AVIO

Company update

HOLD *(unchanged)*

Target: **€ 13.0** *(prev. 13.7)*

Risk: High

STOCK DATA	
Price €	9.70
Bloomberg Code	AVIO IM
Market Cap. (€ mn)	256
Free Float	64%
Shares Out. (mn)	26.4
52-week range	8.89 - 14.26
Daily Volumes (mn)	0.09

PERFORMANCE	1M	3M	12M
Absolute	-13%	6%	-17%
Rel. to FTSE all shares	-11%	-11%	-8%

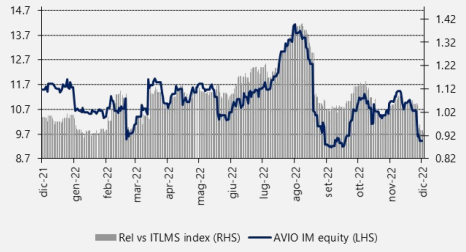
MAIN METRICS	2021	2022E	2023E
Net revenues	311.6	343.0	375.0
Adjusted EBITDA	37.7	25.2	34.2
Adj. net income	11.8	6.5	13.3
Adj. EPS - € cents	44.7	24.7	50.3
Adj. EPS FD - € cents	43.4	24.0	48.8
DPS ord - € cents	17.8	17.8	20.0

MULTIPLES	2021	2022E	2023E
P/E adj	25.7 x	39.2 x	19.3 x
P/E adj FD	26.5 x	40.4 x	19.9 x
EV/Adj. EBITDA	6.5 x	8.2 x	5.8 x

REMUNERATION	2021	2022E	2023E
Div. Yield ord	1.5%	1.8%	2.1%
FCF yield	1.4%	0.5%	5.5%

INDEBTEDNESS	2021	2022E	2023E
Net financial position	57.2	49.8	59.1
Debt/EBITDA	n.m.	n.m.	n.m.
Interests cov	126.6 x	40.3 x	103.8 x

PRICE ORD LAST 365 DAYS



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RECORD ORDER INTAKE OVERWHELMED BY VEGA C FAILURE

The medium-/long-term visibility is guaranteed by ESA Ministerial Conference and the Italian NRRP contracts (€0.7bn and €0.3bn respectively, driving the order backlog to a new all-time high) and sanctions on Russian launchers opening up new opportunities in the commercial market. Nevertheless, all this is overwhelmed by recent Vega C failure and the Ariane 6 maiden flight postponement.

■ Medium-/long-term visibility guaranteed by ESA …

The ESA Council of Ministers of Member States for space R&D programmes for **the 3-year period 2023-25 destined over €700mn to Avio** for R&D and operational support contracts (up from almost €500mn of the previous 3-year period due to the programme expansion in which it is prime/co-prime contractor such as Vega C, Vega Evolution and Space Rider).

■ … and Italian NRRP

The **"Next Gen EU" (part of the Italian NRRP) allocated €337.5mn**, aiming to prepare the future space transportation systems based on propulsion with reduced environmental impact (potentially reusable). Contracts will be signed by Avio as prime contractor in 1Q23 and revenues will be spread over 4 years (2023-26).

■ But it is overwhelmed by Vega C launch failure …

On Dec-20th the second launch of Vega C came failed because of an anomaly of the second stage engine Zefiro 40. **We do not expect any liability** as the responsibility after launch lies with Arianespace and the insurance policies cover the damages. Nevertheless, the **negative implications for Avio** include the risk of further delays in the production/scheduling of Vega C launches, lower bargaining power for future negotiations, non-recurring costs should corrections be necessary and increase in insurance policy cost. **The investigation by an independent commission immediately started**.

■ … gas cost headwind (although potentially less painful than expected) …

FY22E EBITDA/net profit guidance were cut after 1H results because of approximately €10mn additional costs due to higher gas prices. Although management remains cautious (given the high volatility of the gas price and not yet clear potential impact of Italian government`s mitigation measures), following the recent gas price evolution, we believe it **may be less negative than expected**.

■ … and Ariane 6 maiden flights still postponed

The Ariane 6 maiden flight has been postponed from 4Q22 to 2H23 for unspecified reasons. This has negative implications on **the P120 engine** (common to Vega C and Ariane 6) **production ramp-up,** an important stream of revenues/profits for Avio.

■ Neutral view unchanged pending Vega C failure investigation

The positive equity story features are confirmed:

- **key role for the European launchers** (being the only provider of all boosters for both Ariane and Vega), **with full support from ESA**
- **growing reference market** (2022 launches hit the historical peak at 182) driven by multiple end-market applications (navigation, earth observation, …) and replacement demand (satellites avg. useful life is 2-15 years depending on the orbit)
- relevant **development projects** funded by both the **ESA and the Italian NRRP** (National Recovery & Resilience Plan) **and the growing number of EU launches**
- **new P120 engine** (in production ramp-up) for both Ariane 6 and Vega C: up to 36 units p.a. (but potentially >40), exploiting **economies of scale**
- **new methane oxygen engine M10** (under development) to expand the value-added chain (substituting third party's AVUM stage).

DFCF-based target -5% to €13PS due to lower estimates on Vega production activity (FY23/24E fully diluted adj. PE ~26/15x and EV/adj. EBIT ~26/13x). In spite of the upside, we confirm our **neutral recommendation pending Vega C investigation outcome and Ariane 6 maiden flight.**

MAIN FIGURES € mn	2019	2020	2021	2022E	2023E	2024E
Net revenues	**368.6**	**322.0**	**311.6**	**343.0**	**375.0**	**431.9**
Growth	-5%	-13%	-3%	10%	9%	15%
Adjusted EBITDA	**44.0**	**43.3**	**37.7**	**25.2**	**34.2**	**45.2**
Growth	-7%	-2%	-13%	-33%	36%	32%
Adjusted EBIT	**28.0**	**24.0**	**16.6**	**7.0**	**14.0**	**24.0**
Growth	-16%	-14%	-31%	-58%	100%	71%
EBIT	**26.5**	**15.9**	**8.9**	**2.0**	**11.0**	**22.0**
Growth	-7%	-40%	-44%	-77%	450%	100%
Profit before tax	**27.0**	**15.4**	**8.6**	**1.5**	**10.7**	**22.0**
Growth	-3%	-43%	-44%	-83%	613%	106%
Net income	**26.2**	**14.1**	**8.5**	**0.1**	**9.2**	**19.9**
Growth	8%	-46%	-40%	-99%	9100%	116%
Adj. net income	**21.2**	**21.1**	**11.8**	**6.5**	**13.3**	**22.9**
Growth	-21%	0%	-44%	-45%	103%	73%

MARGIN	2019	2020	2021	2022E	2023E	2024E
Adj. EBITDA margin	11.9%	13.4%	12.1%	7.3%	9.1%	10.5%
Adj. EBIT margin	7.6%	7.4%	5.3%	2.0%	3.7%	5.6%
EBIT margin	7.2%	4.9%	2.8%	0.6%	2.9%	5.1%
Profit before tax margin	7.3%	4.8%	2.8%	0.4%	2.9%	5.1%
Net income margin	7.1%	4.4%	2.7%	0.0%	2.5%	4.6%
Adj. net income margin	5.7%	6.6%	3.8%	1.9%	3.5%	5.3%

SHARE DATA	2019	2020	2021	2022E	2023E	2024E
EPS - € cents	99.4	53.6	32.2	0.4	34.9	75.5
Adj. EPS - € cents	80.3	80.1	44.7	24.7	50.3	87.0
Adj. EPS FD - € cents	77.9	77.7	43.4	24.0	48.8	84.5
Growth	-21%	0%	-44%	-45%	103%	73%
DPS ord - € cents	0.0	28.5	17.8	17.8	20.0	30.0

