

4 December 2023

Price (US\$)	1.07
Shares in issue (m)	496
Mkt Cap (\$m)	555
Net debt (\$m)	0
EV (\$m)	555
BVPS (c)	159.4

Share price performance

1m	10.0%
3m	-2.7%
12m	-27.2%
12 m high/low	1.9/0.4
Ave daily vol (30D)	4,014,691

Shareholders

Tencent Holdings	29.3%
Atomico	10.7%
Lgt Global Invest	6.4%
Meiner Matthias	4.6%
Born Sebastian	4.6%
Baillie Gifford & Co	1.2%
B Riley Financial In	0.8%
Millennium	0.7%
683 Capital	0.6%
Allianz Se	0.4%
Total for top 10	59.2%
Free float	56.6%
Source: Bloomberg	04 Dec 23

Next news Q4 Results

Business description

eVTOL developer and regional air mobility operator



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DOA SHOWS CERTIFICATION PROGRESS

Lilium has announced it has received its Design Organisation Approval (DOA) from the European Aviation Safety Agency (EASA) with whom the eVTOL manufacturer is pursuing type certification. The DOA allows for Lilium to move into flight testing and demonstrating compliance with EASA regulations. Lilium is the only eVTOL company seeking certification under EASA and the FAA with a certification basis for both and receipt of the DOA puts the company at the forefront of eVTOL development in Europe. Type certification in the USA is then available under the Bilateral Aviation Safety Agreement with the Federal Aviation Administration (FAA).

DOA is Key for Type Certification

The DOA requires the company to have competent personnel, regulated internal procedures, a design organisation handbook and a quality system to verify designs and supplier materials. Effectively, this requirement shows that the company has the required skills and resources to design and certify an aircraft, as required under EASA's indirect oversight system. An aerospace company in Europe can't undertake or approve design activity without DOA certification, nor can they have a type certified aircraft without it. The awarding of the DOA is a significant milestone in the development of the aircraft. The DOA is a key enabler for the company to progress into extensive testing in order to demonstrate compliance with EASA regulations, as set out in the certification basis.

Type Certification

Type Certification is the overarching certification required to prove that the Lilium Jet is airworthy before it can progress into service. Type certification is the approval of the design of the aircraft and all the component parts. It signifies that the design is compliant with applicable airworthiness, noise and emissions standards. Lilium is currently targeting type certification in late 2025.

Financials Update

Separate to certification progress, we have updated our cashflow assumptions to reflect a number of pre-delivery payments already secured by Lilium and our forecast year end gross cash now forecast stands at €187m (\$202m) moving to €138m (\$149m) in 2024.

€m, Dec	2021a	2022a	2023e	2024e	2025e	2026e
Sales	0	0	0	0	280	1,268
EBITDA	-284	-273	-273	-285	-305	-80
PBT	-299	-253	-293	-314	-376	-243
EPS	-1.4	-0.9	-0.6	-0.5	-0.2	-0.1
CFPS	-1.9	-0.2	-0.5	-0.2	-0.3	-0.3
DPS	0.0	0.0	0.0	0.0	0.0	0.0
Net Debt (Cash)	-320	-142	-150	-102	-127	456
Debt/EBITDA	1.1	0.5	0.5	0.4	0.4	-5.7
P/E	-0.7	-1.1	-1.6	-2.1	-4.5	-7.0
EV/EBITDA	-0.7	-1.3	-1.3	-1.4	-1.2	-12.1
EV/sales	n/a	n/a	n/a	n/a	0.2	0.1
FCF yield	-197.5%	-24.3%	-53.4%	-25.0%	-35.2%	-33.0%
Div yield	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Summary of Steps

Certification Step	Estimated Completion (EASA)
Certification Basis	Completed
Design Organisation Approval	Completed
Production Organisation Approval	Late 2025
Means of Compliance	Late 2023/Early 2024
Certification Program	2024-2025
Type Certification	Late 2025
Entry into Service	2026

Source: Lilium, Longspur Research

Supervisory Bodies

The two main relevant supervisory bodies for the Lilium Jet are the Federal Aviation Authority (FAA) and European Union Aviation Safety Agency (EASA). A number of third party countries maintain equivalence with these two regimes through bilateral agreements, therefore having type certification with these two bodies allows for a significantly faster approval process in other jurisdictions. The two agencies operate different oversight approaches and this is then reflected in the differing approach to Type Certification.

EASA has an indirect oversight system with an agreed level of involvement, meaning the applicant must build competence to certify their product before EASA approves their application. In order to have the relevant competence to certify the design, the company must have the Design Organisational Approval DOA (see further below). This process reduces the reliance on the regulator and somewhat insulates the company from any staffing or bandwidth issues that can impact regulatory bodies, putting the EASA process at somewhat of an advantage in the development of eVTOLs.

