Buy
Hold
Sell

The sky is not the limit, but just the beginning

Mynaric's critical laser communication terminals for satellites and aircraft are born into a time, which is characterized by a fundamental change. Space has become more accessible and commercialization of this industry is moving to the foreground. The LEO satellite constellations are the new megatrend that will benefit Mynaric for years to come. First customer orders with signal effects (US government) and the set up of a mass production are major steps in the transformation process of Mynaric from a research-driven house to a key player. We initiate coverage on Mynaric with a Buy rating and a TP of EUR 102.

Target price (EUR)	**102**
Share price (EUR)	75

Forecast changes

%	2021e	2022e	2023e
Revenues	NM	NM	NM
EBITDA	NM	NM	NM
EBIT adj	NM	NM	NM
EPS reported	NM	NM	NM
EPS adj	NM	NM	NM

Source: Pareto

Ticker	M0Y.DE, M0Y
Sector	Aerospace & Defense
Shares fully diluted (m)	4.1
Market cap (EURm)	306
Net debt (EURm)	-2
Minority interests (EURm)	0
Enterprise value 21e (EURm)	305
Free float (%)	73

LEO constellations gained significant traction in 2020

The most important and exciting market for Mynaric is the LEO (Low Earth Orbit) constellation market. Laser communication will be an indispensable component for the very fast connectivity of thousands of satellites. Market research institutes expect >10,000 small satellites to be launched over the next ten years, which corresponds to >3x of total satellites launched in the last ten years before 2020.

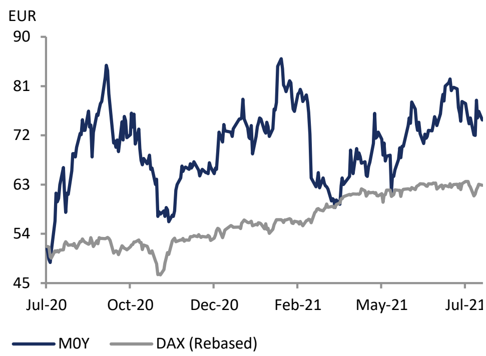
On the way to a breakthrough

In 2020, Mynaric was contracted to deliver its inter-satellite terminal Condor to two major US small satellite constellations. The LEO constellations were set up by the DARPA and the Space Development Agency in order to test and demonstrate the capabilities of the constellations for military purposes. Follow-up orders with related mass production volumes were not yet exercised. However, we believe the initial orders are of strategic importance and lead to a significantly improved perception of Mynaric.

EURm	2019	2020	2021e	2022e	2023e
Revenues	0	1	8	40	114
EBITDA	(7)	(20)	(25)	(17)	2
EBIT	(8)	(22)	(30)	(23)	(4)
EPS	(2.71)	(6.70)	(7.40)	(5.85)	(1.44)
EPS adj	-	-	-	-	-
DPS	-	-	-	-	-
EV/EBITDA	-	-	-	-	-
EV/EBIT	-	-	-	-	-
P/E adj	-	-	-	-	-
P/B	4.28	3.51	7.57	18.58	28.94
ROE (%)	-	-	-	-	-
Div yield (%)	-	-	-	-	-
Net debt	(2)	(35)	(2)	35	66

Source: Pareto

Performance



Source: Factset

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Investment Case

Mynaric develops and produces **laser communication terminals**, which can be equipped to satellites, airplanes or unmanned drones. The technology plays a key role in the future networking of satellites in space as well as with different receivers on Earth. Laser communication offers significant advantages over conventional technology, such as ultra-fast and secure transmission of high-volume data in a resilient environment. With laser communication new application areas emerge that will drive commercialization of space. In our view, Mynaric is at the turning point from being a research-driven company to becoming a key player in a still very immature market.

In our view, Mynaric's most important end market is the **LEO (Low Earth Orbit) satellite constellation market**. The basic idea behind the LEO constellations was to bring low-latency, high-speed broadband connectivity to people in the world who have no access to broadband internet, with the use of thousands of small satellites in space. Existing technologies and satellites are no longer able to meet the requirements of the New Space era. Companies like SpaceX and OneWeb were the first movers in the LEO constellation market that is set to gain strong momentum in the years to come. Compared to less than <3,000 satellites launched in the ten years before 2018, the expected number for launches of small satellites in the next ten years is significantly >10,000.

The use of LEO constellations for military purposes and the increasing interest of state agencies are major catalysts for the market. In FY 2020, **Mynaric was contracted by customers in the conjunction with two constellations from the US agencies DARPA and SDA**. Although the programs are in the demonstration phase and the roll-out is still ahead, the commissioning by US authorities should be of strategic importance for Mynaric, in our view. This shows that Mynaric with its young history is perceived as a competent supplier and can meet critical requirements. We expect the cooperation with the US authorities to have a signal effect for commercial customers.

With the recent opening of its production facility in Germany, Mynaric has taken a **major step towards serial production**. Considering of the expected enormous market growth, the ability to produce large quantities of standardized modules at cost-effective prices in an important competitive advantage. Mynaric is undergoing a transformation process, driven by the CEO Bulent Altan, a former SpaceX manager. The increasing footprint in the US market and the intended listing in the US in H2 2021 are important steps in this context.

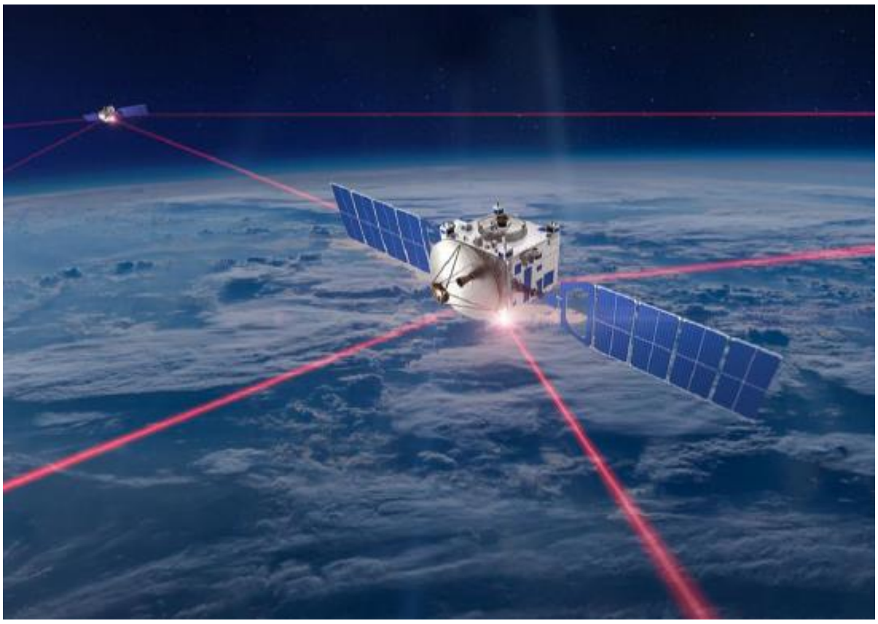
We believe that from today's point of view, follow-up orders in conjunction with the SDA constellations are highly likely. We estimate a significant acceleration in revenue growth, driven by higher production volumes. We expect Mynaric to achieve **break-even at EBITDA level in FY 2023e**. Cash on hand is sufficient for current business, however, according to our calculations, a further capital increase will be necessary by the end of the year. We also do not rule out the possibility that our estimates may prove to be conservative. We believe that Mynaric is an important player in the laser communication industry.

We value the shares based on our DCF model as we believe that this is the valuation method that best reflects the long-term perspective of Mynaric. In order to reflect the young company history with still poor earnings, we take into account a WACC of 12.5%. We derive at **TP of EUR 102**, which implies a significant **upside potential of c.36%**. We initiate the coverage with a **Buy** rating.

Company overview

Founded in 2009, Mynaric offers equipment and solutions for laser communication. The still very young technology utilizes a frequency of the electromagnetic spectrum that is more than 10,000x higher than what is used by conventional radio frequency equipment allowing for substantially higher data throughput and hence reduced transmission time for large amounts of data. The data bandwidth achieved by laser communication is regularly a factor 100 to 1,000 above the records of radio frequency. The transfer via laser is possible both in space but also from and to space. Mynaric does not yet generate any significant revenues. However, its products have been developed and are currently being successfully tested by customers. Mynaric's inflection point in its young history could be the order from two customers in connection with two US governmental satellite programs. In the still immature market with very few end customers, the US government initiatives are likely to be the catalyst, for the entire sector.
In mid-June, the company opened its 1,600m^2 production facility in Oberpfaffenhofen near Munich, Germany, where it is ramping up the serial production.

Exhibit 1: Space-to-space laser communication



Source: Mynaric, Pareto Securities Research

Mynaric has been listed on the Frankfurt Stock Exchange since 2017. The shares are quoted in the open market, the Scale segment. In early April this year, Mynaric announced that the company intends a US listing in H2 2021.

Last year in October, the company has carried out its second capital increase in 2020 and received gross proceeds in the amount of EUR 52.8m. Total proceeds raised in 2021 equalled to around EUR 65m.

Company history in summary

2009: Mynaric was founded in this year by Joachim Horwarth and Dr. Markus Knapek, two former scientists of the German Aerospace Center (DLR). Both founders had previously spent many years researching and developing in the area of laser communication for aerospace applications. While Joachim Horwarth is still part of the Management Board, Markus Knapek is not with the company anymore.

2012: The first steps were taken to build a customer relationship. Mynaric started the development of prototypes for customers in the field of air-to-ground and air-to-air laser communication solutions. The prototyping phase was important to show the development status of Mynaric as well as the technological progress. Customers and suppliers began to recognize Mynaric as a major player in the field of wireless laser communications for airborne applications.

2016: Started its business in North America with a US subsidiary, which is now headquartered in Los Angeles. The step to America, the most important market for the aerospace industry, was important in view of the recent orders from government-related US customers.

2017: Listing on the Frankfurt Stock Exchange in order to get easier access to funds, which was an important step to set up its production capacities.

2019: Bulent Altan, a former SpaceX Vice President, joined Mynaric and became CEO of the company in July 2020. In our view, the hiring of Bulent Altan was an important signal for customers, as it reflects the confidence in the company's technology and capabilities. We believe Bulent Altan will have an important role in establishing Mynaric in the aerospace market, which is difficult to access.

