.00
Other	€M	-2.95	-5.00	-5.00	-5.00

Divisional Breakdown Of Earnings

		12/21A	12/22E	12/23E	12/24E
EBITDA/R Analysis					
Electronics	€M	19.1	24.2	29.3	35.0
Mechanics	€M	0.67	0.73	1.13	1.30
Electromobility (discontinued operations)	€M	0.00	0.00	0.00	0.00
Other/cancellations	€M	0.18	0.00	0.00	0.00
Total	€M	20.0	25.0	30.5	36.3
EBITDA/R margin	%	13.6	15.1	16.5	17.7

Revenue Breakdown By Country

		12/21A	12/22E	12/23E	12/24E
Germany	%	64.8	64.8		
Europe	%	23.4	20.0		
Other	%	11.9	15.0		

paragon Group (Buy)

ROCE

		12/21A	12/22E	12/23E	12/24E
ROCE (NOPAT+lease exp. *(1-tax))/(net) cap employed adjusted	%	1.96	6.55	10.0	13.8
CFROI/C	%	-4.43	10.1	10.6	13.9
Goodwill	€M	21.9	21.9	21.9	21.9
Accumulated goodwill amortisation	€M	0.00	0.00	0.00	0.00
All intangible assets	€M	54.5	53.9	54.5	56.5
Accumulated intangible amortisation	€M	0.00	0.00	0.00	0.00
Financial hedges (LT derivatives)	€M	0.00	0.00	0.00	0.00
Capitalised R&D	€M	0.00	0.00	0.00	0.00
Rights of use/ Capitalised leases	€M	17.3	16.5	15.6	14.9
Other fixed assets	€M	20.7	20.5	20.7	21.2
Accumulated depreciation	€M	0.00	0.00	0.00	0.00
WCR	€M	2.96	4.98	2.53	-0.56
Other assets	€M	0.57	0.20	0.20	0.20
Unrecognised actuarial losses/(gains)	€M	0.00	0.00	0.00	0.00
Capital employed after deprec. (Invested capital)	€M	118	118	115	114
Capital employed before depreciation	€M	118	118	115	114

Divisional Breakdown Of Capital Employed

		12/21A	12/22E	12/23E	12/24E
Electronics	€M				
Mechanics	€M				
Electromobility (discontinued operations)	€M				
Other	€M	118	118	115	114
Total capital employed	€M	118	118	115	114

Pension Risks

Summary Of Pension Risks

		12/21A	12/22E	12/23E	12/24E
Pension ratio	%	47.0	5.84	3.93	2.76
Ordinary shareholders' equity	€M	3.30 ⁽²⁾	46.7 ⁽³⁾	67.7 ⁽⁴⁾	93.4
Total benefits provisions	€M	2.93	2.89	2.77	2.65
<i>of which funded pensions</i>	€M	2.93	2.89	2.77	2.65
<i>of which unfunded pensions</i>	€M	0.00	0.00	0.00	0.00
<i>of which benefits / health care</i>	€M		0.00	0.00	0.00
Unrecognised actuarial (gains)/losses	€M	0.00	0.00	0.00	0.00
<i>Company discount rate</i>	%	0.73	0.73	0.73	0.73
Normalised recomputed discount rate	%		1.57		
<i>Company future salary increase</i>	%	0.00	0.00	0.00	0.00
Normalised recomputed future salary increase	%		2.00		
<i>Company expected rate of return on plan assets</i>	%	0.00	0.00	0.00	0.00
Normalised recomputed expd rate of return on plan assets	%		4.00		
Funded : Impact of actuarial assumptions	€M		1.12		
Unfunded : Impact of actuarial assumptions	€M		0.00		

- The reduction in equity is largely attributable to the losses from discontinued operations (Voltabox AG)
- Capital increase (estimated at €20m)
- Capital increase (estimated at €10m)

