

**Buy** (Initiation)

04.05.2023

**EUR 48.00** (Initiation)

## The World Is Not Enough - Launching Coverage with BUY

Everyday life heavily **depends on space**. **Satellites** for communication, navigation, weather forecasts, the monitoring of climate change as well as reconnaissance and **space systems** for science and exploration missions form the pillar of Europe's space sector. Additionally, rockets are needed to bring the payloads into orbit.

As a **leading developer and manufacturer of satellites**, OHB is a **well-positioned** and the **most profitable** player in the oligopolistic, European space sector. OHB's high **tech product and service offerings** covers **most parts of the space value chain**. Subsidiaries all over Europe and long lasting institutional contracts from ESA and national space agencies guarantee OHB **diversified and long-term revenue streams**. Especially ESA's strong focus on **earth observation** as well as **science & exploration**, both **OHB's sweet spots**, provide the company with **perennial profitable earnings**.

Investing in space yields a high return. On average, per \$ spent on space missions, \$ 3 of economic output is generated back on earth, according to NASA. Hence, **governmental space budgets continue to grow**, regardless of short-term economic headwinds. Additionally, the **ongoing commercialization of the space sector** coupled with **sinking costs for launches**, should pose further growth opportunities.

**OHB is ready for the future**: Participation in large scale missions to moon and mars, satellite platforms that enable quick and cheap satellite production and OHB's activities in the exploitation of satellite data and services should give OHB a **head start in a growing market**. After last year's ESA ministerial council, we should see **significant new order intakes of up to € 1.4bn** from both, institutional and commercial customers for FY 2023/24e. While strong demand for OHB's product and service offerings remains well intact, OHB looks set to **double-digit revenue growth** until FY 2026e (eNuW: 10% CAGR). Coupled with margin expansions based on scale effects, we expect **EBIT to grow at 16% CAGR** into FY 2026e (eNuW).

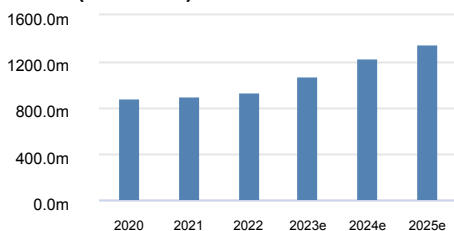
Current trading in relation to OHB's relevant peer group as well as historic multiples indicate an **unjustified undervaluation of the stock**, especially given OHB's strong economic moat in combination with the sector's strong market outlook.

We launch coverage with a **BUY rating and PT of € 48** based on DCF.

Y/E 31.12 (EUR m)	2020	2021	2022	2023e	2024e	2025e
Sales	880.3	905.0	944.5	1,086.2	1,227.4	1,362.4
Sales growth	-12.4%	2.8%	4.4%	15.0%	13.0%	11.0%
EBITDA	77.0	83.6	99.3	108.6	116.6	134.9
Net debt (if net cash=0)	65.3	144.9	247.4	197.8	160.0	106.3
FCF	23.0	-39.9	-11.4	60.0	50.8	68.6
Net Debt/EBITDA	0.8	1.7	2.5	1.8	1.4	0.8
EPS pro forma	1.20	1.58	1.97	2.56	2.94	3.51
EBITDA margin	8.7%	9.2%	10.5%	10.0%	9.5%	9.9%
ROCE	8.7%	8.7%	10.1%	10.8%	12.1%	14.0%
EV/sales	0.8	0.9	0.9	0.7	0.6	0.5
EV/EBITDA	9.7	9.8	8.4	7.2	6.4	5.1
PER	27.3	20.7	16.6	12.8	11.1	9.3
Adjusted FCF yield	7.3%	7.5%	8.9%	10.0%	11.1%	13.9%

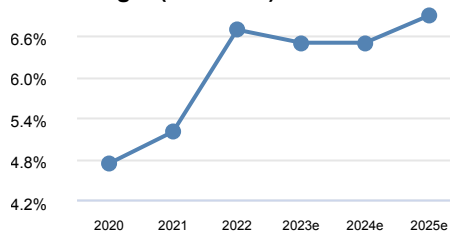
Source: Company data, NuWays, Close price as of 02.05.2023

### Sales (2020-25e)



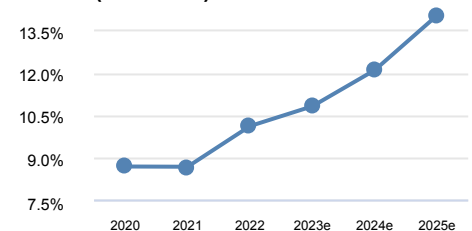
Source: NuWays Research

### EBIT margin (2020-25e)



Source: NuWays Research

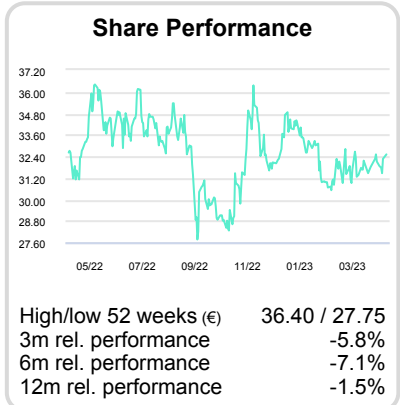
### ROCE (2020-25e)



Source: NuWays Research

### Company description

OHB is a leading manufacturer of space systems, namely satellites for all kinds of purposes. Also, OHB supplies launcher components and tanks for rockets and aircrafts, manufactures ground systems, antennas & telescopes and provides satellite data, cybersecurity and encryption services.



### Market data

Share price (in €)	32.50
Market cap (in € m)	567.7
Number of shares (in m pcs)	17.4
Enterprise value (in € m)	781.3
Ø trading volume (6 months)	3,208

### Identifier

Bloomberg	OHB GR
Reuters	OHB.DE
WKN	593612
ISIN	DE0005936124

### Key shareholders

Fuchs Family	69.7%
Treasury Shares	0.6%
Free Float	29.7%

### Estimates changes

	2023e	2024e	2025e
Sales	0.0	0.0	0.0
EBIT	0.0	0.0	0.0
EPS	0.0	0.0	0.0

### Comment on changes

### Guidance

- FY 2023 Total Sales: € 1,176m
- FY 2023 EBITDA: € 109m
- FY 2023 EBIT: € 70m

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## OHB in a nutshell

OHB is a leading European satellite manufacturer, based in Bremen, Germany.

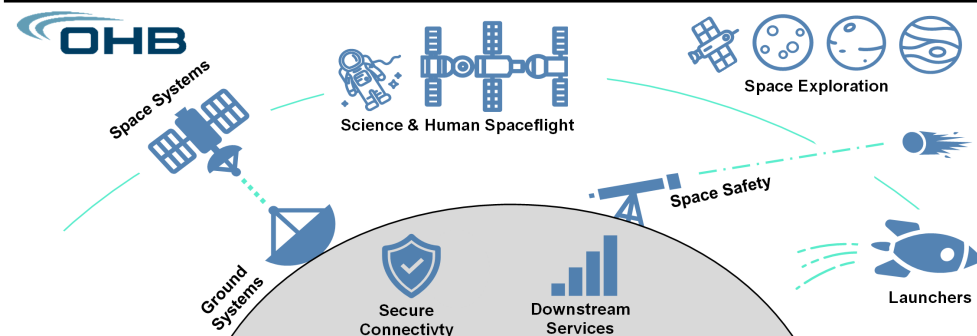
In 1981, Christa Fuchs took over the maritime supplier “Otto Hydraulik Bremen GmbH” with 5 employees, before her husband Manfred Fuchs joined OHB in 1985. Together, they saw an opportunity in the niche for small and cheap satellites, unthinkable for the time, and switched the focus of OHB to satellites and renamed the company to “Orbitale Hochtechnologie Bremen”.

OHB’s first satellite “Brem-Sat” proves the founders’ business idea: small and cheap is possible. After the IPO in 2001, OHB grew from a small satellite manufacturer to **a leading manufacturer of space systems** by winning the game changing contract for SAR-Lupe satellites against overpowering competition such as Airbus.

Today, OHB is led by the founders’ son Marco Fuchs, employs more than 3,000 people and is one of three major European space companies in an oligopolistic market with extremely high market entry barriers. OHB’s three segments **Space Systems** (78% of sales), **Aerospace** (12% of sales) and **Digital** (10% of sales) generate millions of profitable and diversified revenues.

Next to satellites for all different purposes, OHB engages in the domains of **science & space exploration**, space transportation, human spaceflight, ground systems & telescopes as well as downstream services and secure connectivity. Subsidiaries all over Europe enable OHB to **benefit at every part of the space value chain**.

### OHB's universe



Source: NuWays














OHB manages to achieve **best in class profitability** (6.3% EBIT margin for FY 2022) compared to its biggest peers Thales (Space Segment) and Airbus (Defence & Space segment) despite significant investments into science, new technology and state of the art production facilities (FY 2022: € 32m CAPEX, thereof € 15.8m R&D expenditure).

They enable OHB to **source new growth opportunities** while leading at the edge of innovation without jeopardizing financial stability.

OHB is trusted not only by the European Space Agency (ESA), but also supplies armed forces, national space agencies, governments and commercial customers with space systems, launcher components and services. They provide **OHB with long lasting revenue streams** on the back of OHB’s high order backlog of € 1.9 bn by FY 2022 and strong expected order intake of € 1.4bn in FY 2023/24e. Sales growth looks set to be further driven in the medium and long term, thanks to (1) increased **institutional focus on space** infrastructure and security, (2) the growing demand for **small satellites** and (3) the ongoing **commercialisation of the space sector** including the strong growth in **downstream services**.

OHB is well prepared to meet the structural demand, as it **covers all growth markets with relevant products and services**.

## Company Overview

	Group																																						
Segments	Space Systems	Aerospace	Digital																																				
	Space Systems	Launchers, Structures & Tanks	Ground Systems, Antennas & Services																																				
Sales Split																																							
	<table border="1"> <thead> <tr> <th></th> <th>Sales</th> <th>In %</th> </tr> </thead> <tbody> <tr> <td>Reconnaissance and space safety</td> <td>229</td> <td>30%</td> </tr> <tr> <td>Environmental and weather satellites</td> <td>252</td> <td>33%</td> </tr> <tr> <td>Telecommunication and navigation satellites</td> <td>101</td> <td>13%</td> </tr> <tr> <td>Science, exploration and others</td> <td>187</td> <td>24%</td> </tr> </tbody> </table>		Sales	In %	Reconnaissance and space safety	229	30%	Environmental and weather satellites	252	33%	Telecommunication and navigation satellites	101	13%	Science, exploration and others	187	24%	<table border="1"> <thead> <tr> <th></th> <th>Sales</th> <th>In %</th> </tr> </thead> <tbody> <tr> <td>Launcher components</td> <td>113</td> <td>93%</td> </tr> <tr> <td>Tanks and structures</td> <td>7</td> <td>6%</td> </tr> </tbody> </table>		Sales	In %	Launcher components	113	93%	Tanks and structures	7	6%	<table border="1"> <thead> <tr> <th></th> <th>Sales</th> <th>In %</th> </tr> </thead> <tbody> <tr> <td>Railway infrastructure, cybersecurity and encryption</td> <td>12</td> <td>12%</td> </tr> <tr> <td>Telescopes, satellite operations and ground systems</td> <td>33</td> <td>31%</td> </tr> <tr> <td>Data Analytics, applications and professional services</td> <td>11</td> <td>11%</td> </tr> </tbody> </table>		Sales	In %	Railway infrastructure, cybersecurity and encryption	12	12%	Telescopes, satellite operations and ground systems	33	31%	Data Analytics, applications and professional services	11	11%
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<b>Share</b>	<b>78%</b>	<b>12%</b>	<b>10%</b>																																				
<b>Application Fields</b>	Earth Observation Telecommunication Navigation Space Safety Science Exploration & Human Spaceflight	Micro-Launchers Launcher Components Aviation Additive Manufacturing Hydrogen Tanks	Downstream Services Ground Systems Digitalization Navigation Services Cybersecurity Encryption																																				
<b>Exemplary subsidiaries</b>	OHB System AG (100%) OHB Italia S.p.A. (100%) OHB Sweden AB (100%) Antwerp Space (100%)	MT Aerospace AG (70%) Rocket Factory Augsburg AG (57%, not consolidated)	OHB Digital Connect GmbH (100%) OHB Digital Services GmbH (74.9%) OHB Digital Solutions GmbH (100%) GEOSYSTEMS GmbH (100%)																																				
<b>Role</b>	OEM & 1 <sup>st</sup> tier supplier	OEM & 1 <sup>st</sup> tier supplier	OEM, Product and Service Provider																																				
<b>Exemplary Missions</b>																																							
<b>Exemplary Customers</b>	 Institutional & Commercial	 Institutional & Commercial	 Institutional & Commercial																																				
<b>Exemplary Competitors</b>																																							
<b>EBIT (€ m) FY 2022</b>	<b>48.2</b>	<b>5.5</b>	<b>10.7</b>																																				
<b>EBIT margin</b>	<b>5.9%</b>	<b>4.6%</b>	<b>10.1%</b>																																				
<b>Presence</b>	 GER ITA LUX GRC CZE BEL MEX AUT SWE GUF CHL 15 locations in 11 countries																																						

Source: company data, NuWays

Sales split does not include intercompany sales and own work capitalized.  
Group Sales includes holding and consolidation.

## Competitive Quality

- Highly visible, recurring, and diversified revenue streams due to multiple, long-term space projects.
- OHB reaches profitability above industrial average and relevant peers.
- Leading position in earth observation, reconnaissance, space safety, science & exploration.
- OHB maintains a strong position in Europe’s oligopolistic space sector and covers every part of the space value chain.

### Recurring and highly visible revenue streams

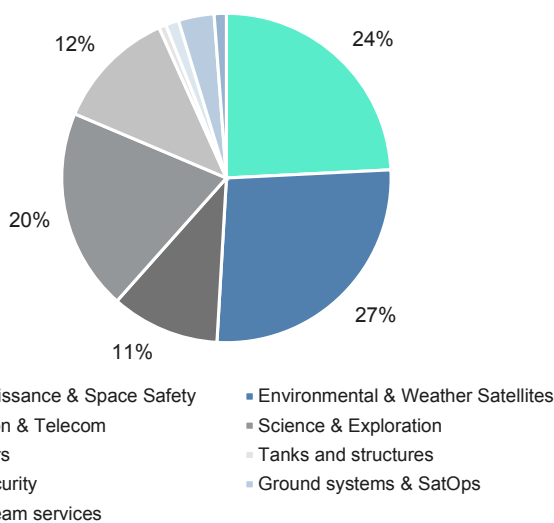
The project-based business generates **highly visible, long-term revenues** as space projects usually last 3-6 years, sometimes up to 10 years or more. OHB is subject to milestone payments, which flow over the given project period and have close to 0% **payment default risks**, thanks to institutional budgets. Additionally, most new contracts have **cost indexed price transmissions** and hence **guarantee profitable margins** of long-lasting projects, even during high-cost inflation for personnel and raw materials. The current order backlog of € 1.9bn as of FY 2022 combined with a strong expected order intake of € 1.4bn in FY 2023/24e stemming from new space projects to be awarded to OHB, lays the foundation for stable revenues until 2025e and beyond.

In general, OHB benefits from **follow up orders**. Satellites have limited fuel and the hostile space environment (temperature differences of up to 400°C, intense solar radiation, etc.), as well as the inability to do repairs in orbit cause an average satellite’s life span of 5-20 years. Hence, satellites need to be replaced, providing **recurring revenues** for OHB.

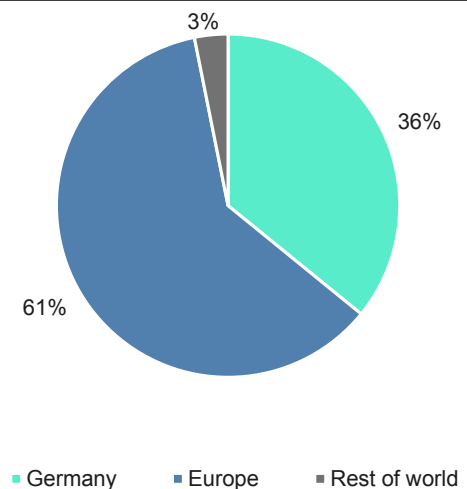
**OHB is a key contributor** for most European space projects. The European Space Agency maintains several domains, e.g., earth observation, science & exploration, telecommunication, space transportation and space safety. OHB plays a major role in almost all these domains by contributing with whole space systems or its critical components.

Therefore, OHB can rely on a **diversified mix of revenues**, coming from multiple space missions, across all of ESA’s domains and from customers all over Europe.