VARIOUS - € mn	2019	2020	2021	2022E	2023E	2024E
Capital employed	257	259	262	265	264	264
FCF	23	13	4	1	14	16
Capex	29	35	34	35	32	30
Net working capital	-54	-67	-74	-91	-106	-111

INDEBTNESS - €mn	2019	2020	2021	2022E	2023E	2024E
Net financial position	58	63	57	50	59	70
D/E	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Debt/EBITDA	n.m.	n.m.	n.m.	n.m.	n.m.	n.m.
Interests cov	n.m.	74.2 x	126.6 x	40.3 x	103.8 x	n.m.
Net financial position FD	68	73	68	60	69	80

MARKET RATIOS	2019	2020	2021	2022E	2023E	2024E
P/E	11.0 x	21.2 x	35.7 x	2556.9 x	27.8 x	12.8 x
P/E FD	11.4 x	21.9 x	36.8 x	2634.5 x	28.6 x	13.2 x
P/E adj	13.7 x	14.2 x	25.7 x	39.2 x	19.3 x	11.1 x
P/E adj FD	14.1 x	14.6 x	26.5 x	40.4 x	19.9 x	11.5 x

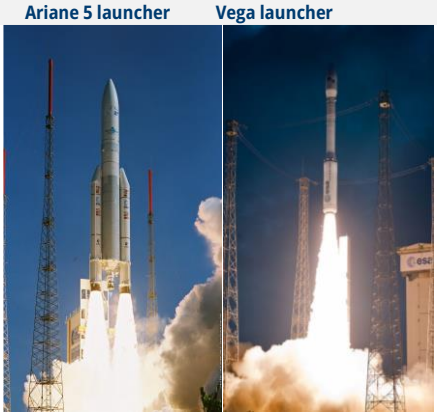
MARKET RATIOS	2019	2020	2021	2022E	2023E	2024E
EV/Net revenues	0.63 x	0.74 x	0.79 x	0.60 x	0.52 x	0.43 x
EV/Adj. EBITDA	5.3 x	5.5 x	6.5 x	8.2 x	5.8 x	4.1 x
EV/Adj. EBIT	8.3 x	9.9 x	14.8 x	29.4 x	14.0 x	7.7 x
EV/CE	0.9 x	0.9 x	0.9 x	0.8 x	0.7 x	0.7 x

REMUNERATION	2019	2020	2021	2022E	2023E	2024E
Div. Yield ord	0.0%	2.5%	1.5%	1.8%	2.1%	3.1%
FCF yield	7.9%	4.4%	1.4%	0.5%	5.5%	6.4%
ROE	7.3%	7.0%	3.9%	2.2%	4.4%	7.4%
Adj. ROCE	10.9%	9.1%	6.5%	2.3%	4.9%	8.5%
Adj. ROCE ex-goodwill	76.8%	61.8%	41.6%	13.6%	30.1%	52.5%

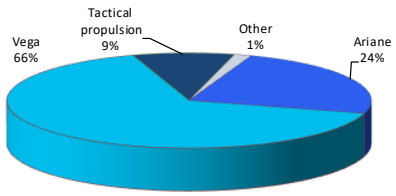
BACKLOG	2019	2020	2021	2022E	2023E	2024E
Order backlog	669	736	877	884	1,227	1,195
Order intake	161	389	453	350	718	400
Book to bill	0.4 x	1.2 x	1.5 x	1.0 x	1.9 x	0.9 x
Book to revenues	1.8 x	2.3 x	2.8 x	2.6 x	3.3 x	2.8 x

Source: Company data and Equita SIM estimates

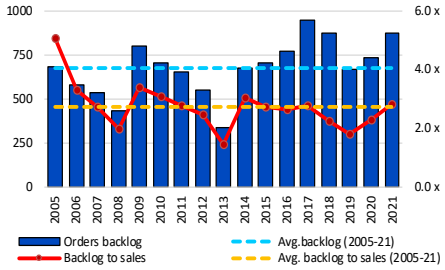
Ariane 5 launcher **Vega launcher**



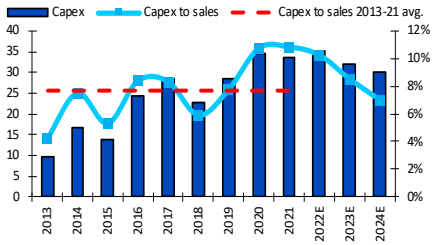
Divisional net revenues breakdown (2021)



Orders backlog (€ mn) and backlog to sales (x)



Capex (€ mn) and capex to sales (%)



BUSINESS DESCRIPTION

AVIO is a leading international space propulsion system provider (solid, liquid and cryogenic) founded in 1912 as explosive maker (a pre-requisite to enter in the space business) and in the past 50 years evolved from supplier of solid rocket motors to system integrator and prime contractor. It was listed in Apr-17 through the business combination with Space2 SPAC.

It plays a **strategic role** in the space industry through 2 European launcher programmes:

- **it provides the boosters** and liquid-oxygen turbopumps **to Ariane 5**, the European heavy launcher for satellites up to 10 tons (for broadcasting, telecom applications and internet constellations) in the Geostationary Earth Orbit (GEO) at 36k km altitude
- **it is the prime contractor for Vega and Vega C**, the European light launcher for satellites up to 2 tons (for weather forecasting, earth observation and satellite internet constellations) in the Low Earth Orbit (LEO) at 300-2k km altitude.

A launcher is a rocket capable of placing satellites accurately into space for both institutional (public authorities or government agencies) and commercial clients (private companies). According to the Satellite Industry Association, **the launchers sector was worth >$6bn; it enables the access to space** with a **multiplier** effect on satellite manufacturing (~3x) and ground and satellite services ~20x.

The critical success factor for a launcher is reliability. The European launchers remain the best-in-class worldwide: 1998-2019 combined (Ariane+Vega) failure rate is <3% vs market avg. of ~6% (Ariane 5 at 2% on over 140 launches while Vega is now at ~10% with 18 successful launches out of 20).

The launchers sector is oligopolistic (~90% of the market was accounted for by Russia, US, China and Europe), **typically funded by massive public financial investments** (in Europe the European Space Agency-ESA), **with very high technological entry barriers, long-cycle business** (18-24 months from order intake, launcher production and effective launch) and with **no Chinese/Japanese competition** (operating only in their closed markets).

The **most important demand drivers are emerging commercial customers for mega LEO constellations deployment** such as Starlink by Space X, One Web (owned by the UK Government, the Indian mobile operator Bharti and Eutelsat, with also Amazon planning to launch thousands of sats with its Kuiper Project) and **replacement demand** given the avg. useful life of 10-15 years for a GEO/MEO satellite and 2-7 years for a LEO one (>2k satellites are into orbit).

The strategy envisages:

- **improvement of its market position** (higher launch cadence, higher payload, ...)
- **supply chain consolidation** through insourcing/acquisition of critical industrial supplies to improve margins and reduce dependency on external suppliers
- **efficiency improvements** (streamlining ground infrastructure operations and flight readiness as well as launch frequency)
- **new product development** (P120 engine, Vega C, Vega E and Ariane 6, lowering the launch costs, increasing the payload and improving the launchers versatility)
- **industrial evolution** towards production automation, volume scale up and reduction of product platforms leveraging the commonalities provided especially by the new P120 engine across the Ariane 6 and Vega C launchers.

In Orbit (the investment vehicle participated by about **70 Avio managers,** including the CEO, first-line, second-line, third-line and retired managers) **owns 4.07%.** The Italian State-controlled aerospace and defense group **Leonardo** (AVIO shareholder since 2003) owns 29.63% and **Space Holding** (the company that promoted the business combination) still owns 4.08%. Treasury shares are currently around 4.1% of capital.

