

Pricing the Bet Stack: A Segment-Level Monte Carlo and Real-Options Valuation of SpaceX to 2030 and Its Lessons for Indonesian Retail and Student Investors

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Abstract

SpaceX listed on Nasdaq in June 2026 and, after absorbing the AI developer xAI and the coding company Cursor, closed on 2 October 2026 at a market value of about USD 2.16 trillion, more than eighty times its trailing revenue. This paper asks what that price assumes about 2030 and whether buying at it is a sound decision for the retail and student investors in Indonesia who can now reach the stock through fractional and derivative platforms. We build a three-segment discounted cash flow model for Space, Connectivity and AI, anchored on the company's second-quarter 2026 filings and a dated market-data set, with a bottom-up beta derived from industry betas weighted by segment. Fifteen value drivers are given explicit, labelled ranges and sampled in a seeded Monte Carlo simulation of 100,000 paths with a common execution factor. Bear, base and bull scenarios, peer multiples, a reverse valuation and a real-options layer that treats chains of unproven projects as staged, abandonable investments complete the design. The simulated median equity value at the end of 2030 is about USD 0.80 trillion, with an 80% interval of USD 0.25 to 2.14 trillion; only about 10% of paths exceed today's market value by 2030 and about 2.3% exceed the value needed to earn the cost of equity. The current price matches a bull case in which AI compute is sold at contract-like prices, margins approach the best peers and capacity expands roughly sixfold. Staging and abandonment rights add real value to the deepest chain, but even a generous option valuation explains less than a tenth of the gap between price and fundamentals. Concentrated voting control, related-party flows, a thin free float, coming lock-up expiries and currency and leverage risks for Indonesian buyers strengthen the case for treating the shares, in scholarly terms, as a high-variance speculative position rather than a core holding. The analysis is not personal financial advice.

Keywords: equity valuation; discounted cash flow; Monte Carlo simulation; real options; bottom-up beta; space economy; AI infrastructure; dual-class governance; related-party transactions; retail investors; Indonesia

1. Introduction

1.1 A Price in Search of a Justification

On 12 June 2026 Space Exploration Technologies Corp. began trading on the Nasdaq under the ticker SPCX at an offer price of USD 135 per share. The listed company is not only the rocket and satellite operator that the name suggests. Under a merger agreement dated 31 January 2026 and completed in February, SpaceX absorbed X.AI Holdings, the developer of the Grok models and owner of the social network X, as a wholly owned subsidiary, and on 14 August 2026 it completed an all-stock acquisition of Anysphere, the maker of the Cursor coding assistant. The company now reports three segments: Space (launch and human spaceflight), Connectivity (the Starlink

network) and AI (xAI, X and Grok, with Cursor added from the third quarter). By the close of 2 October 2026 the shares stood at USD 158.96. With about 13.57 billion shares outstanding across both classes, that price implies an equity value of about USD 2.16 trillion and an enterprise value of about USD 2.10 trillion, compared with trailing twelve-month revenue of USD 23.0 billion and negative free cash flow of about USD 32.5 billion. The combined group reported a net loss of USD 4.9 billion for 2025 and of USD 0.5 billion for the second quarter of 2026, and it guided capital spending of about USD 18.4 billion a quarter for the second half of 2026, most of it for AI data centres.

A market value of this size has to be justified by cash flows that are mostly years away. That makes it a natural object for a careful valuation exercise, and it also makes the exercise unusually consequential for a group the finance literature rarely addresses directly: retail and student investors in emerging markets. Indonesian investors can now buy fractional SpaceX shares for as little as IDR 5,000 through locally licensed platforms, or take leveraged exposure through derivative contracts offered by brokers supervised by the financial services authority. Research on shareholder value in technology-driven firms reminds us that innovation creates value for owners only when it reaches cash flows that exceed the cost of the capital it consumes [1], and research on capital inflows in Indonesia shows how foreign capital can carry hidden risks for the firms and investors who receive it [2]. The question in this paper is therefore both technical and practical. What does the current price assume about the company's position in 2030, how likely are those assumptions, and what does a careful answer imply for people deciding whether to invest now?

1.2 From Links to Numbers

An earlier case study in this series examined a long-form video explainer, “The Musconomy Explained: How Elon Musk’s Empire Really Works” by Leo Cui, published on 2 October 2026 (<https://www.youtube.com/watch?v=Kh0JKfyx7bU>), and proposed a Proven-Link versus Bet-on-Bet framework for the group of companies around Elon Musk (N. Leonie, N. Lachlan, R. F. Terizla and A. Lansonja, “Links That Work, Bets That Stack,” CreatiCampus Working Paper Series, vol. 1, no. 1, 2026, available at <https://creaticampus.esquime.com/papers/musconomy-interlinked-venture-ecosystem-indonesian-creative-campuses/>). That study coded each link between ventures by its maturity, from operating links (Level 3) through contracted (Level 2) and planned (Level 1) to speculative links (Level 0), and classified chains by their depth of unproven dependencies as proven synergies, contracted extensions, bridge bets or bet-on-bet chains. Its central conclusion was qualitative: links between working capabilities add strength, while chains of unfinished projects that depend on each other add risk as well as possibility. It did not attempt to put a value on any company.

This paper takes the next step and asks what the framework is worth in money. The video itself describes the newly combined SpaceX as the group’s largest bet, notes its June listing at a valuation of roughly two trillion dollars and observes that it became worth more than Tesla (2:36 to 2:48 in the video; figures from the video are reported as video claims). We value the listed company directly, using its filed segment data, and treat Tesla as a related comparable and counterparty rather than as a second subject. The quantitative tools we use are standard: a segment-level discounted cash flow model, peer multiples, scenario analysis and Monte Carlo simulation. What we add is a mapping between the qualitative link levels and the model’s treatment of each source of value. Operating links enter the cash flow forecast directly. Contracted links enter with a haircut that reflects termination rights. Planned and speculative links enter as probability-weighted options with explicit stage costs and abandonment rights. This mapping lets us ask how much of today’s price rests on each kind of link, which is the question the earlier study left open.

The exercise also fits a growing body of work that applies predictive and machine-learning methods to startup ecosystems and investment decisions, in which the aim is not a single forecast

but a disciplined account of uncertainty that decision makers can inspect [3]. For investors in Indonesia, the same discipline matters because fintech has modernised access to capital markets faster than it has changed how retail investors judge risk [4], and because gamified trading interfaces can encourage frequent, attention-driven trading in exactly the kind of high-profile stock studied here [5].

1.3 Urgency of the Study

Four developments make this analysis urgent now rather than later. First, the price is new and extreme. SpaceX listed on the Nasdaq in June 2026 and, at the close of 2 October 2026, its market capitalisation of about USD 2.16 trillion and enterprise value of USD 2.10 trillion stood at about 91 times trailing revenue, against medians of 5.5 times for satellite and launch peers and 15.6 times for listed AI peers. A valuation that rests so heavily on the future deserves scrutiny while the market is still forming its view of the company.

Second, the buyers are new. Indonesian retail and student investors can now reach the stock through fractional shares offered from IDR 5,000 and through derivative contracts with leverage of up to four times, at a time when the country's capital-market investor base has passed 31.9 million investor identification numbers. Fintech has modernised access to capital markets faster than it has changed how retail investors judge risk [4], and gamified trading interfaces encourage frequent, attention-driven trading in exactly the kind of high-profile stock studied here [5].

Third, the supply of tradable shares is about to change and new evidence is about to arrive. Only about 5% of shares were floated at the listing; early releases from the 180-day lock-up of pre-listing holders began in August 2026, a larger release follows the third-quarter results, all remaining 180-day restrictions lapse on 8 December 2026 and the founder's lock-up of 366 days ends in June 2027. Third-quarter results, for which no date had been announced when this paper was finalised, will cover the first quarter that includes the reduced-fee ramp of the compute agreement with Google and so will give the first reported evidence on the driver that dominates our sensitivity analysis, the price at which AI compute is sold.

Fourth, investors facing these decisions have no open benchmark. To our knowledge, no openly documented, reproducible valuation of the combined company links its filed segment data to labelled assumptions and a probability distribution of outcomes. Sell-side targets and independent fair-value estimates are published as single numbers without their models. A transparent valuation, released before the lock-up expiries and the third-quarter report, gives students, teachers and retail investors a basis for testing their own expectations as the evidence changes.

1.4 Research Questions

The paper addresses four research questions.

- RQ1.** What range of equity values for SpaceX at the end of 2030 is consistent with its filed segment economics, and with what probabilities?
- RQ2.** Which value drivers matter most, and what combination of them does the market price of 2 October 2026 require?
- RQ3.** How much value do the group's bet-on-bet chains, such as fully reusable launch, a captive chip factory and orbital computing, add when valued as staged options with abandonment rights rather than as committed programmes?
- RQ4.** Taking governance, related-party, liquidity and access risks into account, what does the evidence imply, in scholarly terms, about the wisdom of investing at today's price, particularly for Indonesian retail and student investors?

Because the fourth question concerns investment decisions, we state at the outset that the analysis is scholarly and general; it is not personal financial advice, and the full disclaimer appears

in the Declarations. Throughout, we follow three rules. Every number drawn from a filing, data provider or news report is identified in the text and listed with its access date in the data file that accompanies the paper. Every modelling assumption is labelled as an assumption and given a rationale. Every figure that had been flagged as uncertain was checked against filings, official statistics or reputable published sources before publication; figures that could not be confirmed, such as press speculation about the terms of funding rounds and listings of private AI companies, are not used.