FY 2022 revenue mix by domain



FY 2022 revenue mix by region



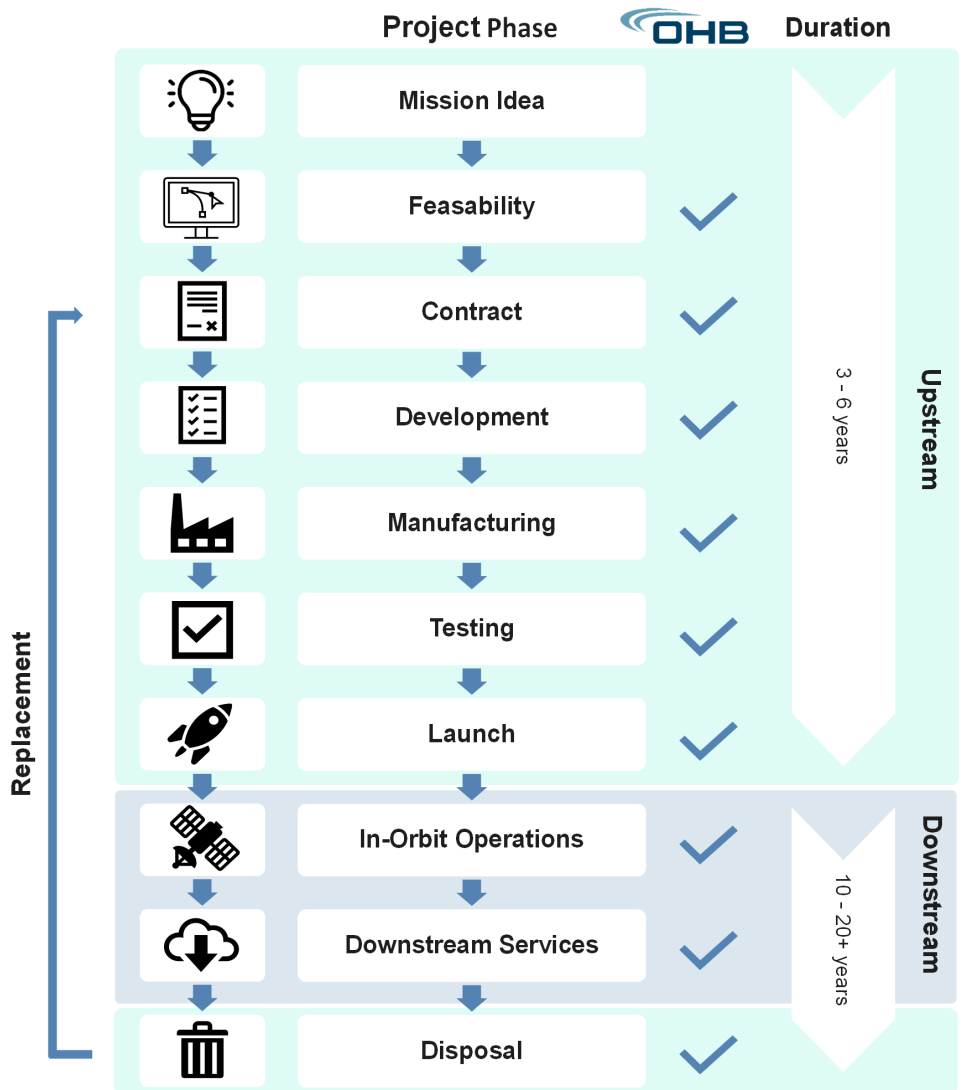
Source: company data, NuWays

## Benefitting at every part of the value chain

Next to its biggest income from the development and manufacturing of space systems, OHB conducts **feasibility studies** for potential space missions, prepares **micro-launchers** and **launch sites** for its maiden flight and supplies **launcher components** to Ariane Group and other third parties. Additionally, OHB aims to be part of the last step of the value chain, by being part of Europe's "ClearSpace-1" mission: developing a debris removal spacecraft. All that is commonly called the "upstream market". OHB's FY 2022 revenue **exposure to the upstream market amounted to 89% of sales**.

Moreover, OHB's Digital segment **exploits opportunities from the "downstream market"**, by offering **in orbit operations** with complementary **ground systems** and **downstream services** using **satellite data**. OHB's FY 22 exposure to the **downstream market amounted to 11% of sales**, but to 17% of EBIT with additional profitable growth in this market going forward.

### OHB is positioned at most parts of the space value chain

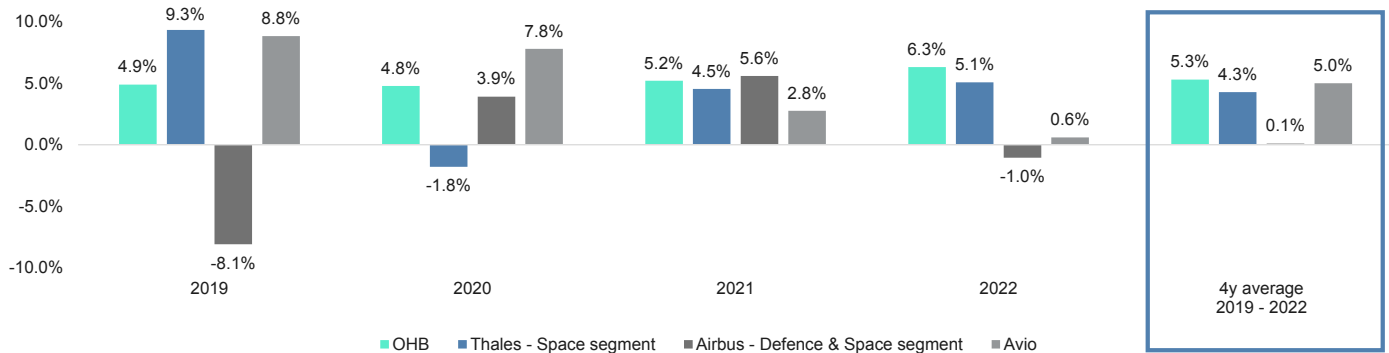


Source: NuWays

## Best in class profitability

OHB achieves best in class profitability with an 4y average EBIT-margin of 5.3%, compared to relevant peers.

## OHB is the most profitable player in the European space sector



Source: Thales, Airbus, Avio, OHB, NuWays

Clearly, OHB better manages its cost structure due to its smaller size and resulting from that, maintains higher agility, less hierarchical structures and fast decision-making processes. Also, **its satellite platforms** unlock economies of scale that are especially driven by:

- one time development costs,
- Standardized products,
- recurring processes,
- less need for training satellite assemblers,
- high adaptability for multi-purpose applications,
- experience and know-how generation.

OHB can therefore offer a **broad range of application fields at every orbit**, while keeping development costs for new satellites low.

Platform Name	Orbit	Type of space system	Typical Applications	Exemplary Missions
SmartLEO	Low Earth Orbit	Small Satellite	Earth Observation, Reconnaissance, Science	SAR-Lupe, EnMAP
SmartLEO Agile	Low Earth Orbit	Small Satellite	Earth Observation, Reconnaissance, Science	SARah
SmartMEO	Medium Earth Orbit, Low Earth Orbit	Small Satellite	Navigation	Galileo
SmallGEO	Geostationary Orbit, High Earth Orbit	Medium Satellite	Telecommunication, Earth Observation, Meteorology	H36W-1, EDRS-C, Meteosat Third Generation (MTG)
Interplanetary	Interplanetary, Lagrange Points	Spacecraft	Planetary Transfer, Carrying of Mars Lander and Orbiter	ExoMars Trace Gas Orbiter
Triton-X	Low Earth Orbit	Micro-Satellite	Telecommunication, Earth Observation, other	SeRANIS
InnoSat	Low Earth Orbit	Micro-Satellite	Earth Observation	Satlantis, MATS
M3	Low Earth Orbit	Micro-Satellite	Earth Observation, Multi-Mission	IRIDE, Eaglet-II

Source: OHB, NuWays

On the back of its modular satellite production, **OHB is not only well positioned** to benefit from the current trend towards smaller and cheaper satellites but should also **improve its EBIT margin to at least 8%** by FY 2026e (vs. 5.9% in FY 2022) in the

Space Systems segment.

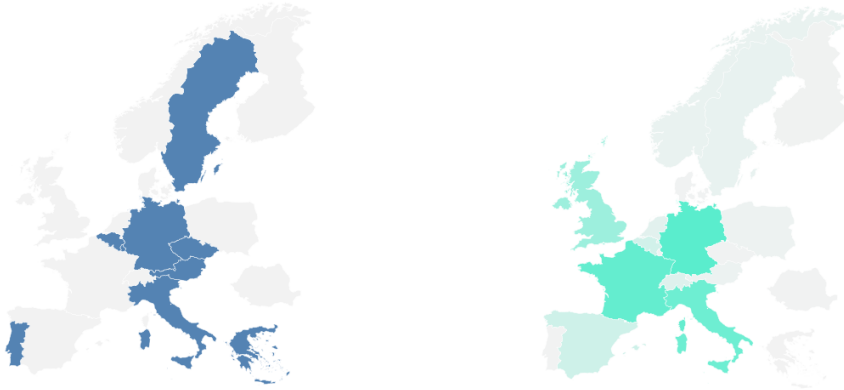
The latest example of OHB's success in the small and micro satellite market are the awarded contract of Italy's **IRIDE** satellite constellation based on the **M3 platform** as well as the **SeRANIS** satellite based on the **Triton-X** platform. The new platforms, M3 (Multi-Mission Microsatellite) and Triton-X, as well as the proven **InnoSat** platform are **specifically designed for the New Space era**, where an increasing commercial demand for micro-satellites driven by large constellations is imminent.

## Broad European presence

The European space sector is very dependent on governments and institutions with the need for political relations and cooperation between all member states. Therefore, ESA adheres to the **geographical return principle** (geo-return), meaning that ESA missions should be awarded proportionately to the country's budget contribution. For example, if Germany contributes a share of 10% to ESA's budget, 10% of order volume should flow back to German companies.

OHB's presence

ESA member states by budget contribution



Source: European Space Agency, OHB, NuWays

Therefore, OHB maintains subsidiaries in ESA member states with large budget contributions, to maximize its ESA exposure. All ESA member states in which OHB is present (e.g. Germany, Sweden, Italy, etc.) contribute an aggregated **direct exposure of 51%** to the total budget. However, OHB is indirectly exposed to **70% of ESA's budget** if France is taken into account. OHB is not present with a subsidiary in France, but often contributes to space missions as part of consortium with Thales Alenia Space or Airbus Defence & Space, both dominating France.

On the other hand, **OHB maintains a strong presence in Germany, Italy, Sweden and Luxembourg** and is exposed to the national space agencies and armed forces budgets, e.g., ASI (Italy), Bundeswehr & DLR (Germany) or LSA (Luxembourg).

## Well positioned in the European space sector

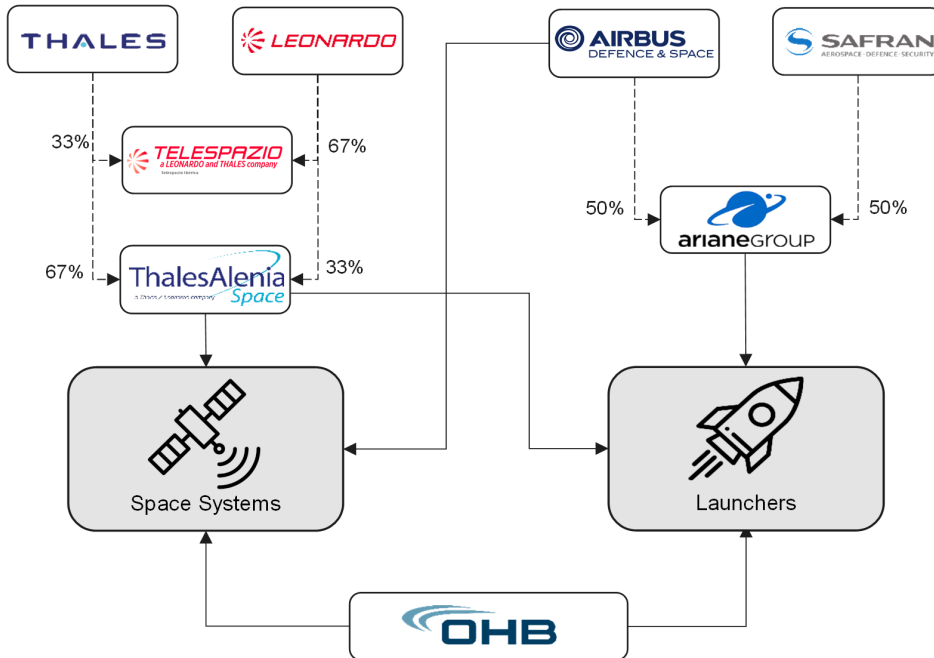
In Europe, **governmental space programs are coordinated by the European Space Agency (ESA)**. National space agencies like DLR (Germany), CNES (France) or ASI (Italy) contribute to ESA's budget, which would coordinate projects as a general contractor, but also have national space missions outside ESA.

The European space sector is **dominated by three major players**: Thales Alenia Space (TAS), Airbus (Defence & Space segment) and OHB, creating an **oligopolistic supplier market** with ESA as a quasi-monopolistic customer. OHB does not only compete against TAS and Airbus, but also works together with them in **consortia with tight customer-supplier relationships**. Given the geo-return policy of ESA, OHB can be considered a natural partner for TAS, because together as a consortium they maximize geo-return exposure against Airbus.



Accordingly, **barriers for entering the market are extremely high** due to the need for high technological know-how as well as the geo-return principle, making it impossible for players outside Europe to receive any relevant orders.

## Schematic Overview of European Space Players



Source: company data, NuWays

Depending on the contract open for tender, OHB usually acts in two ways:

- **prime contractor:** leader of consortium for a mission, responsible for the whole space system, its architecture, delivery, and sometimes also launch. All third-party sub-contractor products and services go through OHB's book, creating higher revenues with the adverse effect of lower margins.
- **sub-contractor:** part of a consortium for a given mission, being responsible for a critical part, e.g., the satellite platform or an important subsystems like the communication system. Only the share of value creation goes through OHB's book. As a sub-contractor the revenues are lower, however the margins are higher.

## Convincing space agencies since 1994

Every three years, the budgets for space mission are decided upon at the ESA ministerial council (MC). All of ESA member states send their respective government representatives responsible for space programmes to determine the country's contribution. Last year's MC yielded an **ESA budget of € 17bn reflecting Europe's strong commitment to space endeavours.**

In order to receive orders of space missions from ESA and other national space agencies, OHB needs to fulfil certain criteria:

- **Development capabilities:** key people and know-how need to be secured for cutting edge development of space systems.
- **Production capacity:** sufficient production sites that fulfil quality standards so projects can be realized in top quality and on time.
- **Financing capabilities:** space agencies need long lasting and financially stable suppliers of space systems.

- **Proven track record:** demonstration of capabilities from past projects to secure follow up orders.

ESA, for example, works with a point system to determine which company will be awarded with the contract. Next to price, important criteria like quality of the team, technical approach and supply chain adherence to the geographic return principle are rated with points. The company with the most points is winning the contract.

OHB employs **key talents**, its production facilities across all of Europe are **state of the art** and fulfil all necessary **quality standards**. As a company of substantial size pre-financing of large satellite projects has never been an issue.

Above all, OHB's strong track record among all of ESA's domains like navigation, earth observation, telecommunication and science & exploration underlines that OHB meets all necessary criteria and could expect **future space missions** from ESA and other agencies to be awarded.

## Earth observation specialist

OHB's **sweet spot** is earth observation (25% of sales in FY 2022), taking a leading position in environmental and weather satellites in Europe. OHB's strong track record in this field as well as the proven satellite platforms suitable for earth observation, underpins this view.

### OHB's key EO satellite programs

	EnMAP	MTG	CO2M	Arctic weather satellite	CHIME
<b>Name</b>	Environmental Mapping and Analysis Program	Meteosat Third Generation	CO2 Monitoring Mission	Prototype / demonstrator for arctic weather satellite constellation	Copernicus Hyperspectral Imaging Mission
<b>Description</b>	Hyperspectral imaging technology makes the invisible visible	Next generation weather satellite	Measuring human greenhouse gas activity	Nowcasting arctic weather to improve forecast models	Hyperspectral analysis of earth's surface
<b>Field of application</b>	Forest-, agriculture-, water- & land- management	Weather observation and forecast	CO2, methan und nitrogen dioxide emission measurement	Weather observation and forecast for arctic regions	sustainable usage of natural resources
<b>Customer</b>	DLR	EUMETSAT / ESA	ESA	EUMETSAT / ESA	EU / ESA
<b># of satellites</b>	1	6	2	1	2
<b>Role</b>	prime manufacturer	consortium with TAS	prime manufacturer	prime manufacturer	sub-contractor for TAS
<b>Order Volume</b>	€ 300m	€ 1,500m	€ 445m	€ 32m	€ 259m
<b>Project phase</b>	in orbit	1 in orbit / 5 in production	in development / production	in development / production	in development / production

Source: ESA, DLR, EUMETSAT, OHB, NuWays

EnMap, MTG and CO2M are milestones in technological development and have set new standards, clearly showing OHB's capabilities in this area. The immense costs for such satellites **reflect the technologically advanced capabilities**.