STRENGTHS / OPPORTUNITIES	WEAKNESSES /THREATS
- Key role in the European Space sector	- Smaller size and low diversification compared to much larger competitors
- Visibility supported by the strong order backlog	- Only one spaceport (French Guiana)
- Italian NRRP adding new business	- Public budgets constraints
- Oligopolistic market/high technological entry barriers	- Price pressure
- High reliability of Ariane5 and Vega launchers	- Competitor reusable technology
- Growing market, particularly for LEO	- Flights failure causing costs and delays
- Innovation: new launchers (Ariane 6, Vega-C and Vega-E and new P120 engine)	- Erratic orders intake/down payments

FIRST FAILURE OF VEGA C

After being postponed for more than 18 months due to Vega failures and COVID crisis, on July 13th 2022 the **Vega C maiden flight was successfully completed**, launching into orbit seven satellites (one for a scientific mission of the Italian Space Agency ASI and six CubeSats for research from France, Italy and Slovenia as a secondary cargo).

The new **Vega C is the evolution of Vega launcher which increases industrial efficiency and improves competitiveness**

- considerably increasing load capacity compared to the Vega (over +50% to 2.3 tonnes for polar orbit at an altitude of 700 km)
- being equipped with the new, more powerful P120C first-stage engine (derived from the Vega`s P80), which will also be used for Ariane 6 in dual or quad configuration (although the maiden flight has been postponed from 4Q22 to 2H23 - pending explanations).

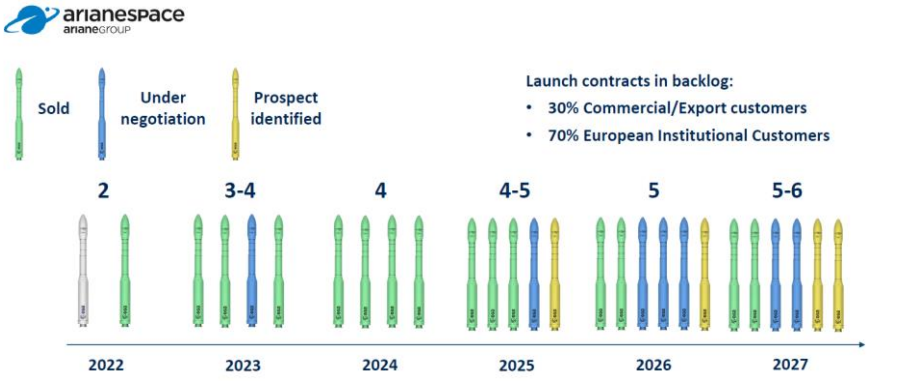
On December 20th 2022 the second launch of Vega C (VV22), about two minutes and 27 seconds after the lift-off, following the nominal ignition of the second stage's (Zefiro 40) engine, a decrease in the pressure led to the premature end of the mission. The mission data were immediately put under investigation to understand the reasons behind this failure. We just remind that **the flight had already been postponed by about a month for the replacement of a defective component**.

As expected, Arianespace and the European Space Agency (ESA) have **immediately announced to appoint an independent commission of enquiry** to investigate the reasons for the failure and define the necessary measures to restore the conditions of reliability to resume Vega C flights. Purely for information purposes, knowing that each case is different, **in the two previous failures it took 1-2 months to identify the causes and 5-8 months to return to fly** (excluding delays attributable to the lockdown).

We do not expect any big short-term liability for Avio, similarly to what happened in the two previous failures, since the responsibility after launch lies with Arianespace and the insurance policies cover the damages.
Nevertheless, **Avio** is exposed to several risks including:

- **further delays in the production/scheduling of Vega C launches** whose number was planned to gradually grow from 3-4 in 2023 to 5-6 in 2027 (based on the already signed contracts and the identified prospects)

VEGA C BACKLOG AND PROSPECTS



Source: Company presentation (Nov-22)

- **lower bargaining power** for future negotiations
- **non-recurring costs** should corrections to the Zefiro 40 be necessary
- **increase in insurance policy cost**.

The negative impact will only be **possible to be quantified once the appointed commission has finalized its investigation.**

THE LONG-TERM PROSPECTS ARE ALWAYS POSITIVE

As highlighted in our previous notes, **the medium-/long-term trend of the launchers business remains positive** because of the market demand coming from:

- **emerging commercial customers for LEO constellations deployment,** such as Starlink by Space X, One Web and Amazon, planning to launch thousands of satellites
- **replacement need,** given the average useful life is of 10-15 years for a GEO/MEO satellites and 2-7 years for a LEO ones (today >2k satellites are into orbit)
- **disappearance of the Russian launchers from the international commercial market due to sanctions, estimated by Avio to be worth 10/15% of total**. They include Russian
  - Soyuz for medium-earth orbit, launched from the European spaceport in Kourou, at least twice a year until 2025 (from 2026 it will be replaced by Ariane 6.2)
  - Proton for low-earth orbit launched from Baikonur Cosmodrome

Avio operates in a business with **medium/long-term cycles** and should always be evaluated accordingly, also bearing in mind that Avio is a key EU player in its reference market (although some newcomers are looking out). This view is supported by the expected order flow from the:

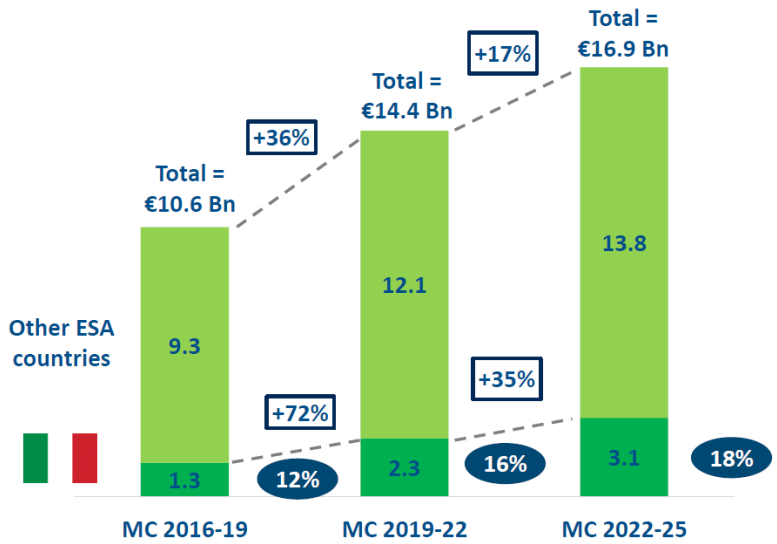
- **Italian National Recovery and Resilience Plan** (NRRP - a stimulus package approved by the Italian government spending €2.3bn in the space economy), granting orders of €337mn
- **last November tri-annual ESA ministerial conference**, granting orders of about €700mn to be collected during 2023.

1. Around €0.7bn orders from last November ESA council

Last November's ESA Council of Ministers of Member States for the 3-year period 2023-25 allocated for

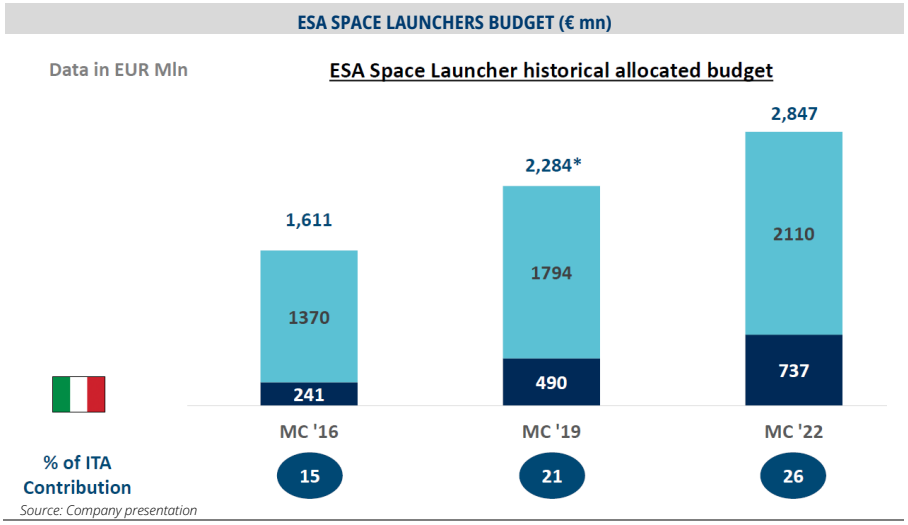
- **space R&D programmes €16.9bn** (+17% vs the 2019 Council)
  - of which Italy contributed €3.1bn (+35% vs 2019), or 18% of the total (vs 16% in 2019)

ESA BUDGET FOR SPACE (total and Italian portion - € bn)



Source: Company presentation

- **space access programmes** (including Vega, Ariane and Space Rider) **€2.8bn**, in line with the previous 3-year period
  - of which €737mn from Italy (+50% vs 2019), or 26% of total (vs 21% in 2019).