1.5 Novelty of the Study

The study makes four contributions that, to our knowledge, have not been made before. Section 2.6 sets out the gaps in the literature to which they respond.

- N1.** It provides the first openly documented and reproducible valuation of the combined SpaceX, including its AI subsidiary and Cursor, built from filed segment data, with every sourced input dated, every assumption labelled and the code, random seed and outputs published.
- N2.** It maps the link levels and chain classes of the qualitative framework in the earlier case study of the group described in Section 1.2 onto explicit valuation treatments, so that operating links enter the cash flow forecast, contracted links enter as pricing evidence with termination risk, and planned and speculative links enter as probability-weighted events, which shows how much of the price rests on each kind of link.
- N3.** It values bet-on-bet chains as real options with staging and abandonment, comparing committed and staged programmes with a Black–Scholes cross-check and embedding an abandonment rule in every simulated path, so that chain depth is translated into probability decay and option value.
- N4.** It assesses the wisdom of investing at today’s price through the lens of Indonesian retail and student investors, combining the valuation with governance, related-party, liquidity, currency and product-structure risks, as scholarly analysis rather than personal advice.

1.6 Structure of the Paper

The rest of the paper is organised as follows. Section 2, Literature Review, discusses the valuation of young, high-growth firms, simulation and forecasting under uncertainty, real options and staged commitment, governance and related parties, and research on Indonesian retail investors, and closes with the research gap. Section 3, Method, describes the data, the segment cash flow model, the discount rate, the driver distributions and scenarios, the Monte Carlo design, the market cross-checks, the real-options layer and the criteria for assessing investment wisdom. Section 4, Results, reports base-year economics, scenario values, the simulated 2030 range, sensitivity, market benchmarks, the real-options values and the comparison with Tesla. Section 5, Discussion, interprets what the price assumes, the chains as options, governance and liquidity risks, the implications for Indonesian retail and student investors and the lessons for creative campuses. Section 6, Conclusion, answers the research questions and sets out the limitations and directions for future research, followed by the Declarations and the References.

2. Literature Review

2.1 Valuing Young, High-Growth Firms

The discounted cash flow model remains the reference method for valuing a business, because it forces the analyst to state how revenue, margins, reinvestment and risk combine to produce cash for owners. Its weakness for young, fast-growing firms is well known: most of the value lies in a terminal period that depends on assumptions about long-run margins and reinvestment, and small

changes in those assumptions move the result a great deal. The capital asset pricing model, which supplies the cost of equity in most applications, has been tested on the Indonesian market with mixed but useful results, showing that systematic risk measured by beta explains part, though not all, of the variation in returns [6]. Studies of listed Indonesian firms find that profitability, solvency and dividend policy are associated with share prices [7], that macroeconomic factors and trading volume also play a role [8], and that sector shocks can move valuations quickly and away from financial fundamentals, as energy shares did during the pandemic [9]. These findings support a fundamentals-first approach while warning that prices can depart from fundamentals for long periods.

For firms that are still building their asset base, financial management and capital allocation matter as much as revenue growth. Work on startups shows that disciplined financial management, including control of cash burn and investment pacing, is one of the clearest predictors of whether growth turns into profit [10]. Research on platform businesses adds that investment management, technology and governance together determine whether a platform's network effects become durable economic performance [11]. Studies of shareholder welfare in financing-intensive businesses show that the quality of the assets financed, not the volume of financing, drives what owners eventually receive [12]. For SpaceX, which spent more than USD 28 billion on capital projects in the first half of 2026, these insights point to the return on new capital, rather than the growth rate alone, as the central valuation question.

Relative valuation through multiples is the usual complement to discounted cash flows. Multiples are quick and anchored in market prices, but they import the expectations and the economics of the peer group. For a company that combines a launch provider, a satellite telecommunications network and an AI developer, no single peer group fits, so analysts typically apply a sum-of-the-parts approach that values each segment against its own peers. We use both approaches and treat their divergence as information rather than as an error to be averaged away.

2.2 Uncertainty, Simulation and Forecasting

Point estimates hide the uncertainty that matters most to investors. Monte Carlo simulation replaces single values for each driver with probability distributions and reports the resulting distribution of value, which allows statements of the kind “the probability that the firm is worth more than X by 2030 is p”. Forecasting research shows that AI-based models can improve the analysis of market trends when they are combined with judgment and transparent assumptions [13], and that machine-learning techniques for business forecasting are most useful when their outputs are presented as ranges with clear drivers [14]. Simulation-based evaluation of portfolio-optimisation algorithms for robo-advisory systems illustrates the same principle in an investment setting: decisions improve when the full distribution of outcomes, not just the mean, is examined [15].

The integration of artificial intelligence into the financial sector brings opportunities for better analysis and also new risks, including model opacity and herding when many users rely on similar tools [16]. Big data and fintech can scale financial services, but scale without transparency can spread errors quickly [17]. Predictive analyses of startup ecosystems that combine technology-acceptance models with random-forest techniques show how structured uncertainty modelling can inform investment in young ventures [18]. We take from this literature a commitment to publish the code, the random seed and the full set of distributions, so that readers can reproduce, inspect and challenge the results.

A specific methodological point concerns correlation. If the value drivers of a firm are sampled independently, extreme outcomes in which many drivers are favourable at once become very rare, and the simulated distribution is too narrow. For an AI infrastructure business, the drivers are plainly related: strong demand for compute tends to raise prices, utilisation and the pace of expansion together. We therefore use a one-factor Gaussian copula that links the drivers through a common execution and demand factor, and we report the independent case as a sensitivity.

2.3 Real Options and Staged Commitment

Real-options analysis treats the right, but not the obligation, to invest, expand, defer or abandon a project as a source of value that a static discounted cash flow model misses. The insight is most relevant where uncertainty is high and investments can be staged, because the ability to stop after bad news cuts off the left tail of outcomes. AI-driven predictive risk management in green technology investment provides a recent example of how staged, data-informed commitment can improve outcomes in capital-intensive, uncertain projects [19]. Work on risk-management maturity in state-owned holding companies shows that the capacity to recognise and act on bad news, which is what makes abandonment options valuable, depends on governance structures and risk culture [20], and a structural model of risk governance and maturity links that capacity to measurable organisational practices [21].

Applying real options to technology ventures raises two practical problems. The first is that the underlying asset, such as an orbital data-centre business, is not traded, so its volatility must be inferred. The second is that managers may not exercise options optimally, especially when a controlling founder is publicly committed to a vision. Research on the effects of artificial intelligence on startup performance shows that transformational initiatives often deliver value unevenly and with delays [22], and work on cloud computing and AI for digital transformation notes the heavy, recurring infrastructure costs these initiatives entail [23]. We address the first problem by using several valuation approaches side by side, including a Black–Scholes cross-check with volatility taken from the stock’s realised volatility, and the second by comparing staged and committed versions of the same programme.

2.4 Governance, Control and Related Parties

Governance determines whether value created by a firm reaches its outside shareholders. Studies of corporate governance and strategic leadership link governance quality to economic growth and market stability [24], and research on audit quality and governance shows that weak oversight is associated with earnings management [25]. Evidence on family and institutional shareholders indicates that collusion between controlling owners and other insiders can erode the interests of minority investors, and that stronger governance and disclosure can counter this [26]. These findings are directly relevant to a company in which one founder holds a minority of the economic interest but a large majority of the votes.

Governance in AI-intensive businesses raises further questions about accountability for automated decisions and the use of data. A lifecycle-based approach to the legal governance of algorithmic decision making on digital platforms argues that accountability must be designed into every stage, from data collection to deployment and review [27]. Frameworks for sustainable AI in digital business stress board oversight of AI strategy and risk [28], regulatory-technology applications show how AI can support compliance [29], and studies of data governance and digital rights in AI-driven ecosystems highlight the regulatory exposure of firms whose products depend on user data [30]. For SpaceX, whose AI segment includes a social network and consumer chatbot, these regulatory risks are part of the valuation, not a separate topic.

2.5 Retail Investors, Financial Literacy and Access in Indonesia

Indonesia’s investor base has grown rapidly. The number of capital-market investor identification numbers reached about 31.9 million by the end of September 2026, according to the Indonesia Stock Exchange. Research on Indonesian investors finds that competitiveness, information technology, risk perception and financial literacy shape the intention to invest in speculative assets such as cryptocurrency [31], and that financial literacy and risk preferences influence choices among such assets [32]. Studies of Indonesian migrant workers show that financial literacy improves investment behaviour even among investors far from domestic markets [33], while analysis of mutual fund apps shows how interface design and perceived usefulness drive continued use [34].

Speculative assets have a particular pull for young investors. The economic impact of cryptocurrencies in Indonesia illustrates how a narrative-driven asset class can attract large retail flows with limited understanding of underlying value [35]. Machine-learning studies of default in peer-to-peer lending show how leverage and platform design can transform modest risks into large losses [36], and work on digital lending platforms and microfinance documents both the inclusion benefits and the risks of easy credit for financial well-being [37]. Research on digital financial management for global market expansion highlights the currency and information challenges that arise when local actors engage with foreign markets [38], and a digital-resilience framework for small enterprises facing global market volatility offers transferable lessons on buffers and diversification [39]. Much of the Indonesian evidence on speculative investing concerns cryptocurrency rather than foreign equities, so its application to a foreign listing is by analogy; we use it for what it shows about literacy, risk perception and platform design rather than about any particular asset.