2020: Mynaric started the pre-series production of its two flagship products CONDOR for inter-satellite links of satellite constellations and HAWK for air-to-air and air-to-ground links of airborne vehicles. More important, Mynaric was awarded by US customers to deliver both systems to important programs.

As a result of an export ban from the German government, Mynaric decided to withdraw from the Chinese market.

In the course of two capital increases, Mynaric was able to raise total proceeds of around EUR 65m.

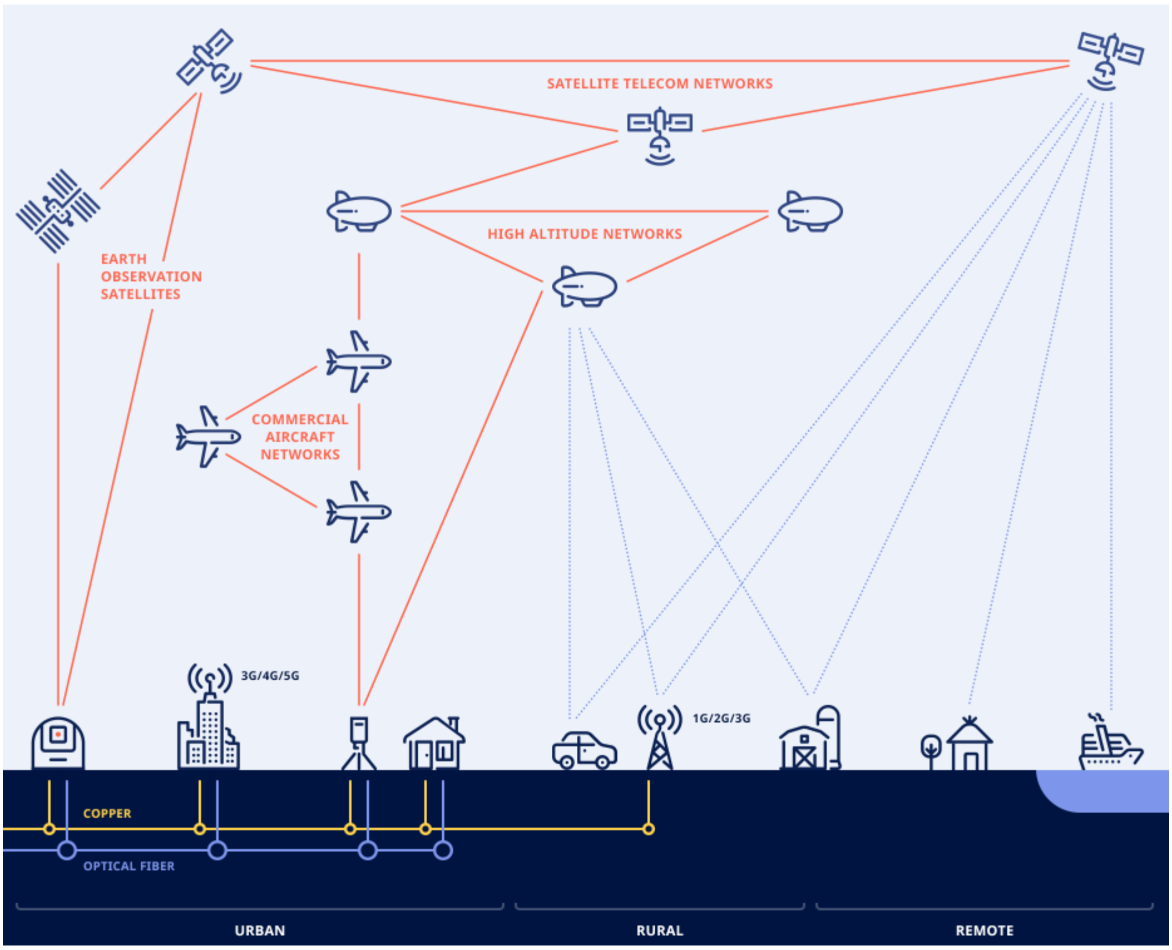
2021: Mynaric opened its new facility for serial production close to Munich.

Mynaric's technology

Mynaric develops and produces laser communication products for satellites and aircraft as well as the related ground terminals. Flight terminals will be connected to airplanes or unmanned drones and to satellites. The ground terminals enable communication from the air or the space to the ground.

Internet above the clouds: The increasing spread of the internet and digitalization of daily life requires a communication infrastructure that enables the transfer of even more data at even faster speed and that is at the same time available without interruptions. However, the expansion of the existing infrastructure networks is not always possible. Moreover, there are regions in the world that do not have this infrastructure and will not be able to obtain it due to economic and logistical factors. This is where the so-called LEO (low Earth orbit) satellite constellations come into play. Several hundreds or thousands of smaller satellites span the earth like a fishing net. While the satellites represent the nodes, the laser is the thread that is invisible to the naked eye.
According to Mynaric, the laser communication infrastructure enables the transfer of big data over long distances of multiple hundreds up to thousands of kilometres, at data speeds of multiple gigabits per second. According to Mynaric, the streaming of a 4GB Netflix HD movie on a long-distance flight could take you 3.2s with laser connectivity. According to recent tests, data transfer via laser can be up to 320x faster than the data transfer via radio frequency. As depicted in the exhibit below, the transfer via laser can takes place in space (inter-satellite) as well as between space platforms and related ground stations or flying aircraft.

Exhibit 2: How to set up a laser-based communication with Mynaric



Source: Mynaric, Pareto Securities Research

Mynaric compares each satellite with a cell tower mast, that is positioned in the space. The so-called virtual cell tower in space is connected via laser communication, while the cell tower on Earth is connected via fiber optics. Compared to the coverage radius of a cell tower of a few kilometres, the satellite can cover several hundreds of kilometres. In addition, receiver circle of the satellites comprise also ships, aircrafts and also cell towers. However, in terms of revenue generation, the basic idea is the same – the more satellites, the more the revenue potential.

Laser communication systems arise from necessity as the existing radio frequency infrastructure comes to their capability limits. As commercial customers but also government organizations have recognized this and see the benefits of the new infrastructure with LEO constellations, laser communication will be clearly the future of space communication. The advanced technology as well as the cost reduction for space applications (e.g. launcher) will accelerate this trend.

Exhibit 3: Why laser communication will succeed

	Laser communication vs. radio frequency (RF)
✓	Gbit-class data rate. Data transfer via laser is up to 320x faster than via RF, satellites can send much more data and information in a shorter time of period
✓	Will help to bring internet and digitalization to less density areas in the world
✓	Typical coverage is thousands of km. Allows transfer of high data for very long distances.
✓	Secure data transfer and almost impossible to intercept or detect
✓	Laser communication has lower power requirements, which is in particular in space an advantage for satellites - a laser transfer to the moon needs 50x times less power than RF
✓	No signal overlaps or interfere, as laser covers a much smaller area - therefore laser communication has not to be regulated and is license-free
✓	Cost-effective alternative that will enable closer integration of business models with space and satellite technology
⛔	Success of laser communication for space depends highly on successful market penetration of LEO constellations
⛔	No transmission through clouds
⛔	Laser beam requires an almost pinpoint connection and high precision tracking systems

Source: Company, Pareto Securities Research

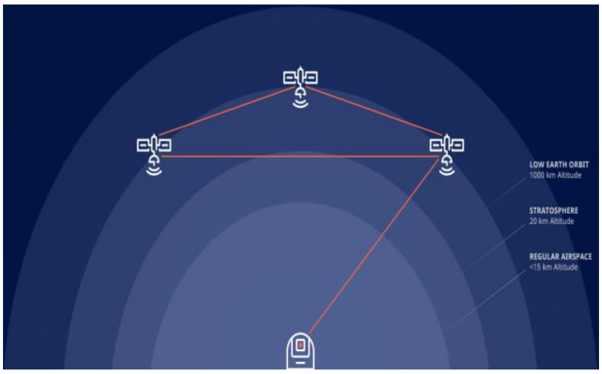
Condor – The connector in space

This flight terminal device is developed for inter-satellite links of LEO satellite constellations. It can help to connect a network of hundreds or even thousands of satellites in the low earth orbit. With the first generation Mk1, Mynaric started the pre-serial production in 2020. The experiences and knowledge gained from the first generation could be taken along for the production of the second (Mk2) and third (Mk3) generation.
According to Mynaric, the Condor is capable to provide 20 Gbps (Gigabits per second) over thousands of km. In comparison, the 5G speed is defined to be in the range of 10 to 20 Gbps over a few hundred meters. The company's third generation Condor is expected to be even faster than the existing 20 Gbps. The distance that the laser can cover is more than 5,000 km. While the radius of the earth is 6,371 km, the LEO satellites are located in a distance of up to 2,000 km. The expected lifetime of the terminals of 7+ years is longer than that of the LEO satellites, which is expected to be 5 years.

Exhibit 4: Flight terminal to be attached to satellites

Source: Mynaric, Pareto Securities Research

Exhibit 5: Long distance inter-satellite link for LEOs…



Source: Mynaric, Pareto Securities Research

Mynaric targets to increase the current production rate of 20-40 units per year up to >100 units per year. The newly introduced production site will be of decisive importance in this respect. Mynaric has established the necessary supply chain. For important, particularly critical components, the company has reached licensing agreements with suppliers.

We believe that the above-mentioned progress was one of the reasons why Mynaric has already been able to win two customers for its Condor. In October 2020, Mynaric was selected by Telesat to supply multiple units for the DARPA's Blackjack satellite program (US government program to establish a satellite constellation for defence purposes). The delivery of the terminals has already begun. The second customer project is also from a US federal agency and includes the delivery of terminals for a satellite constellation. Mynaric expected a revenue potential in the mid-single digit EURm range. We will go into detail on both projects in the market section of this report.

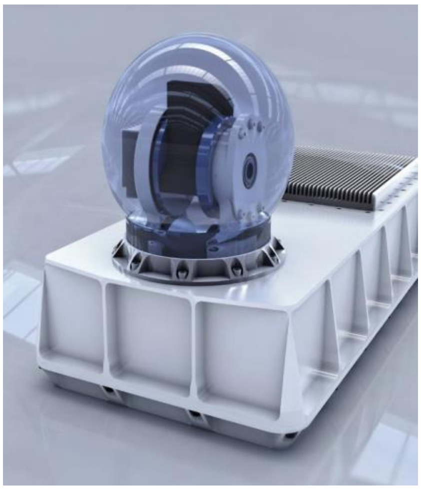
A further customer for the Condor terminals is SpaceLink, which is about to ramp-up a constellation for commercial and government customers. SpaceLink considers Mynaric's terminals for the planned four MEO satellites, of which each should be equipped with 8-12 optical terminals.