The portion attributable to AVIO is equivalent to almost the whole amount of these €737mn contributed by Italy for space access programmes; they will be **collected during 2023 and 2024 to be executed in the next 4 years.**

2. More than €0.3bn orders from NRRP

Under the 'Next Gen EU' inside the Italian NRRP, allocations were approved for two contracts for which Avio will be prime contractor:

- **€217.5mn devoted to the development by 2026 of an in-flight demonstrator** of new technologies and architectures for a two-stage-to-orbit liquid propulsion small launcher powered by green LOX-methane engines
- **€120mn devoted to the development of a new LOX-methane green engine** with High Thrust to be tested on ground by 2026 for qualification.

The goal is to prepare the ground for future space transportation systems beyond the Vega E (which maiden flight is scheduled in 2026), based on propulsion with reduced environmental impact (potentially reusable), by **leveraging Avio's experience in liquid oxygen and methane propulsion** with the M-10 engine that has already successfully passed its first ground test.

For this reason, **in the first 9 months of 2022 Avio has already hired 200 highly skilled engineers** (>+20% of the total workforce) and 100 more will be hired in 2023 (source: interview to CEO Ranzo on Milano Finanza issued on December 10th 2022).

3. Additional €40mn for tactical propulsion

On July 13th 2022, Avio announced the award of new orders totalling **more than €40mn from MBDA for tactical propulsion business**. They refer to the

- increase of the booster production for the Aster 30 missile system for a European and NATO member states
- development, qualification and industrialization of the initial booster propulsion system for the next-generation Teseo MK2/E anti-ship missile system for the Italian Navy.

These contracts strengthen Avio's positioning in the defence sector, which is going to become more important considering the recent geopolitical evolution.

SOME SHORT-TERM ISSUES

1. Energy cost headwind although less painful than expected

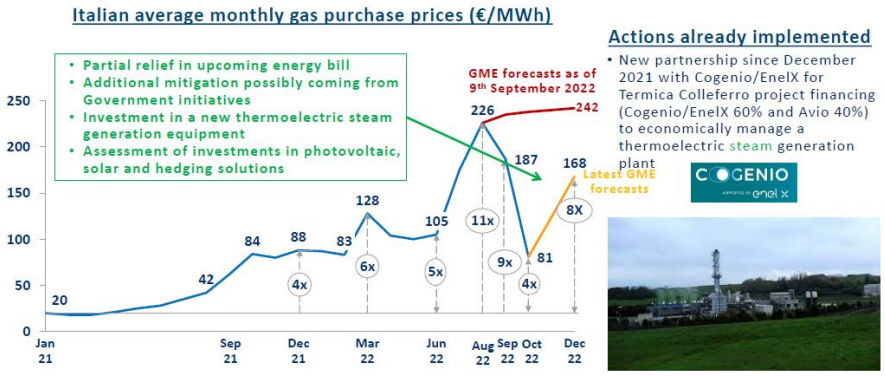
Since 2H21, the sudden rise in energy costs (2.2x vs 1H21) has penalised the operating performance. Avio promptly reacted with a new partnership with Cogenio-Enel X for the Colleferro power plant management (where the headquarter is located), but this will generate benefits in the medium-term.

We estimate that the **energy cost** for Avio in a "normal environment" represents about 2.5% of sales; we estimate that **in FY22 it could grow up around 5%.**

On September 9th, after 2Q22 results, **Avio cut FY22 guidance essentially because of this**: while leaving revenues unchanged at €330-350mn

- EBITDA mid-point was reduced by 22% from €24-30mn to €17-25mn
- adj. EBITDA from €29-35mn to €22-30mn
- pre-minorities bottom-line from net profit of €5-10mn to net loss of €2mn/net income of €>3mn.

ITALIAN PSV NATURAL GAS FUTURES



Source: company presentation (October 2022)

However, **in the past few weeks the picture improved because gas price declined** and on December 18th **the price cap mechanism on gas prices** to be applied at the European level was approved by the EU Council (180 €/MWh to be triggered upon the fulfillment of certain conditions).

2. Ariane 6 maiden flight, once again delayed

Now focus turns to the maiden of Ariane 6 recently postponed from 4Q22 to "some time" in 2023 as announced by European Space Agency Director General Josef Aschbacher (see Space News "Ariane 6 launch debut pushed into 2023" issued on June 13th 2022) without explaining the reasons. It is **not clear if it will be a 1Q23 event, or it will take even longer**. Ariane 6 debut was originally scheduled in 2020.

Maiden flights are typically riskier, but in this case the risk **should be mitigated** by the fact of being the upgraded versions of an already existing and long-tested launchers.

3. … taking longer to benefit from P120 ramp-up

The further postponement of Ariane 6 maiden flight and the Vega C ongoing investigation have an inevitably negative impact on the P120 engine production rates, slowing down the ramp-up of an important stream of revenues and profits for Avio.

P120 is the new booster used for both the new Ariane 6 and Vega C, while Ariane 5 and Vega currently use two different engines. When fully on stream, the **P120 may generate economies of scale,** achieving an annual production in excess of 30 units summing up

- 16-20 engines for Ariane 6.4 (using four P120 each)
- 8-10 engines for Ariane 6.2 (using two P120 each)
- and 3-4 engines for Vega C (using one P120 each).

Avio benefits from a certain operating and industrial flexibility: regardless of their utilization, engines may be stored in warehouses and therefore continue to generate revenues, but it must be agreed with the prime contractor Ariane Group and may only partially offset the lower production rates.

UKRAINIAN CRISIS GENERATES SOME SUPPLY CHAIN WORRIES …

Last July Avio reiterated that there are **no predictable impacts on the continuity of operations of the Vega/Vega C for the procurement of the AVUM produced in Ukraine** (fourth-stage engine of the Vega/Vega C to be used until 2026 when it will be replaced by Avio`s M-10 engine currently under development). Deliveries were planned well in advance of the scheduled flight, in order to **build up a `strategic stock`.** For safety reasons detailed information on the subject remains confidential.

… BUT IT OPENS UP NEW OPPORTUNITIES IN THE COMMERCIAL MARKET

On the other side, the sanctions applied to Russia **does not allow to launch Western countries' payload with Russian launchers** (essentially Soyuz and Proton). This means that 18% of last year launches (25 out of 142), estimated by Avio **representing 10/15% of the commercial market may be conquered by other players**, although not in the short-term as launches are typically booked two or more years in advance.

M&A ACTIVITY JUST STARTED

In 2Q22 Avio made its first M&A deal: **the acquisition of 100% of Temis srl** (company with expertise in avionics and reference supplier of the Vega program) and 5% of ART SpA (previous Temis parent company), with simultaneous Long-Term Agreement to support Temis; it will help the development of new avionics advanced systems.

It also signed a MoU with CDP Venture Capital with focus on Italian aerospace start-up companies also for direct investment.