2.6 Research Gap

Three gaps motivate this study. First, there is no openly documented, reproducible valuation of the combined SpaceX that links its filed segment data to explicit, labelled assumptions and a probability distribution of outcomes. Second, the qualitative framework of proven links and bet-on-bet chains developed in the earlier case study has not been connected to quantitative real-options analysis. Third, the literature on Indonesian retail investors addresses literacy, intentions and platforms, but not the valuation and governance questions raised when those investors gain access to a foreign mega-capitalisation listing through fractional and derivative products. This paper addresses all three. The first gap is answered by novelty statement N1, the second by N2 and N3, and the third by N4 (Section 1.5).

3. Method

3.1 Subject, Scope and Data

The valuation subject is the listed company Space Exploration Technologies Corp. (Nasdaq: SPCX), consolidated with its wholly owned AI subsidiary and with Cursor from 14 August 2026. The valuation date is the market close of 2 October 2026, and the horizon is the end of 2030, with explicit forecasts to 2040 and a terminal value thereafter. Financial anchors come from the company’s second-quarter 2026 earnings release and quarterly report, its registration statement on Form S-1 and final prospectus, its current report on the Cursor acquisition and the free-writing prospectus that describes its compute agreement with Google. Market data come from S&P Global Market Intelligence data published by Stock Analysis, from Yahoo Finance and from the US Treasury. Discount-rate inputs come from Aswath Damodaran’s public data sets. Indonesian context comes from Bank Indonesia, the Indonesia Stock Exchange and the published terms of two retail platforms. Table 1 lists the main anchors. The full set, with 248 dated and sourced rows including twelve marked as not available with a reason, is provided in the data file that accompanies the paper.

Table 1. Main sourced anchors (values as filed or published; the full dated source list accompanies the paper)

Item	Value	Date	Source
Share price (close)	USD 158.96	2 Oct 2026	Stock Analysis (S&P Global data); Nasdaq close
Shares outstanding (all classes)	13.57 billion	14 Aug 2026	Quarterly report cover plus Cursor issuance
Market capitalisation / enterprise value	USD 2.16 / 2.10 trillion	2 Oct 2026	Stock Analysis

Item	Value	Date	Source
Revenue Q2 2026 (Space / Connectivity / AI)	USD 0.96 / 4.29 / 2.56 billion	30 Jun 2026	Q2 2026 earnings release
Adjusted EBITDA / capital expenditure Q2 2026	USD 3.54 / 18.37 billion	30 Jun 2026	Q2 2026 earnings release
Cash and securities / debt and leases	USD 100.0 / 39.4 billion	30 Jun 2026	Q2 2026 balance sheet
Starlink subscribers / ARPU	12.0 million / USD 66 a month	30 Jun 2026	Q2 2026 earnings release
AI nameplate compute	1.4 GW (more than 2 GW expected end-2026)	30 Jun 2026	Earnings release and call
Google compute agreement	USD 920 million a month; terminable on 90 days' notice	Jun 2026	Free-writing prospectus
Anthropic compute agreement	USD 1.25 billion a month to May 2029; terminable on 90 days' notice	May 2026	Final prospectus
Ten-year Treasury par yield	5.28%	2 Oct 2026	US Treasury
Implied equity risk premium	4.20% (computed at a 5.29% T-bond rate)	1 Oct 2026	Damodaran data set
Analyst consensus target / Morningstar fair value	USD 226 / USD 780 billion	Sep 2026 / Jun 2026	Stock Analysis; CNBC
USD/IDR / BI-Rate	IDR 17898 / 5.75%	Oct / Sep 2026	Bank Indonesia

Two features of the data shape the analysis. First, the balance sheet is dated 30 June 2026. The company held USD 100.0 billion of cash and marketable securities against USD 39.4 billion of debt and finance leases, of which USD 13.3 billion is owed to related parties, giving net cash of about USD 60.6 billion. With third-quarter capital spending guided at roughly the second-quarter level of USD 18.4 billion, net cash has probably fallen materially since then. The company had not announced the date of its third-quarter results when this paper was finalised; Tesla reports on 21 October 2026. Second, several widely quoted figures needed checking against primary documents. The compute agreement with Anthropic is confirmed in the final prospectus: Anthropic pays USD 1.25 billion a month through May 2029 for about 325,000 GPUs, at a reduced fee during the ramp in May and June 2026, and either party may terminate on 90 days' notice after an initial three months. The Google agreement, under which Google pays USD 920 million a month for about 110,000 GPUs from October 2026 to June 2029, is confirmed in a filed free-writing prospectus and is also terminable on 90 days' notice. Because both agreements can be ended at short notice, we treat them as evidence about pricing rather than as locked-in backlog. The valuations of USD 1 trillion for SpaceX and USD 250 billion for xAI attached to the merger were reported by CNBC from deal documents; they do not appear in the company's filings, describe a private exchange of shares and are not used. Press reports about funding rounds and listings of private AI companies that had not taken place could not be confirmed and are not used.

The stock-market data set used here was compiled for this study by Clover, an automated stock-market research assistant. Before publication, every row used in the text, tables, figures or model inputs that had been flagged as uncertain, or that rested on a press report, an encyclopaedia entry or another weak source, was checked against filings, official statistics or reputable published sources; where a filing was available, the filing replaced the secondary source. Where sources differed, as for the ten-year Treasury yield (5.24% on 1 October in one source and 5.28% on 2 October in the Treasury's official par curve), we use the value dated closest to the valuation date and record the alternative.

3.2 Segment Cash Flow Model

The model forecasts each segment separately from 2026 to 2040. For 2026 we combine reported first-half results with a second half run at the second-quarter rate; this is an assumption, made because no numeric revenue guidance exists.

Connectivity revenue is the product of average subscribers and average revenue per user (ARPU), plus enterprise and government revenue. The company reported 12.0 million subscribers at 30 June 2026, up 1.7 million in the quarter, and an ARPU of USD 66 a month, down from USD 85 a year earlier as growth shifted to lower-priced markets. Subscribers, ARPU and enterprise revenue move from their 2026 levels to sampled 2030 values along smooth paths. The segment earned an operating margin of 38.6% in the second quarter.

Space revenue, USD 3.5 billion for 2026 on our base-year assumption, moves to a sampled 2030 level. Its operating margin was negative in the second quarter because development of the Starship vehicle is expensed.

AI revenue is the product of installed compute capacity, measured in gigawatts (GW) of nameplate power, and revenue per GW-year. The company had 1.4 GW installed at 30 June 2026, up from 1.0 GW three months earlier, and expects more than 2 GW by the end of the year. Second-quarter AI revenue of USD 2.56 billion implies about USD 8.5 billion per GW-year during a ramp in which most capacity trained the company's own models. The two filed compute agreements bracket contracted pricing. The Google agreement implies about USD 40 to 50 billion per GW-year if the 110,000 GPUs draw about 0.25 GW, an assumption about power draw that we use only for this comparison; on the same assumption, the Anthropic agreement, which pays less than half as much per GPU, implies about USD 20 billion per GW-year. The 2030 value of this driver is therefore the single most uncertain input in the model. AI segment adjusted EBITDA was 44.7% of revenue in the second quarter, before share-based compensation of 20.1% of revenue, which we treat as a real cost that declines to 8% of revenue by 2030. Each GW of new capacity costs a sampled amount of capital (the second-quarter figure, including work in progress, was about USD 39.6 billion per GW of capacity added), and each cohort of hardware must be replaced at the end of its sampled useful life.

Free cash flow to the firm is after-tax operating profit plus depreciation, minus capital expenditure and working capital, with tax at the US federal rate of 21% after use of about USD 40 billion of accumulated losses. Two committed outflows are modelled explicitly: the remaining USD 8.5 billion cash payment and interest for spectrum bought from EchoStar, with the matching USD 8.5 billion of stock treated as dilution, and a 50% share of the USD 16.8 billion first phase of the Terafab chip plant to be built with Tesla in 2027 and 2028. After 2030, growth in each segment fades linearly from half its 2026–2030 rate, capped at 20%, to the terminal rate by 2040. The terminal value uses a value-driver formula in which reinvestment equals growth divided by a return on new invested capital of 15%, and the AI segment's terminal value is floored at zero, reflecting the option to close or sell a loss-making business. Equity value at each year-end is the present value of later cash flows plus net cash, divided by a share count that grows with dilution.

3.3 Discount Rate

The company has traded for less than four months, so no data vendor publishes a beta, and a regression on so short a window is unreliable. Two regressions of daily returns against the S&P 500 give betas of 3.20 for the full period since listing and 2.78 when the first two weeks are excluded, with correlations of only about 0.43. Following standard practice for young firms, we instead build a bottom-up beta from Damodaran's January 2026 unlevered industry betas, corrected for cash: 0.87 for aerospace and defence, 0.38 for telecommunication services and 1.59 for internet software. Weighting these by second-quarter revenue gives an unlevered beta of 0.84; weighting them by first-half capital spending, which better reflects where the company's risk is being created, gives 1.42. Relevered at the market debt-to-equity ratio of 1.8% and a 21% tax rate, the equity betas

are 0.85 and 1.44, and we sample beta from a triangular distribution between them with a mode at the midpoint of 1.14 (Table 2).