## OHB can see through clouds - security and reconnaissance expert

OHB's long history of reconnaissance satellites started with the SAR-Lupe contract for German Armed Forces back in 2001. The five satellites are operational since 2007 and are still performing their duties, exceeding its original lifetime by 5 years already.

SAR-Lupe was a game-changer for reconnaissance, as it allowed the German Armed Forces to conduct state of the art space-based reconnaissance at day and night, while seeing through clouds.

The **high-tech SARah satellites constitute the follow-up order** to replace SAR-Lupe. OHB won the contract in 2013 (€ 816m contract volume) which shows **OHB's leading expertise and know-how in the field of military satellite applications**.

Additionally, OHB won a contract of the German government for an electro-optical reconnaissance system **in 2017** with an **order volume of € 550m**. The three satellites are currently under construction at OHB and should be launched in 2024/25e.

Moreover, OHB won the **LUXEOSys** (Luxembourg Earth Observation System) contract in 2018. The dual-use earth observation/reconnaissance satellite should help Luxembourg fulfil its NATO commitments, has an order volume of € 168m for OHB and should be launched in 2023e.

**Reconnaissance and space safety** contributed with **€ 229m (23%)** to group sales in FY 2022, underpinning OHB's strong position in this field.

## Leading in Science: exploring moon, mars, and asteroids

Science and exploration missions are key for understanding our universe and help answering the biggest questions of mankind. Additionally, these **missions create state of the art technology** because space technology is at the edge of innovation.

**OHB is leading in innovative know-how for space systems** that go to unexplored parts of our universe, but also contributes in small amounts to the supreme discipline of human spaceflight. Making up c. **20% of FY 2022 sales, science and exploration are a key undertaking for OHB**, as they not only demonstrate OHB's space capabilities, but also secure important follow-up orders.

OHB **commercially benefits** from newly developed know how and experience coming from science missions in three ways:

(1) Newly developed technology is owned by OHB and can be **transferred to other non-scientific space programs**, like satellites or other space systems.

(2) **Initial development costs** of such technology are **already paid for** by ESA and other space agencies.

(3) Possible **follow-up missions** can be expected after a scientific mission served as a successful demonstrator.

Scientific missions conducted by ESA and NASA involving OHB, underpin the company's strong position in this field, for example:

- **ESPRIT: European System Providing Refueling, Infrastructure and Telecommunications**, for ESA/NASA's Gateway moon mission. OHB is a sub-contractor for TAS (€ 297m total project volume, share of OHB: € 60m).
- **ExoMars**: ESA's ambition to study Mars with a European rover. OHB is prime contractor for the carrier and many instruments of the rover (€ 103m total project volume) as well as sub-contractor for the Trace Gas Orbiter currently in orbit around Mars.
- **JUICE: JU**piter **IC**y moons **E**xplorer to explore three of Jupiter's moons for signs of life. OHB's subsidiary Antwerp Space is responsible for designing, integrating, and testing the mission-critical communication subsystem. (€ 18m for OHB, € 1.6bn total project volume)
- **ISS-Columbus**: European science module for the ISS. OHB was a major contributor of critical elements. (€ 880m total project volume)
- **HERA**: to observe the impact of NASA's DART mission on the asteroid Dimorphos, HERA will be launched in 2024 and is being built by OHB as leader of the consortium. (€ 129 project volume for OHB)
- **EUCLID**: research satellite to investigate of dark matter in space. OHB supplied the propulsion system to TAS (€ 12m project volume for OHB)
- **Solar Orbiter**: satellite to investigate sunbursts. OHB supplied the propulsion system for Airbus Defence & Space (€ 34m project volume for OHB)
- **PLATO: PL**Anetary **T**ransits and **O**scillation of stars, to explore exo-planets out of our solar system. OHB is the prime contractor for this scientific probe. (€ 297m project volume for OHB)
- **Comet Interceptor**: Exploring comets that enter and leave our solar system. OHB is the prime contractor for the three spacecrafts. (€ 117m project volume for

OHB)

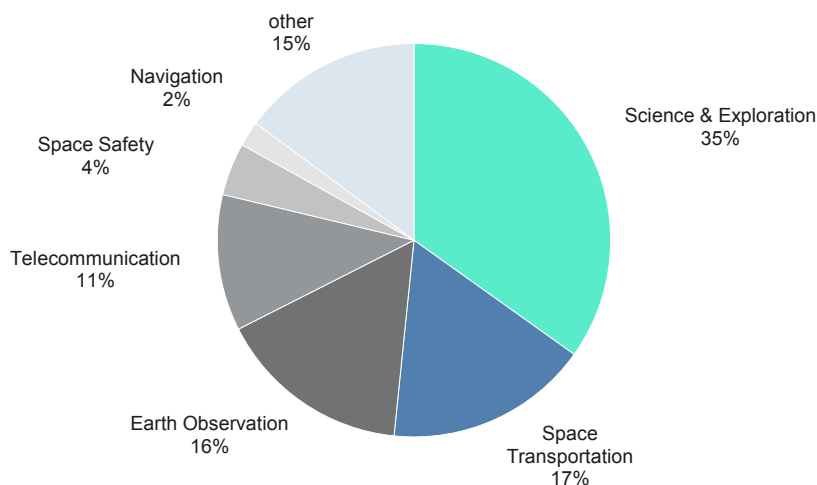
- **FlyEye Telescope:** detecting near Earth objects like asteroids or space debris to protect earth and our satellite infrastructure. OHB is prime contractor for all four telescopes placed around the globe. (€ 55m project volume for OHB)
- **Heinrich Hertz:** communication satellite to study new communications technology. OHB is prime contractor for the € 310m contract by DLR and the satellite should launch in 2023e.
- **SeRANIS: Seamless Radio Access Network for Internet of Space,** developing 6th generation (6G) communication systems, laser communication and IoT for University of German Armed Forces Munich. OHB is supplying the satellite platform as prime contractor. (Undisclosed project volume; eNuW: € 50-150m)

For example, OHB's know how and experience from its contributions to the ISS module secured a follow-up order for the ESPRIT module, which is part of the joint ESA / NASA Gateway moon mission.

Further, OHB-built Heinrich Hertz satellite has created necessary competencies for future military communication satellites like **SATCOMBw3**, which has an significant (undisclosed) order volume and could be awarded to OHB with a substantial share in 2023e as prime or sub-contractor.

ESA keeps a strong focus on science & exploration. At last year's MC, the **budget** dedicated for science and exploration missions **was not only the largest domain** (35% of total budget), but also **rose by 63% to € 5.9bn** compared to previous ESA MC in 2019.

## Science and Exploration dominate ESA's budget



Source: ESA, NuWays

## Producing rocket science - Made in Germany

OHB's subsidiary MT-Aerospace (MTA) is a high-tech manufacturer of critical rocket components and has a **value-add share of 10% to the European launcher program Ariane** but also expands its standing as a reliant supplier of rocket components to the US market, namely Boeing and its SLS moon rocket. Its expertise lies in production **technology of lightweight engineering, additive manufacturing** (industrial 3D printing) and **hydrogen tanks**. Next to launcher components, MTA also supplies tanks and structures for the aviation industry, for example Airbus.

**OHB's subsidiary Rocket Factory Augsburg** (57% stake, not consolidated) is a leading developer of **micro-launchers** (small rockets for payloads below 1,000kg). The maiden flight of "RFA One" is planned for end of 2023e and should fill an **important gap** in the European launcher landscape, once successful.

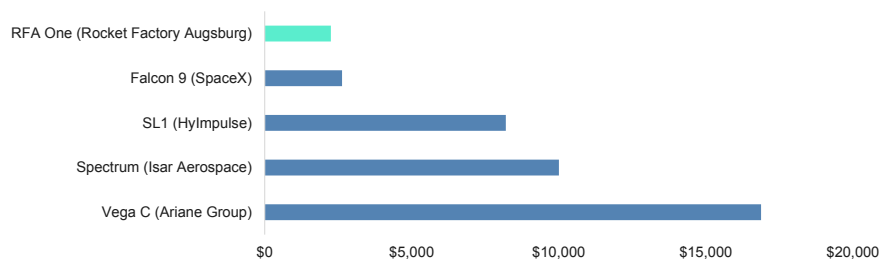
The at-equity subsidiary Aerotech Peissenberg (34% stake; high-tech supplier of jet engines and gas turbines for e.g. Rolls Royce, MTU or Airbus) and the recent

strategic minority investment into Deutsche Aircraft Holding (undisclosed stake; manufacturer of e-fuel ready aircrafts) complete the product portfolio of OHB's segment Aerospace.

## RFA One: Leading in price, development and technology

Once it completed its maiden flight and serial production is set up and running, a launch of RFA One into low earth orbit should **cost only to 1,875 €/kg** versus c. 23,400 €/kg with VEGA-C, c. 2,500 €/kg with SpaceX' Falcon 9.

Cost efficiency of exemplary launchers (\$/kg into low earth orbit)



Source: RFA, SpaceX, Isar Aerospace, Hylmpulse, Road to Launchpad - Report(2023), NewSpaceIndex, NuWays

According to a comparative analysis of German micro launchers "Road to Launchpad" (2023) **RFA is leading overall compared to its competitors** Isar Aerospace and Hylmpulse. Next to rentability and other financial KPIs, technological advancement, available launch sites and management expertise were key factors.

RFA should see significant revenues going forward, as it plans to launch a rocket every week. The maiden flight is fully booked, the current **contract volume amounts to € 50m** and the **current contract volume pipeline is seen at € 500m**.

## Strong & secure link between earth and space: Segment Digital

To operate satellites and retrieve satellite data, a **secure and stable connection between satellite and earth is essential**. OHB's segment Digital develops and manufactures complementary **ground systems** and provides satellite operations services for their customers, extending the share of the **value chain beyond the satellite's launch**. As with any critical infrastructure, the connection needs to be secure, encrypted, and incorruptible.

Additionally, OHB's segment Digital also develops and **builds high-tech telescopes**, that enable research institutes to conduct groundbreaking research. For example, the latest FlyEye telescopes for ESA and Italian Space Agency ASI (awarded to OHB in Q3 2022) demonstrate **state of the art technology standards** and serve the purpose of detecting objects sizing only 15cm in low earth orbit (up to 2,000 km) and 35cm in medium earth orbit (up to 20,000 km). Ground systems, antennas and telescopes contributed **€ 33m (3%) to total sales in FY 2022**.

Beyond ground systems and telescopes, OHB engages in soft- and hardware services for secure connectivity, especially **encryption and cybersecurity** (FY 2022: € 12m sales; 1.2% of total sales). An important foothold has been achieved by securing a long-term contract from Deutsche Bahn Netz AG (DB) for **OHB's end-to-end security product "cryptOHBguard"** for critical infrastructure, which need to be installed at every signal box in Germany's railway network by 2030e. (eNuW: € 375m potential order volume spread over the next 8 years). So far, roughly 4k signal boxes have been equipped by OHB and the complementary long-term licensing and maintenance contracts should provide **recurring revenues going forward**.

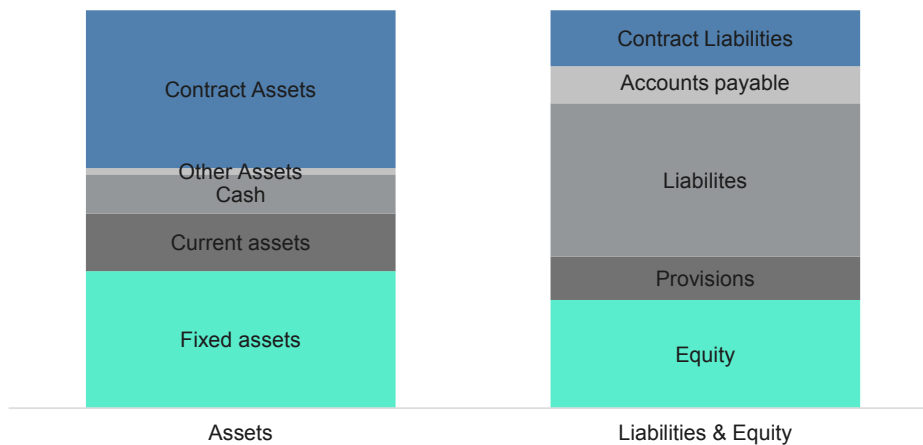
## Business quality

- Working capital build up on paper blurs the cash generation picture.
- OHB's capital employed earns more than it costs.
- Equity shareholders receive solid returns and dividends.

### Accounting methods blur the picture of cash generation

OHB provides the typical project driven business model, leading to fluctuating working capital positions. The operating cash flow fluctuates accordingly. The largest working capital items are so called **contract assets**:

#### Balance Sheet as of FY 2022



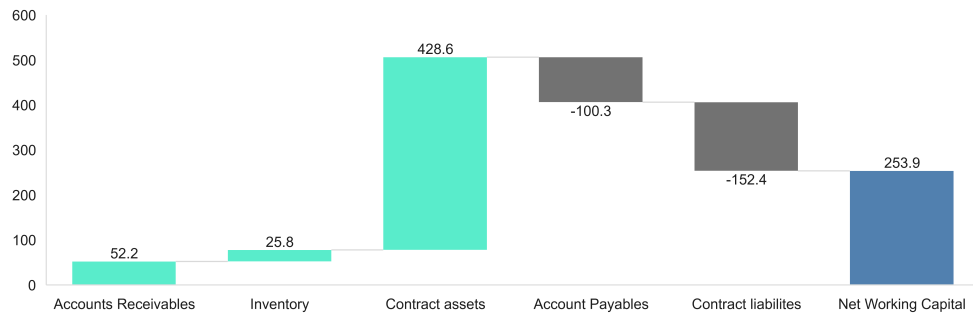
Source: company data, NuWays

According to IFRS 15, OHB capitalizes “**unbilled accounts receivables**” as **contract assets** due to the discrepancy between the already recognised revenues and its not yet invoiced amounts. Revenue recognition in a project is based on the percentage of completion and is not automatically synchronised with the corresponding payment milestone plan. This revenue recognition (which stands for the level of completion of the contract) is not **automatically synchronized with the respective payment milestone** plan of the project. Therefore, **contract assets will turn inevitably into accounts receivable and after payment into cash.**

In the past years, OHB built up contract assets and accounts receivable quicker than the corresponding cash came in, negatively affecting the operating cash flow. However, this should not be worrying because eventually, this **effect should turn around in the opposite direction and generate cash.**

In our view, OHB's **net working capital position is inflated by high contract assets**, making up € 429m as of FY 2022, 40% of total assets.