The Condor terminal belongs to the segment Space, which generated rather negligible revenues in 2020. However, due to own work capitalized total output in the segment was at EUR 8.25m, while EBIT was negative at EUR -13m.

Hawk – The solution for unmanned aerial vehicles (UAV)

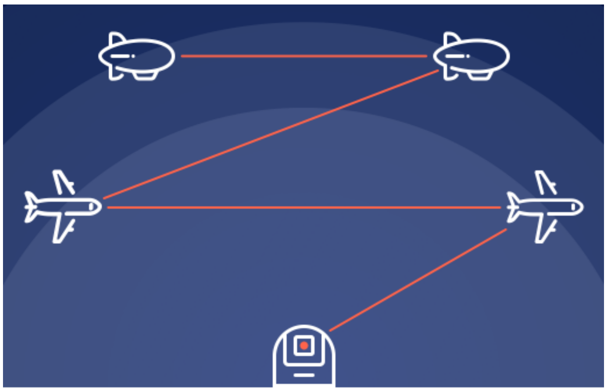
The Hawk flight terminal is developed for aircrafts, for civil and military applications. However, we believe that due its characteristics and capabilities, demand will come more from the defence sector. In addition, civilian application, such as commercial aircrafts, require certification procedures over many years, which Mynaric does not yet have. Mynaric completed the development of Hawk in 2020 and is now in the ramp-up phase of production.

Exhibit 6: Very suitable for drones



Source: Mynaric, Pareto Securities Research

Exhibit 7: Enables air-to-air/ground connectivity



Source: Mynaric, Pareto Securities Research

The Hawk is able to transfer big data with a speed of 10 Gbps and allows real-time access to high-resolution intelligence and surveillance. According to Mynaric, communication links realized with Hawk have a low probability of being detected or intercepted.

Mynaric has achieved a fixed order from an undisclosed top tier US aerospace company. In 2020, the company was able to generate smaller revenues of around EUR 500k with the Hawk terminal. The current production volume is in the range of 20-40 units per year.

The Hawk terminal is reported in the segment Air. In FY 2020, Mynaric generated low revenues of EUR 0.59m. Segment EBIT was in the red at EUR -6.6m.

Ground Terminals

The ground terminals are essential to bring the data and information from space or from the air to the appropriate receivers on ground. At the same time, however, they can also link a laser in the opposite direction, in order to send relevant information to an UAV or to the satellite constellation.

Mynaric's has developed the Armadillo for air-to ground airborne connection as well as the Rhino for LEO satellite connection. Mynaric's laser satellite gateway has a diameter of 0.4m, compared to the 5m of a conventional X-band satellite gateway.

Exhibit 8: Mynaric's terminal (left) smaller and inconspicuous

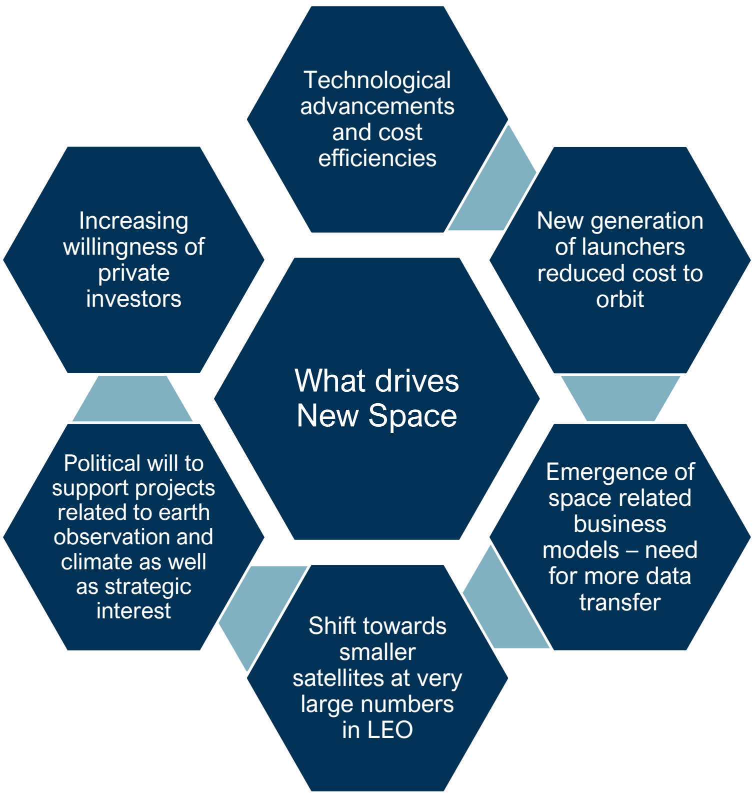
Source: Mynaric, Pareto Securities Research

Market dynamics and competition

For some years, we have been experiencing a structural change in the space industry. Space activities are no longer just affairs of governments. It is more and more a business of commercial companies, where the former monopolist, the state, is increasingly becoming a customer. Today, there are significantly more players on the market, new space companies and non-space companies have become the important market drivers.

According to the European Space Agency (ESA) the "New Space" is the trend of an emerging private space industry, which not only rely on government support but also follows game-changing busines models.

Exhibit 9: Key drivers of commercialization of space



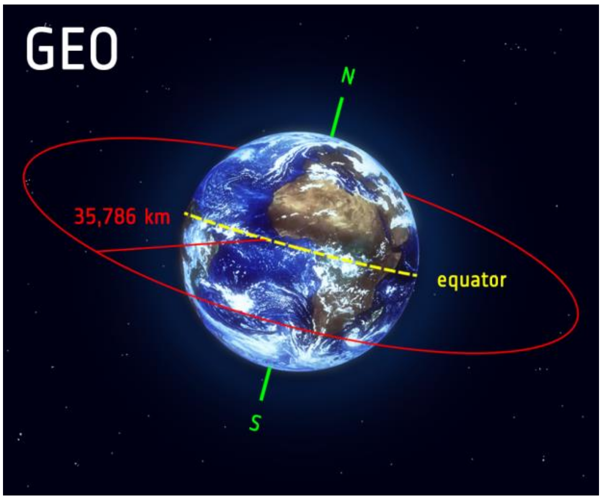
Source: Pareto Securities Research

According to the Capital Markets Presentation of the German space company OHB in 2019 and data from Euroconsult, LEO and GEO satellites generated in 2017 the same revenue (around USD 11bn for manufacturing and launch), which reflects the beginning of a new area that should be dominated by LEOs.

Basic understanding of GEO and LEO

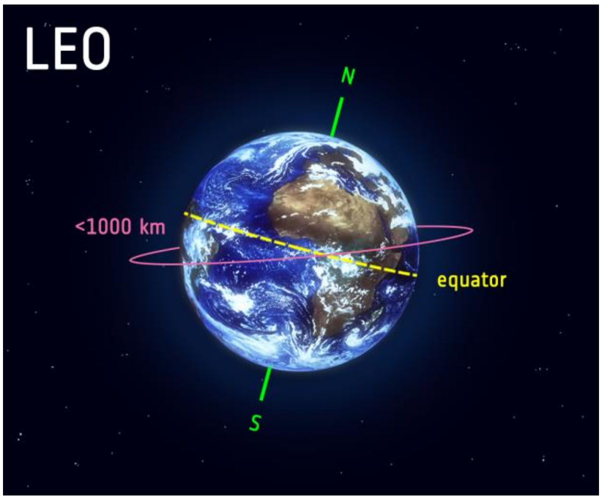
Geostationary Orbit satellites (GEOs) are circling close to 36,000 km above the equator at exactly the speed (close to 24 hours), the Earth is rotating. Consequently, it appears that these satellites are stable at a fixed position. Given that, the GEO is mainly used for telecom satellites that have their counterpart on a fixed point on Earth. Given the huge distance, the latency is rather long. However, one satellite in GEO is able to cover 1/3 of Earth. ESA's European Data Relay System (EDRS) is placed in GEO. The EDRS is a system of fixed satellites that functions to relay data between satellites placed in LEO and the ground stations, by using laser communication technology. The connection made in this way is also called Europe's SpaceDataHighway.

Exhibit 10: Geostationary orbit



Source: ESA, Pareto Securities Research

Exhibit 11: Low Earth orbit



Source: ESA, Pareto Securities Research

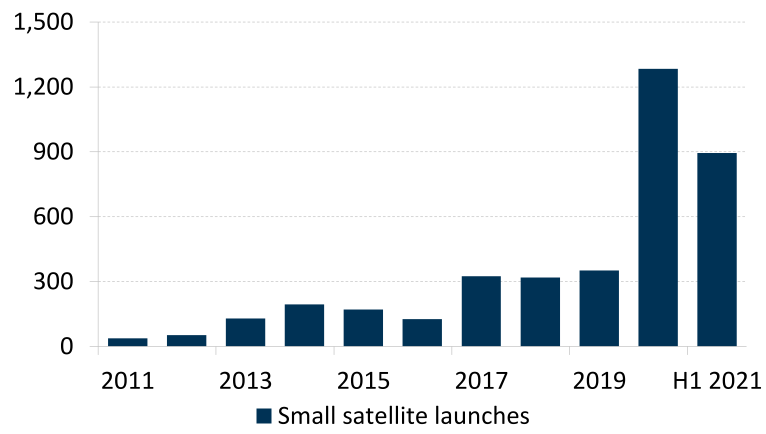
With a distance of less than 1,000km, the LEO is the orbit that is closest to the Earth. Due to its close proximity to the Earth, the LEO is very well suitable for imaging programs like earth observation and offers an improved latency with smoother connection. The low-latency data is the reason why broadband constellations will play a major role in the future LEO market. The International Space Station (ISS) is also located in LEO, as it is faster to reach due to the shorter distance. The disadvantage of a satellite in the LEO is, that it covers a smaller radius and thus a smaller area on Earth. If there is only one satellite in operation in LEO, it would not be able to get a connection with the satellite again for 90 minutes, as the satellites needs that time to circle the Earth (7.8km per second) once and arrived back at the point of origin. In order to fix that problem, the so-called constellations are therefore being targeted, with hundreds and thousands of satellites, that enable to cover the globe. The key advantage over GEOs is that they do not have to orbit the equator and can have a more flexible flight path. This means that there is a much more space available for countless satellites.