Table 2. Bottom-up beta and discount rate

Component	Value	Basis
Unlevered beta: aerospace and defence (Space)	0.87	Damodaran US industry data, Jan 2026; corrected for cash
Unlevered beta: telecommunication services (Connectivity)	0.38	Same source
Unlevered beta: internet software (AI)	1.59	Same source
Weights by Q2 2026 revenue (Space / Connectivity / AI)	12% / 55% / 33%	Filed segment revenue
Weights by H1 2026 capex (Space / Connectivity / AI)	8% / 9% / 83%	Filed segment capex
Relevered equity beta (revenue / capex weights / mode)	0.85 / 1.44 / 1.14	Debt-to-equity 1.8%; tax 21%
Regression betas (sensitivity only)	3.20 / 2.78	Daily returns since listing / excluding first two weeks; correlation about 0.43
Risk-free rate / equity risk premium	5.28% / 4.20%	Treasury, 2 Oct 2026; Damodaran, 1 Oct 2026
Cost of equity / pre-tax cost of debt / WACC (base)	10.1% / 6.68% / 10.0%	Computed

The risk-free rate is the ten-year Treasury par yield of 5.28% on 2 October 2026. The equity risk premium is Damodaran’s implied premium of 4.20% for 1 October 2026, computed with a Treasury bond rate of 5.29%, so that the premium and the risk-free rate refer to almost the same market conditions. The base cost of equity is 10.1%. The pre-tax cost of debt of 6.68% is the Treasury yield plus the 140-basis-point spread at which the company’s ten-year notes were issued in June 2026, consistent with its ratings of Baa1, BBB and BBB+. With debt only 1.8% of capital at market values, the weighted average cost of capital in the base case is 10.0%. The regression betas are used only in a sensitivity test, consistent with evidence that short-window betas on emerging or newly listed stocks are unstable [6].

3.4 Drivers, Distributions and Scenarios

Fifteen drivers carry the uncertainty in the model (Table 3). Each is given a triangular distribution with a low, a most likely and a high value, all of which are assumptions; the rationale for each, and the evidence it draws on, is recorded in the assumption file that accompanies the paper. The ranges are deliberately wide where evidence is thin. For example, AI revenue per GW-year ranges from USD 10 billion, close to the current blended rate, to USD 40 billion, close to the pricing implied by the Google agreement, with a most likely value of USD 20 billion that assumes about half of 2030 capacity is sold at contract-like prices that decline with each GPU generation. Triangular distributions are bounded, which keeps every draw within a range that can be defended from evidence but rules out values beyond the stated limits. We chose them for transparency, because each is fully described by three numbers that readers can challenge, and we set the bounds wide; the implication for the tails is discussed in Section 6.1.

Table 3. Uncertain drivers (triangular distributions; all values are assumptions)

Driver	Low	Most likely	High	Main rationale
Starlink subscribers 2030 (million)	25	40	70	12.0 million mid-2026; 1.7 million added in Q2
ARPU 2030 (USD a month)	45	57	68	USD 66 in 2026 and falling with market mix
Enterprise and government revenue 2030 (USD bn)	12	24	45	USD 2.9 billion in H1 2026; spectrum-enabled services
Space revenue 2030 (USD bn)	5	8	16	About USD 3.5 billion in 2026
AI capacity end-2030 (GW)	4	8	15	1.4 GW mid-2026; capped at 3 GW if unit economics are negative
AI revenue per GW-year 2030 (USD bn)	10	20	40	8.5 in Q2 2026; filed contracts imply about 20 (Anthropic) to 40-50 (Google)
AI adjusted EBITDA margin 2030	40%	55%	65%	44.7% in Q2 2026; peer range
AI capital cost per GW (USD bn)	32	40	50	39.6 implied in Q2 2026
AI hardware life (years)	4.5	6	7	Depreciation policies of large cloud providers
Connectivity EBIT margin 2030	33%	45%	55%	38.6% in Q2 2026
Space EBIT margin 2030	-15%	5%	20%	Negative in 2026 because of Starship development
Non-AI capex to revenue 2030	16%	22%	30%	About 51% in 2026 on our base year
Equity beta	0.85	1.14	1.44	Bottom-up (Table 2)
Terminal growth	2.0%	3.0%	4.0%	Below the risk-free rate
Annual net dilution	0.25%	0.75%	1.5%	Share-based pay; EchoStar stock modelled separately

Three deterministic scenarios use internally consistent sets of driver values. The bear case assumes slower subscriber growth, low AI pricing and margins, and an end to AI expansion at about 3 GW. The base case uses the most likely value of every driver. The bull case assumes that AI compute is sold at close to contract prices across most capacity, that margins approach the best peers, that capacity reaches 13 GW by 2030 and that Starlink reaches 60 million subscribers. In all three scenarios the chain events described below enter at their expected effect.

3.5 Monte Carlo Design

The simulation draws 100,000 paths with the fixed seed 20261004, so every result can be reproduced exactly, in line with the practice of publishing simulation designs alongside their outputs [14, 15]. With 100,000 paths, the standard error of a simulated probability near 10% is about 0.1 percentage points, and a second run with a different seed (12345) changes the median 2030 value by less than 1% and the probability of reaching today's market value by less than 0.1 percentage points. Drivers are linked by a one-factor Gaussian copula with a loading of 0.35 on a common factor representing execution and AI demand, signed so that a favourable factor raises every value-increasing driver and lowers every value-reducing one. A loading of 0.35 implies a correlation of 0.35 between any two drivers in normal-score terms. We chose this moderate value because the drivers share exposure to AI demand and execution but also have separate causes, such as spectrum, regulation and launch cadence; it is an assumption, and Section 4.3 reports a higher loading. Uniform draws from the copula are mapped to each driver through the inverse of its triangular distribution. The independent case, with a loading of zero, is reported as a sensitivity.

Three chain events are drawn as Bernoulli variables on each path. Full reuse of the Starship vehicle by 2028, a bridge bet in the earlier study's terms, occurs with probability 0.6 and raises Space revenue by 25% and lowers the capital intensity of the non-AI segments by four percentage

points. Volume output from the Terafab chip plant by 2029, a bet-on-bet chain, occurs with probability 0.3 and lowers AI capital cost per GW by 12%. Orbital computing at commercial scale by 2031, the deepest chain, requires reuse and two further technical and commercial gates, giving a joint probability of about 0.07 to 0.08, in line with the 7% that Morningstar assigned to full reuse combined with orbital data centres. On success, it adds between 3 and 30 GW of capacity worth USD 20 to 60 billion per GW, discounted from 2031. These probabilities are judgments, labelled as assumptions.

Finally, each path embeds a simple managerial option. If, at 2030 values, a GW of AI capacity would lose money after depreciation, expansion stops at about 3 GW, the capacity covered by existing contracts. This rule represents the deferral and abandonment rights that a rational management would exercise and ensures that equity value cannot fall below zero.

3.6 Multiples, Market-Implied Expectations and Cross-Checks

The cash flow results are compared with three independent benchmarks. The first is a sum-of-the-parts valuation that applies peer multiples to second-quarter run-rate figures: T-Mobile US and the median of satellite and launch peers for Connectivity, CoreWeave, NVIDIA and Alphabet for AI, and Rocket Lab and the satellite median for Space. The second is an exit-multiple valuation of base-case 2030 EBITDA at multiples drawn from the same peers. The third is a reverse valuation that searches for the scale of operating volumes needed for the model's present value to equal the market capitalisation, first under base-case unit economics and then under bull-case unit economics. Sell-side and independent research provide further context: 37 analysts had a consensus target of USD 226 at the end of September 2026, with a range of USD 140 to 450, and Morningstar estimated fair value at USD 780 billion at the time of the listing.

3.7 Real-Options Layer

The real-options analysis uses the link levels and chain classes of the earlier case study. Figure 1 maps the listed company's units and counterparties, with link styles showing maturity and node styles showing whether a unit already earns revenue, is a bridge bet or is a bet-on-bet. We value the deepest chain, orbital computing, in three ways: as a committed programme in which all stages are funded regardless of interim results; as a staged programme in which each stage is funded only after the previous gate is passed; and as a European call option priced with the Black-Scholes formula, using the stock's realised volatility of 72.2% over 49 daily returns as a deliberately generous proxy for the volatility of the underlying project. Stage costs of USD 5, 20 and 150 billion at years zero, two and four, and a gross value on success of about USD 1.15 trillion at year five, are illustrative assumptions chosen to be consistent with the model's capacity and value ranges. The design follows work showing that staged, data-informed commitment improves outcomes in uncertain, capital-intensive investments [19].

3.8 Assessing Investment Wisdom

The question of whether investing now is wise is treated as a question of evidence, not of personal suitability. We assess it on four criteria: the expected return implied by the simulation relative to the cost of equity; the probability of earning at least the cost of equity by 2030; the governance, related-party and liquidity risks that the cash flow model cannot fully capture; and the additional risks faced by Indonesian retail and student investors because of currency, product structure and leverage. The criteria draw on research linking risk perception, literacy and platform design to retail investment behaviour [5,31]. The assessment does not consider any individual's circumstances and is not financial advice.