Since Avio did not provide any quantitative indications, we believe that they are **small deals with medium to long term effects.**

NEW-COMERS RISK FAR AWAY BUT MUST BE CAREFULLY MONITORED

This is also the reason why **new-comers are working on the development of alternative proposals, although we do not perceive any short-term risk:**

- **the unlisted German Isar Aerospace,** started-up in 2018 which raised $180mn funds with an implicit valuation of $550mn (*source: Financial Times dated July 28th 2021*). The company is privately financed by former SpaceX VP Bulent Altan as well as leading investors including Airbus Ventures, Apeiron, Earlybird, HV Capital, Lakestar, Lombard Odier, Porsche SE, UVC Partners, and Vsquared Ventures. Its Spectrum rocket maiden flight was originally scheduled by the end of 2023, but visibility on the new timetable is still unclear

- **the unlisted French MaiaSpace,** a project for a reusable mini-launch vehicle headed by ArianeGroup (joint venture of Airbus and Safran - prime contractor for the Ariane 5 and Ariane 6 launchers) with the support of CNES (Centre national d'études spatiales) which was officially announced in December 2021. MaiaSpace capital could be open to other players. The launcher will be based on the Themis reusable stage demonstrator, which will be equipped with the new low-cost reusable Prometheus engine. The French Minister of the Economy Bruno Le Maire set an ultra-ambitious timetable for the programme stating that "the first launch must take place in four years, in 2026". **This may by a potential competitor but just for payloads below 0.5 tons while Vega C may launch up to 2.3 tons** (and Vega E to be ready in 2026 up to 3 tons)

- **the US Astra Space,** since Jul-20 listed on the NY Stock Exchange; its current market cap is around $0.1bn (down from $4+bn peak hit in 2021). Furthermore, on June 12th 2022 it once again failed to deliver two small hurricane-tracking satellites for NASA due to the upper stage engine shutting down early.

ESTIMATES UPDATE

3Q22 results issued on November 7th were basically in line with expectations:

- revenues +23% YoY to €86mn vs €86mn (9M +11% YoY)
- EBITDA €3.3 (from loss of €0.1mn in 9M21) vs €3.3mn (9M -19% to €6.5mn)
- EBIT loss €-1.5mn (from loss of €3.9mn in 9M21) vs €-1.1mn (9M €-7.7mn)
- net cash flow €21mn vs €25mn
- backlog +3% YoY sequential to €870mn (order intake €105mn) vs 857mn

AVIO: 3Q22 RESULTS vs EXPECTATIONS

	3Q22 Exp.	%	3Q22 Act.	%	Change
Revenues	**80.0**	100.0	**85.9**	100.0	7%
Incr. %	14%		23%		
Adj.EBITDA	**5.9**	7.4	**4.3**	5.1	-27%
Incr. %	-50%		-63%		
EBITDA	**3.3**	4.2	**3.3**	3.9	0%
Incr. %	n.m.		n.m.		
Adj. EBIT	**(0.8)**	-1.0	**(0.5)**	-0.6	n.m.
Incr. %	n.m.		n.m.		
EBIT	**(1.4)**	-1.7	**(1.5)**	-1.7	n.m.
Incr. %	n.m.		n.m.		
NF Position	**25.0**		**21.0**		-16%
Order intake	**43**		**108**		153%
Order backlog	**811**		**870**		7%

Source: Equita SIM estimates and company data

We leave our FY22 estimates unchanged around the mid-point of the management guidance without ruling out a better performance, considering the recent more favorable gas price evolution and the still unclear potential impact of Italian government`s mitigation measures.

On the following years we factor in

- **a prudent approach in FY23**, pending the outcome on the ongoing investigation on the failure, which we believe will inevitably slow down the production activity in the short-term (assuming the issue will be solved in the next few months)
- **more bullish estimates in FY24 and FY25** due to the benefits of the strong order intake in the development business.

Based on the above-mentioned order intake, for the following three years we

- **leave FY23 revenues unchanged while increasing FY24-25 on avg. by 7%**
- **trim FY23 EBITDA, but leaving it unchanged in absolute value in the following years,** believing that the higher revenues will be partly offset by higher headcounts and our prudent approach on gas cost; however it implies a significant recovery from FY22
- **cut adj. EBIT and bottom line on avg. by 12% and 15% respectively** due to higher D&A, as a consequence of the heavy investments made in the past few years and additional capex expected in the next two years (on avg. in excess of €30mn p.a.)
- **improve the net cash position because of the down payments** linked to the rich order intake.

AVIO: CHANGE IN 2022-25E ESTIMATES (€ mn)

	FY22E Prev	%	FY22E Curr	%	Ch	FY23E Prev	%	FY23E Curr	%	Ch	FY24E Prev		FY24E Curr	%	Ch	FY25E Prev		FY25E Curr	%	Change
Revenues	**343.0**	100.0	**343.0**	100.0	0%	**375.0**	100.0	**375.0**	100.0	0%	**403.2**	100.0	**431.9**	100.0	7%	**432.1**	100.0	**457.8**	100.0	6%
Incr. %	10%		10%			9%		9%			8%		15%			7%		6%		
Adj. EBITDA	**25.2**	7.3	**25.2**	7.3	0%	**35.7**	9.5	**34.2**	9.1	-4%	**45.2**	11.2	**45.2**	10.5	0%	**50.7**	11.7	**50.7**	11.1	0%
Incr. %	-33%		-33%			42%		36%			27%		32%			12%		12%		
EBITDA	**20.2**	5.9	**20.2**	5.9	0%	**32.7**	8.7	**31.2**	8.3	-5%	**43.2**	10.7	**43.2**	10.0	0%	**48.7**	11.3	**48.7**	10.6	0%
Incr. %	-33%		-33%			62%		55%			32%		39%			13%		13%		
Adj. EBIT	**7.0**	2.0	**7.0**	2.0	0%	**17.0**	4.5	**14.0**	3.7	-18%	**26.0**	6.4	**24.0**	5.6	-8%	**31.0**	7.2	**28.0**	6.1	-10%
Incr. %	-58%		-58%			143%		100%			53%		71%			19%		17%		
EBIT	**2.0**	0.6	**2.0**	0.6	0%	**14.0**	3.7	**11.0**	2.9	-21%	**24.0**	6.0	**22.0**	5.1	-8%	**29.0**	6.7	**26.0**	5.7	-10%
Incr. %	-77%		-77%			600%		450%			71%		100%			21%		18%		
Pre-tax profit	**1.5**	0.4	**1.5**	0.4	0%	**13.7**	3.7	**10.7**	2.9	-22%	**24.0**	6.0	**22.0**	5.1	-8%	**29.0**	6.7	**26.0**	5.7	-10%
Incr. %	-83%		-83%			813%		613%			75%		106%			21%		18%		
Net Income	**0.1**	0.0	**0.1**	0.0	0%	**12.2**	3.3	**9.2**	2.5	-25%	**21.9**	5.4	**19.9**	4.6	-9%	**26.8**	6.2	**23.8**	5.2	-11%
Incr. %	-99%		-99%			12100%		9100%			80%		116%			22%		20%		
NFP	**49.8**		**49.8**		0%	**44.1**		**59.1**		34%	**32.5**		**70.1**		99%	**15.3**		**61.2**		266%

Source: Equita SIM estimates

Our FY22-23E estimates are below Bloomberg consensus ones (except better net cash position, probably explained by our expectation of down payments linked to the order intake), while similar in FY24.