## Net working capital composition as of FY 2022



Source: company data, NuWays

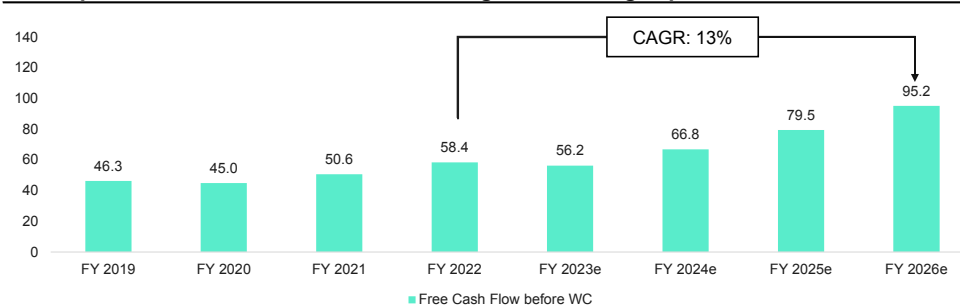
Hence, the operating cash flow should be looked at **without changes in working capital** to realistically measure operating performance:

(in € m)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023e	FY 2024e	FY 2025e	FY 2026e	CAGR '22-26e
Operating Cash Flow	22.9	44.1	-17.3	9.1	101.0	85.8	104.6	131.6	
change in WC	44.4	22.0	90.5	69.8	-3.8	16.0	10.9	-0.4	
Operating CashFlow before WC	67.2	66.1	73.2	78.9	97.2	101.8	115.5	131.2	
CAPEX	20.9	21.2	22.6	20.5	41.0	35.0	36.0	36.0	
<b>Free Cash Flow before WC</b>	<b>46.3</b>	<b>45.0</b>	<b>50.6</b>	<b>58.4</b>	<b>56.2</b>	<b>66.8</b>	<b>79.5</b>	<b>95.2</b>	<b>13.0%</b>

Source: company data; NuWays

OHB's operating cash flow before WC experienced a **consistent trend: upwards**. Deducting necessary CAPEX to ensure state of the art development and manufacture of high-tech satellites, the **Free Cash Flow before WC also shows a strong development** and indicates a more suitable operating performance measure for OHB:

## Development of Free Cash Flow before changes in working capital



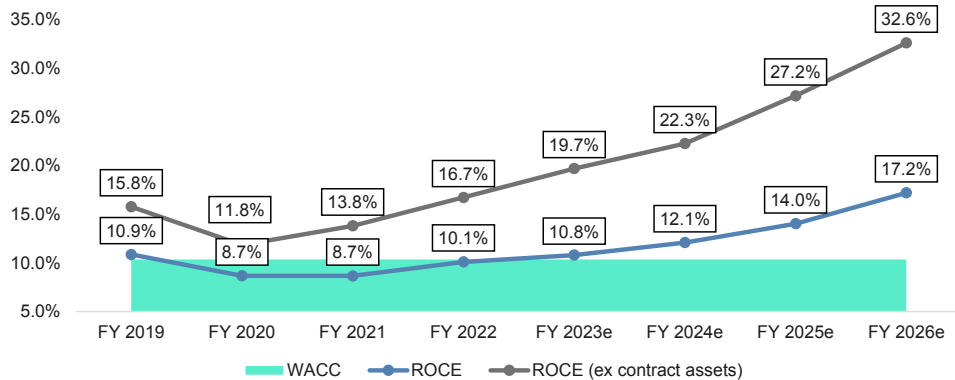
Source: company data, NuWays

Despite muted top-line development from FY 2019 to FY 2022 (- 3%), OHB has still shown a strong development of its operating performance. **FCF before WC increased by +26% during the same period**, providing a more realistic picture of business development, in our view. Going forward, **FCF expansion looks set to accelerate due to the dynamics described above**. Note that CAPEX in 2023e should be seasonally higher due to the expected CAPEX expansion after important contract wins from ESA in FY 2023e, thus adversely affecting FCF before WC in 2023e.

## Attractive returns for stakeholders

OHB's asset heavy business model is not only profitable, but also **value-accretive** for shareholders. Following the supply chain related obstacles during COVID, which burdened asset utilization as well as margins, **FY 2022 results have shown an impressive recovery of margins**, thus improving ROCE.

## OHB's business model is value accretive

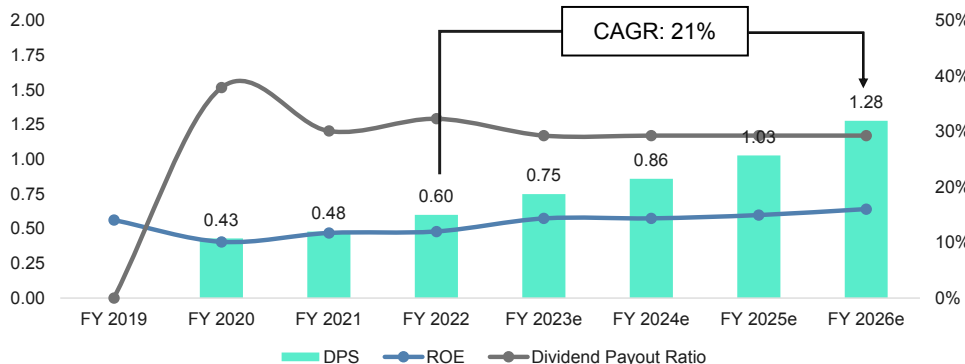


Source: company data, NuWays

Adjusting the capital employed for the significant impact of net contract assets (contract assets minus contract liabilities), the ROCE ex net contract assets shows that **OHB's employed capital earns notably more than it costs** (eNuW: 19.7% ROCE ex contract assets vs. 10.4% WACC for FY 2023e), creating value for stakeholders.

**Strong returns for equity investors:** OHB's ROE has seen an improvement during the last few years (eNuW: 16% ROE vs. 7% equity risk premium for FY 2023e). Additionally, OHB pursues a **solid dividend policy** and has continued to increase DPS, despite a slightly decreasing payout ratio. FY 2019 marks a COVID-related exception to OHB's dividend policy due to the expected uncertainties at the time. We estimate a **constant payout ratio** of 29% going forward, signaling a potential upside to our estimates should management decide to raise the payout ratio to historic levels (e.g., FY 2020: 38% payout ratio). Based on current trading, **OHB's dividends yield a 2.3% return**.

## Solid ROE and dividend policy



Source: company data, NuWays



## Growth

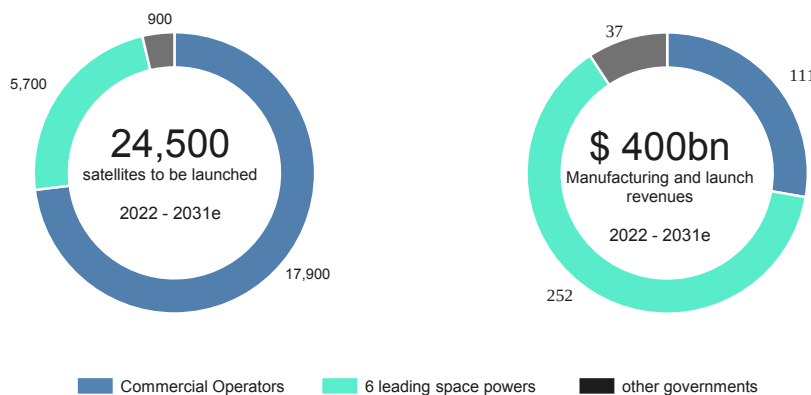
- Satellites continue to soar in demand thanks to institutional and commercial space programs.
- Exploitation of satellite data in a New Space economy are imminent.
- Access to space: urgent demand for launchers in Europe.
- Growth beyond space by technology transfer.
- Profitable double-digit growth ahead.

### Satellite demand keeps on growing

Between 2022-2030, Euroconsult estimates c. 25k satellites to be launched into space globally, generating some **\$ 250bn satellite manufacturing** and **\$150 bn in launching revenues**. Most revenues should be generated by **institutional customers (63%)**, whereas **commercial customer** would contribute with 37% of revenues, marking a substantial **increase compared to today (c. 5%)**. Demand for OHB satellites should hence be driven by two main pillars:

- (1) Institutional demand for large satellite programs will grow steadily, **providing long-term and stable revenue opportunities** for OHB’s core business.
- (2) Commercial demand for satellites will pick up significantly, providing **dynamic growth opportunities for OHB**, however at lower revenue volumes.

#### Strong demand for satellites for the next decade



Source: EuroConsult, NuWays

OHB is already **well prepared to meet that demand** thanks to its range of satellite platforms, proven track record and leading know-how.

### Protection of critical infrastructure - in and from space - is a top priority

Satellites are critical infrastructure by delivering data and services for **crucial infrastructure on Earth**, e.g., navigation, pipelines, banking systems, power networks, or IT-systems.

During Russia’s invasion of Ukraine and the simultaneous cyberattack on a communication satellite, which affected Ukraine’s communication systems, but also the accessibility of offshore wind turbines for remote management, it became abundantly clear that **space safety and the protection of critical infrastructure** are essential for Europe.

Therefore, the EU recently altered its Space Strategy , now emphasizing on the understanding of space threats, the enhanced **resilience and protection of space**

**systems and services** and the ability to respond to attacks and threats.

The European Parliament recently approved the **IRIS<sup>2</sup>** - Infrastructure for Resilience, Interconnectivity and Security by Satellite - mission to provide Europe with an independent and secure connectivity and telecommunication network based on a **constellation of c. 170 small satellites**. The total volume adds up to **€ 6bn** and should be up and running by 2027e. OHB is prepared to receive a **significant portion of that project** (eNuW: 10-20%, equivalent to € 600 - 1,200m), which will likely be built by a consortium of major European satellite manufacturers, in our view.

Additionally, OHB is successfully shortlisted for the prime bid for **SATCOMBw3**, the 3<sup>rd</sup> generation of secure telecommunication satellites for the German Armed Forces, has a **significnat potential order volume** and is part of the **€ 100bn special funds** ("Sondervermögen") for the **German Armed Forces**.

The recent **win** of the "IIMEO" (Instantaneous Infrastructure Monitoring by Earth Observation) **pilot project** (project volume: € 2.8m), should be another important step by OHB to further expand its activities in this field. It has the goal to identify and demonstrate the surveillance of critical infrastructure from space in real time, enabling quick and efficient crisis response.

## Earth observation is key in fighting climate change

Climate change can only be measured, understood, and mitigated by remote sensing data from space. Measuring CO2 concentrations in specific areas where sensors cannot be placed, monitoring the sea level change, or **providing critical data for climate and weather models is only possible with earth observation satellites**, OHB's sweet spot.

Undoubtedly, earth **observation satellites play a vital role** in combating climate change. Outside of climate change, EO satellites play an additional, important role in **crisis response** (e.g., coordination of rescue after earth quakes or floods) and many other fields, where a bird's eye view on earth is needed.

According to EuroConsult, the number of earth observation satellites is expected to grow from **275 in 2020 to 600 in 2030e (CAGR: 9%)**. With the EU's ambitious plan of climate neutrality, we expect **double digit growth rates in demand for EO satellites in Europe**.

As the importance of climate change and monitoring is constantly growing, we should expect follow up orders for OHB in this field, supported by last year's Ministerial Council (MC), where the ESA budget for **earth observation rose to € 2,7bn** (16% of total budget), up 6% compared to previous MC in 2019.

For example, follow-up orders such as the arctic weather satellite constellation are clearly in the cards, as OHB is already prototyping the **arctic weather satellite demonstrator**.

## Moon and Mars - not so far away

Since 1972, no human has ever walked on moon again. Under the joint mission *Artemis*, **NASA and ESA strive back to the moon**: A permanent space station called Gateway should orbit the moon, (like the ISS, that orbits earth) and serve as a stopover from where human explorations to the **moon, mars, and other parts of our solar system**.

ESA's contributions are the

- **ESPRIT** module (European System Providing Refueling, Infrastructure and Telecommunications) for the space station and
- **EL3 "Argonaut"**, Europe's large lunar lander.

OHB is a **major sub-contractor** to both, the ESPRIT module (currently being built by TAS, ready in 2024e, launch in 2027e, **OHB order volume: € 58m**, c. 20%

share) as well as the **EL3 “Argonaut”** (currently in study phase, consortium led by Airbus; undisclosed volumes).

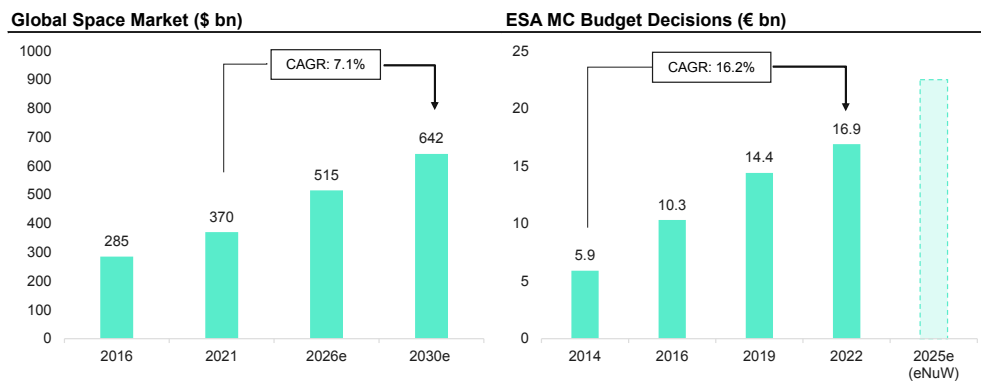
Furthermore, **MT Aerospace supplies Boeing** with tank structures for the moon rocket SLS (Space Launch System, the world’s strongest rocket) which had a successful maiden flight in 2022, costs of c. \$ 2bn per launch and should bring the Gateway to the moon over the course of 5 launches by 2032e. Also, MT Aerospace supplies tank structures to the **upper stage of the moon ferry**.

The field of human spaceflight should create a **multi-billion order potential** for Europe’s space sector for decades. OHB’s past undertakings and contributions underpin our view that OHB is well positioned to meet that future demand.

## Space is worth it - space budgets continue to grow

Critics of expensive space programs complain that the money should rather be spent on other issues, as space is not “important”. This couldn’t be further from the truth. According to NASA, for **every \$ spent on space missions, roughly \$3 of economic output is generated** on earth, implying an ROI of 200%. For example, all six MTG next generation weather satellites (all based on OHB’s satellite platform) cost roughly € 1.5bn spread over its 20+ year lifetime, but the socio-economic benefit of weather forecasts in the EU are estimated at € 61bn per year, according to ESA. This shows that space missions have a strong, but indirect return on investments, which is hard to grasp for laymen.

Knowing this, **space budgets** by relevant OHB customers like ESA, DLR or German Armed Forces **continue to grow**, as decision makers know that investing in space is not only worth it, but also necessary to secure **sovereignty, independence, and security** for the people in Europe.



Source: OHB, ESA, NuWays

Additionally, contributions to the budget by ESA member states are **inflation-adjusted**, meaning that an exemplary 5% inflation leads to an annual budget increase of c. 5%, providing plannable budgets for the European space sector.

## Exploiting satellite data - Downstream services grow in importance

OHB’s segment Digital addresses the growing opportunities coming from satellite data applications, so called downstream services. Using satellite data to improve life on earth shows to be very fruitful and should provide strong growth for the near future. Everyday life already depends heavily on satellite data, e.g., exact global timing, positioning and navigation and weather forecasts. However, there is lots more to come, for example:

- **Weather Forecast and Modelling:** Nowcasting of clouds, temperature, humidity, etc. lead to improved and real-time weather forecasts, improving efficiency of weather dependent industries like farming.

- **Smart farming:** near-realtime data on salinity, moisture and other important agricultural information help farmers maximize crop yield and save costs by targeted fertilization.
- **Renewable energy efficiency:** finding the best location for wind- or solar farms can better be measured by satellites, among other important data for the energy transition.
- **Tracking CO2 emissions:** exact data of how much CO2 is emitted when where and by whom, can only be measured globally, objectively and in near real time by satellites. Hence, satellite data quality is superior and CO2 targets of countries or companies can be supervised.
- **Digital twin solutions:** for urban concepts & logistics management, digital twin solutions offer the advantage to simulate changes in a digital twin without changing the real world. For example, a digital twin of a city can simulate heat clusters, wind flows and rainwater flow in real time.
- **Maritime and aeronautical surveillance:** Container ships and aeroplanes passing over oceans and other remote areas are not trackable with ground systems as they lack sufficient range. Data from navigational satellites can therefore fill these grey areas for maritime or aeronautical fleet management.

Many more **downstream services are projected to evolve** in the future, as satellites and their instruments for remote sensing are constantly improving. In 2021, the global market for EO data was seen at € 2.8bn and is set to grow at a CAGR of 8% to **€ 5.5bn in revenues in FY 2031e**, according to EUSPA.

Profiting from OHB's industry know how of space systems, OHB's **segment Digital** (10% of sales, 17% of EBIT) enjoys a **head start in the evolving downstream market** and should show dynamic and profitable growth going forward, both organically and inorganically.

The recent 100% acquisition of GEOSYSTEMS GmbH, a leading player in evaluation and processing of earth observation satellite data, in Q1 2022 is an example of know-how extension, but also of lifting synergies among the OHB group.

## New Space - Commercialization of the space sector

Launchers, space systems, or other space missions shall no longer be undergone by governmental institutions alone. Private companies should be encouraged to provide goods and services along the whole space value chain and create an **independent, commercial space sector, called New Space**. **ESA allocates € 1.9bn** (11% of its budget) for the **commercialization of space**.

Commercial applications could be in the form of **commercial satellite constellations** (group of small satellites working together as a system), offering telecommunication, earth observation or navigation solutions, but also in the **exploitation of its data** (e.g., smart farming, smart logistics, etc.), the supply of commercial space transport for e.g., **space tourism** or other non-institutional human spaceflight, but also the extraction of raw materials from asteroids or the generation of solar power from space are thinkable. The opportunities of New Space are starting to evolve now and should grow significantly once launch costs decrease even more in the future. **Harvard Business Review** even recommends companies to **develop a space strategy now** to avoid missing out on the vast opportunities from New Space, which is becoming an **important source of value for businesses** across many sectors.

Therefore, we expect strong growth of the commercial space sector in the medium and long term, for which **OHB is well prepared**, as it covers the whole space value chain.

OHB's segment Digital **should benefit from the growing commercial demand for satellite data**, but we also see rising opportunities for OHB's Space Systems segment with its expertise and technological capabilities for **commercial satellite constellations**. Additionally, Rocket Factory Augsburg (RFA) as well the German Off-shore Spaceport Alliance (GOSA) are **prime examples for New Space initiatives**.