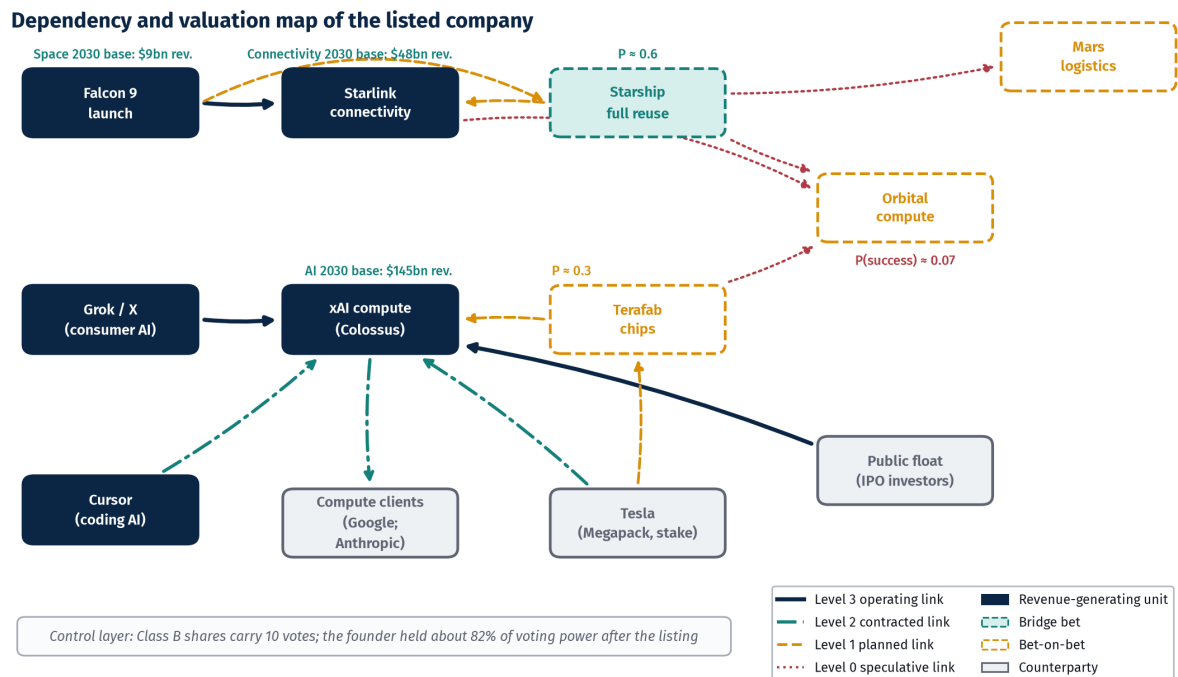


Figure 1. Dependency and valuation map of the listed company. Solid lines are operating links (Level 3), dash-dot lines contracted links (Level 2), dashed lines planned links (Level 1) and dotted lines speculative links (Level 0). Labels show base-case 2030 segment revenue from the model and the probabilities used for the chain events.

4. Results

4.1 Base-Year Economics

The second quarter of 2026 shows a company with one profitable engine and two heavy investment programmes. Revenue was USD 7.81 billion, of which Connectivity contributed USD 4.29 billion, AI USD 2.56 billion and Space USD 0.96 billion. Connectivity earned an operating profit of USD 1.66 billion, while Space and AI lost USD 0.54 billion and USD 1.26 billion. Adjusted EBITDA was USD 3.54 billion, but capital expenditure was USD 18.37 billion, of which USD 15.83 billion, or 86%, went to AI; the video's statement that about 86% of second-quarter capital spending went to AI (32:23) matches the filing. Operating cash flow for the half year was USD 3.47 billion. On our base-year assumption, 2026 revenue is about USD 28.1 billion, against a consensus of USD 44.7 billion; the gap reflects analysts' inclusion of the compute agreements that begin in the fourth quarter, which our base year excludes because no reported quarter yet includes them. If revenue in 2026 and 2027 instead followed the consensus, the additional revenue of about USD 66 billion over the two years, at a margin of 45% after share-based pay and taxed at 21%, would add roughly USD 23 billion of cash flow, or about 1% of the market capitalisation. By our calculation this would not change the conclusions, because value depends mainly on the economics of 2030 and beyond.

4.2 Scenario Values

Table 4 reports the three scenarios. In the base case, revenue reaches USD 203 billion in 2030, of which AI contributes USD 145 billion, and EBITDA reaches USD 99 billion. Because capacity is still expanding and earlier hardware must be replaced, capital spending stays between USD 69 and 77 billion a year from 2027 to 2030, and cumulative free cash flow over those four years is negative at about USD 87 billion. The company therefore moves from net cash to net debt of

about USD 55 billion by 2030. In the model, cash shortfalls reduce net cash, and the resulting net debt is deducted from enterprise value at each date; no new equity is assumed beyond the dilution assumption and the EchoStar shares, so any additional share issue would dilute existing holders further. Equity value at the end of 2030 is USD 627 billion, or about USD 45 per share, and the present value at the valuation date is USD 409 billion, or about USD 30 per share. Of the base-case value at the end of 2030, about USD 323 billion comes from cash flows in 2031 to 2040 and USD 339 billion from the terminal value; the implied multiple of enterprise value to 2030 EBITDA is a modest 6.9 times, because heavy reinvestment absorbs much of the EBITDA.

Table 4. Scenario results (chain events at expected effect; USD) Per-share values use 13.57 billion shares today and the share count at each later date including modelled dilution.

Measure	Bear	Base	Bull
Revenue 2030 (bn)	70	203	488
AI revenue 2030 (bn)	35	145	395
EBITDA 2030 (bn)	28	99	270
Operating profit 2030 (bn)	1	44	200
Cumulative free cash flow 2027-2030 (bn)	-26	-87	+39
Net cash (debt) end-2030 (bn)	6	(55)	71
WACC	11.2%	10.0%	8.8%
Equity value today (bn)	61	409	3016
Value per share today	4.5	30.2	222.2
Equity value end-2030 (bn)	88	627	4326
Value per share end-2030	6.1	44.6	312.2
Annualised return from USD 158.96 to 2030	-54%	-26%	+17%

The bull case is of a different order. Revenue reaches USD 488 billion and operating profit USD 200 billion in 2030, cumulative free cash flow from 2027 to 2030 turns positive, and equity value is USD 4.33 trillion at the end of 2030, or about USD 312 per share. Its present value of USD 3.02 trillion, or about USD 222 per share, exceeds the market price by about 40%. The bear case, in which AI expansion stops at the contracted base, yields only USD 88 billion in 2030. The spread between bear and bull, a factor of almost fifty, is a measure of how much the valuation depends on a small number of uncertain drivers.

4.3 The Simulated 2030 Range

Figure 2 shows the simulated distribution over time, together with the three scenarios and the market hurdle, defined as today's market capitalisation compounded at the cost of equity. Figure 3 shows the distribution of 2030 equity value on a logarithmic scale, and Table 5 summarises it.

The median simulated equity value at the end of 2030 is USD 799 billion, about USD 57 per share, and the mean is USD 1.02 trillion. The 80% interval runs from USD 247 billion to USD 2.14 trillion and the 90% interval from USD 191 billion to USD 2.65 trillion. The probability that 2030 equity value is below USD 0.5 trillion is 32.0%; between USD 0.5 and 1 trillion, 27.9%; between USD 1 and 2 trillion, 28.0%; between USD 2 and 3 trillion, 9.0%; and above USD 3 trillion, 3.0%. Only 9.8% of paths reach today's market value of USD 2.16 trillion by the end of 2030, and only 2.3% reach the hurdle of USD 3.24 trillion that would deliver the 10.1% cost of equity to a buyer at today's price. Per-share value in 2030 exceeds today's price of USD 158.96 on 8.9% of paths. The median annualised return to 2030 for a buyer at today's price is about -22% , and the return implied by the mean per-share value is about -17% .