The FAA uses a direct oversight system, meaning the FAA helps applicants choose the type of direct oversight needed. The technical team at the FAA can carry out design oversight of the application whereby they evaluate all design aspects or the company can hire engineering representatives from the FAA who provide competence for the oversight of the type certification.

The two processes differ but both have the same ultimate goal of ensuring high levels of safety and airworthiness for aircraft. EASA is currently ahead of the FAA in terms of the development of regulations and guidelines for airworthiness, certification, pilot licensing and operations, however this continues to be an evolving regulatory process and there is scope for further changes and delays or accelerations to both the FAA and EASA approaches.

Under the Bilateral Aviation Safety Agreement, EASA certification, with the addition of several smaller FAA certification steps (expected to be some additional tests and reports for any significant standard differences) will allow for the Lilium Jet to be considered as being certified as airworthy in the USA. Key differences between the EASA and FAA regulations for commercial air transport over densely populated areas include design items such as bird deterrence devices and controlled emergency landing techniques.

Type Certification

Before a new aircraft can enter into operation it must obtain a type certificate from the responsible aviation regulatory authority. Type certification is the approval of the design of the aircraft and all the component parts. It signifies that the design is compliant with applicable airworthiness, noise and emissions standards. Type certification can broadly be broken down into the stages below.

Certification Basis

The certification basis is established by the aviation authority at the beginning of a type certification process. This effectively sets out all the requirements that the manufacturer must meet in order for an aircraft to reach type certification.

The certification basis is dependent on the type of aircraft being certified, e.g a large cargo airliner will have a different certification basis to a small two seat aircraft, given the vastly different roles and areas in which these aircraft would be operating. EASA's safety standards for eVTOLs are comparable to large commercial aircraft (the strictest level of safety requirement available) due to the fact they will predominantly be piloted aircraft carrying people over urban environments.

Lilium had its certification basis issued in 2020 by EASA and received the equivalent from the FAA, with the G-1 certificate (and in so doing becoming the first eVTOL to have a certification basis agreed with EASA and the FAA) which indicates significant alignment between EU and US regulations.

Means of Compliance

The means of compliance is where Lilium and EASA define and agree how to demonstrate that the aircraft it conforms with the airworthiness requirements agreed in the certification basis.

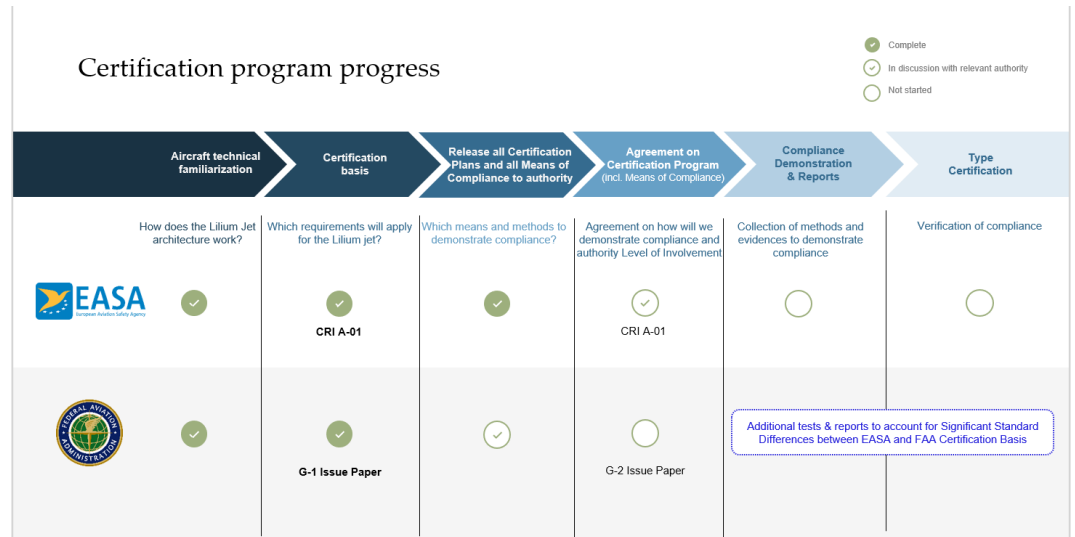
In the case of eVTOLs, because this is a new technology with a number of different designs, in order to not prejudice against competing companies, EASA has used special conditions for the means of compliance in order to allow for competing designs to develop and reach type certification before the market determines what the best technology is.