Geographic Breakdown Of Pension Liabilities

		12/21A	12/22E	12/23E	12/24E
US exposure	%				
UK exposure	%				
Euro exposure	%	93.1	93.1	93.1	93.1
Nordic countries	%				
Switzerland	%				
Other	%	6.91	6.91	6.91	6.91
Total	%	100	100	100	100

Balance Sheet Implications

		12/21A	12/22E	12/23E	12/24E
Funded status surplus / (deficit)	€M	-2.93	-4.13	-3.96	-3.78
Unfunded status surplus / (deficit)	€M	0.00	0.00	0.00	0.00
Total surplus / (deficit)	€M	-2.93	-4.13	-3.96	-3.78
Total unrecognised actuarial (gains)/losses	€M	0.00	0.00	0.00	0.00
Provision (B/S) on funded pension	€M	2.93	2.89	2.77	2.65
Provision (B/S) on unfunded pension	€M	0.00	0.00	0.00	0.00
Other benefits (health care) provision	€M		0.00	0.00	0.00
Total benefit provisions	€M	2.93	2.89	2.77	2.65

P&L Implications

		12/21A	12/22E	12/23E	12/24E
Funded obligations periodic costs	€M	-0.07	-0.10	-0.12	-0.12
Unfunded obligations periodic costs	€M	0.00	0.00	0.00	0.00
Total periodic costs	€M	-0.07	-0.10	-0.12	-0.12
<i>of which incl. in labour costs</i>	€M	-0.05	-0.04	-0.04	-0.04
<i>of which incl. in interest expenses</i>	€M	-0.01	-0.05	-0.07	-0.07

paragon Group (Buy)

Funded Obligations

		12/21A	12/22E	12/23E	12/24E
Balance beginning of period	€M	3.74	3.38	4.60	4.72
Current service cost	€M	0.05	0.04	0.04	0.04
Interest expense	€M	0.01	0.05	0.07	0.07
Employees' contributions	€M				
Impact of change in actuarial assumptions	€M	-0.43	1.12	0.00	0.00
<i>of which impact of change in discount rate</i>	€M		-0.52		
<i>of which impact of change in salary increase</i>	€M		1.64		
Changes to scope of consolidation	€M				
Currency translation effects	€M				
Pension payments	€M				
Other	€M	0.00			
Year end obligation	€M	3.38	4.60	4.72	4.84

Plan Assets

		12/21A	12/22E	12/23E	12/24E
Value at beginning	€M	0.40	0.45	0.47	0.76
Company expected return on plan assets	€M		0.00	0.00	0.00
Actuarial gain /(loss)	€M		0.02	0.02	0.03
Employer's contribution	€M	0.00	0.00	0.28	0.26
Employees' contributions	€M	0.00	0.00	0.00	0.00
Changes to scope of consolidation	€M				
Currency translation effects	€M				
Pension payments	€M	0.00	0.00	0.00	0.00
Other	€M	0.05			
Value end of period	€M	0.45	0.47	0.76	1.06
Actual and normalised future return on plan assets	€M	0.00	0.02	0.02	0.03

Unfunded Obligations

		12/21A	12/22E	12/23E	12/24E
Balance beginning of period	€M	0.00	0.00	0.00	0.00
Current service cost	€M		0.00	0.00	0.00
Interest expense	€M		0.00	0.00	0.00
Employees' contributions	€M				
Impact of change in actuarial assumptions	€M		0.00	0.00	0.00
<i>of which Impact of change in discount rate</i>	€M		0.00		
<i>of which Impact of change in salary increase</i>	€M		0.00		
Changes to scope of consolidation	€M				
Currency translation effects	€M				
Pension payments	€M				
Other	€M				
Year end obligation	€M	0.00	0.00	0.00	0.00

Fundamental Opinion

It is implicit that recommendations are made in good faith but should not be regarded as the sole source of advice.

There are different approaches and methodologies for determining and valuing stocks in research products, each provided by AlphaValue and Baader Helvea, as described below.

AlphaValue Research

Recommendations are geared to a “value” approach.