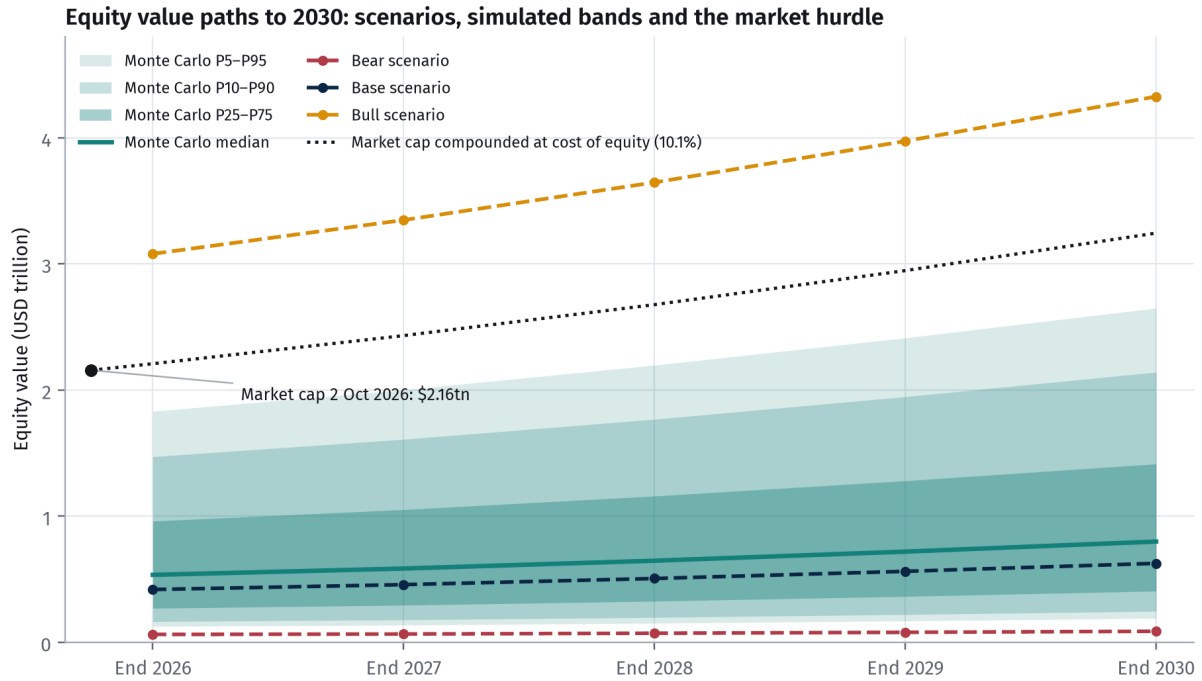


Figure 2. Simulated equity value paths to 2030. Shaded bands show the 5th-95th, 10th-90th and 25th-75th percentiles of 100,000 Monte Carlo paths; dashed lines show the bear, base and bull scenarios; the dotted line compounds the market capitalisation of 2 October 2026 at the median cost of equity.

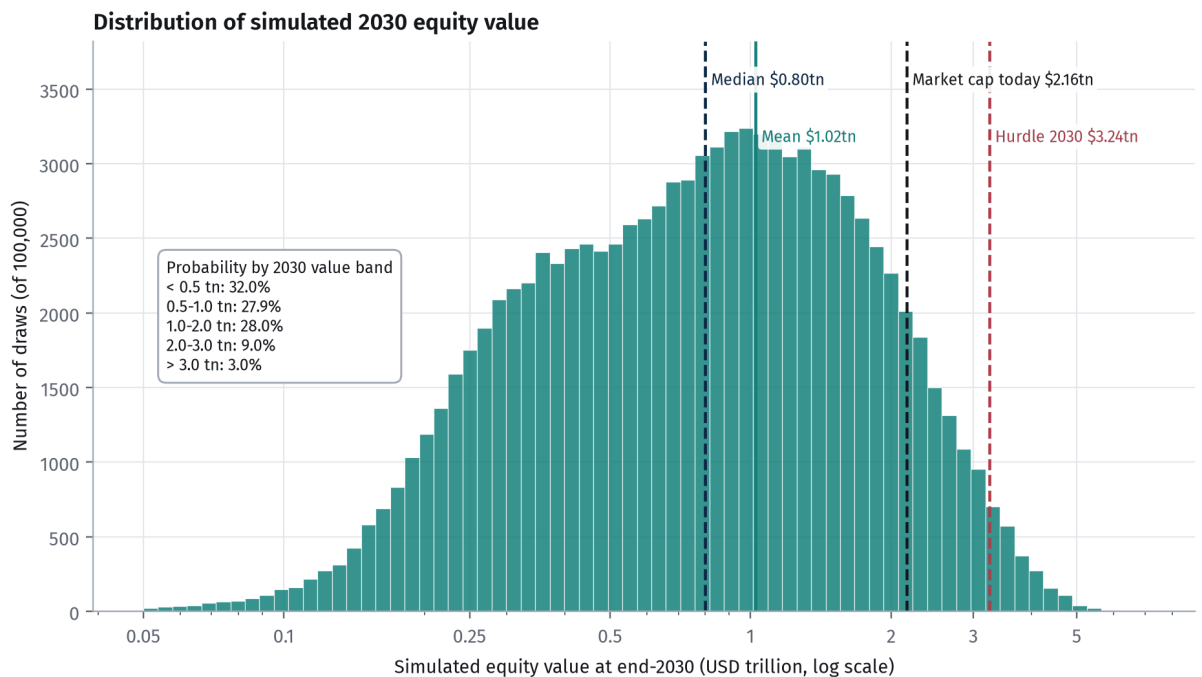


Figure 3. Distribution of simulated equity value at the end of 2030 (logarithmic scale), with the median, mean, today's market capitalisation and the 2030 cost-of-equity hurdle, and the probability of each value band.

Statistic	Equity value end-2030 (USD bn)	Per share (USD)
Table 5. Monte Carlo summary (100,000 paths; seed 20261004; correlated drivers)		
Statistic	Equity value end-2030 (USD bn)	Per share (USD)
5th percentile	191	—
10th percentile	247	17.4
25th percentile	407	—
Median	799	56.6
Mean	1025	72.9
75th percentile	1415	—
90th percentile	2141	152.8
95th percentile	2649	189.4
Probability above today's market value (USD 2157 bn)	9.8%	—
Probability above the cost-of-equity hurdle (USD 3244 bn)	2.3%	—
Probability that 2030 value per share exceeds USD 158.96	—	8.9%
Median / mean-implied annualised return	—	-22% / -17%
Value today (median / mean)	522 / 681	38.5 / 50.2
Paths on which expansion stops (abandonment rule)	17.7%	—

The managerial option to stop expanding is exercised on 17.7% of paths. It raises the 10th percentile of 2030 value from USD 125 billion without the option to USD 247 billion with it, and raises mean value by about USD 34 billion, which shows how much the left tail depends on management's willingness to stop, a capacity that risk-governance research ties to organisational maturity rather than to intent [21]. The copula matters for the right tail: with independent drivers, the median is little changed at USD 786 billion, but the 95th percentile falls from USD 2.65 to 1.78 trillion. Using the regression betas instead of the bottom-up beta raises the cost of capital to between 16.7% and 18.5% and lowers base-case value today to between USD 104 and 134 billion, a reminder that the bottom-up beta is the generous choice. Three further tests address the main judgment calls. Using Damodaran's lowest variant for the same date that is not normalised to a long-run average, the implied premium of 3.61% computed from the net cash yield, lowers the base cost of equity to about 9.4%, raises the median 2030 value to USD 889 billion and raises the probabilities of reaching today's market value and of earning the cost of equity to 12.9% and 4.0%. A return on new invested capital of 10% or 20% instead of 15% moves the median 2030 value to USD 747 or 826 billion and the probability of reaching today's market value to 7.7% or 10.9%. With a copula loading of 0.6, the median is almost unchanged at USD 806 billion, while the 90th percentile rises to USD 2.56 trillion and the two probabilities rise to 14.8% and 5.3%; readers who see AI demand as a single dominant factor should give more weight to these higher figures. None of these tests changes the conclusion that the market price lies in the upper tail of the distribution.

4.4 Sensitivity

Figure 4 reports a one-at-a-time sensitivity in which each driver moves to its low and high bounds while all others stay at base values. AI revenue per GW-year dominates: moving it from USD 10 to 40 billion moves 2030 value from USD 378 billion to USD 1.77 trillion. The AI EBITDA margin (USD 418 to 869 billion), the capital cost per GW (USD 396 to 811 billion), enterprise and government connectivity revenue (USD 501 to 871 billion) and Starlink subscribers (USD 543

to 825 billion) follow. Beta, hardware life and AI capacity come next. Space revenue and dilution barely matter. One-at-a-time tests ignore interactions. Moving AI pricing and the AI margin to their high bounds together raises 2030 value to USD 2.25 trillion, more than the sum of the two separate effects, while moving both to their low bounds lowers it to USD 344 billion, less than the sum of the separate falls because the abandonment rule then stops expansion; the simulation captures such combinations through the copula. Three of the top five drivers describe the unit economics of AI compute, not its scale, and installed capacity ranks only eighth. Building more data centres adds value only if each GW earns more than its cost of capital, the same condition that studies of startup financial management place at the centre of profitable growth [1, 10].