We will look at the megatrend of LEO satellite constellations, as we believe that the success of Mynaric will depend very much on the future of the LEOs.

Small but nice – small satellite constellations

We consider the LEO satellite constellations as the most important end-market for Mynaric's laser communication terminals. The reason for the emergence of the relatively new market segment of LEO constellations is the idea to offer low-latency, high-speed broadband connectivity to people in the world who have no access to broadband internet. Consequently, it was primarily the technology companies like Amazon, OneWeb, SpaceX and Telesat that triggered this development. The application range of the LEOs can be extended rapidly to new megatrends such as autonomous driving or IoT, which requires enormous data processing in a very short period of time.

Exhibit 12: Mega constellations lead to sharp increase



Source: Euroconsult, UN Office for Outer Space Affairs, Pareto Securities Research

From 2020, the market for small satellites has significantly gained momentum, driven by the mega constellations and here in particular from SpaceX's Starlink. As of end of June, there were already around 900 small satellites launched into orbit this year. Starlink has announced, that the company has already 1,730 satellites in orbit, of which the first 60 satellites were launched in May 2019. OneWeb has 254 satellites in orbit as of July.

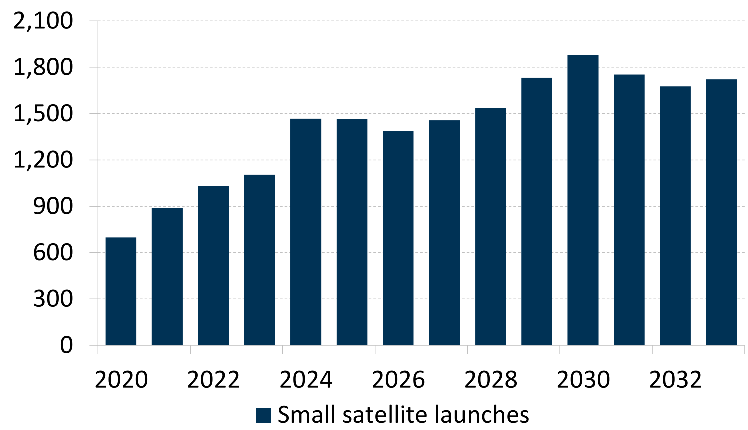
According to numbers of the World Economic Forum and Euroconsult, in the period of 2009-2018 a total of 2,298 satellites were launched into orbit. Based on pre-Covid estimates in 2019, for the period of 2019-2028 the number of expected satellites that will be launched is at around 10,000 units. In its Capital Markets Presentation in 2019, OHB showed that the average weigh of the satellites is expected to decline from 2.2 tons to 0.9 tons in the comparable period under review, confirming the expected trend towards much smaller satellites.

Frost & Sullivan predicts around 20,400 small satellites to be launched in the period of 2019-2033. This would mean around 1,360 satellites per year compared to around 1,000 satellites in the above-mentioned forecast of Euroconsult. We believe that the deviation in the forecasts is due to the increased expectation of small satellite constellations.

In both scenarios, it should be noted that after around 5 years, growth will be triggered by replacement demand rather than new satellites. At the end of their service life, these satellites must be replaced and provide recurring revenue potential for the manufacturers and the supplier industry. According to Frost & Sullivan, around 49% of the total demand will be related to communication applications, 8% to IoT and 37% to Earth observation.

As can been seen from the exhibit below, the actual small satellites launch in 2019-2021 are already above the estimates of Frost & Sullivan, so the long-term expectation could prove to be conservative.

Exhibit 13: F&S scenario includes only already announced constellations



Source: Frost & Sullivan, Pareto Securities Research

In addition to the technological advances and the limited capabilities of the GEOs, the sharp drop in launch costs is a key driver for the LEO constellations. It is expected that the cost per kg to launch a satellite to LEO, will be about 90% lower compared to ten years ago. The further industrialization of the launcher industry with standardized mass production will be the triggers for the expected cost decline. The trend was initiated by SpaceX, which brought free competitive structures to a government-dominated market. Especially in the micro-launcher market, there are currently more than 100 new players developing new rocket systems with a focus on the small satellite market.
The OHB subsidiary Rocket Factory Augsburg (RFA) is such a company. RFA has announced that the company targets one launch per week, after the rocket production is up and running. The maiden flight of the rocket is targeted for 2022. The targeted launch cost of EUR 3m with a payload of up to 1,300 kg implies a price of only around EUR 2,300 per kg, which is highly competitive from today's point of view.
The cost reduction for the successor of Ariane 5, the Ariane 6, is more than 50%. For the Falcon successor, the cost reduction was about 40%. As shown in the table below, prices are currently established well below USD 5,000 per kg.

Exhibit 14: What does it costs to ship one kg into LEO?

Rocket	Country	First launch	USD/kg	Class
Soyuz	Russia	1966	17,900	Medium
Space Shuttle	USA	1981	65,400	Heavy
Ariane 4	Europe	1988	18,300	Medium
Ariane 5	Europe	1997	10,200	Heavy
Falcon 9	USA	2010	2,600	Medium
Vega	Europe	2012	20,000	Small
Falcon Heavy	USA	2018	1,500	Heavy
Ariane 6	Europe	2022	<5,000	Heavy
RFA	Germany	2022	2,300	Small

Source: CSIS Aerospace, EIB, Pareto Securities Research

Major LEO constellations at a glance

As already shown in this report, 2020 was an inflection point for the LEO satellite constellation market. In the following, we want to outline the commercial LEO constellations announced and initiated as well as the two constellations planned by the US, for which Mynaric has promising approaches.

Exhibit 15: Major small satellite constellations at a glance

Constellation	Application	Launch	# of satellites planned	# of satellites orbited	Satellite mass	Owners
Starlink	Internet	2019	up to 7,518	1,730	260 kg	SpaceX
OneWeb	Internet	2019	648*	254	150 kg	OneWeb is owned by UK, Bharti Group, Softbank and Eutelsat. JV with Airbus for the production of the 1st generation of constellation
Kuiper	Internet		3,236	-		Amazon
Viasat	Internet		300	-		VSAT NASDAQ listed company
Telesat	Internet	2022	298	1	750kg	Intends IPO in 2021, major shareholder is LORAL Space (LORL),
Lynk	Mobile network	2022	<5,000	-		
Kleo	IoT/M2M	2019	300	2		Kleo GmbH, Chinese financed startup
AST SpaceMobile	Internet	2019	168	1		ASTS NASDAQ listed company
Satellogic	Earth observation	2023	300	-	>50 kg	Intends listing after merger with CFV (sponsored by Cantor Fitzgerald)
Astrocast	IoT	2024	100	-		Swiss startup intends listing to finance constellation
China	Internet	2025	13,000			China Satellite Network Group
Europe	Internet		Contracted consortium of European space companies to study feasibility of LEO constellation			

** OneWeb considers up to 6,372 satellites in the next phases, drastically reduced from 48,000 units*

Source: CSIS Aerospace, EIB, Pareto Securities Research

Our overview of currently launched or announced LEO constellations shows that SpaceX with its Starlink is clearly the first mover. Starlink, which started providing satellite internet services in 2020 to customers in the US and Canada has currently around 70,000 users. Given the fact, that SpaceX prefers to cover the entire value chain itself, we see rather low prospects for business potential for Mynaric from this constellation.
The same applies for the constellation of OneWeb, in our view. OneWeb has managed to avert insolvency, attract financially strong partners and has been able to implement its roll-out quickly. As long as the JV in which Airbus is involved, receives the order for the production of the satellites, we do not assume any business for Mynaric. Via its subsidiary Tesat Airbus has its own competences in laser communication.

We believe that the success of SpaceX so far, will accelerate the efforts of other LEO constellation to bring the satellites into orbit. The biggest effort for the operators is the very high upfront investment costs before the first profits can be achieve only after several years. Both SpaceX and Amazon quantify the investment costs for their constellation at up to USD 10bn. We assume that in the end there will be around five commercial LEO constellations.

We will explain in our section Financials in detail from which constellation we expect Mynaric to generate business. In the next section, however, we will first show the two specific projects for which Mynaric has customer orders and has already delivered the first products.

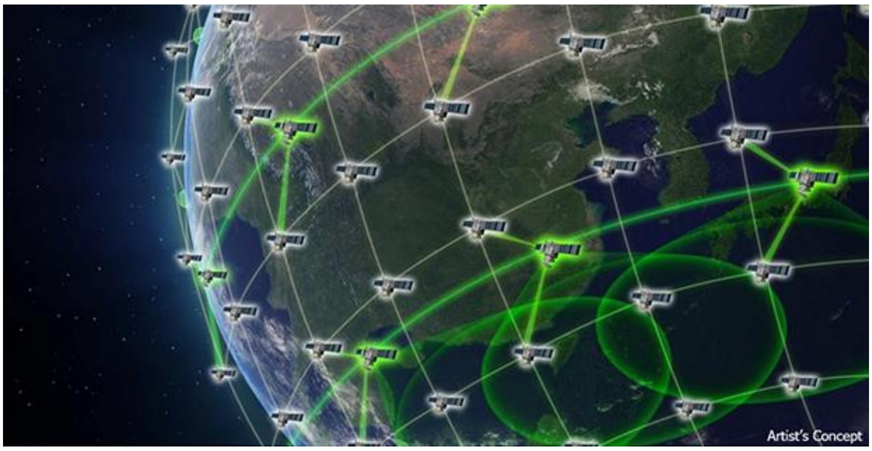
US government driven business

As shown in the previous sections, it is mainly established technology companies or startups, that were the initiators of the LEO constellations. However, due to funding reasons but mainly also due to strategic reasons, the government supported efforts were major catalysts for the sector. So also in the case of Mynaric. The company was contracted in 2020 by two US space companies to deliver multiple units of its Condor terminals for the DARPA Blackjack program as well as for a planned constellation of the Space Development Agency.

Founded in 1958, DARPA (Defense Advanced Research Projects Agency) is the R&D agency of the US Department of Defense. The agency is responsible for the development of new, emerging technologies for military purposes. In addition to important achievements in the field of space in the 1960s, the development of GPS, stealth technology, drones and above all, the internet can be attributed to the agency.

Together with the US Space Force the DARPA is developing a demonstration project, called Blackjack, in order to test the military usage of LEO constellations. According to DARPA, the current GEOs have become a vulnerable target and could not be replaced at short notice, if they are to be destroyed by military attack. The target of the program is to demonstrate that LEO constellation satellites can offer highly connected, resilient and persistent coverage, with cost-effective mass production of the relevant components and short design cycles.