AVIO: CONSENSUS vs EQUITA ESTIMATES (€ mn)

	CONSENSUS ESTIMATES			OUR ESTIMATES vs CONSENSUS		
	FY22E	FY23E	FY24E	FY22E	FY23E	FY24E
Sales	342.0	389.8	428.3	0%	-4%	1%
EBITDA	23.2	32.9	43.0	**-13%**	**-5%**	0%
EBIT	3.2	14.4	22.4	**-38%**	**-23%**	-2%
Net Income	0.7	12.8	22.0	**-85%**	**-28%**	-10%
Net cash	38.9	38.6	60.1	28%	53%	8%

Source: Equita SIM and Bloomberg consensus estimates (as of January 21st 2022)

VALUATION -5%

DFCF-based target is €13.0PS (-5% due to both higher WACC and lower short-term estimates). Our valuation is fully diluted including the sponsor warrants exercise.

ASSUMPTIONS	
g	1.5%
WACC	7.5%

Valuation	
NPV of Free Cash Flows	32
NPV of Terminal Value	287
Estimated Enterprise Value	**319**
2021A NFP	57
Adjustment to NFP	-34
Equity	**342**
Peripherals & other	12
Total Equity	**353**
# of shares fully diluted	27.2
Target Price	**13.0**
Upside (Downside)	**34%**

AVIO: DFCF ANALYSIS (€ mn)

	2022E	2023E	2024E	2025E	2026E	Beyond
Sales	**343**	**375**	**432**	**458**	**491**	**499**
Change %	*10.1%*	*9.3%*	*15.2%*	*6.0%*	*-1.5%*	*1.5%*
EBITDA	**20**	**31**	**43**	**49**	**54**	**43**
Change %	*-32.9%*	*54.6%*	*38.5%*	*12.7%*	*24.6%*	*-19.7%*
Margin	5.9	8.3	10.0	10.6	10.9	8.6
D&A	-18	-20	-21	-23	-24	-13
EBIT	**2**	**11**	**22**	**26**	**30**	**30**
Change %	*-77.4%*	*450.0%*	*100.0%*	*18.2%*	*0.2%*	*-0.2%*
Margin	0.6	2.9	5.1	5.7	6.1	6.0
Taxes	-1	-1	-2	-2	-2	-2
EBIT after Tax	**1**	**10**	**21**	**25**	**29**	**28**
Change %	*-92.9%*	*1395.8%*	*105.6%*	*19.5%*	*2.2%*	*-2.1%*
Capex	-35	-32	-30	-29	-27	-13
(increase) decrease in WC	16	16	5	-20	-14	-4
Free Cash Flow before minorities	**0**	**14**	**16**	**-1**	**11**	**24**
FCF Minorities	0	-1	-1	-1	-1	-1
Free Cash Flow after minorities	**0**	**13**	**15**	**-2**	**11**	**23**
Discount Factor	1.00	1.08	1.16	1.24	1.34	1.34
PV of FCF	**0**	**13**	**13**	**-2**	**8**	**17**

Source: Equita SIM estimates

AVIO: DFCF SENSITIVITY ANALYSIS (€ PS - FULLY DILUTED)

		WACC		
		8.0%	7.5%	7.0%
G factor	1.0%	11.3	12.1	13.2
	1.5%	12.0	**13.0**	14.2
	2.0%	12.9	14.0	15.4

Source: Equita SIM estimates

STATEMENT OF RISKS

The primary elements that **could negatively impact the stock include**:

- Significant deterioration in the reference macroeconomic scenario
- Significant increase in short term interest rates
- European Space budget cuts and European Governments instability
- Launch failures affecting the reliability
- More expensive and longer than expected development programs
- Worsening R&D fiscal incentives schemes
- Competitors' technological innovation generating price pressure

The primary elements that **could positively impact the stock include**:

- Significant improvement in the reference macroeconomic scenario
- Significant decrease in short term interest rates
- European Space budget increase
- Quick solution of the issue causing the Vega failure
- Less expensive and shorter than expected development programmes
- Improvement in the R&D fiscal incentives schemes
- Technological innovations improving the performance of the existing launchers

SWOT ANALYSIS

Strengths	Weaknesses
• Key role in the European space launcher sector • Oligopolistic market with high technological entry barriers • High visibility supported by the rich backlog • Italian NRRP adding new business • Growing market particularly for LEO • European launchers reliability • Vega proven multi-payload and multi-orbit ability • European countries public funding for common programmes	• Smaller size and no diversification compared to much larger competitors • Erratic orders intake and thus not easy to predict down payments • Access to only one spaceport in French Guiana (also exposed to the social crisis risk) • Past few years relevant non-recurring costs • Smaller public budgets to finance new development projects • Energy costs headwind
Opportunities	**Threats**
• New launchers currently under development (Ariane 6, Vega-C and Vega-E) • AVIO's new first stage solid propellant engine P120C to be used for both new Ariane 6 and Vega C/Vega E • AVIO's new methane oxygen engine M10 engine to replace third-party AVUM upper stage from 2026 • Critical supplies insourcing to consolidate margins and reduce dependency on external suppliers • Planned increase in the number of launches with heavier payload • Russian launchers frozen for international market because of international sanctions • New business coming from Italian NRRP	• Flights failure causing costs, delays and worsened reliability • Public spending budget constraint • Aggressive pricing strategy from some competitor • Competition from Chinese CZ6 (although limited to a portion of the accessible market) • Long-term technological innovations (multi payload/multi-orbit and smaller satellite size) which could reduce launchers demand • SpaceX's reusable rocket technology • Social/political problems in French Guiana

APPENDIX 1: THE EUROPEAN LAUNCHERS REMAINS THE MOST RELIABILE

The critical success factor for a launcher is its reliability, which is inversely proportional to the number of failures (i.e. explosion of the launcher, damages caused to the satellite during transit, positioning in an incorrect orbit/location, ...).

For AVIO the direct risk of bearing non-recurring costs is limited because in case of failure:

- **before Vega's delivery, the prime contractor AVIO is held responsible;**
- **after launcher delivery** (for both Ariane 5 and Vega), **Arianespace,** in its capacity as Launch Service Provider, **is liable to pay up to a maximum of €60 mn**; **ESA and the French Government** are liable for the amount exceeding €60 mn.

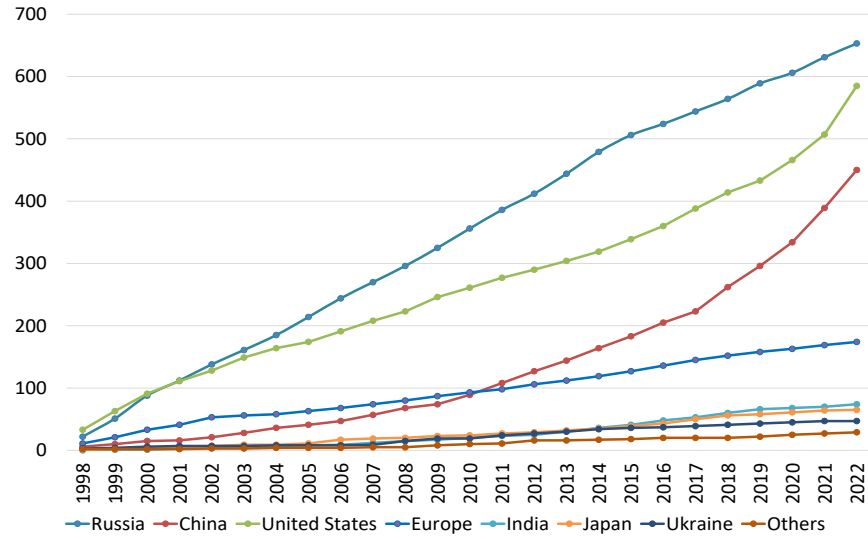
Furthermore, in case of **delays due to external factors**, Arianespace is responsible for managing the schedule.

For Avio the most important direct and indirect consequences of a launch failure are:

- **deterioration in perceived reliability**, thus a risk of lower bargaining power;
- **increased insurance costs** for future launches;
- **costs** incurred to resolve the problem;
- **flights suspension** until the problem is identified and resolved;
- **production inefficiencies because of launch delays;**
- **cancellation of scheduled launches** (the worst-case scenario).