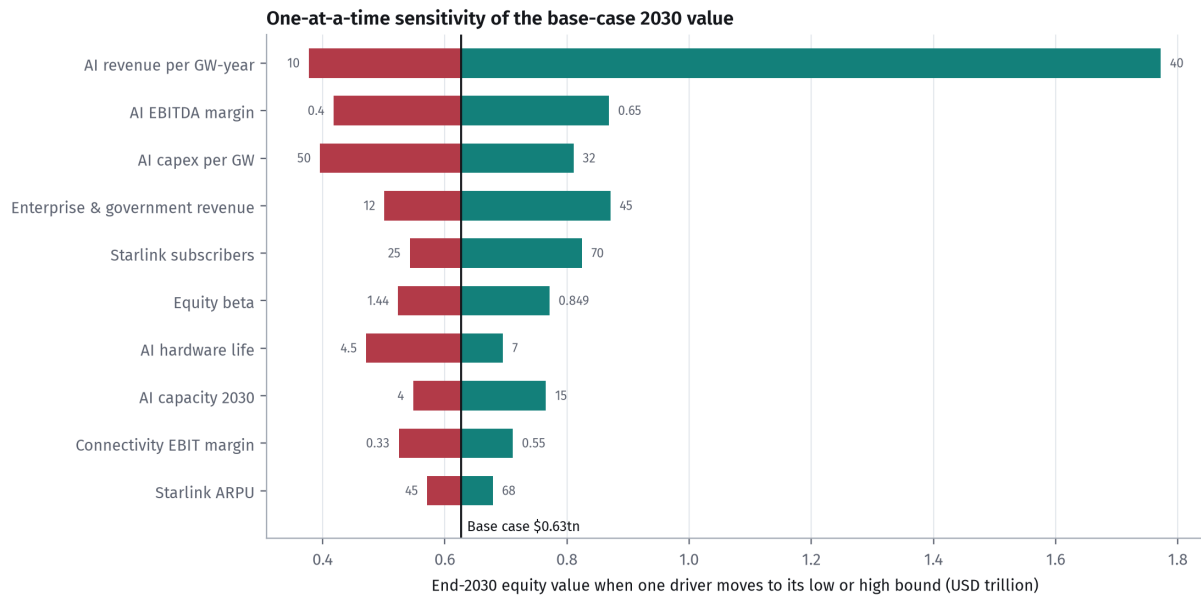


Figure 4. One-at-a-time sensitivity of base-case 2030 equity value to the ten most influential drivers, each moved to its low and high bound (bound values shown at the bar ends).

4.5 Multiples and Market-Implied Expectations

Table 6 sets the cash flow results against market benchmarks. At the valuation date the company traded at 91 times trailing revenue and 356 times trailing EBITDA on the data provider's definition (about 253 times on the company's adjusted EBITDA), against medians of 5.5 and 8.4 times for satellite and launch peers and 15.6 and 26.6 times for listed AI peers. Applying segment peer multiples to second-quarter run-rate figures gives an equity value of USD 0.30 to 0.71 trillion, consistent with the cash flow model's range today but far below the market price. Applying exit multiples of 12 to 28 times to base-case 2030 EBITDA of USD 99 billion gives 2030 equity values of USD 1.13 to 2.71 trillion, all below the hurdle of USD 3.24 trillion. Higher multiples applied to base-case cash flows therefore do not close the gap either, because base-case EBITDA is too small.

Table 6. Market benchmarks and cross-checks

Benchmark	Inputs	Implied equity value	Comparison
Trailing multiples of SpaceX	EV/revenue 91x; EV/EBITDA 356x (253x adjusted)	USD 2.16 trillion (market)	Satellite and launch medians 5.5x / 8.4x; listed AI medians 15.6x / 26.6x
Tesla (related comparable)	EV/revenue 13.9x; EV/EBITDA 134x	USD 1.46 trillion (market)	Q2 2026 operating margin 1.4%

Benchmark	Inputs	Implied equity value	Comparison
Sum of the parts on Q2 run-rate	Segment peer multiples (T-Mobile; CoreWeave; NVIDIA; Alphabet; Rocket Lab)	USD 0.30-0.71 trillion today	14%-33% of market value
Exit multiple on base 2030 EBITDA (USD 99 bn)	12x / 17.1x / 23.6x / 28x	USD 1.13 / 1.64 / 2.28 / 2.71 trillion in 2030	All below the 2030 hurdle of USD 3.24 trillion
Reverse valuation (base unit economics)	Volume scale needed	About 6.2x base volumes	246 million subscribers and 49 GW by 2030
Reverse valuation (bull unit economics)	Volume scale needed	About 0.73x bull volumes	Price consistent with the bull case
Independent estimates	Morningstar fair value; consensus target USD 226	USD 0.78 trillion; about USD 3.07 trillion	Between base and bull; close to bull

The reverse valuation makes the same point another way. It scales four volume drivers together by a common factor, namely Starlink subscribers, enterprise and government revenue, Space revenue and AI capacity, while holding prices, margins, capital costs and the discount rate fixed. Holding base-case unit economics fixed, operating volumes would need to be about six times their base-case values, with roughly 246 million Starlink subscribers and 49 GW of AI capacity by 2030 and revenue of about USD 1.20 trillion, for the present value to equal the market price; these figures are well beyond any published forecast. Under bull-case unit economics, volumes need to reach only about 73% of the bull case. The market price is therefore consistent with a world in which AI compute earns close to contract prices with strong margins and the company keeps expanding rapidly, but not with the base case. Independent estimates bracket our results: Morningstar's USD 780 billion lies above our base and median values today but well inside the simulated 80% interval of USD 161 billion to 1.44 trillion, while the consensus target of USD 226, about USD 3.1 trillion in equity, is close to our bull-case present value.

4.6 Real-Options Value of the Chains

Figure 5 and Table 7 report the real-options analysis. The left panel shows how the joint probability that every link holds decays with chain depth, from 0.98 for the operating launch and Starlink business to 0.59 once full reuse is required, 0.24 after an orbital pilot, 0.07 for orbital computing at scale and about 0.01 for demand linked to Mars. This is the earlier study's bet-on-bet logic expressed in numbers: each unproven link multiplies, rather than adds to, the risk of the links before it.

The right panel values the orbital-computing chain three ways. As a committed programme in which all three stages are funded, its present value is about –USD 73 billion; the payoff on success would have to be about USD 2.8 trillion, rather than the assumed USD 1.15 trillion, to break even. Staged, with funding released only after each gate is passed, the same programme is worth about +USD 12 billion, so the right to stop is worth about USD 84 billion. The Black–Scholes cross-check, which uses the stock's 72% volatility as a generous proxy, values the option at about USD 113 billion, with a range of USD 82 to 127 billion for volatilities between 40% and 90%. The stock's volatility is used only as an upper reference. A single project could be more volatile than the whole company, but its value would also be smaller and less certain, so the result should be read as an order of magnitude rather than an estimate. The underlying value in the calculation already applies the probabilities of the first two technical gates, so only the decision to build at commercial scale is treated as the option. The simulation, which applies the model's narrower orbital value range and its discount rate, gives about USD 18 billion today. Even the most generous figure is less than a tenth of the USD 1.63 trillion gap between the market capitalisation and the simulated

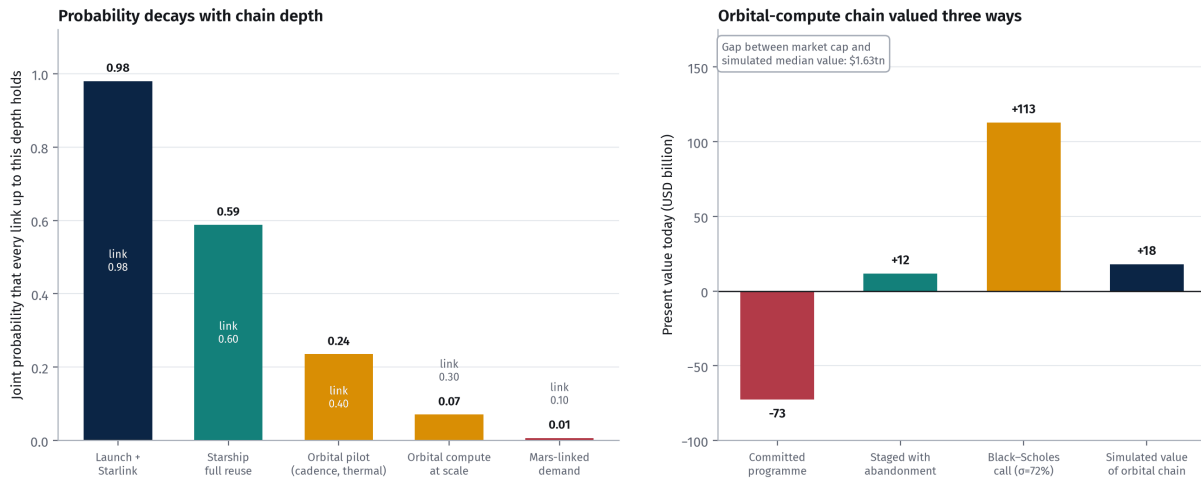


Figure 5. Real-options view of the deepest chain. Left: joint probability that every link holds, by chain depth. Right: the orbital-computing chain valued as a committed programme, as a staged programme with abandonment, as a Black-Scholes call and as simulated in the model (present values today; stage costs are illustrative assumptions).

median value today.