## Micro launcher ease access to space

OHB's subsidiary Rocket Factory Augsburg (RFA) currently develops and tests the *RFA One* - a compact and reusable "micro-launcher" that can bring small payloads into orbit.

Europe's independent access to space is currently burdened by a **bottleneck of available space launchers**: The Ariane 5 rocket is phased out with only one remaining flight left in 2023, Ariane 6 is not fully ready yet, the small launcher Vega-C recently experienced a failure and Russian Soyuz rockets are not available anymore. To sum up and cite ESA: *"We are in a crisis."*

Access to space is the **top priority issue of political sovereignty and autonomy**, as Europe currently depends on the USA, especially SpaceX. With limited supply of launchers and high demand for launch capacities, commercial and institutional launchers are extremely high in demand.

RFA plans to launch on a weekly basis. To meet that demand, the RFA One and its production facilities have been developed in a way, so that rockets can be built like cars: fast, cheap and in high numbers. RFA should see significant revenues going forward, as it plans to launch a rocket every week. The maiden flight is fully booked, the **current contract volume amounts to € 50m** and the **current contract pipeline** (interested parties that have not signed a contract yet) is **seen at € 500m**.

Micro-launchers are expected to coexist next to heavy launchers like Ariane 6 or SpaceX' Falcon Heavy, as they will fill a **vitaly important gap**: Micro-launchers are like taxis, that can bring the satellite to a specific orbit, whereas heavy launchers are more efficient but operate like buses: they stop at predefined bus stops (orbits). Additionally, micro-launchers can be used to replace a satellite of a large constellation, for which a heavy launcher would be to inefficient.

**OHB can benefit from both**, big and institutional launchers as a supplier of Ariane 6, but also from small and commercial launchers for small satellites with RFA. ESA recently announced, to approve European micro-launchers for ESA-satellites, once their maiden flights are successful.

Even if RFA One should fail, but other micro-launchers are successful, OHB should still highly benefit from **cheap and easy access to space** as it drives demand for small satellites. If smaller budget customers of satellites (e.g., private companies or research institutes) will be able to afford not only the satellite but also its launch, **commercial demand for manufacturing and launching small satellites** (constellations or single ones) could go into the billions in the future.

## GOSA - Launching rockets from OHB's backyard

The German Offshore Spaceport Alliance (GOSA) is an industrial alliance with the vision of a **floating spaceport in the North Sea**, just outside OHB's headquarters in Bremen, Germany. The goal is to launch a micro-launcher (not limited to RFA One) into space using a custom-built vessel as a launch site in 2023e.

The North Sea is a sensible location, as it is a remote and unpopulated area, but also close enough to the city of Bremen and its port Bremerhaven. Bremen is the **"City of space"** in Germany with excellent **research facilities** and Airbus, Ariane-Group and OHB as major employers, forming a **space cluster** in the region.

OHB's stake in GOSA amounts to c. 25% and it leads the alliance with satellite communications company MediaMobil, logistics company BLG, shipping company Harren & Partner as well as offshore project developer Tractebel DOC Offshore.

The project has the advantage of being close to its customers. With **ongoing commercialization of the space sector** and the **opportunity for low-cost satellites and launches**, small satellites (e.g., for research institutes or commercial customers) can be **launched quickly and easily** from the North Sea, instead of shipping them to Europe's spaceport in French Guyana, South America, reducing launch costs even more.

## The evolving problem of space debris - an opportunity

Certain earth orbits have become congested, especially the important Low-Earth-Orbit (LEO). Satellite operators are increasingly facing the **need for evasive manoeuvres to avoid collision** with other satellites or space debris. This does not only burn up the satellite's fuel and hence reduces its life span but is also a **real danger**. The so-called **Kessler syndrome** is the potential risk of a high-speed collision of two objects in orbit, which create a chain reaction of collisions, basically rendering space operations more difficult or even impossible. It is a real and growing threat for satellites, that have become part of critical infrastructure.

Therefore, ESA recently passed the first major program review for the **"ClearSpace-1" mission**, serving the purpose of removing large debris objects from Earth's orbits. The prime contractor "ClearSpace SA" from Switzerland aims to launch the **"space-garbage-truck and fuel station satellite"** in 2026, for which **OHB Sweden** supplies the vitally important **propulsion system** (project volume for OHB not disclosed, eNuW: € 10-20m)

Based on the success of this **technology demonstrator**, future follow-up orders can be expected, but with limited visibility of revenue potential due to the distant time horizon.

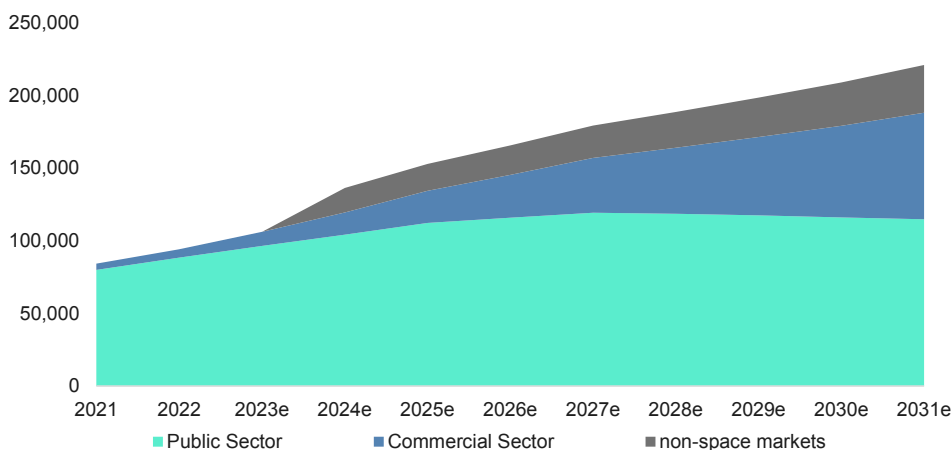
## Growth beyond space

Rocket science technology, firstly developed for space systems, can often be transferred to non-space applications. Reliability, robustness, high-tech and security are properties that are useful in other sectors, e.g. automotive, maritime or aviation.

OHB's subsidiary MT Aerospace (MTA) is currently extending its addressable market to the non-space sector. Its production know-how used for launcher components and tanks, especially **additive manufacturing** (3D printing) and **hydrogen tanks** have a potential for several non-space mass market applications, for example in the automotive, aviation and maritime sectors. MTA has already shown successful deliveries for **several non-space customers**.

A scalable production for an undisclosed automotive customer with a potential of more than **€ 30m sales p.a. is currently under negotiation**. MTA is well on track to ramp up the commercial, non-space business, also outside the EU, namely USA. We estimate a revenue potential of **additional € 40-80m sales p.a.** with profitable margins (eNuW: 10-11% EBIT margin), given the scalability of mass production.

### OHB's total adressable market (\$m)

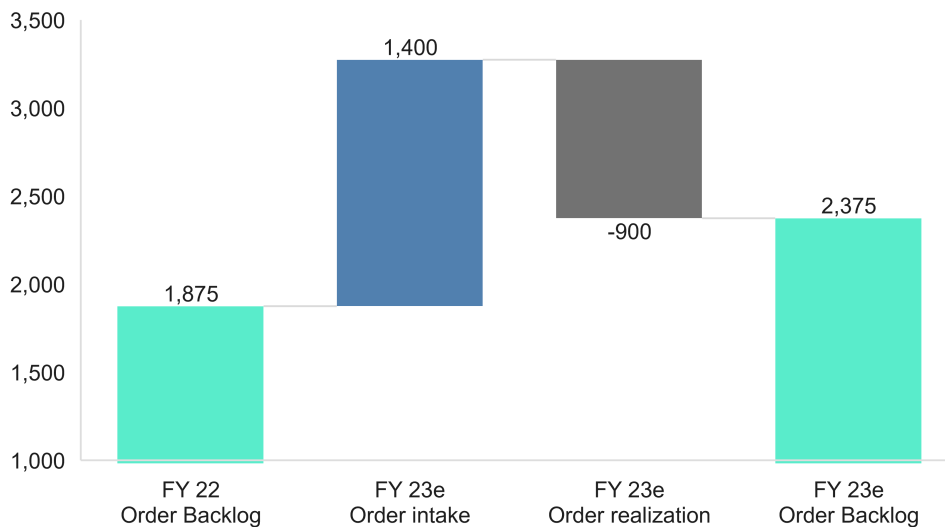


Source: Euroconsult, Morgan Stanley, company data, NuWays

## OHB should benefit from growing space markets

OHB can rely on a **very strong order backlog of € 1.9bn** (1.9x book-to-bill), securing long-term revenue stability. While the company expects 48% of the backlog to be realized in 2023e, order **intake looks set to come in strong at € 1.4bn**, indicating an increased backlog of € 2.4bn by the end of 2023e, thus ensuring revenues in the long-term. The expected order intake is based on last year's ESA Ministerial Council, during which the space mission fundings are approved. FY 2023e therefore marks the year of tender offers, which OHB is bidding on.

### Expected order backlog development

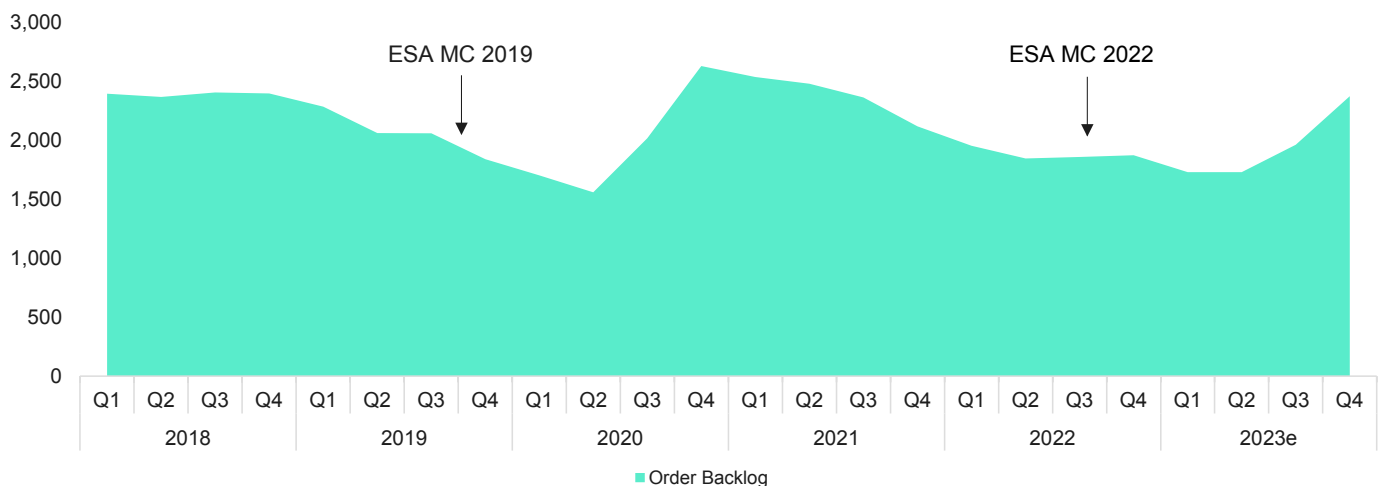


Source: company data, NuWays

Given the nature of space missions, **order cancellations virtually never happen** due to lock-in effects and very high transfer costs, showing the large value of OHB's order backlog.

Being dependent on ESA contracts, OHB's order backlog fluctuates along the phase of contracts being tendered by ESA, which usually happens every three years. Order **backlog therefore peaks in the years after ESA ministerial councils** and decreases in the two years afterwards.

### Development of order backlog and book-to-bill ratio



Source: company data, NuWays

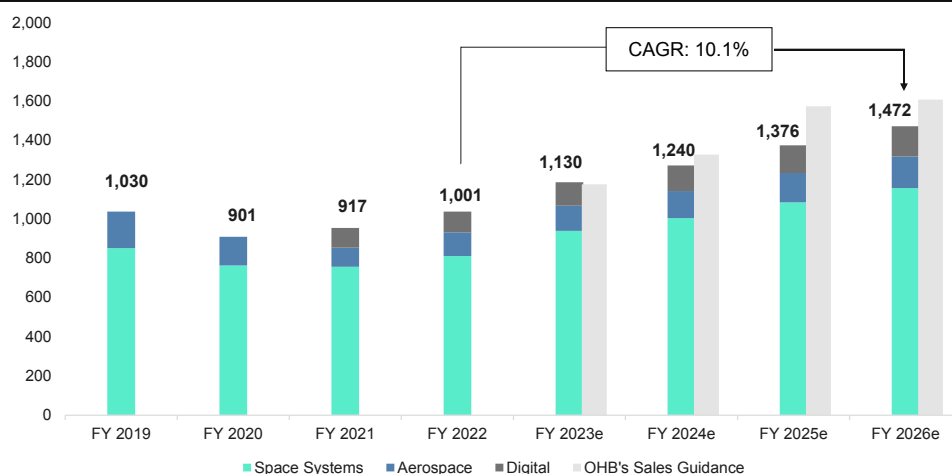
**Excellent revenue visibility** thanks to long-lasting contracts that provide OHB with good financial predictability. Therefore, OHB's management decides to communicate their mid-term target figures (mid-term guidance):

OHB's mid-term guidance (€ m)	2021	2022	2023e	2024e	2025e	2026e	CAGR '22-26e
<b>Total Revenues</b>	<b>905</b>	<b>1,001</b>	<b>1,176</b>	<b>1,328</b>	<b>1,573</b>	<b>1,608</b>	<b>12.6%</b>
	yoy	9.2%	17.4%	12.9%	18.4%	2.2%	
<b>EBITDA</b>	<b>84</b>	<b>99.3</b>	<b>109</b>	<b>126</b>	<b>147</b>	<b>170</b>	<b>14.4%</b>
	yoy	19%	10%	16%	17%	16%	
	margin	9%	10%	9%	9%	11%	
<b>EBIT</b>	<b>47</b>	<b>63</b>	<b>70</b>	<b>85</b>	<b>105</b>	<b>125</b>	<b>18.6%</b>
	yoy	34%	11%	21%	24%	19%	
	margin	5%	6%	6%	6%	8%	

Source: company data, NuWays

The **mid-term guidance looks set to be achieved** by OHB. However, given the current macro-headwinds and still limited access to space due to lack of available European launchers, we choose to take a more conservative view but still expect top line to grow with double-digit growth rates until FY 2026e (eNuW: 10.1% '22-26e CAGR vs. mid-term guidance of 12.6%) based on the intact growth drivers described above. On the other hand, there can be a potential upside to our estimates, should current headwinds abate quicker than expected.

#### Sales estimates in line with mid-term guidance



Source: company data, NuWays

**Material expenses** (FY 2022: € 588m, 58.8% of sales) are the largest cost item for OHB, as they largely contain cost for sub-contractor goods or services (FY 2022: € 498m) and some raw materials (FY 2022: € 90m), leaving an **overall gross-margin of 41.2%** for FY 2022. We expect only a slight increase in gross margins since inflation-linked cost transmissions work for OHB in two ways: 1) OHB can pass on price increases to their customers, but also 2) experience cost increases for their sub-contractor goods and services, creating a **net zero impact for the gross margin** going forward.

**Personnel expenses** (FY 2022: € 258m; 26% of sales) and **other OPEX** (FY 2022: € 56m; 6% of sales) should grow slightly less than sales as further streamlining of processes as well as efficiency measures should show their effects. **Depreciation** (FY 2022: € 36m; 4% of sales) and **interest expense** (FY 2022: € 10m; 1% of sales) should be seen constant, whereas **tax expenses** estimates are based on a constant effective tax rate of 30% for OHB.