The special condition, published in July 2019 launched the framework for manufacturers to develop innovative eVTOLs. The special condition addresses the unique characteristics of aircrafts and prescribes airworthiness standards for the issuance of a type certificate to ensure that eVTOLs are following necessary safety requirements.

To date EASA have accepted approximately 80% of Lilium's means of compliance but the process has not started with the FAA. The remaining percentage to be completed has been discussed with EASA and is subject to agreement with the certification programme. The agreement on the certification program with the FAA will see the issuing of the G-2 certificate.

It is expected that the means of compliance will be fully agreed in late 2023 or early 2024, at which point the certification programme will then commence.

EASA and FAA Progress



Source: Lilium

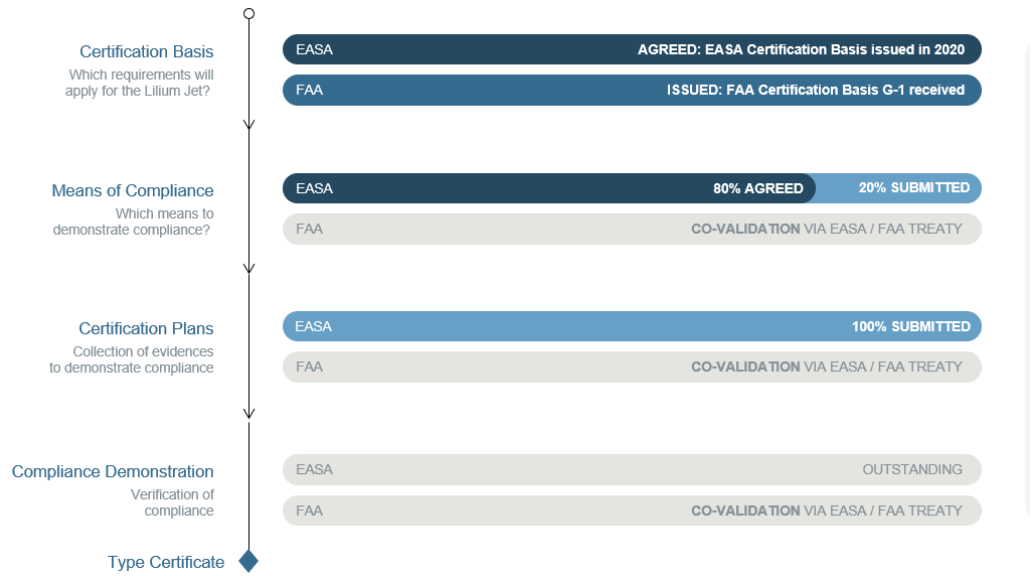
Certification Program

Lilium will produce a conforming aircraft built under POA (discussed further below) methodology to produce a conforming prototype. Following initial ground testing with the involvement of both EASA and the FAA, this will then be used to perform an initial flight test before a Permit to Fly is issued.

Following this Lilium will conduct an in depth flight testing campaign, expected to utilise six Lilium Jets to allow for simultaneous testing of different configurations of the jet. Once the jet has passed all of the requisite tests and checks and submitted all of the required reports and evidence as set out in the means of compliance the jet will be issued with its type certificate.

Progression into compliance and demonstration is expected in 2024 and with type certification in late 2025 and commercial operations in 2026. Lilium have submitted 100% of their certification plans to EASA and these now just need to be agreed.

EASA and FAA Progress

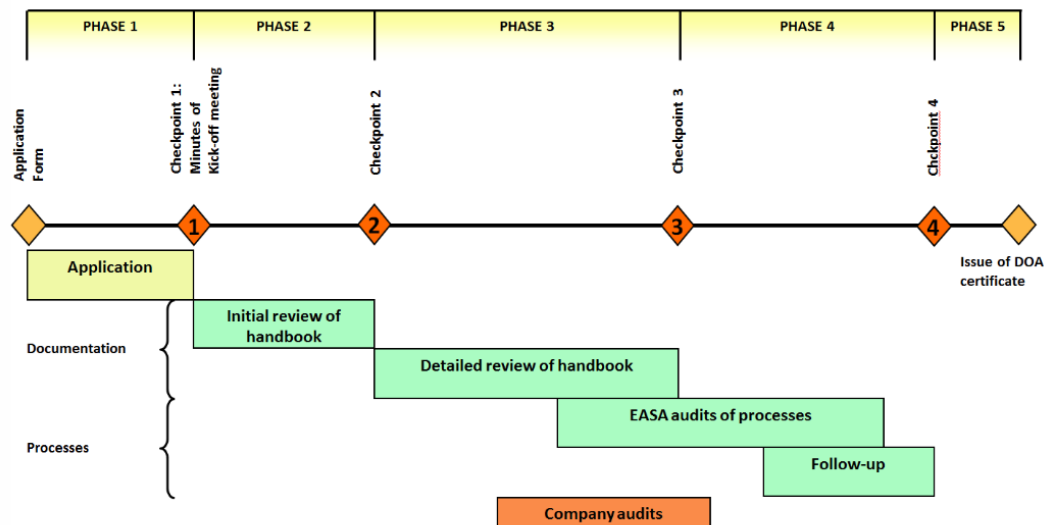


Source: Lilium

Design Organisation Approval (DOA)