Valuations are computed from the point of view of a **secondary market minority holder** looking at a medium term (say 6 months) performance.

Valuation tools are built around the concepts of **transparency**, all underlying figures are accessible, and **consistency**, same methodology whichever the stock, allowing for differences in nature between financial and non financial stocks. A stock with a target price below its current price should not and will not be regarded as an Add or a Buy.

Recommendations are based on target prices with no allowance for dividend returns. The thresholds for the four recommendation levels may change from time to time depending on market conditions. Thresholds are defined as follows, ASSUMING long risk free rates remain in the 2-5% region.

Recommendation	Low Volatility 10 < VIX index < 30	Normal Volatility 15 < VIX index < 35	High Volatility 35 < VIX index
Buy ●	More than 15% upside	More than 20% upside	More than 30% upside
Add ●	From 5% to 15%	From 5% to 20%	From 10% to 30%
Reduce ●	From -10% to 5%	From -10% to 5%	From -10% to 10%
Sell ●	Below -10%	Below -10%	Below -10%

There is deliberately no “neutral” recommendation. The principle is that there is no point investing in equities if the return is not at least the risk free rate (and the dividend yield which again is not allowed for).

Although recommendations are automated (a function of the target price whenever a new equity research report is released), the management of AlphaValue intends to maintain global consistency within its universe coverage and may, from time to time, decide to change global parameters which may affect the level of recommendation definitions and /or the distribution of recommendations within the four levels above. For instance, lowering the risk premium in a gloomy context may increase the proportion of positive recommendations.

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Rating categories:

The following is an explanation of the ratings, if any, included in Baader Helvea research.

Interpretation matrix per risk category for each rating:

Expected total return based on forecast dividend and 12-month price targets.

Rating	Upside/downside to the target price
Buy	>20%
Add	5%-20%
Reduce	-10% to 5%
Sell	<-10%

Research ratings key:

There are four possible ratings: Buy, Add, Reduce or Sell.

Examples of certain ratings:

Buy: A company that the analyst(s) named in this report deem(s) higher risk with a forecast dividend yield of 5% and price appreciation potential of 16%, generating a forecast total return of 21% over 12 months.

Reduce: A company with a forecast dividend yield of 7% and price appreciation potential of -5%, generating a forecast total return of +2% over 12 months.

Baader Helvea uses three further categorizations for stocks in our coverage:

Restricted: A rating and/or financial forecast and/or target price is not disclosed due to compliance or other regulatory considerations such as blackout period or conflict of interest.

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Not rated: Suspension of coverage.

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Within those three universes, the valuation techniques are the same and in relation to the financial data available.

The weighting given to individual valuation techniques is managed centrally and may be changed from time to time. As a rule, all stocks of a similar profile are valued using equivalent weighting of the various valuation techniques. This is for obvious consistency reasons.

Within the very large universe of Non Financials, there are in effect 4 sub-categories of weightings to cater for subsets: 1) 'Mainstream' stocks; 2) 'Holding companies' where the stress is on NAV measures; 3) 'Growth' companies where the stress is on peer based valuations; 4) 'Loss making sectors' where peers review is essentially pointing nowhere (ex: Bio techs). The bulk of the valuation is then built on DCF and NAV, in effect pushing back the time horizon.

Valuation Issue	Normal industrials	Growth industrials	Holding company	Loss runners	Bank	Insurers
DCF	35%	35%	10%	40%	0%	0%
NAV	20%	20%	55%	40%	50%	15%
PE	10%	10%	10%	5%	10%	20%
EV/EBITDA	20%	20%	0%	5%	0%	0%
Yield	10%	10%	20%	5%	10%	15%
Book	5%	5%	5%	5%	10%	10%
Banks' intrinsic method	0%	0%	0%	0%	10%	0%
Embedded Value	0%	0%	0%	0%	0%	40%
Mkt Cap/Gross Operating Profit	0%	0%	0%	0%	10%	0%

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