	(in € m)	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023e	FY 2024e	FY 2025e	FY 2026e	CAGR '22-26e
<b>Net Sales</b>		<b>1,005</b>	<b>880</b>	<b>905</b>	<b>945</b>	<b>1,086</b>	<b>1,227</b>	<b>1,362</b>	<b>1,458</b>	<b>11.5%</b>
yoy			-12%	3%	4%	15%	13%	11%	7%	
+/- in unfinished goods & other Op. Inc		25	21	12	57	43	12	14	15	
in % of sales		3%	2%	1%	6%	4%	1%	1%	1%	
<b>Total Sales</b>		<b>1,030</b>	<b>901</b>	<b>917</b>	<b>1,001</b>	<b>1,130</b>	<b>1,240</b>	<b>1,376</b>	<b>1,472</b>	<b>10.1%</b>
yoy			-12%	2%	9%	13%	10%	11%	7%	
Material expenses		650	534	534	588	673	739	815	866	
in % of sales		65%	61%	59%	62%	62%	60%	60%	59%	
Personnel expenses		247	245	250	258	277	319	354	376	
in % of sales		25%	28%	28%	27%	26%	26%	26%	26%	
Other Op. Expenses		54	46	49	56	71	65	72	71	
in % of sales		5%	5%	5%	6%	7%	5%	5%	5%	
<b>EBITDA</b>		<b>78</b>	<b>77</b>	<b>84</b>	<b>99</b>	<b>109</b>	<b>117</b>	<b>135</b>	<b>159</b>	<b>12.5%</b>
yoy			-2%	9%	19%	9%	7%	16%	18%	
margin		8%	9%	9%	10%	10%	9%	10%	11%	
D&A		29	35	37	36	38	37	41	44	
in % of sales		3%	4%	4%	4%	4%	3%	3%	3%	
<b>EBIT</b>		<b>49</b>	<b>42</b>	<b>47</b>	<b>63</b>	<b>71</b>	<b>80</b>	<b>94</b>	<b>115</b>	<b>16.2%</b>
yoy			-15%	13%	34%	12%	13%	18%	22%	
margin		5%	5%	5%	6%	6%	6%	7%	8%	
Interest Expense		7	9	6	10	11	11	11	11	
Interest Expense		1	1	1	2	0	1	1	1	
Investment Income		-4	-4	0	-5	3	3	3	3	
<b>EBT</b>		<b>39</b>	<b>30</b>	<b>42</b>	<b>50</b>	<b>63</b>	<b>73</b>	<b>87</b>	<b>108</b>	<b>21.3%</b>

Source: NuWays

## Profitability back on track

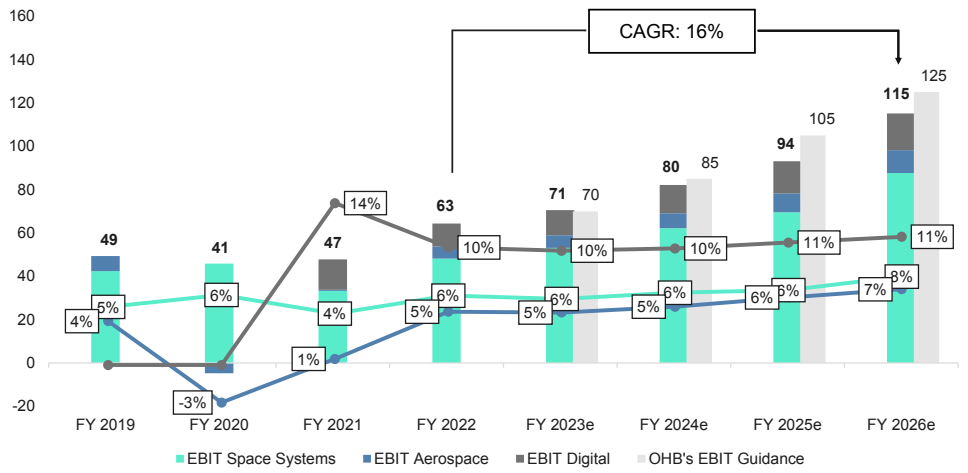
The EBIT of the segment Space Systems **showed strong resilience** during last years' uncertainties, despite experiencing a drawback to 4% in FY 2021. This was mainly due to COVID-related postponed missions and thus revenues while fixed costs stayed flat. However, **FY 2022 results show the recovery of margins to normal levels of 6%** for the segment. Being OHB's largest EBIT contributor (FY 2022: 76% of group EBIT), **incremental margin improvements have a strong impact on overall results**. In the future, thanks to lifted group synergies, the ongoing streamlining of processes and efficiency gains from its satellite platforms, we estimate further gradual EBIT margin improvements to 8% by 2026e.

Following the uncertainties of Ariane 5 and 6 launches during COVID, the **Aero-space segment's EBIT margin** was also burdened (FY 2020: -3% EBIT margin) but showed a strong recovery because the Ariane launcher program is back on track (FY 2022: 5% EBIT margin). Going forward, we expect **gradual EBIT-margin improvements to 7%** based on the strong order book of Ariane 6 rockets (29 booked launches), expansions to the non-space sector as well as cost synergies resulting from scalable production of launcher components for existing customers.

The segment Digital already shows **the group's highest EBIT-margin** (FY 2022: 10%), thanks to its more favorable product mix. Next to hardware (e.g., antennas, telescopes, and ground systems), the **software and service offering of Digital** (downstream, services, encryption, cybersecurity, and satellite operations) offers a **more profitable mix** compared to the other segments. Going forward the **organic and inorganic expansion of the downstream services should foster margin growth** (eNuW: 11% by FY 2026e) even more for.

On group level, we **estimate margin improvements** to at least 8% EBIT margin by 2026e, which is in line with OHB's financial guidance, implying **EBIT to grow at a CAGR of 16%** during the same period.

## Profitability back on track



Source: company data, NuWays

## Valuation

- DCF yields a PT of € 48.00 per share.
- FCFY implies solid upside albeit not accounting for growth.
- Peer Group Analysis implies undervaluation and a fair value of € 53.00.
- Historical Trading Multiples yield a fair value of € 51.00 per share.

## Discounted Cash Flow Valuation

We base our valuation for OHB on a Discounted Cash Flow model, which derives a **price target of € 48 per share** with the terminal value accounting for 57% of total value. The key assumptions of our model are:

- **Terminal EBIT margin:** 8.0%, estimating conservative margin improvements due to low operating leverage in the industry.
- **Terminal growth rate:** 2%.
- **WACC:** 10.4%, derived from a 2.5% risk-free rate, a Beta of 1.5 and 7% equity risk premium.

Looking at the sensitivity analysis below, a 1pp higher or lower terminal year EBIT margin would imply a fair value per share of € 44 or € 52 respectively.

DCF (EUR m) (except per share data and beta)	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	Terminal value
NOPAT	49.4	55.9	65.8	80.7	98.3	103.1	106.4	112.7	102.2
Depreciation	38.0	36.8	40.9	43.7	43.7	41.3	39.1	35.8	35.0
Increase/decrease in working capital	3.8	-16.0	-10.9	0.4	-2.8	-2.5	-2.2	-1.4	-1.0
Increase/decrease in long-term provisions and accruals	7.7	7.1	6.8	4.8	5.1	5.2	5.3	5.4	5.5
Capex	41.0	35.0	36.0	36.0	36.0	36.0	36.0	36.1	35.0
Acquisitions	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Capital increase	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Cash flow</b>	<b>57.9</b>	<b>48.7</b>	<b>66.6</b>	<b>93.5</b>	<b>108.3</b>	<b>111.0</b>	<b>112.5</b>	<b>116.4</b>	<b>106.7</b>
Present value	54.2	41.3	51.1	65.1	68.2	63.3	58.1	54.4	611.6
WACC	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%	10.4%

DCF per share derived from	
Total present value	1,067
thereof terminal value	57%
Net debt (net cash) at start of year	192
Financial assets	83
Provisions and off balance sheet debt	126
Equity value	833
No. of shares outstanding	17.4
<b>Discounted cash flow per share</b>	<b>48.0</b>
<b>upside/(downside)</b>	<b>47%</b>

Share price	32.70
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Sensitivity analysis DCF		Long term growth				
		0%	1.0%	2.0%	2.5%	3.0%
WACC	12.4%	32.8	34.9	37.5	39.0	40.6
	11.4%	36.1	38.8	42.1	44.0	46.2
	10.4%	40.2	43.7	48.0	50.5	53.4
	9.4%	45.3	49.9	55.6	59.2	63.2
	8.4%	51.9	58.0	66.0	71.0	77.0

DCF avg. growth and earnings assumptions	
Short term growth (2022-2025)	13.0%
Medium term growth (2025 - 2031)	5.0%
Long term growth (2030 - infinity)	2.0%
Terminal year EBIT margin	8.0%

WACC derived from	
Cost of borrowings before taxes	4.0%
Tax rate	30.0%
Cost of borrowings after taxes	2.8%
Required return on invested capital	13.1%
Risk premium	7.0%
Risk-free rate	2.5%
Beta	1.5

Sensitivity analysis DCF		EBIT margin terminal year					
		6.0%	7.0%	8.0%	9.0%	10.0%	
WACC	12.4%	31.6	34.5	37.5	40.5	43.4	
	11.4%	35.1	38.6	42.1	45.6	49.1	
	10.4%	39.5	43.7	48.0	52.2	56.4	
	9.4%	45.4	50.5	55.6	60.8	65.9	
	8.4%	53.3	59.6	66.0	72.4	78.8	

## Free Cash Flow Yield

The main driver of this model is the level of return available to a controlling investor, influenced by the cost of investors' capital (opportunity costs) and the purchase price – in this case the enterprise value of the company.

Here, the adjusted FCF yield is used as a proxy for the required return and is defined as EBITDA less minority interest, taxes and investments required to maintain existing assets (maintenance capex).

The model assumes that investors require companies to generate a minimum return on the investor's purchase price. The required after-tax return equals the model's hurdle rate of 7.5%. Anything less suggests the stock is expensive; anything more suggests the stock is cheap.

However, this valuation approach has the drawback of **not accounting for future growth**, which is essential for valuating a space company with a **positive long term growth outlook**, in our view.

Based on the average of 2023/24e, OHB would be considered worth € 42.40 per share, implying a solid double-digit upside to current trading.

FCF yield, year end Dec. 31	2022	2023E	2024E	2025E	2026E	2027E
<b>EBITDA</b>	<b>99.3</b>	<b>108.6</b>	<b>116.6</b>	<b>134.9</b>	<b>158.9</b>	<b>184.1</b>
- Maintenance capex	11.4	15.0	16.8	18.5	20.3	22.0
- Minorities	0.0	0.0	0.0	0.0	0.0	0.0
- tax expenses	15.8	19.1	21.8	26.1	32.5	40.0
<b>= Adjusted Free Cash Flow</b>	<b>72.1</b>	<b>74.6</b>	<b>78.0</b>	<b>90.3</b>	<b>106.2</b>	<b>122.1</b>
<b>Actual Market Cap</b>	<b>583.2</b>	<b>567.7</b>	<b>567.7</b>	<b>567.7</b>	<b>567.7</b>	<b>567.7</b>
+ Net debt (cash)	247.4	197.8	160.0	106.3	28.6	-59.5
+ Pension provisions	71.6	71.6	71.6	71.6	71.6	71.6
+ Off balance sheet financing	0.0	0.0	0.0	0.0	0.0	0.0
+ Adjustments prepayments	125.9	125.9	125.9	125.9	125.9	125.9
- Financial assets	-82.7	-82.7	-82.7	-82.7	-82.7	-82.7
- Dividend payment	-8.3	-10.4	-13.0	-14.9	-17.9	-22.2
<i>EV Reconciliations</i>	353.9	302.2	261.8	206.2	125.6	33.1
<b>= Actual EV'</b>	<b>937.0</b>	<b>869.9</b>	<b>829.5</b>	<b>774.0</b>	<b>693.3</b>	<b>600.8</b>
<b>Adjusted Free Cash Flow yield</b>	<b>7.7%</b>	<b>8.6%</b>	<b>9.4%</b>	<b>11.7%</b>	<b>15.3%</b>	<b>20.3%</b>
<b>Sales</b>	<b>944.5</b>	<b>1086.2</b>	<b>1227.4</b>	<b>1362.4</b>	<b>1457.8</b>	<b>1559.8</b>
Actual EV/sales	1.0x	0.8x	0.7x	0.6x	0.5x	0.4x
Hurdle rate	7.5%	7.5%	7.5%	7.5%	7.5%	7.5%
FCF margin	7.6%	6.9%	6.4%	6.6%	7.3%	7.8%
Fair EV/sales	1.0x	0.9x	0.8x	0.9x	1.0x	1.0x
<b>Fair EV</b>	<b>960.8</b>	<b>994.5</b>	<b>1,040.6</b>	<b>1,203.7</b>	<b>1,416.1</b>	<b>1,627.4</b>
- <i>EV Reconciliations</i>	353.9	302.2	261.8	206.2	125.6	33.1
<b>Fair Market Cap</b>	<b>606.9</b>	<b>692.3</b>	<b>778.7</b>	<b>997.4</b>	<b>1,290.5</b>	<b>1,594.3</b>
No. of shares (million)	17.4	17.4	17.4	17.4	17.4	17.4
<b>Fair value per share</b>	<b>35.0</b>	<b>39.9</b>	<b>44.9</b>	<b>57.5</b>	<b>74.3</b>	<b>91.8</b>
<b>Premium (-) / discount (+) in %</b>	<b>4.1%</b>	<b>22.0%</b>	<b>37.2%</b>	<b>75.7%</b>	<b>127.3%</b>	<b>180.8%</b>
<b>Sensitivity analysis fair value</b>						
	7.5%	35.0	39.9	44.9	57.5	74.3
<b>Hurdle rate</b>	10.0%	21.1	25.6	29.9	40.1	53.9
	12.5%	12.8	17.0	20.9	29.7	41.7
	15.0%	7.3	11.2	14.9	22.8	33.5

Source: NuWays

closing price as of 02.05.2023

## Peer Group & historic multiples

To validate our DCF valuation, we compare OHB SE to other relevant listed European aerospace companies. The peer group includes:

**Airbus SE** is the world's largest manufacturer of commercial aircrafts, designs and produces helicopters and maintains a Defence & Space segment, in which it builds satellites and other space systems, competing with OHB.

**Avio S.p.A.** is an Italian prime contractor for the European launcher Vega and sub-contractor for the Ariane program.

**Eutelsat S.A.** is a French and the world's largest satellite operator. It owns and operates satellites, that provide television, radio and internet coverage for the Middle East, Africa, Asia, and the Americas.

**Leonardo S.p.A.** is an Italian aerospace and defence company, competing with OHB via its joint ventures "Thales Alenia Space" and "Telespazio", together with French aerospace and defence company Thales.

**SES S.A.** is Luxembourgish provider of telecommunication networks for video and data connectivity for governments, institutions, and commercial network operators by owning 70 satellites.

**Thales S.A.** is a French aerospace and defence company. It competes with OHB via its segment "space" for satellites and other space systems via its joint ventures "Thales Alenia Space" and "Telespazio", together with Italian aerospace and defence company Leonardo.

### OHB Peer Group Analysis

Company	EV / Sales			EV/EBIT			PER		
	2022	2023e	2024e	2022	2023e	2024e	2022	2023e	2024e
Airbus	1.6x	1.5x	1.3x	16.9x	15.4x	12.4x	23.3x	22.4x	17.9x
Avio	0.5x	0.5x	0.5x	87.5x	24.7x	10.2x	neg.	251.1x	20.9x
Eutelsat	3.6x	3.6x	3.5x	9.8x	9.8x	12.4x	7.6x	5.3x	5.8x
Leonardo	0.8x	0.7x	0.7x	11.5x	8.9x	8.0x	5.8x	7.2x	6.2x
SES	3.2x	3.0x	3.0x	44.1x	16.8x	18.6x	20.8x	18.4x	18.4x
Thales	1.7x	1.6x	1.5x	15.4x	14.3x	12.9x	22.9x	17.2x	16.4x
<b>OHB</b>	<b>0.8x</b>	<b>0.7x</b>	<b>0.6x</b>	<b>13.1x</b>	<b>11.1x</b>	<b>9.3x</b>	<b>16.6x</b>	<b>12.8x</b>	<b>11.1x</b>
Median (ex OHB)	1.7x	1.5x	1.4x	16.2x	14.9x	12.4x	20.8x	17.8x	17.1x
Discount (-) / Premium (+)	-53%	-55%	-55%	-19%	-26%	-25%	-20%	-28%	-35%
<b>Implied fair value</b>	<b>69.5</b>	<b>73.1</b>	<b>72.5</b>	<b>40.2</b>	<b>43.9</b>	<b>43.4</b>	<b>40.9</b>	<b>45.6</b>	<b>50.3</b>
<b>average fair value</b>					<b>53.3</b>				

Source: Bloomberg, stock3, company data, NuWays

closing price as of 02.05.2023

Looking at EV/Sales, EV/EBIT and PE ratio, **OHB trades with a discount compared to its relevant peers**, who share comparable business characteristics in terms of operating leverage, asset intensity, need for high working capital, depreciation levels and sector focus, underpinning **our view that OHB is undervalued**. Implied fair values range from € 40 to € 73 and average at **€ 53 per share**.

This is further supported by OHB's 4y-historic valuation, marking a **notable discount to current valuation**.