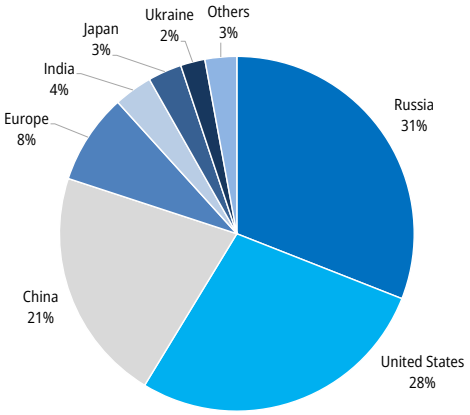
According to Space Launch Report, **more than 2.1k launches took place worldwide between 1998 and 2022** with Russia, United States and China being the 3 most active countries.

NUMBER OF LAUNCHES: CUMULATED TREND BY COUNTRY (1998-2022)



Source: Equita SIM on Space Launch report and Skyrocket.de

NUMBER OF LAUNCHES: CUMULATED SPLIT BY COUNTRY (1998-2022)

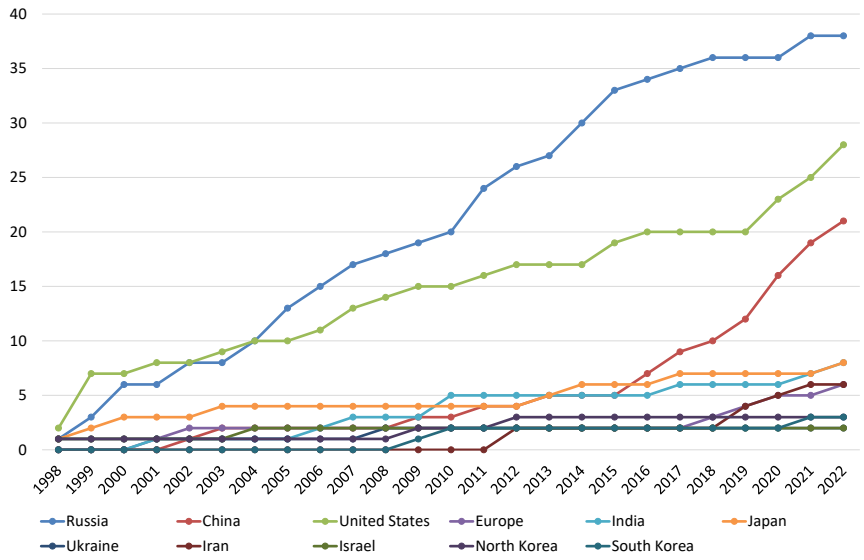


Source: Equita SIM on Space Launch report and Skyrocket.de

The number of launches at worldwide level showed a **strong acceleration in 2022 hitting a new all-time record of 182** (manly in LEO orbits), driven by China, United States and Russia. It **represents more than 60% growth vs the past 5-year average**.

As we always highlighted, the launchers business is not immune from risks. **Since 1998 the total number of failures was 128 …**

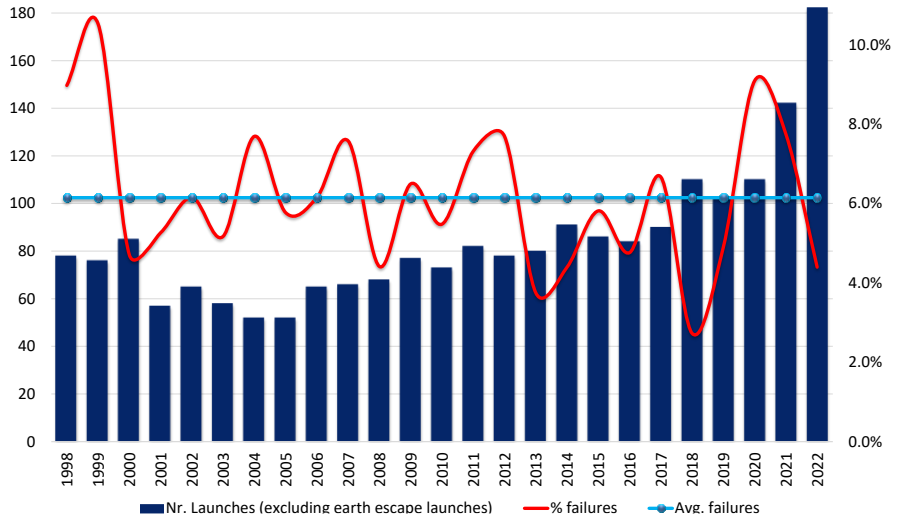
LAUNCHES: CUMULATED FAILURES BY COUNTRY (1998-2022)



Source: Equita SIM on Space Launch report and Skyrocket.de

… or on average 6.1% of total launches.

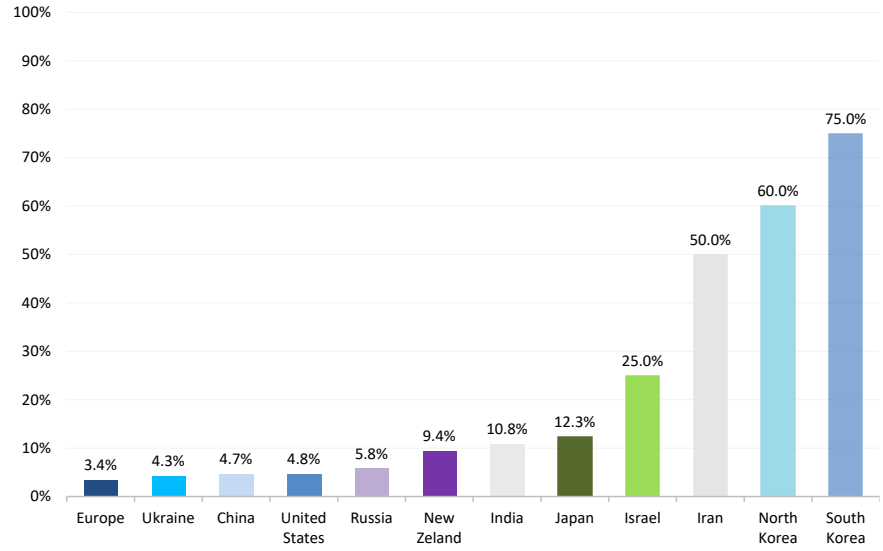
LAUNCHES: TOTAL LAUNCHES AND FAILURE RATE TREND (1998-22)



Source: Equita SIM on Space Launch report and Skyrocket.de

The **European launchers** (i.e. Ariane for which Avio provides the boosters and Vega of which Avio is prime contractor) **remain the most reliable** even factoring in the three recent failures (two Vega and one Vega C): summing up Ariane and Vega famly the combined failure rate is 3.4%.

LAUNCHES: FAILURE RATE (number of failures/number of flights – 1998-2022)



Source: Equita SIM on Space Launch report and Skyrocket.de

Since the start of the programme Ariane 5 suffered 4 failures (three of which were qualification flights - when the failure risk is typically higher)**. The last one dates as back as 21 years ago**, whereas the others date back even further (1996, 1997 and 2001). No one caused major delays to the following flights.

Vega alone had a perfect track record until the 14th launch; its failure rate is now around 13.6% (=3 out of 22 launches); however, in the first two failures the prime contractor Avio did not suffer any significant negative economic impact since most of the costs were covered by ESA and insurance policies.

APPENDIX 2: VEGA FIRST TWO FAILURES HAD NOT MAJOR SIDE EFFECTS

1) **On Jul-11th 2019 the 15th launch of the Vega (VV15) suffered a premature end of the mission** (the first failure after 14 in-a-row successful flights - a global first).