Exhibit 16: Blackjack constellation

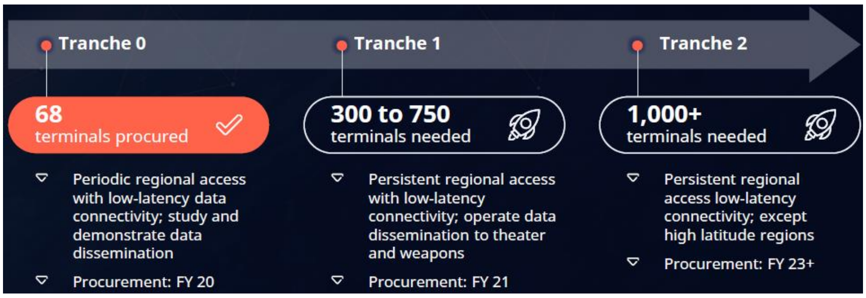


Source: DARPA, Pareto Securities Research

Mynaric was contracted by Telesat to supply several Condor terminals (PASe: two terminals). Telesat, in turn, was contracted by DARPA to demonstrate the use of Optical Inter-Satellite Links in orbit.
In June this year, DARPA has already sent two satellites into LEO that are equipped with laser-communication systems. In Mynaric's press release on the order intake, the company had reported that the corresponding DARPA satellites would be launched into LEO during H2 2021. Consequently, we assume that the recently launched satellites did not yet have Mynaric's terminals. Telesat has the option to deliver another 20 satellites, which is not yet exercised by DARPA.

Pentagon's Space Development Agency (SDA) plans to develop a LEO constellation, which will provide secure, resilient and low-latency, worldwide connectivity for military platforms. With more around 200 small satellites in low Earth orbit from late 2024 onwards, it is targeted to cover 95% of all locations on Earth with at least two satellites and 99% of all locations with one satellite in the long term. The satellite interconnection should be served by optical communication. Main target of the constellation, National Defense Space architecture, is among other things to locate targets on the ground and sea and track advanced missiles, the so-called hypersonic missiles.

Exhibit 17: Assumption for SDA's need for next tranches



Source: Mynaric, Pareto Securities Research

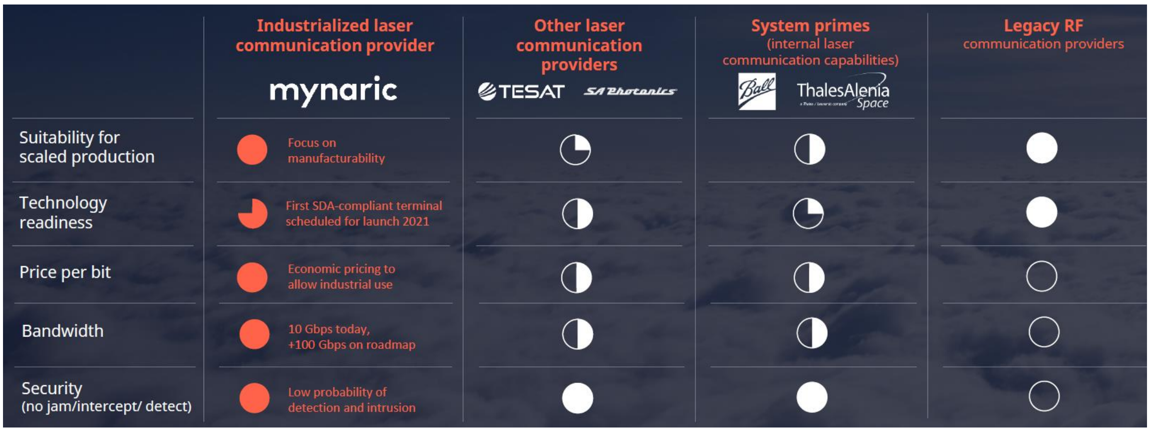
Mynaric was contracted by an undisclosed customer to deliver some Condor terminals for the constellation. The first satellites will be launched from 2022 onwards. The order is not only of commercial importance for Mynaric (according to Mynaric revenue volume in the mid-single digit EURm range) but has a signal effect for potential new customers. The demonstration that Mynaric is able to meet requirements of US space agencies, can be a door opener for follow-up orders from existing customers as well as orders from new customers. At the end of the decade, the constellation could consist of more than 500 satellites, implying a potential for around 1,500-2,000 laser terminals.

Last week, Mynaric announced the signing of a Memorandum of Understanding with JR Aerospace, India. The cooperation with JR Aerospace, an established and well-connected company in the private and public sectors, is important for Mynaric's market entry in India. India is important market in Asia with an emerging space economy, and a more open market compared to China. However, a local partner is also required here. It is also expected that India is seeking its own LEO satellite constellations and wants to establish a local manufacturing for this purpose. We therefore view the new sales cooperation in India positive and forward-looking.

Competitive environment

Since the laser communication market for space applications is still a very young market, there is no supplier with a significant market position. What can be observed, however, is that there are major players in the market, which are legacy companies with tradition in space business, like Tesat Spacecom (Airbus subsidiary) and Thales Alenia Space (JV of Thales, FR and Leonardo, IT). Given the strong footprint of their parent companies in the space industry and the fact, that these companies are producing small satellites for LEOs or are even involved in constellations, it is possible to speak of a competitive advantage, at first glance.

Exhibit 18: Main competitors in view of Mynaric



Source: Mynaric, Pareto Securities Research

In most cases, these larger competitors are system prime integrator, which are good in bringing together subsystems and different solutions. Mynaric in turn, is positioned in the value chain as a sub-system supplier with dedicated R&D efforts. Mynaric's core business is the development and mass production of laser communication systems, while system integrators are more in the assembly side of individual, customized satellites. We consider this as an important competitive advantage for Mynaric, as the market will require more standardized, large volume modules in order to serve demand.

We have been able to determine a dozen of competitors, with different experiences in dealing with laser communication. Over the past two years, competitors like SA Photonics (US) Space Micro (US) or General Atomics (US) have been contracted to deliver for government-backed space programs. Further competitors are Hensoldt (Germany), Hyperion Technologies (The Netherlands), BridgeComm (US) and ATLAS Space Operations (US). With the Australian listed company EOS, which also offers laser-communication solutions, Mynaric just recently announced a partnership. Mynaric will deliver terminals for SpaceLink's (subsidiary of EOS) MEO satellites as well as the CONDOR terminal for their LEO customers.

We believe, that the two received orders related to US government constellations and in particular the SDA projects, represent an important step forward for Mynaric, compared to most competitors.

Financials

Construction of our P&L forecasts

Mynaric's historical P&L was highly affected by the development stage of the products in both segment Space and Air. The lack of a sufficient number of projects on the market has had a corresponding effect on sales development. Deliveries to customers in recent past consist rather from test and demonstration modules with limited quantities. Consequently, an extrapolation from the historical development is therefore not very meaningful and would not reflect the market potential.

For our short-term estimates, we only incorporate orders on hand or programs that are already announced and Mynaric is involved in some way. Our estimates are subject to some uncertainties. The fact, that Mynaric has been selected as a supplier for one tranche of satellites today does not mean that the company will also be selected for all subsequent tranches. Customers demand continuous further development and improvement of the systems, which Mynaric may not be able to meet then. The same applies, of course, to current constellations in which the company is not involved and has the chance of being considered for future tranches or replacement.

Currently, Mynaric has two orders in hand for the two major LEO satellite constellation projects, DARPA's Blackjack constellation and SDA's National Defense Space architecture constellation. Mynaric has further cooperation agreements with various partners, of which the agreement with SpaceLink appears to us to be the most promising one.

In conjunction with the DARPA project, Telesat, Mynaric's direct customer, has the option to deliver further 20 satellites. However, there has not yet been a decision from DARPA to continue with the 20 satellites. Rather, Lockheed Martin and other US defence companies were contracted by DARPA with several orders to further develop the project, including SA Photonics for the optical communication terminals. Therefore, from today's point of view, we do not consider the DARPA project in our estimates. However, we would not completely abandon the project, especially considering that for projects with military applications dual source is required. In addition, the two government driven projects of DARPA and SDA can be merged, at least in the current phase, in order to accelerate testing and demonstrating processes. For Mynaric, it is undoubtedly an enormous advantage with a signal effect to be involved in both of them.

Exhibit 19: Our assumption for SDA's constellation

	2020	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e
Project											
SDA - satellites	3	13	15	25	40	85	85	85	85	85	85
SDA - satellites, cumulated	3	16	31	56	96	181	266	348	417	471	500
Required terminals (x4)	12	52	60	100	160	340	340	340	340	340	340
Mynaric's market share in program (in units)	0	6	6	40	60	140	140	140	140	140	140
Mynaric's revenue potential (EURm)		3.2	3.2	17.0	22.9	49.0	49.0	49.0	49.0	49.0	49.0
Price per terminal (EURm)	0.530	0.530	0.530	0.424	0.382	0.350	0.350	0.350	0.350	0.350	0.350

Source: Pareto Securities Research

We are more optimistic for the SDA projects. It is expected that the agency will buy further 150 satellites (trance 0: 28 satellites), to be launched until in 2024. As already mentioned in the previous section, we expect the agency to award at least two suppliers for laser communication systems. At the end of May, Mynaric announced that the company has successfully demonstrated the implementation of the Optical Inter-Satellite Link (OISL) standard of the SDA. Thus, Mynaric is the first company in the industry, which has achieved this. Consequently, we are confident with the company's contribution to the constellation and assume a 40% share for Mynaric in our forecast model.

Another constellation that is highly likely to materialize in revenues is the SpaceLink cooperation. In the first step, Mynaric will deliver 40x OISL terminals for MEO satellites as well as some units of its Condor terminal. SpaceLink intends to build a MEO constellation of 4 satellites. According to our estimates, the constellation implies a revenue potential of around EUR 16m for Mynaric. Both companies have also agreed to increase the number of terminals, depending on the expansion of SpaceLink's constellation.

The commercial market of the LEO satellite market has to be seen in two parts, in our view. On the one hand, there are the constellation companies like SpaceX or Viasat, which have a relatively high share of own production or partnered with other suppliers, and therefore are not likely to be considered as customers.