The DOA requires the company to have competent personnel, regulated internal procedures, a design organisation handbook and a quality system to verify designs and supplier materials. Effectively, this requirement shows that the company has the required skills and resources to design and certify an aircraft, as required under EASA's indirect oversight system. An aerospace company in Europe can't undertake or approve design activity without DOA certification, nor can they have a type certified aircraft without it. Lilium achieved the DOA in November 2023.

DOA Certification Timeline



Source: EASA

Production Organisation Approval (POA)

Lilium has applied for POA simultaneously in order to allow for the manufacture and production aircraft at scale. The POA allows the company to move from design to the production of the aircraft by ensuring that there is a quality control system which guarantees production facilities adhere to the approved production standards and the aircraft is built according to the approved design. It demonstrates an organisations ability to consistently produce safe and airworthy aircraft.

As with the DOA, this is a multi-year program that is required before the company can get type certification. The steps to proceed are very similar to those in the DOA, with reviews, audits and follow ups. Again, Lilium is progressing with the approval process and is targeting POA certification simultaneously with its overall type certification in 2025.

Entry Into Service (EIS)

Once type certification is achieved and the aircraft enters into service then EASA will implement an indirect oversight process using periodic inspections and document audits to ensure continued compliance.

Air Operator Certificate (AOC)

Lilium will not require an AOC but will likely need to work with their partners who are going to become operators in helping them to achieve this. An AOC is required by the company that is going to own and operate aircraft in commercial services. Given Lilium is expecting to work with established airlines and operators, there is expected to be minimal new regulation as from an operational perspective the Lilium aircraft is expected to be utilised in a similar manner to existing private jets.

Several other eVTOL companies will be required to gain AOCs as an additional step in the certification process where they intend to operate their own aircraft in commercial services.

Other Regulations in the eVTOL Space

There are a number of other areas of development which will require further regulation from the respective aviation authorities, however, these are of a more peripheral importance to Lilium.

A comprehensive infrastructure regulatory framework will have to be designed to address battery charging and vertiports in urban environments etc, however we note that the Lilium battery pack has been designed to require no specialist charging requirements.

Whilst aviation authorities are working on certifying eVTOLs, there are also ongoing workstreams to ensure that the necessary supporting national level regulation is in place to ensure that there is public buy in for eVTOLs.

The other significant area that will require regulatory progress is around piloting, where there is likely to be elements from helicopter and plane pilot licensing taken and merged together given the nature of the eVTOLs, however how this develops in practice is still subject to discussion and will likely progress at a greater pace as eVTOLs get closer to commercial operations.

Listed Peer Certification Status

Company	Ticker	Target Market	Design	Operation	Certification Stage	Certifying Body	Commercial Operation Date
Lilium	LILM US	Regional Travel	Ducted Vector	Piloted	Means of Compliance 78% and DOA received.	EASA/FAA	2026
Joby Aviation	JOBY US	Air Taxi	Multi-rotor	Piloted	Certification plans being reviewed.	FAA	2025
Vertical Aerospace	EVTL US	Air Taxi	Vectored Thrust	Piloted	DOA received.	CAA (UK)/EASA	2027
Eve Holdings	EVEX US	Air Taxi	Lift and Cruise	Piloted	Normal certification process underway with ANAC.	ANAC (Brazil)/ FAA	2026
Archer Aviation	ACHR US	Air Taxi	Vectored Thrust	Piloted	Certification plans being reviewed.	FAA	2025
Ehang	EH US	Air Taxi	Multicopter	Autonomous	Type Certified	CAAC (China)	2023