On Sep-5th 2019 the **independent investigation** jointly carried out by ESA and Arianespace:
- **identified the failure of the thermo-structure of the second-stage Zefiro 23 engine** produced by Avio as the most likely cause of the Vega VV15 launch failure; it is worth remembering that, according to the plans, the Zefiro 23 will be replaced by the Zefiro 40 in the new configuration of Vega C
- **indicated a set of corrective actions to be implemented**.

The outcome of the investigation **removed the worst-case scenario**, which could have materialized in case of a substantial revision of the Vega programme, implying high costs, long delays and a lot of uncertainty.

The return to fly was scheduled on March 23rd 2020; unfortunately, on March 16th the French Government announced the **lockdown of the Kourou spaceport** for precautionary reasons due to the COVID-19 pandemic thus postponing the event to June. Later in June it was further delayed due to **unfavorable weather conditions**.

On September 2nd 2020 Vega finally returned to fly with a successful mission (VV16) even more positive because, for the first time, it **simultaneously placed in orbit 53 micro satellites** (7 microsatellites weighing between 15 kg and 150 kg + 46 smaller CubeSats for various applications including earth observation, telecommunications, science, technology and education), **using the innovative Small Spacecraft Mission Service** (SSMS), a modular carbon fiber dispenser designed by Avio for launches in low orbit (300 km from Earth) of small satellites weighing between 1 and 400 kg.

The resilience of AVIO business model was demonstrated by the achievement of 2019 EBITDA guidance in spite of this painful event because:
- Arianespace and French government are responsible for failures after take-off, beyond the usual insurance policies coverage
- ESA contributed to cover the costs: the Ministerial Council held in November approved the existing **programmes specifically devoted to flight anomalies** which covered the non-recurring costs associated with the failure (such as investigation and corrective actions).

This confirms its ability to manage critical issues and its **essential role in guaranteeing the access to space for all European countries which the whole system is willing to protect**.

The main **side effect** concerns the reputational damage with potential implications on pricing power and insurance costs (4-8% of the launch cost in proportion to proven reliability over time), although the **company denied significant consequences.**

2) **On November 16th 2020, during the Vega VV17 mission** carrying the satellites SEOSAT-Ingenio (for ESA, on behalf of the Spanish Center for Development of Industrial Technology), and Taranis (for CNES, the French space agency), **an anomaly occurred 8 minutes after take-off that caused the premature end of the mission**.

In December 2020 the independent commission composed by members of ESA, Arianespace and Avio in charge of investigating the causes of the Vega VV17 flight failure, confirmed the initial hypothesis of a **human error related to the integration of the AVUM fourth-stage engine`s Thrust Vector Control System**. It also provided recommendations to ensure a return to flight.

No significant non-recurring costs incurred, no structural corrective actions had to be taken and long delay in launches was avoided: **on April 28th, 2021** the return to flight of the Vega became a reality, sweeping away the concerns: **the VV18 mission placed in orbit** the French satellite Pléiades Neo 3 and other 5 microsatellites (including the Norwegian Norsat 3 and 4 cubesats for Eutelsat, NanoAvionics/Aurora Insight and Spire), using a module derived from the SSMS adaptor already validated in the VV16 mission in September 2020.

P&L	2019	2020	2021	2022E	2023E	2024E
Net revenues	**368.6**	**322.0**	**311.6**	**343.0**	**375.0**	**431.9**
Growth	-5%	-13%	-3%	10%	9%	15%
Gross revenues	**391.1**	**351.6**	**320.1**	**343.0**	**375.0**	**431.9**
Growth	-11%	-10%	-9%	7%	9%	15%
Total opex	-326.0	-286.9	-281.6	-322.8	-343.8	-388.7
Growth	-6%	-12%	-2%	15%	7%	13%
Margin	-88.4%	-89.1%	-90.4%	-94.1%	-91.7%	-90.0%
Adjusted EBITDA	**44.0**	**43.3**	**37.7**	**25.2**	**34.2**	**45.2**
Growth	-7%	-2%	-13%	-33%	36%	32%
Adj. EBITDA margin	11.9%	13.4%	12.1%	7.3%	9.1%	10.5%
EBITDA	**42.6**	**35.2**	**30.0**	**20.2**	**31.2**	**43.2**
Growth	0%	-17%	-15%	-33%	55%	39%
EBITDA margin	11.6%	10.9%	9.6%	5.9%	8.3%	10.0%
Depreciation&amortization	-16.1	-19.3	-21.2	-18.2	-20.2	-21.2
Provisions	na	na	na	na	na	na
Depreciation&provision	**-16.1**	**-19.3**	**-21.2**	**-18.2**	**-20.2**	**-21.2**
Adjusted EBIT	**28.0**	**24.0**	**16.6**	**7.0**	**14.0**	**24.0**
Growth	-16%	-14%	-31%	-58%	100%	71%
Adj. EBIT margin	7.6%	7.4%	5.3%	2.0%	3.7%	5.6%
Non-recurring costs	-1.4	-8.1	-7.7	-5.0	-3.0	-2.0
EBIT	**26.5**	**15.9**	**8.9**	**2.0**	**11.0**	**22.0**
Growth	-7%	-40%	-44%	-77%	450%	100%
EBIT margin	7.2%	4.9%	2.8%	0.6%	2.9%	5.1%
Net financial profit/Expenses	0.5	-0.5	-0.2	-0.5	-0.3	0.0
Other financial profit/Exp	0.0	0.0	0.0	0.0	0.0	0.0
Total financial expenses	**0.5**	**-0.5**	**-0.2**	**-0.5**	**-0.3**	**0.0**
Non recurring pre tax	0.0	0.0	0.0	0.0	0.0	0.0
Profit before tax	**27.0**	**15.4**	**8.6**	**1.5**	**10.7**	**22.0**
Growth	-3%	-43%	-44%	-83%	613%	106%
Taxes	**0.0**	**-0.5**	**0.5**	**-1.0**	**-1.0**	**-1.5**
Tax rate	0%	3%	-6%	67%	9%	7%
Minoritiy interests	**-0.8**	**-0.8**	**-0.7**	**-0.4**	**-0.5**	**-0.6**
Non recurring post tax	**na**	**na**	**na**	**na**	**na**	**na**
Net income	**26.2**	**14.1**	**8.5**	**0.1**	**9.2**	**19.9**
Growth	8%	-46%	-40%	-99%	9100%	116%
Net income margin	7.1%	4.4%	2.7%	0.0%	2.5%	4.6%
Adj. net income	**21.2**	**21.1**	**11.8**	**6.5**	**13.3**	**22.9**
Growth	-21%	0%	-44%	-45%	103%	73%
Adj. net income margin	5.7%	6.6%	3.8%	1.9%	3.5%	5.3%

CF Statement	2019	2020	2021	2022E	2023E	2024E
Cash Flow from Operations	43.0	34.2	30.3	18.7	29.9	41.7
(Increase) decrease in OWC	12.0	13.5	7.3	16.5	15.7	4.6
(Purchase of fixed assets)	-28.6	-34.6	-33.7	-35.1	-31.9	-30.2
(Other net investments)	-2.7	-8.4	-2.1	-4.0	0.0	0.0
(Distribution of dividends)	-11.6	0.0	-7.5	-4.7	-4.7	-5.3
Rights issue	0.0	0.0	0.0	0.0	0.0	0.0
Other	-3.6	0.2	0.3	1.3	0.3	0.3
(Increase) Decrease in Net Debt	**8.7**	**4.8**	**-5.5**	**-7.4**	**9.3**	**11.0**

Source: Equita SIM estimates and company data

INFORMATION PURSUANT TO EU REGULATION 2016/958 supplementing Regulation EU 596/2014 (c.d. MAR)

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HOLD	-5% <ETR< 10%	-5% <ETR< 15%	0% <ETR< 20%
REDUCE	ETR <= -5%	ETR <= -5%	ETR <= 0%

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