On the other hand, there are all other constellation companies, incl. Amazon, which should have a demand of around 7,600 satellites until 2025e, according to our calculations (please refer to exhibit 15). In discussions with the company, we got the impression that Mynaric targets a market share of at least 30% for its laser communication terminal for space application. We calculate more conservative and assume a market share of 10% until FY 2025e for the already announced major LEO constellations.

Given the fact, that ground terminals are not considered in the first generation of the current constellations, we do not expect Mynaric to receive any significant commercial orders for this product segment. Therefore, it is not included in our short-term forecasts.

Exhibit 20: Detailed revenue breakdown for our short-term forecast

EURm	2021e	2022e	2023e	2024e	2025e
Condor	**3.2**	**28.2**	**92.0**	**150.5**	**249.0**
SDA constellation	3.2	3.2	17.0	22.9	49.0
SpaceLink constellation	0.0	4.0	12.0	0.0	0.0
Commercial constellations	0.0	21.0	63.0	127.6	200.0
Hawk	**5.3**	**12.0**	**21.6**	**40.0**	**40.0**
Group Revenues	**8.4**	**40.2**	**113.6**	**190.5**	**289.0**

Source: Pareto Securities Research

Since the majority of customers for the Hawk airborne terminal are likely to come from the military sector and these customers are less transparent about their purchasing plans, reliable forecasting for this product is not easy. Therefore, our estimates for this product are currently strongly oriented towards the expected production numbers for the Hawk.

Exhibit 21: Mynaric's production ramp-up scenario…

Source: Mynaric, Pareto Securities Research

Exhibit 22: Our production assumptions

# units	2021e	2022e	2023e	2024e	2025e
Condor	**6**	**76**	**270**	**660**	**1,340**
SDA constellation	6	6	40	60	140
SpaceLink constellation	0	10	30	0	0
Commercial constellations	0	60	200	600	1,200
Hawk	**18**	**50**	**100**	**200**	**200**
Total units, delivered to customers	**24**	**126**	**370**	**860**	**1,540**

Source: Pareto Securities Research

Mynaric is in the middle of the transition from the pre-series to serial production of its products. In mid-June, the company opened its new production facility in Oberpfaffenhofen near Munich, Germany. The targeted production volume of 2,000 units per year is much more than the previously announced production rates. We are confident that Mynaric will able to reduce time of production from currently around seven days/unit to one day/unit within the next two years. According to our estimates, the targeted production rate of 2,000 units per year will be achieved more towards the end of the decade. Mynaric targets to achieve the production rate with 200 employees. We factored in an increase of the employees from 186 in 2020 to 430 people in the FY 2025e.

For the gross margin, we estimate an improvement of up to 40% by FY 2025, which is also what Mynaric is aiming for.

Due to Mynaric's tax loss carry forwards in the amount of c.EUR 46m, we do not consider any tax payments until FY 2025e. However, with the increasing footprint in the US and different taxation rules, this may turn out different and Mynaric has to pay taxes much earlier.

Exhibit 23: P&L at a glance

EUR m	2019	2020	2021e	2022e	2023e
Revenue	0.4	0.7	8.4	40.2	113.6
% yoy		52.9%	1141.5%	376.6%	182.6%
EBITDA	-6.5	-19.7	-24.8	-17.0	2.3
EBITDA margin	neg.	neg.	neg.	neg.	2%
Depreciation & Amortization	-1.2	-2.0	-4.8	-5.7	-6.3
EBIT	-7.7	-21.7	-29.6	-22.6	-4.0
EBT	-7.7	-22.7	-30.3	-24.0	-5.9
EPS	-2.7	-6.70	-7.40	-5.85	-1.44

Source: Mynaric, Pareto Securities Research

Exhibit 24: Pareto estimates vs. consensus

	2021e			2022e			2023e		
	Pareto	Cons.	Delta	Pareto	Cons.	Delta	Pareto	Cons.	Delta
Revenues	**8.4**	**12.8**	**-34.1%**	**40.2**	**104.8**	**-61.7%**	**113.6**	**167.0**	**-32.0%**
EBITDA	**-24.8**	**-16.0**	**nm**	**-17.0**	**14.1**	**nm**	**2.3**	**36.9**	**-93.8%**
EBITDA margin	neg.	neg.	nm	neg.	13.5%	nm	2.0%	22.1%	-2008 BP
EBIT	**-29.6**	**-21.0**	**nm**	**-22.6**	**6.6**	**nm**	**-4.0**	**24.9**	**nm**
% of sales	neg.	neg.	nm	neg.	6.3%	nm	neg.	14.9%	nm
Net result	**-30.3**	**-17.0**	**nm**	**-24.0**	**4.7**	**nm**	**-5.9**	**21.4**	**nm**

Source: FactSet, Pareto Securities Research

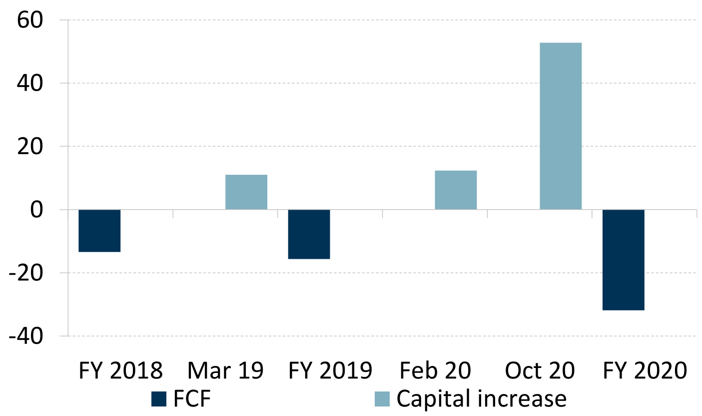
Further capital measures highly likely

If we look at the balance sheet and the cash flow statement, we hardly see anything unusual. The company has no goodwill. The tangible and intangible assets, which are the predominant part of the non-current assets, accounts for c. 42% of total assets.
As of end of December 2020, the company has a net cash position of EUR 35m. Thereof, lease liabilities amounted to EUR 8m. There are currently no liabilities to banks. Equity amounted to EUR 70.7m, implying an equity ratio of c. 82%.

Working capital in the past was rather low with around EUR 4m in 2020 and has no significance for future extrapolation due to the low production rates. With the expected ramp-up of production, we assume a significant increase in working capital. In the long term, we forecast a working capital ratio of around 15%.

The cash flow statement of Mynaric shows typical patterns of a venture company. The cash burn over the past years was more than covered by three capital increases with a total volume of proceeds of EUR 76m.

Exhibit 25: Three capital increases since 2019 (in EURm)



Source: Mynaric, Pareto Securities Research

It is very clear that the ramp-up of the production and the still negative operational development will require further external funding. According to our estimates, without further funding measures Mynaric would run out of cash at the end of the year.

The next opportunity for this is likely to be, at the latest, the targeted listing in the US. In April this year, Mynaric announced that it will seek a listing during H2 2021, by the way of a capital increase. The company has currently authorized capital in the amount of EUR 1,597,367.

Within our model, we forecast Mynaric to be cash positive at FCF level from FY 2024e onwards.

Valuation

For the valuation of the shares we concentrate on the DCF model, as we believe that this is the most appropriate valuation method to reflect the long-term prospects of the company.

Due to the lack of listed peers and the fact that Mynaric's earnings ratios will be still in the red this year and next year, we refrain from a peer group analysis. Mynaric's competitors are either private companies or subsidiaries of major aerospace and defence companies.

Exhibit 26: DCF model

	Phase I					Phase II					Phase III
EUR m	2021e	2022e	2023e	2024e	2025e	2026e	2027e	2028e	2029e	2030e	
Revenues	8	40	114	233	389	605	751	897	1,028	1,131	
growth rate		376.6%	182.6%	105.2%	67.0%	55.6%	24.1%	19.4%	14.7%	10.0%	
EBIT	-30	-23	-4	31	69	104	125	144	160	170	
EBIT margin	-3517%	-56.3%	-3.6%	13.1%	17.7%	17.2%	16.6%	16.1%	15.5%	15.0%	
Tax	0.0	0.0	0.0	0.0	-12.4	-29.1	-35.0	-40.4	-44.8	-47.5	
Tax rate	0%	0%	0%	0%	18%	28%	28%	28%	28%	28%	
Depr. & Amort.	4.8	5.7	6.3	6.9	7.3	11.8	14.8	17.8	20.5	22.6	
% of sales	56.9%	14.1%	5.6%	3.0%	19%	19%	2.0%	2.0%	2.0%	2.0%	
Capex	-11.2	-10.7	-10.5	-10.3	-10.1	-14.2	-16.7	-19.4	-21.9	-23.8	
% of sales	133.0%	26.7%	9.3%	4.4%	2.6%	2.4%	2.2%	2.2%	2.1%	2.1%	
Change in WC & P	0.7	-8.7	-10.7	-9.9	-14.1	-21.9	-27.1	-32.4	-37.2	-40.7	
% of sales	-8.3%	216%	9.4%	4.3%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Free Cash Flow	-35.4	-36.4	-18.9	17.3	39.8	50.6	61.0	69.9	76.5	80.3	873
growth rate	nm	2.8%	-48.1%	nm	nm	27.2%	20.5%	14.7%	9.4%	4.9%	3.0%
Present Value FCF	-33.6	-30.8	-14.2	11.5	23.6	26.7	28.6	29.2	28.4	26.5	288

PV Phase I	-43
PV Phase II	140
PV Phase III	288
Enterprise value	384
- Net Debt (Cash)	-35
- Pension Provisions	0
- Minorities & Peripherals	0
+ MV of financial assets	0
- Paid-out dividends for last FY	0
+/- Other EV items	0
Equity value	420
Number of shares	4.1
Value per share (€)	102.5
Current Price (€)	74.8
Upside	37%

Risk free rate	1.50%	**Targ. equity rati**	90%
Premium Equity	8.00%	**Beta**	1.5
Premium Debt	5.00%	**WACC**	12.5%

Sensitivity		Growth in phase III				
		2.0%	**2.5%**	**3.0%**	**3.5%**	**4.0%**
	11.23%	114.7	119.7	125.3	131.6	138.7
	11.85%	104.3	108.4	113.0	118.2	124.0
WACC	**12.47%**	95.2	98.7	**102.5**	106.8	111.6
	13.10%	87.2	90.1	93.4	97.0	100.9
	13.72%	80.1	82.6	85.4	88.4	91.7

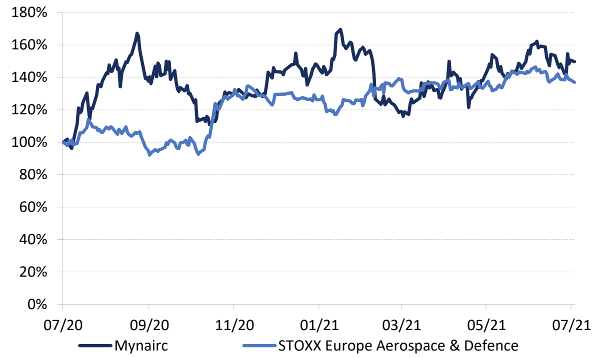
Source: Pareto Securities Research

In order to reflect the young history with poor earnings, we incorporate a WACC of 12.5% (beta of 1.5).
Our mid-term estimates until FY 2025e based on our detailed forecasts, as outlined in our financials section. We would like to mention here again, that our estimates are based on our assumption that Mynaric is one of the major players in the area of laser communication. However, if the expected future orders will occur in that way and what the final volume will be, is difficult to predict from today's perspective.