Source: Longspur Research

FINANCIAL MODEL

Profit and Loss Account

€m, Dec	2021a	2022a	2023e	2024e	2025e	2026e
Turnover						
eVTOL	0	0	0	0	279	1,262
CO2	0	0	0	0	1	6
Other	0	0	0	0	0	0
Other	0	0	0	0	0	0
Total	0	0	0	0	280	1,268
Operating profit						
eVTOL	-289	-279	-292	-313	-371	-227
CO2	0	0	0	0	1	6
Other	0	0	0	0	0	0
Other	0	0	0	0	0	0
Operating profit	-289	-279	-292	-313	-370	-221
P&L Account	2021a	2022a	2023e	2024e	2025e	2026e
Turnover	0	0	0	0	280	1,268
Operating Profit	-289	-279	-292	-313	-370	-221
Investment income	-1	-3	0	0	0	0
Net Interest	-9	28	-1	-1	-6	-22
Pre Tax Profit (UKSIP)	-299	-253	-293	-314	-376	-243
Goodwill amortisation	0	0	0	0	0	0
Exceptional Items	-111	0	0	0	0	0
Pre Tax Profit (FRS3)	-410	-253	-293	-314	-376	-243
Tax	-1	0	0	0	0	0
Post tax exceptionals	0	0	0	0	0	0
Minorities	0	0	0	0	0	0
Net Profit	-411	-253	-293	-314	-376	-243
Dividend	0	0	0	0	0	0
Retained	-411	-253	-293	-314	-376	-243
EBITDA	-284	-273	-273	-285	-305	-80
EPS (c) (UKSIP)	-1.40	-0.90	-0.61	-0.46	-0.22	-0.14
EPS (c) (FRS3)	-1.91	-0.90	-0.61	-0.46	-0.22	-0.14
FCFPS (c)	-1.94	-0.24	-0.53	-0.25	-0.35	-0.32
Dividend (c)	0.00	0.00	0.00	0.00	0.00	0.00

Source: Company data, Longspur Research estimates

KEY POINTS

- Company pre-revenue while it develops until 2025 when we assume first revenue begins
- C. €200m cost outflow rising ahead of launch in 2025

Balance Sheet

€m, Dec	2021a	2022a	2023e	2024e	2025e	2026e
Fixed Asset Cost	42	55	120	181	416	909
Fixed Asset Depreciation	-11	-18	-37	-65	-130	-271
Net Fixed Assets	31	37	83	116	286	638
Goodwill	0	0	0	0	0	0
Other intangibles	1	1	1	1	1	1
Investments	15	39	39	39	39	39
Stock	0	0	0	0	92	417
Trade Debtors	0	0	0	0	46	208
Other Debtors	31	32	32	32	32	32
Trade Creditors	-35	-34	-59	-177	-194	-625
Other Creditors <1yr	-15	-10	-10	-10	-10	-10
Creditors >1yr	-3	-4	-4	-4	-4	-4
Provisions	-3	-1	0	2	4	5
Pension	0	0	0	0	0	0
Capital Employed	22	61	84	0	293	703
Cash etc	353	180	187	138	271	57
Borrowing <1yr	23	29	29	29	29	29
Borrowing >1yr	10	8	8	8	115	484
Net Borrowing	-320	-142	-150	-102	-127	456
Share Capital	40	53	55	55	59	59
Share Premium	779	843	1,102	1,222	1,848	1,848
Retained Earnings	-717	-970	-1,263	-1,577	-1,952	-2,195
Other	240	278	339	401	466	535
Minority interest	0	0	0	0	0	0
Capital Employed	22	61	84	0	293	703
Net Assets	343	204	234	102	420	247
Total Equity	343	204	234	102	420	247

Source: Company data, Longspur Research estimates

KEY POINTS

- Fixed assets grow with capex accelerating from 2024 with assumed network capex
- Cash is adequate but tight in 2024

Cashflow

€m, Dec	2021a	2022a	2023e	2024e	2025e	2026e
Operating profit	-289	-279	-292	-313	-370	-221
Depreciation	6	8	19	28	65	141
Provisions	2	-2	-2	-2	-2	-2
Other	61	23	62	62	64	69
Working capital	4	-8	25	118	-121	-56
Operating cash flow	-215	-257	-188	-106	-364	-69
Tax paid	0	0	0	0	0	0
Capex (less disposals)	-17	-9	-65	-61	-235	-493
Investments	-185	200	0	0	0	0
Net interest	-2	0	-1	-1	-6	-22
Net dividends	0	0	0	0	0	0
Residual cash flow	-419	-67	-253	-168	-604	-583
Equity issued	0	120	261	120	630	0
Change in net borrowing	189	178	-7	48	-26	583
Adjustments	-36	-231	0	0	0	0
Total financing	153	67	253	168	604	583

Source: Company data, Longspur Research estimates

KEY POINTS

- Operating cash outflow and capex dominate ahead of launch
- Capex for network from 2025 assumed in our forecasts but could be external
- Working capital impact with first revenue in 2025

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