#### OHB historical multiples

Year	EV/Sales	EV/EBIT	PER
2019	0.8x	15.4x	22.7x
2020	0.9x	18.2x	27.9x
2021	0.9x	17.7x	21.1x
2022	0.9x	13.3x	17.0x
Average	0.9x	16.2x	22.2x
2023e	0.8x	11.1x	10.7x
Discount (-) / Premium (+)	-11%	-31%	-52%
<b>Implied fair value</b>	36.8	47.6	68.0
<b>average fair value</b>		<b>50.8</b>	

Source: company data, NuWays

closing price as of 02.05.2023








## Theme

Record order intake expected after ESA Ministerial Council 2022

**2023 is the year of tender offers and contract signings.** At ESA's Ministerial Council in November 2022, the contribution of member states to the budget was set at € 16.9bn, an increase of 17% compared to 2019's Ministerial Council. Therefore, the year after a ministerial council, new space missions are open for tender offers.

Consequently, **OHB expects a record order intake for FY 2023/24e of € 1.4bn.** Not all missions are ordered by ESA, but also German Armed Forces or Deutsche Bahn could award OHB with contracts. Following orders are included in OHB's expected order intake based on share of value creation and likelihood that OHB wins the contract.

### OHB's expected order intake for FY 2023/24e

Mission name	Odin's Eye	SATCOMBw3	IRIS2	Genesis	ARIANE 6	VIGIL	crypOHBguard	
Description	Missile Warning System	Satellite Communication for German Armed Forces	Secure Internet Communication Constellation for Governments	Precise Earth Measurement	Europe's next generation high payload launcher	Monitoring space weather and sun activity	encrypted IT security - hardware and software system	
Ordering Party								
Mission Volume (€ m)	136	n.n.	6,400	350	527	n.n.	375	
% weight (1)	n.n.	n.n.	n.n.	n.n.	10.0%	n.n.	n.n.	
order intake (€ m)	n.n.	n.n.	n.n.	n.n.	52.7	n.n.	n.n.	<b>c. 1,400</b>
Role	Prime Bid	Prime Bid	Consortium Partner	tba	tba	tba	sole contractor	
Domain	Space Safety	Telecommunication	Telecommunication	Earth Observation	Space Transport	Space Safety	Encryption	
Segment	Space Systems	Space Systems	Space Systems	Space Systems	Aerospace	Space Systems	Digital	

Source: company data, NuWays

(1): weight is assumed via likelihood of contract win and share of value creation

## Space Systems:

SATCOMBw3 and IRIS<sup>2</sup> are seen to be the most important projects, as both satellite constellations could be based on OHB's satellite platforms and should provide stable revenue streams for years to come.

**SATCOMBw3:** the German Armed Forces should be set to award a German company with the with the 3<sup>rd</sup> generation of military communication satellites, which puts OHB in a favourable position. Additionally, OHB has a proven track record with the German Armed Forces as they supplied reconnaissance satellite missions **SAR-Lupe (€ 746m order volume in 2001)** and **SARah (€ 816m order volume in 2013)**, as well as reconnaissance satellites for a German government (**€ 550m order volume in 2017 and 2020**) in the past. OHB calculates with an order intake of € 285m (eNuW: 30-40% share; € 300-400m order intake) based on probabilities of tender success and share of value creation, as competition with Airbus Defence & Space might result the project to be awarded to a consortium, led either by Airbus or OHB.

**IRIS<sup>2</sup>:** given the **size** (€ 6.4bn project volume) and the **short time span** of the project (up and running by 2027e) as well as **finite European capacities**, we expect the project to be awarded to **all European players as a consortium** with OHB contributing as a partner. The contract has recently opened for bids.

**Odin's eye:** OHB holds the **prime role in the study phase and phase 2 bid**. Hence, OHB's chances should be favourable to be awarded with the next phase of development and production, in our view.

In addition, OHB is well positioned for ESA's **LISA** science mission, an observatory of gravitational waves in space. Thanks to **geo-return conditions** that would favour a German prime contractor, but also thanks to **proven capabilities in past of large class science missions**, especially the demonstrator LISA pathfinder launched in

2015, where OHB contributed largely, **OHB should stand good chances.**

## **Aerospace:**

The planned maiden flight of Ariane 6 by end of 2023 should be a key for OHB's subsidiary MT Aerospace. It has a value-added share of c. 10% for the Ariane program and should therefore benefit from a successful program. **29 launches of Ariane 6** are already booked by customers, providing **long time and stable demand for rocket parts**. OHB's chances of winning follow-up orders should be close to 100%, given the lock-in effect of the oligopolistic supplier market for launcher components.

## **Digital:**

OHB is expecting an order from German railway company Deutsche Bahn (DB). Already, OHB already provides process control systems **cryptOHBguard** (soft- and hardware) with 4k encryption elements placed at signal boxes along the railway network. DB needs 300k encryption elements by end of 2030, providing a possible order **intake for OHB of € 375m spread over the next 8 years** coupled with long-lasting **licensing and maintenance contracts** that should provide OHB with **recurring revenues**.



## Company background

- More than 40 years of experience in the space sector
- Well connected management team and supervisory board

### History

In 1981, Christa Fuchs took over the local maritime supplier, Otto Hydraulik Bremen (OHB). Her husband, Manfred Fuchs, joined OHB in 1985 after gaining substantial experience at MBB ERNO (now Airbus). He envisioned producing cost-efficient, small satellites to serve the niche.

OHB's first satellite, "Brem-Sat", was launched in 1994, starting OHB's successful track record of satellites for telecommunication, navigation, and science projects.

The family's son Marco Fuchs joined the company in 1995 and took over management in 2000. The company listed in 2001 on the German stock exchange, to take advantage of the "Neuer Markt" at the time and be prepared for future financing of large-scale satellite projects via capital markets which turned out not to be needed at all.

With the acquisition of MT Aerospace (before MAN Technologie AG) from truck company MAN in 2005, OHB entered the market of launchers. MTA supplies c. 10% of value add for Europe's Ariane rocket program.

In 2010, the European Space Agency (ESA) awarded OHB to manufacture all 34 satellites for the European Navigation System "Galileo", worth € 1.2bn. In the same year, after previously contributing a major part for the Meteosat Second Generation, OHB won the Meteosat Third Generation (MTG) tender offer worth € 1.2bn to produce weather satellites, taking OHB to the current position as a leading player in the European space sector.

In 2021, OHB further diversified its business by introducing the digital segment to address the growing downstream market.

### Business model

OHB SE is a listed space and technology group. The group employs c. 3,000 people at 15 locations in 10 countries throughout Europe. OHB is headquartered in Bremen, Germany. The company can look back at more than 40 years of experience in the development of high-tech space systems. OHB covers most of parts of the space value chain: Feasibility, development, production, launch, in-orbit operations, and the utilization of satellite data. OHB Group is divided into three segments:

**Space Systems** (€ 811m, 78% of group sales in FY 2022) is OHB's core business and most important revenue source. OHB's key competencies lie in the development and manufacturing of highly complex space systems, satellites, and spacecrafts with state-of-the-art technology for following domains:

- Environmental and weather satellites (33% of FY 2022 segment sales)
- Reconnaissance and space safety (30% of FY 2022 segment sales)
- Telecommunication and navigation satellites (13% of FY 2022 segment sales)
- Science, space exploration, and human spaceflight (24% of FY 2022 segment sales)

OHB is Europe's specialist for earth observation, but also shows strong expertise in other domains like telecommunication, science & exploration as well as navigation.

Noteworthy is OHB's wide range of satellite platforms, that enable quick, cheap, and less complex satellite development and manufacture.

**Aerospace** (€ 121m, 12% of group sales in FY 2022) is OHB's rocket science segment, by supplying launcher components and tanks. Subsidiary MT Aerospace has a 10% value-added share of the European launcher program Ariane but also supplies US-based launchers with critical components. The FY 2022 revenue mix consists of

- Launcher components (93% of FY 2022 segment sales)
- Tanks and structures (7% of FY 2022 segment sales)

Additionally, Rocket Factory Augsburg (RFA) is an unconsolidated micro-launcher company (56.6% stake), that aims to fill an important niche in the European launcher sector. Going forward, RFA should independently develop itself outside the OHB group to become a non-institutional European launcher company, but with OHB as a strategic core investor.

**Digital** (€ 106m, 10% of group sales in FY 2022) marks OHB's ventures into the evolving downstream market, as well as the connection between earth and space. Digital not only transfers space technology for applications on earth via hardware, software, and services for cybersecurity and encryption, but also provides customers with necessary ground stations and telescopes needed for in-orbit operations of satellites. The revenue mix as of FY 2022 amounts to:

- Telescopes, ground systems and in-orbit operations (31% of FY 2022 segment sales)
- Cybersecurity, encryption, and railway infrastructure (12% of FY 2022 segment sales)
- Satellite data, applications, and professional services (11% of FY 2022 segment sales)

The remaining 46% of segment sales are inter-company sales.

## Management

### **Marco R. Fuchs – CEO**

Mr. Fuchs joined the company in 1995 and was appointed CEO of OHB SE in 2000, following the footsteps of his parents. Before, he studied law in Berlin, Hamburg and New York and practiced law as an attorney at Jones Day. He is Vice President at the German Aerospace Industries Association (BDLI) since 2017 and honorary consul for the republic of Italy for Bremen. The Fuchs Family Foundation owns c. 70% of shares

### **Dr. Lutz Bertling – CSDO**

Dr. Bertling has been a member of the Executive Board since 2018 and is responsible for strategy, corporate development, and digitization. He was previously President of the Bombardier Transportation Group and Chief Operating Officer of Bombardier Inc. In 1999 Dr. Bertling started to work for Airbus Group (formerly EADS), where he was responsible for Airbus' helicopter business as CEO of the Eurocopter Group from 2006 to 2013. He was also a member of the Airbus Group Executive Board.

### **Kurt Melching – CFO**

Mr. Melching joined OHB in 1988 as a head, and later director, of finance and controlling. He was appointed Chief Financial Officer of subsidiary OHB System AG in 2012 and joined the board as Group CFO in 2018.

### **Klaus Hofmann – CHRO**

Mr. Hofmann has been CHRO since 2015. He was previously Senior Vice President at Wacker Chemie AG. From 1992 to 2011, Hofmann held various management positions at EADS/Airbus. He oversees all Human Resources activities.

### **Daniela Schmidt – CISO**

Mrs. Schmidt joined OHB in 2014 as syndicus and legal counsel, before gaining experience at Jones and White & Case LLP. In 2022 she joined the management board as CISO, responsible for sustainability, integrity, legal affairs, and corporate security.

## Supervisory Board

### Robert Wethmar – Chairman of the Supervisory Board

Robert Wethmar studied law at the University of Hamburg. Subsequently, Robert Wethmar pursued a master's degree in law at New York University and was admitted to practice as an attorney at law in the State of New York in 1993. Robert Wethmar has been practicing law in Hamburg since 1993 and has been a partner in the international law firm Taylor Wessing since 1997. The main focus of his legal practice is advising on cross-border M&A transactions and joint ventures as well as corporate law advice to medium-sized and larger family businesses. He advises national and international companies in technology industries (such as aerospace technology, information technology, medical and biotechnology) as well as in the consumer goods industry. In addition, Robert Wethmar has been Honorary Consul of the Netherlands in Hamburg since 2010. Robert Wethmar has been a member of OHB SE's Supervisory Board since 2012 and Chairman of the Supervisory Board since April 1, 2018..

### Prof. Dipl.-Ing. Heinz Stoewer, M.Sc. – Vice Chairman of the Supervisory Board

Prof. Stoewer has been a member of the Supervisory Board since 2005. He studied technical physics, economics, and systems management. Prof. Stoewer was employed by Boelkow KG (today part of the Airbus Group), by MDAC (today Boeing) as project manager, by the European Space Agency (ESA) as program manager Spacelab and division manager, as well as the German Agency for Space Affairs (DARA) as managing director. Today, Prof. Stoewer is Emeritus Professor of Space Systems Engineering at TU Delft, Netherlands and Founder & President of Space Associates GmbH.

### Christa Fuchs - Founder

Mrs. Fuchs has been a member of the Supervisory Board since 2002. She took over OHB in 1981 and served as Co-CEO with her husband Manfred Fuchs until 2002, transforming the old 5 employee company "Otto Hydraulik Bremen" into today's high tech space corporation "Orbitale Hochtechnologie Bremen". She presided the supervisory board from 2002 until 2018, and after the death of her husband and co-founder, she also took over as honorary consul for the Republic of Kazakhstan in Bremen.

### Ingo Kramer

Mr. Kramer has been a member of the Supervisory Board since 2018. Previously, Mr. Kramer was managing director at J. Heinr. Kramer Group. He was the President of the German Employers' Associations (BDA) from 2013 to 2020.

### Dr.-Ing. Hans-Jörg Königsmann

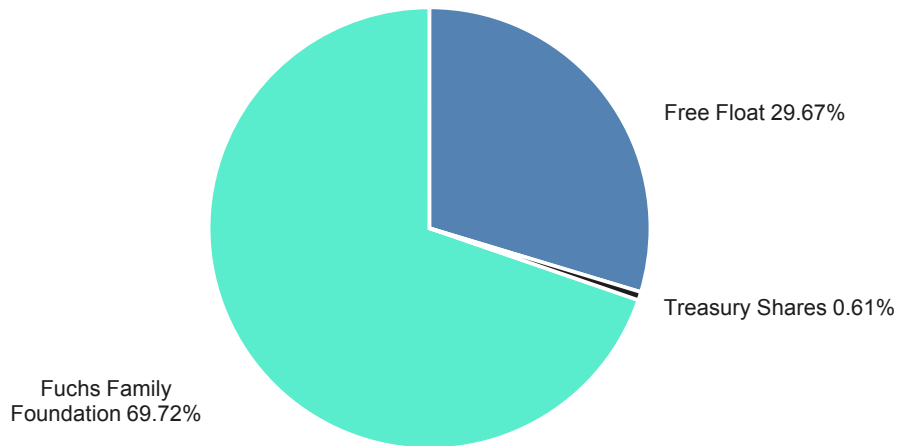
Dr. Königsmann has been a member of the Supervisory Board since 2022. While doing his PhD at the University Bremen in 1995, he was working closely on OHB's first satellite Brem-Sat, before joining SpaceX as one of the first employees in 2002. He was Vice President of SpaceX from 2011 to 2021, leading the mission assurance and being chief engineer for rocket launches. He is also a member of the supervisory board of laser communication company mynarc AG.

## Shareholder Structure

OHB has 17,360,907 shares outstanding, the majority of which is (c. 70%) is held indirectly by the CEO via the Fuchs Family Foundation. Next to some treasury shares of 0.61%, the rest of outstanding shares can be attributable to the Free Float (29.67%).

### OHB Shareholder Structure

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Source: company data, NuWays

## Investment Risks

As with any investment, there are certain risks associated with investing in OHB SE.

The key investment risks, in our view, are:

- **Supply chain risks:** Long lasting satellite projects can be delayed due to unforeseeable supply chain issues, shortages of raw materials, etc, leading to delayed sales recognition.
- **Market risk:** increasing competition by other major space players could lead to shrinking margins and sales.
- **Cluster risk:** Losing institutional customers like ESA and other national space agencies, which amount to more than 90% of sales, could lead to a significant loss of future sales.
- **Tender risk:** Being unable to successfully bid for institutional space missions, could lead to significant loss of future sales.
- **Reputational risk:** Dysfunctional satellites could lead to loss of reputation and indicate low quality, hence jeopardizing follow up orders by customers.