Based on this calculation we derive a target price per share of EUR 102.

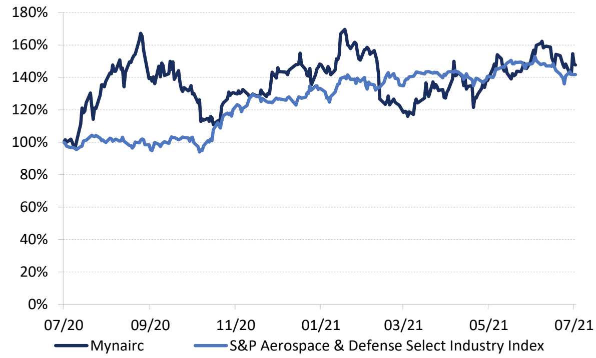
The average of target price of three brokers currently covering the stock stands at EUR 118 per share.

Exhibit 27: Shares have outperformed European and …



Source: FactSet, Pareto Securities Research

Exhibit 28: … US benchmark



Source: FactSet, Pareto Securities Research

We have gathered a group of sector companies, which generate a predominant part of their business with space related activities. It is particularly noticeable, that US companies have a higher valuation multiple. With respect to Mynaric's intention for a US listing in H2 2021, this might have an impact on the share's re-valuation.

Exhibit 29: Indicative peer group

Company	CUR	MarketCap	EV/Sales 2021e	EV/Sales 2022e	EV/Sales 2023e	EV/EBITDA 2021e	EV/EBITDA 2022e	EV/EBITDA 2023e	EBITDA margin 2021e	EBITDA margin 2022e	EBITDA margin 2023e
AAC Clyde Space AB	KR	565	2.1	1.5	nm	326.6	21.6	nm	0.6%	6.8%	8.7%
Avio SpA	€	313	0.7	0.7	0.7	6.7	6.2	5.5	11.0%	11.2%	11.8%
Electro Optic Systems Holdings Limited	A$	676	2.3	1.4	1.0	17.0	9.0	6.1	13.8%	15.5%	16.6%
GomSpace Group AB	KR	967	3.6	2.7	1.9	46.9	11.5	6.7	7.7%	23.2%	29.2%
HEICO Corporation	$	18,407	9.8	8.5	7.7	37.5	31.3	28.1	26.1%	27.2%	27.3%
Kratos Defense & Security Solutions, Inc.	$	3,323	3.9	3.4	3.0	38.1	29.4	24.7	10.3%	11.5%	12.0%
Maxar Technologies, Inc.	$	2,455	2.6	2.3	1.9	11.0	8.6	6.7	23.4%	26.3%	28.3%
nLIGHT, Inc.	$	1,405	4.8	4.2	3.7	42.7	29.7	24.6	11.3%	14.0%	15.0%
OHB AG	€	680	0.7	0.6	0.5	8.7	7.4	6.5	7.8%	8.0%	8.3%
Teledyne Technologies Incorporated	$	20,741	5.1	4.1	3.7	27.1	29.5	26.2	18.9%	13.8%	14.2%
Thales SA	€	19,047	1.2	1.1	1.0	8.3	7.2	6.3	14.2%	15.0%	15.5%
Median			**2.6**	**2.3**	**1.9**	**27.1**	**11.5**	**6.7**	**11.3%**	**14.0%**	**15.0%**
Median - US peers			**4.4**	**3.7**	**3.3**	**32.3**	**29.4**	**24.7**	**16.3%**	**14.8%**	**15.8%**
Median - European peers			**1.2**	**1.1**	**0.8**	**8.7**	**7.4**	**6.4**	**7.8%**	**11.2%**	**11.8%**

Source: FactSet, Pareto Securities Research

Appendix

Management

CEO – Bulent Altan

- CEO since June 2020 and member of executive Board since March 2019
- From 2016 to 2019 Mr. Altan returned to SpaceX was responsible for Satellite Mission Assurance, including the Starlink satellite constellation.
- Between 2014 and 2016 Mr. Altan took over various tasks including the position as Head of Digital Transformation and Innovation at Airbus Defence and Space
- Started his career in 2004 at SpaceX, and was as a Vice President responsible for avionics, software and guidance, navigation and control of Falcon rockets
- Graduated from Stanford University and Technical University of Munich

CFO – Stefan Berndt-von Bülow

- CFO since September 2020, with Mynaric since 2018 as Head of Finance
- Between 2017 and 2018 Head of Finance and Accounting at G&D Currency Technology
- Started in 2008 at SHS Viveon as Head of Accounting and Investor Relations
- Graduated from the Ludwig-Maximilians-University Munich

COO – Tina Ghataore

- With Mynaric since August 2020 and responsible for Mynaric's US operations
- Prior to that she gained more than 20 years of experiences in aerospace and connectivity
- Her former positions were senior roles at Yahsat, Panasonic Avioniv and Boeing

CTO – Joachim Horwath

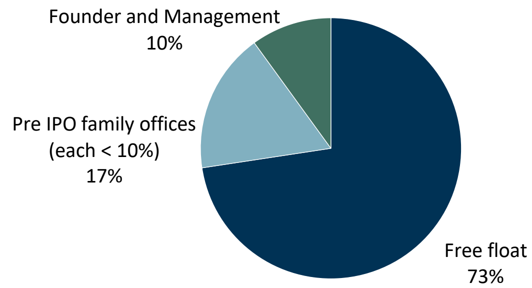
- Co-founder of Mynaric and member of the Executive Board between March 2019 and March 2020
- Mr. Horwath leads the technical development team since foundation
- Prior to that he was with DLR and Siemens

C3PO – Sven Meyer-Brunswick

- With Mynaric since 2016, and assisted with the IPO in 2017
- He joined the management team in April 2020 and is responsible for corporate development, capital market activities and communication
- He was involved in >USD 130m fundraising

Shareholder structure

Exhibit 30: 57% free float



Source: Mynaric, Pareto Securities Research

Notes

Notes

PROFIT & LOSS (fiscal year) (EURm)	2016	2017	2018	2019	2020	2021e	2022e	2023e
Revenues	**-**	**2**	**2**	**0**	**1**	**8**	**40**	**114**
EBITDA	**-**	**(7)**	**(6)**	**(7)**	**(20)**	**(25)**	**(17)**	**2**
Depreciation & amortisation	-	(0)	(0)	(1)	(2)	(5)	(6)	(6)
EBIT	**-**	**(7)**	**(7)**	**(8)**	**(22)**	**(30)**	**(23)**	**(4)**
Net interest	-	0	0	0	(1)	(1)	(1)	(2)
Other financial items	-	-	-	-	-	-	-	-
Profit before taxes	**-**	**(7)**	**(7)**	**(8)**	**(23)**	**(30)**	**(24)**	**(6)**
Taxes	-	-	(0)	-	0	-	-	-
Minority interest	-	-	-	-	-	-	-	-
Net profit	**-**	**(7)**	**(7)**	**(8)**	**(23)**	**(30)**	**(24)**	**(6)**
EPS reported		(2.56)	(2.46)	(2.71)	(6.70)	(7.40)	(5.85)	(1.44)
EPS adjusted		**-**	**-**	**-**	**-**	**-**	**-**	**-**
DPS	-	-	-	-	-	-	-	-

BALANCE SHEET (EURm)	2016	2017	2018	2019	2020	2021e	2022e	2023e
Tangible non current assets	-	2	8	11	18	21	24	26
Other non-current assets	-	1	5	10	18	21	24	26
Other current assets	-	(0)	(2)	5	7	26	115	310
Cash & equivalents	-	28	15	9	43	60	42	12
Total assets	**-**	**32**	**26**	**35**	**87**	**128**	**205**	**374**
Total equity	-	30	23	25	71	40	16	11
Interest-bearing non-current debt	-	-	-	-	-	50	70	70
Interest-bearing current debt	-	-	-	-	-	-	-	-
Other Debt	-	2	3	10	16	38	118	293
Total liabilites & equity	**-**	**32**	**26**	**35**	**87**	**128**	**205**	**374**

CASH FLOW (EURm)	2016	2017	2018	2019	2020	2021e	2022e	2023e
Cash earnings	-	(0)	(9)	(7)	(20)	(22)	(35)	(31)
Change in working capital	-	0	2	(0)	2	(1)	9	11
Cash flow from investments	-	-	(6)	(8)	(14)	(11)	(11)	(11)
Cash flow from financing	-	-	0	12	66	50	20	-
Net cash flow	-	-	(13)	(6)	34	16	(17)	(31)

CAPITALIZATION & VALUATION (EURm)	2016	2017	2018	2019	2020	2021e	2022e	2023e
Share price (EUR end)		**54.6**	**33.2**	**37.5**	**73.2**	**74.8**	**74.8**	**74.8**
Number of shares end period	-	3	3	3	3	4	4	4
Net interest bearing debt	-	(28)	(15)	(2)	(35)	(2)	35	66
Enterprise value		**119**	**74**	**104**	**213**	**305**	**342**	**372**
EV/Sales		-	46.8	-	-	36.1	8.5	3.3
EV/EBITDA		**-**	**-**	**-**	**-**	**-**	**-**	**-**
EV/EBIT		-	-	-	-	-	-	-
P/E reported		-	-	-	-	-	-	-
P/E adjusted		**-**	**-**	**-**	**-**	**-**	**-**	**-**
P/B		4.9	3.8	4.3	3.5	7.6	18.6	28.9

FINANCIAL ANALYSIS & CREDIT METRICS	2016	2017	2018	2019	2020	2021e	2022e	2023e
ROE adjusted (%)	-	-	-	-	-	-	-	-
Dividend yield (%)		-	-	-	-	-	-	-
EBITDA margin (%)	-	-	-	-	-	-	-	2.0
EBIT margin (%)	-	-	-	-	-	-	-	-
NIBD/EBITDA	-	4.21	2.44	0.33	1.79	0.06	(2.09)	28.88
EBITDA/Net interest	-	-	-	-	-	-	-	-

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Appendix A

Disclosure requirements in accordance with Commission Delegated Regulation (EU) 2016/958 and the FINRA Rule 2241

The below list shows companies where Pareto Securities AS - together with affiliated companies and/or persons – owns a net long position of the shares exceeding 0,5 % of the total issued share capital in any company where a recommendation has been produced or distributed by Pareto Securities AS.

Companies	No. of shares	Holdings in %	Companies	No. of shares	Holdings in %
ArcticZymes Technologies	598,575	1.24%	SpareBank 1 Ringerike Hadeland	100,000	0.64%
Bonheur	241,145	0.57%	Sparebank 1 SMN	1,875,442	1.44%
DOF	2,366,346	0.75%	Sparebank 1 SR-Bank	1,850,014	0.72%
Pareto Bank	16,235,830	23.38%	SpareBank 1 Østfold Akershus	1,215,116	9.81%
Quantafuel	1,119,887	0.89%	SpareBank 1 Østlandet	3,825,292	3.60%
Sandnes Sparebank	126,013	0.55%	Sparebanken Møre	305,239	3.09%
Selvaag Bolig	3,176,925	3.39%	Sparebanken Sør	433,744	2.77%
SpareBank 1 BV	1,771,308	2.81%	Sparebanken Vest	6,805,073	6.34%
Sparebank 1 Nord-Norge	4,144,124	4.13%			

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

Company	Analyst holdings*	Total holdings	Company	Analyst holdings*	Total holdings	Company	Analyst holdings*	Total holdings
AF Gruppen	0	1,825	Fjordkraft Holding	0	12,855	Panoro Energy	0	30,344
Aker ASA	500	2,405	Flex LNG	0	3,532	Pareto Bank	0	2,412,220
Aker BP	0	23,631	Frontline	0	78,708	Pexip Holding	0	62,433
Aker Carbon Capture	0	120,621	Gjensidige Forsikring	0	7,723	PGS	0	11,676
Aker Offshore Wind	0	165,278	Golden Ocean Group	0	1,433	Protector Forsikring	0	12,000
Aker Solutions	0	3,728	Grieg Seafood	0	8,907	Quantafuel	0	1,119,887
American Shipping Co.	0	13,300	Hafnia Ltd.	0	10,000	REC Silicon	0	36,816
Aprila Bank ASA	0	22,675	Huddly	0	988,874	SalMar	0	2,709
Archer	0	30,170	Hunter Group ASA	0	308,500	Salmon Evolution	0	100,000
ArcticZymes Technologies	0	598,575	HydrogenPro	0	37,552	Sandnes Sparebank	0	124,013
Atlantic Sapphire	0	13,610	Ice Fish Farm	0	2,000	Scatec	0	20,412
Austevoll Seafood	0	29,235	ice Group ASA	0	200,000	Seadrill Ltd	0	6,215
Avance Gas	0	3,362	Kalera	0	53,027	Selvaag Bolig	0	52,050
B2Holding AS	0	20,075	Kitron	0	18,386	Sparebank 1 Nord-Norge	0	3,350
BASF	270	270	Komplett Bank	0	101,400	Sparebank 1 SMN	0	12,740
Belships	0	17,965	Kongsberg Gruppen	0	36,023	Sparebank 1 SR-Bank	0	8,505
Bonheur	0	32,275	KWS	75	75	SpareBank 1 Østfold Akershus	0	1,252
Borregaard ASA	0	650	Lerøy Seafood Group	0	40,478	SpareBank 1 Østlandet	0	8,621
Bouvet	0	2,940	Mercell	0	23,038	Sparebanken Sør	0	16,435
BRAbank	0	74,607	Mowi	0	3,761	Sparebanken Vest	0	16,735
BW Energy	0	55,050	MPC Container Ships	0	39,437	Sparebanken Øst	0	1,500
BW Offshore	0	16,076	Nordic Semiconductor	0	4,681	Stolt-Nielsen	0	1,817
Cloudberry Clean Energy	0	52,031	Noreco	0	790	Storebrand	0	25,698
DNB	0	45,115	Norsk Hydro	0	113,219	Subsea 7	0	9,226
DNO	0	151,978	Norske Skog	0	98,225	Telenor	0	9,752
DOF	0	2,366,346	NTS	0	2,272	Vow	0	8,681
Elkem	0	35,426	Ocean Yield	0	104,370	Wallenius Wilhemsen	0	57,570
Entra	0	9,977	OHT	0	6,650	XXL	0	18,823
Equinor	0	2,900	Okeanis Eco Tankers	0	22,000	Yara	0	14,133
Europris	0	11,414	Orkla	0	20,540	Zaptec	0	4,000

This overview is updated monthly (last updated 15.07.2021).

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

Appendix B

Disclosure requirements in accordance with Article 6(1)(c)(iii) of Commission Delegated Regulation (EU) 2016/958

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

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2G Energy	EcoOnline	KLP	PHM Group
Advanzia Bank S.A.	ELOP	Komplett ASA	Pronofa AS
Africa Energy Corp Corp	Endur ASA	Komplett Bank	Proximar Seafood
Aker ASA	Energean Israel Finance Ltd.	Kraft Bank	Pryme
Aker Clean Hydrogen	Enviv AS (Bookis)	Lakers Holding AS	Quantafuel
Aker Horizons	Fertiberia S.A.R.L.	Lumarine AS	REC Silicon
Akershus Energi	Fjordkraft Holding	Maha Energy	Saga Robotics
Akva Group	Flexistore AS	Malorama Holding AS	Salmon Evolution
Alussa Energy Acquisition Corp (Freyr)	Funkwerk AG	Meltwater	Scorpio Bulkers
Arcane Crypto	Genel Energy	Mercell	Seafire AB
Arctic Fish	Gjensidige Forsikring	Mintra Group	SFL Corporation Ltd
Arendals Fossekompani	Golden Ocean Group	Modex AS	SGL TransGroup International
Attensi	Goliath Offshore	MPC Container Ships	Siccar Point Energy
Belships	Halodi Robotics AS	Mutares SE & Co. KGaA	Skitude
BioInvent	Heimdall Power	Müller Medien GmbH (United Vertical	Smart Wires Inc.
Biomega Group AS	HKN Energy Ltd	Navigator Holdings Ltd.	Strandline Resources Limited
Bonheur	Hofseth BioCare	Navios	Talos Energy Inc
Brooge Energy Limited	House of Control	Next Biometrics Group	Tise AS
Bulk Infrastructure Holding	Huddly	Nordic Halibut	Trønderenergi AS
BW Energy	HydrogenPro	Norlandia Health & Care Group AS	Vegfinans AS
BW LPG	Ice Group Scandinavia Holdings AS	Norse Atlantic	Viking ACQ 1 AS, SPAC
CentralNic Group PLC	Idavang A/S	Norske Skog	Vow
Circa Group	Instabank ASA	Norwegian Block Exchange	Watercircles Forsikring
Cloudberry Clean Energy	Kalera	OHT	West Coast Salmon
CrayoNano AS	Kentech Global Plc	Panoro Energy	Wheel.me
Dampskibsselskabet NORDEN A/S	Keppel FELS Limited	Pelagia Holding AS	Xeneta AS
DigiPlex	Kistos plc.	PetroNor E&P	Ørn Software (View Software A

This overview is updated monthly (this overview is for the period 31.06.2020 – 31.06.2021).

Appendix C

Disclosure requirements in accordance with Article 6(3) of Commission Delegated Regulation (EU) 2016/958

Distribution of recommendations

Recommendation	% distribution
Buy	67%
Hold	31%
Sell	2%

Distribution of recommendations (transactions*)

Recommendation	% distribution
Buy	93%
Hold	7%
Sell	0%

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

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Bionvent	Implantica	Media & Games Invest plc.	Vicore Pharma
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Cibus Nordic Real Estate AB			

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ByggPartner i Dalarna Holding	Magnolia Bostad	Saltängen Property Invest	Surgical Science
Cibus Nordic Real Estate	Media & Games Invest plc.	SciBase Holding	Tethys Oil
Isofol Medical	Mentice AB	Sedana Medical	Vostok Emerging Finance

Members of the Pareto Group have entered into agreements concerning the inclusion of the company in question in Pareto Securities AB's research coverage universe with the following companies: None
Member of the Pareto Group is providing Business Management services to the following companies:

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

Members of the Pareto Group have entered into agreements concerning the inclusion of the company in question in Pareto Securities AB's research coverage universe with the following companies: None
This overview is updated monthly (last updated 15.07.2021).

Appendix E

Disclosure requirements in accordance with Article 6(1)(c)(i) of Commission Delegated Regulation (EU) 2016/958

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

2G Energy *	GFT Technologies *	Merkur Bank	SMT Scharf AG *
Biotest *	Gigaset *	MLP *	Surteco Group *
CORESTATE Capital Holding S.A.	Heidelberg Pharma *	mutares	Syzygy AG *
Daldrup & Söhne	Intershop Communications AG	OVB Holding AG	TAKKT AG
Demire	Leifheit	Procredit Holding *	Viscom *
Epigenomics AG*	Logwin *	PSI SOFTWARE AG *	
Gesco *	Manz AG *	PWO *	
Gerry Weber	MAX Automation SE	S&T AG *	

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

Appendix F

Disclosure requirements in accordance with Article 6(1)(c)(iv) of Commission Delegated Regulation (EU) 2016/958

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

Adler Modemaerkte	Dermapharm Holding SE	Intershop Communications AG	mutares
Baywa	Enapter	Leifheit	OHB SE
BB Biotech	Expres2ion Biotechnologies	MAX Automation SE	OVB Holding AG
CLIQ Digital	Gerry Weber	Merkur Bank	Siegfried Holding AG
Daldrup & Söhne	Hypoport AG	Mynaric	

This overview is updated monthly (last updated 15.07.2021).