## Financials

Profit and loss (EUR m)	2020	2021	2022	2023e	2024e	2025e
<b>Net sales</b>	<b>880.3</b>	<b>905.0</b>	<b>944.5</b>	<b>1,086.2</b>	<b>1,227.4</b>	<b>1,362.4</b>
Sales growth	-12.4%	2.8%	4.4%	15.0%	13.0%	11.0%
Increase/decrease in finished goods and work-in-process	21.1	11.5	56.8	43.4	12.3	13.6
<b>Total sales</b>	<b>901.4</b>	<b>916.5</b>	<b>1,001.3</b>	<b>1,129.6</b>	<b>1,239.7</b>	<b>1,376.0</b>
Other operating income	0.0	0.0	0.0	0.0	0.0	0.0
Material expenses	533.6	534.5	588.4	673.4	738.9	814.7
Personnel expenses	244.8	249.9	257.8	277.0	319.1	354.2
Other operating expenses	46.0	48.6	55.7	70.6	65.1	72.2
<b>Total operating expenses</b>	<b>824.4</b>	<b>832.9</b>	<b>902.0</b>	<b>1,021.0</b>	<b>1,123.1</b>	<b>1,241.2</b>
<b>EBITDA</b>	<b>77.0</b>	<b>83.6</b>	<b>99.3</b>	<b>108.6</b>	<b>116.6</b>	<b>134.9</b>
Depreciation	35.4	36.6	36.1	38.0	36.8	40.9
<b>EBITA</b>	<b>41.6</b>	<b>47.0</b>	<b>63.2</b>	<b>70.6</b>	<b>79.8</b>	<b>94.0</b>
Amortisation of goodwill	0.0	0.0	0.0	0.0	0.0	0.0
Amortisation of intangible assets	0.0	0.0	0.0	0.0	0.0	0.0
Impairment charges	-0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT (inc revaluation net)</b>	<b>41.6</b>	<b>47.0</b>	<b>63.2</b>	<b>70.6</b>	<b>79.8</b>	<b>94.0</b>
Interest income	1.3	1.3	1.8	0.4	0.5	0.6
Interest expenses	8.7	6.4	9.7	10.5	10.5	10.5
Investment income	-4.4	-0.4	-5.3	3.0	3.0	3.0
Financial result	-11.8	-5.4	-13.2	-7.1	-7.0	-6.9
<b>Recurring pretax income from continuing operations</b>	<b>29.8</b>	<b>41.6</b>	<b>50.0</b>	<b>63.5</b>	<b>72.8</b>	<b>87.1</b>
Extraordinary income/loss	0.0	0.0	0.0	0.0	0.0	0.0
<b>Earnings before taxes</b>	<b>29.8</b>	<b>41.6</b>	<b>50.0</b>	<b>63.5</b>	<b>72.8</b>	<b>87.1</b>
Income tax expense	10.1	13.8	15.8	19.1	21.8	26.1
<b>Net income from continuing operations</b>	<b>19.7</b>	<b>27.7</b>	<b>34.1</b>	<b>44.5</b>	<b>50.9</b>	<b>61.0</b>
Income from discontinued operations (net of tax)	0.0	0.0	1.9	0.0	0.0	0.0
<b>Net income</b>	<b>19.7</b>	<b>27.7</b>	<b>32.2</b>	<b>44.5</b>	<b>50.9</b>	<b>61.0</b>
Minority interest	-1.1	0.3	-0.0	-0.0	-0.0	-0.0
<b>Net profit (reported)</b>	<b>20.9</b>	<b>27.5</b>	<b>32.2</b>	<b>44.5</b>	<b>51.0</b>	<b>61.0</b>
Average number of shares	17.4	17.4	17.4	17.4	17.4	17.4
<b>EPS reported</b>	<b>1.20</b>	<b>1.58</b>	<b>1.86</b>	<b>2.56</b>	<b>2.94</b>	<b>3.51</b>

Profit and loss (common size)	2020	2021	2022	2023e	2024e	2025e
<b>Net sales</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
Sales growth	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
Increase/decrease in finished goods and work-in-process	2.4%	1.3%	6.0%	4.0%	1.0%	1.0%
<b>Total sales</b>	<b>102.4%</b>	<b>101.3%</b>	<b>106.0%</b>	<b>104.0%</b>	<b>101.0%</b>	<b>101.0%</b>
Other operating income	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Material expenses	60.6%	59.1%	62.3%	62.0%	60.2%	59.8%
Personnel expenses	27.8%	27.6%	27.3%	25.5%	26.0%	26.0%
Other operating expenses	5.2%	5.4%	5.9%	6.5%	5.3%	5.3%
<b>Total operating expenses</b>	<b>93.7%</b>	<b>92.0%</b>	<b>95.5%</b>	<b>94.0%</b>	<b>91.5%</b>	<b>91.1%</b>
<b>EBITDA</b>	<b>8.7%</b>	<b>9.2%</b>	<b>10.5%</b>	<b>10.0%</b>	<b>9.5%</b>	<b>9.9%</b>
Depreciation	4.0%	4.0%	3.8%	3.5%	3.0%	3.0%
<b>EBITA</b>	<b>4.7%</b>	<b>5.2%</b>	<b>6.7%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.9%</b>
Amortisation of goodwill	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Amortisation of intangible assets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Impairment charges	-0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>EBIT (inc revaluation net)</b>	<b>4.7%</b>	<b>5.2%</b>	<b>6.7%</b>	<b>6.5%</b>	<b>6.5%</b>	<b>6.9%</b>
Interest income	0.1%	0.1%	0.2%	0.0%	0.0%	0.0%
Interest expenses	1.0%	0.7%	1.0%	1.0%	0.9%	0.8%
Investment income	-0.5%	-0.0%	-0.6%	0.3%	0.2%	0.2%
Financial result	neg.	neg.	neg.	neg.	neg.	neg.
<b>Recurring pretax income from continuing operations</b>	<b>3.4%</b>	<b>4.6%</b>	<b>5.3%</b>	<b>5.8%</b>	<b>5.9%</b>	<b>6.4%</b>
Extraordinary income/loss	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Earnings before taxes</b>	<b>3.4%</b>	<b>4.6%</b>	<b>5.3%</b>	<b>5.8%</b>	<b>5.9%</b>	<b>6.4%</b>
Income tax expense	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
<b>Net income from continuing operations</b>	<b>2.2%</b>	<b>3.1%</b>	<b>3.6%</b>	<b>4.1%</b>	<b>4.2%</b>	<b>4.5%</b>
Income from discontinued operations (net of tax)	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%
<b>Net income</b>	<b>2.2%</b>	<b>3.1%</b>	<b>3.4%</b>	<b>4.1%</b>	<b>4.2%</b>	<b>4.5%</b>
Minority interest	-0.1%	0.0%	-0.0%	-0.0%	-0.0%	-0.0%
<b>Net profit (reported)</b>	<b>2.4%</b>	<b>3.0%</b>	<b>3.4%</b>	<b>4.1%</b>	<b>4.2%</b>	<b>4.5%</b>

Source: Company data, NuWays

Balance sheet (EUR m)	2020	2021	2022	2023e	2024e	2025e
<b>Intangible assets</b>	<b>185.8</b>	<b>185.0</b>	<b>182.3</b>	<b>182.3</b>	<b>182.3</b>	<b>182.3</b>
Property, plant and equipment	97.2	104.7	107.2	110.2	108.4	103.5
Financial assets	70.1	63.6	82.7	82.7	82.7	82.7
<b>FIXED ASSETS</b>	<b>353.0</b>	<b>353.3</b>	<b>372.3</b>	<b>375.2</b>	<b>373.4</b>	<b>368.5</b>
Inventories	62.1	32.0	25.7	29.5	33.4	37.0
Accounts receivable	366.2	435.7	508.5	491.0	554.9	615.9
Other assets and short-term financial assets	14.9	18.5	50.5	75.5	75.5	75.5
Liquid assets	92.5	96.6	106.1	142.3	183.1	239.8
Deferred taxes	23.4	24.8	17.7	17.7	17.7	17.7
Deferred charges and prepaid expenses	0.0	0.0	0.0	0.0	0.0	0.0
<b>CURRENT ASSETS</b>	<b>559.0</b>	<b>607.6</b>	<b>708.5</b>	<b>756.1</b>	<b>864.5</b>	<b>985.9</b>
<b>TOTAL ASSETS</b>	<b>912.1</b>	<b>960.8</b>	<b>1,080.7</b>	<b>1,131.3</b>	<b>1,237.9</b>	<b>1,354.4</b>

<b>SHAREHOLDERS EQUITY</b>	<b>206.1</b>	<b>234.5</b>	<b>268.8</b>	<b>309.9</b>	<b>354.9</b>	<b>407.8</b>
MINORITY INTEREST	17.2	18.1	24.7	24.7	24.7	24.6
Provisions for pensions and similar obligations	111.0	104.3	71.6	71.6	71.6	71.6
Other provisions and accrued liabilities	31.0	35.6	34.2	42.7	48.3	53.6
short-term liabilities to banks	93.1	145.9	133.4	110.0	103.0	96.0
Accounts payable	278.7	211.1	252.7	267.8	319.5	373.3
Accounts receivable	366.2	435.7	508.5	491.0	554.9	615.9
Other liabilities (incl. from lease and rental contracts)	58.3	53.8	55.8	55.8	55.8	55.8
Deferred taxes	44.5	52.3	62.8	62.8	62.8	62.8
Deferred income	0.0	0.0	0.0	0.0	0.0	0.0
<b>Current liabilities</b>	<b>337.0</b>	<b>264.9</b>	<b>308.5</b>	<b>323.6</b>	<b>375.3</b>	<b>429.1</b>
<b>TOTAL LIABILITIES AND SHAREHOLDERS EQUITY</b>	<b>912.1</b>	<b>960.8</b>	<b>1,080.7</b>	<b>1,131.3</b>	<b>1,237.9</b>	<b>1,354.4</b>

Balance sheet (common size)	2020	2021	2022	2023e	2024e	2025e
<b>Intangible assets</b>	<b>20.4%</b>	<b>19.2%</b>	<b>16.9%</b>	<b>16.1%</b>	<b>14.7%</b>	<b>13.5%</b>
Property, plant and equipment	10.7%	10.9%	9.9%	9.7%	8.8%	7.6%
Financial assets	7.7%	6.6%	7.7%	7.3%	6.7%	6.1%
<b>FIXED ASSETS</b>	<b>38.7%</b>	<b>36.8%</b>	<b>34.4%</b>	<b>33.2%</b>	<b>30.2%</b>	<b>27.2%</b>
Inventories	6.8%	3.3%	2.4%	2.6%	2.7%	2.7%
Accounts receivable	40.1%	45.3%	47.0%	43.4%	44.8%	45.5%
Other assets and short-term financial assets	1.6%	1.9%	4.7%	6.7%	6.1%	5.6%
Liquid assets	10.1%	10.1%	9.8%	12.6%	14.8%	17.7%
Deferred taxes	2.6%	2.6%	1.6%	1.6%	1.4%	1.3%
Deferred charges and prepaid expenses	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>CURRENT ASSETS</b>	<b>61.3%</b>	<b>63.2%</b>	<b>65.6%</b>	<b>66.8%</b>	<b>69.8%</b>	<b>72.8%</b>
<b>TOTAL ASSETS</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

<b>SHAREHOLDERS EQUITY</b>	<b>22.6%</b>	<b>24.4%</b>	<b>24.9%</b>	<b>27.4%</b>	<b>28.7%</b>	<b>30.1%</b>
MINORITY INTEREST	1.9%	1.9%	2.3%	2.2%	2.0%	1.8%
Provisions for pensions and similar obligations	12.2%	10.9%	6.6%	6.3%	5.8%	5.3%
Other provisions and accrued liabilities	3.4%	3.7%	3.2%	3.8%	3.9%	4.0%
short-term liabilities to banks	10.2%	15.2%	12.3%	9.7%	8.3%	7.1%
Accounts payable	30.6%	22.0%	23.4%	23.7%	25.8%	27.6%
Accounts receivable	40.1%	45.3%	47.0%	43.4%	44.8%	45.5%
Other liabilities (incl. from lease and rental contracts)	6.4%	5.6%	5.2%	4.9%	4.5%	4.1%
Deferred taxes	4.9%	5.4%	5.8%	5.6%	5.1%	4.6%
Deferred income	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
<b>Current liabilities</b>	<b>37.0%</b>	<b>27.6%</b>	<b>28.5%</b>	<b>28.6%</b>	<b>30.3%</b>	<b>31.7%</b>
<b>TOTAL LIABILITIES AND SHAREHOLDERS EQUITY</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: Company data, NuWays



Cash flow statement (EUR m)	2020	2021	2022	2023e	2024e	2025e
Net profit/loss	33.9	39.7	48.8	51.6	57.9	67.9
Depreciation of fixed assets (incl. leases)	35.4	36.6	36.1	38.0	36.8	40.9
Amortisation of goodwill & intangible assets	0.0	0.0	0.0	0.0	0.0	0.0
Others	-7.5	-5.3	-7.7	0.0	0.0	0.0
Cash flow from operating activities	32.9	-24.3	-2.3	86.0	69.0	86.1
Increase/decrease in inventory	-34.6	61.9	6.4	-3.9	-3.8	-3.7
Increase/decrease in accounts receivable	84.9	-108.7	-107.5	17.5	-63.8	-61.0
Increase/decrease in accounts payable	-59.3	21.8	16.5	15.2	51.6	53.8
Increase/decrease in other working capital positions	-13.0	-65.5	14.8	-25.0	0.0	0.0
Increase/decrease in working capital	-22.0	-90.5	-69.8	3.8	-16.0	-10.9
<b>Cash flow from operating activities</b>	<b>44.1</b>	<b>-17.3</b>	<b>9.1</b>	<b>101.0</b>	<b>85.8</b>	<b>104.6</b>
CAPEX	21.2	22.6	20.5	41.0	35.0	36.0
Payments for acquisitions	0.0	0.0	0.0	0.0	0.0	0.0
Financial investments	0.0	0.0	0.0	0.0	0.0	0.0
Income from asset disposals	4.9	24.5	-2.8	0.0	0.0	0.0
<b>Cash flow from investing activities</b>	<b>-16.3</b>	<b>1.9</b>	<b>-23.3</b>	<b>-41.0</b>	<b>-35.0</b>	<b>-36.0</b>
Cash flow before financing	27.8	-23.0	-22.5	49.6	37.8	53.7
Increase/decrease in debt position	-12.6	34.5	39.1	-13.4	3.0	3.0
Purchase of own shares	0.0	3.0	0.0	0.0	0.0	0.0
Capital measures	0.0	0.0	0.0	0.0	0.0	0.0
Dividends paid	0.0	7.5	8.3	10.4	13.0	14.9
Others	-7.5	-5.3	-7.7	0.0	0.0	0.0
Effects of exchange rate changes on cash	-0.8	1.3	0.0	0.0	0.0	0.0
<b>Cash flow from financing activities</b>	<b>-20.2</b>	<b>18.8</b>	<b>23.1</b>	<b>-23.8</b>	<b>-10.0</b>	<b>-11.9</b>
Increase/decrease in liquid assets	6.9	4.7	9.0	36.2	40.8	56.7
<b>Liquid assets at end of period</b>	<b>91.9</b>	<b>96.6</b>	<b>105.6</b>	<b>141.8</b>	<b>182.5</b>	<b>239.2</b>

Key ratios (EUR m)	2020	2021	2022	2023e	2024e	2025e
<b>P&amp;L growth analysis</b>						
Sales growth	-12.4%	2.8%	4.4%	15.0%	13.0%	11.0%
EBITDA growth	20.0%	6.7%	29.0%	29.9%	17.4%	24.2%
EBIT growth	-12.8%	-4.3%	51.8%	50.2%	26.2%	33.1%
EPS growth	n.a.	7.6%	55.0%	62.2%	58.1%	37.2%
<b>Efficiency</b>						
Sales per employee	295.3	302.1	313.0	353.4	399.3	443.2
EBITDA per employee	25.8	27.9	32.9	35.3	37.9	43.9
No. employees (average)	2,981	2,996	3,018	3,074	3,074	3,074
<b>Balance sheet analysis</b>						
Avg. working capital / sales	16.4%	22.4%	28.5%	24.6%	22.4%	19.5%
Inventory turnover (sales/inventory)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Accounts receivable turnover	151.8	175.7	196.5	165.0	165.0	165.0
Accounts payable turnover	115.6	85.1	97.6	90.0	95.0	100.0
<b>Cash flow analysis</b>						
Free cash flow	23.0	-39.9	-11.4	60.0	50.8	68.6
Free cash flow/sales	2.6%	-4.4%	-1.2%	5.5%	4.1%	5.0%
FCF / net profit	67.8%	neg.	neg.	116.4%	87.6%	101.1%
Capex / sales	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Solvency</b>						
Net debt	65.3	144.9	247.4	197.8	160.0	106.3
Net Debt/EBITDA	0.8	1.7	2.5	1.8	1.4	0.8
Dividend payout ratio	35.9%	30.4%	32.3%	29.3%	29.3%	29.3%
Interest paid / avg. debt	6.9%	3.2%	4.2%	4.0%	3.6%	3.7%
<b>Returns</b>						
ROCE	8.7%	8.7%	10.1%	10.8%	12.1%	14.0%
ROE	10.1%	11.7%	12.0%	14.4%	14.4%	15.0%
Adjusted FCF yield	7.3%	7.5%	8.9%	10.0%	11.1%	13.9%
Dividend yield	1.3%	1.5%	1.8%	2.3%	2.6%	3.1%
DPS	0.4	0.5	0.6	0.8	0.9	1.0
EPS reported	1.20	1.58	1.86	2.56	2.94	3.51
Average number of shares	17.4	17.4	17.4	17.4	17.4	17.4
<b>Valuation ratios</b>						
P/BV	2.8	2.4	2.1	1.8	1.6	1.4
EV/sales	0.8	0.9	0.9	0.7	0.6	0.5
EV/EBITDA	9.7	9.8	8.4	7.2	6.4	5.1
EV/EBIT	17.9	17.4	13.1	11.1	9.3	7.3

Source: Company data, NuWays

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Company	Disclosures
OHB SE	2,8

### Historical target price and rating changes for OHB SE

Company	Date	Analyst	Rating	Target Price	Close
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