Table 7. Link levels, chain depth and valuation treatment

Source of value	Link level and chain class	Probability used	Treatment in the model
Falcon 9 launch and Starlink	Level 3 operating; proven synergy	0.98	Forecast cash flows
Compute contracts (Google; Anthropic)	Level 2 contracted; contracted extension	Within driver ranges	Pricing evidence only; terminable on 90 days' notice
Starship full reuse by 2028	Level 1 planned; bridge bet	0.6	Bernoulli; Space revenue +25%; capex intensity -4 points
Terafab volume output by 2029	Level 1 planned; bet-on-bet	0.3	Bernoulli; AI capital cost per GW -12%
Orbital computing at scale by 2031	Level 0 speculative; bet-on-bet (depth 4)	About 0.07	Staged option; committed NPV -73 bn; staged +12 bn; Black-Scholes 113 bn
Mars-linked demand	Level 0 speculative; depth 5 or more	About 0.01	Not valued

4.7 Tesla as a Related Comparable

Tesla serves both as a counterparty and as a comparable. It sold USD 405 million of Megapack battery systems to SpaceX in the first half of 2026, it holds a stake of less than 1% after its USD 2 billion investment in xAI converted into SpaceX shares, and it is SpaceX's partner in the Terafab plant. At USD 370.59, Tesla's market value of USD 1.46 trillion represented 13.9 times trailing revenue and 134 times trailing EBITDA on the data provider's definition (about 94 times on the company's adjusted EBITDA, which adds back share-based pay, the basis on which SpaceX trades at about 253 times), with a second-quarter operating margin of 1.4% and third-quarter deliveries of 486,532 vehicles. Its five-year beta is 1.92, and a regression on 58 monthly returns gives 1.77. Research on the adoption of battery electric vehicles in Indonesia shows how price, infrastructure and perceived risk shape demand in a market that both Tesla and its rivals target [40]. The comparison suggests that the two companies are priced on the same logic: in both, most of the market value rests on businesses that are not yet material to

revenue, such as autonomous driving and robots for Tesla and large-scale AI compute and orbital infrastructure for SpaceX. The combined market value of about USD 3.6 trillion on 2 October 2026 is close to the video’s figure of about USD 3.5 trillion (27:29), and both companies depend on the same founder’s attention and on flows between them. An investor holding both is less diversified than two tickers suggest.

5. Discussion

5.1 What the Price Assumes

The central finding is that the market price of 2 October 2026 is consistent with the bull case and not with the base case. A buyer at USD 158.96 is, in effect, paying for a company that by 2030 sells most of its AI compute at prices close to those in its current contracts, earns margins near the best of its peers, expands capacity about sixfold from the end of 2026 and continues to grow Starlink strongly. Each of those outcomes is plausible, and the bull case is not a fantasy: it rests on contracts with Google and Anthropic at prices confirmed in filings and on a connectivity business that already earns a 39% operating margin. But the model gives the joint occurrence of these outcomes a low probability. Only about one path in ten reaches today’s market value by 2030 and fewer than one in forty earns the cost of equity on today’s price.

Two caveats temper this conclusion. First, the result is most sensitive to AI revenue per GW-year, which is also the driver for which the evidence is weakest. If contract-like pricing proves durable across most capacity, the distribution shifts sharply upward, and the bull case becomes much more likely. The termination rights in both compute agreements and the speed with which GPU prices have fallen in each hardware generation are reasons for caution, but they are not proof that pricing will fall. Second, the consensus revenue forecasts for 2026 and 2027, at USD 44.7 and 113.5 billion, are well above our base path. Part of the gap reflects contracts that start in the fourth quarter of 2026 and part reflects analysts’ expectations about new capacity. Third-quarter results, due in the fourth quarter of 2026, will provide the first evidence on both points, and the model is built so that the distributions can be updated quickly when they arrive.

These caveats change the probabilities, not the structure of the argument. Whatever the pricing, the value of the AI segment depends on each GW earning more than its capital cost over a hardware life of about six years. That is a demanding condition for a business that needs about USD 40 billion of capital per GW and that must replace much of its hardware before 2030. Research on capital inflows to Indonesian firms warns that abundant external finance can mask weak returns on the projects it funds [2], and the same risk applies at much larger scale here. A company that raised about USD 85.7 billion at its listing and a further USD 25 billion in bonds can sustain negative free cash flow for several years, but cannot change the arithmetic of return on capital.

5.2 Chains as Options, Not Promises

The real-options results support and sharpen the earlier case study’s distinction between proven links and bet-on-bet chains. In numbers, the distinction is between value that enters the cash flow forecast with high probability and value that depends on a product of probabilities. The joint probability of the orbital-computing chain is about 0.07, and as a committed programme it destroys value. Staging changes that conclusion: the right to stop after a failed gate turns a negative present value into a positive one and is worth about USD 84 billion in our illustration. This is the most practical lesson of the analysis for anyone assessing an interlinked venture group. The question is not only whether a chain might succeed, but whether the organisation can and will stop funding it when a gate is failed.

That second question links real options to governance. The option to abandon has value only if it is exercised. When a founder is publicly committed to a vision and controls the board, the

risk is that projects continue after bad news. Risk-management maturity research shows that the ability to act on adverse signals is built through governance structures, independent risk functions and clear escalation rules [20], and work on AI-driven investment risk management stresses the role of pre-defined thresholds for continuing or stopping [19]. For SpaceX, investors cannot observe internal gates directly; they can only observe disclosures. Clear, gate-by-gate disclosure of the economics of Starship, Terafab and orbital computing would let outside shareholders value these options rather than guess at them.

Even generously valued, the options do not explain the price. The Black–Scholes value of the orbital chain, at about USD 113 billion, is less than a tenth of the gap between market value and the simulated median today, and the simulated value of all three chains together is much smaller. The market price therefore rests mainly on expectations for the existing AI compute and connectivity businesses, not on Mars or orbital data centres. This is a useful corrective to public discussion, which tends to emphasise the most distant and dramatic projects.

5.3 Governance, Related Parties and Liquidity

The cash flow model values the business; it does not value the rights of the minority shareholder, and those rights are limited. Class B shares carry ten votes each, and Elon Musk held about 46% of the shares outstanding after the listing, including restricted shares that vest only if performance conditions are met, and about 82% of the voting power, according to the final prospectus. Outside shareholders cannot change the board or block strategic decisions. Studies of controlling shareholders show that this structure raises the risk that decisions serve the controller's wider interests rather than those of minority owners [26], and studies of governance and market stability link weak minority protection to higher volatility and lower valuations over time [24].

Related-party flows add a second layer. In the first half of 2026 SpaceX bought USD 405 million of Megapacks from Tesla, it owes USD 13.3 billion of its debt to related parties, it is building a chip plant jointly with Tesla, and Tesla holds a small stake in it. Each of these may be commercially sensible, but each also creates a channel through which value can move between companies with different shareholders. Research on audit quality and governance shows that such channels require strong independent oversight to prevent earnings management and value transfer [25]. The AI segment adds regulatory exposure: a consumer chatbot and a social network operate under data-protection and content rules in many jurisdictions, and frameworks for AI and data governance show how such exposure can affect costs and reputation [27, 30].

Liquidity is the third concern. About 5% of shares were floated at the listing, and the data provider's measure of free float on 2 October was about 2.23 billion shares, or 16% of the total. Most pre-listing holders are subject to a 180-day lock-up with automatic early releases. According to the final prospectus, up to 20% of their shares could be sold after the second-quarter results in August 2026 and a further 7% on each of five dates between 20 August and 24 October 2026; a further 28% may be sold after the third-quarter results, and the remaining 180-day restrictions lapse on 8 December 2026. Some holders are subject to an extended lock-up that runs until after the second-quarter 2027 results, and the founder's shares remain locked up until the 366th day after the prospectus, in June 2027. New supply is therefore already reaching the market and will rise further around the third-quarter results and in December 2026. A thin float raises volatility, and the release of locked-up shares can create sustained selling pressure. The realised volatility of 72% a year since late July 2026 implies a typical daily move of about 4.5%. The trading range since listing, USD 104.83 to 225.64, shows how far sentiment alone has moved the price in less than four months.

5.4 Implications for Indonesian Retail and Student Investors

For Indonesian investors, the same stock carries additional layers of risk, summarised in Table 8. The first is currency. At JISDOR of IDR 17,898 per US dollar on 2 October 2026, an Indonesian

investor's return is the dollar return plus or minus the change in the rupiah, and with Bank Indonesia's policy rate at 5.75% the domestic opportunity cost is substantial. Research on digital financial management for firms entering global markets notes that currency and information asymmetries are among the main obstacles to cross-border engagement [38]. A simple illustration shows the size of the effect. If the share price were unchanged in dollars over a year and the number of rupiah per dollar rose by 10%, an Indonesian holder would gain about 10% in rupiah; if the rate fell by 10%, the holder would lose about 10%. In a year in which the share price fell by 30%, a 10% rise in the rate would reduce the rupiah loss only to about 23%. By our calculation, currency movements change the size of outcomes but not the direction of the valuation argument.

Table 8. Risk layers for Indonesian retail and student investors (scholarly assessment; not advice)

Risk layer	Evidence	Effect on an investor	Mitigation discussed in the literature
Valuation	Price consistent with bull case; about 10% of paths reach today's value by 2030	Low expected return relative to cost of equity	Valuation literacy; scenario thinking
Governance and control	About 82% of votes with founder; Class B ten votes	Minority shareholders cannot influence strategy	Disclosure; independent oversight
Related parties	Megapack purchases USD 405 million (H1); related-party debt USD 13.3 billion; Terafab	Value may move between affiliated companies	Audit quality; related-party disclosure
Liquidity and lock-ups	Float about 16%; staged lock-up releases from August 2026 to June 2027; volatility 72%	Large price swings; selling pressure	Position sizing; long horizon
Currency	IDR 17898 per USD; BI-Rate 5.75%	Rupiah moves add to dollar returns	Awareness of currency exposure
Product structure and leverage	Fractional real shares from IDR 5000; derivatives with up to 4x leverage	Leverage turns a 4.5% daily move into about 18%	Avoiding leverage; understanding custody
Behaviour	Famous founder; media attention; gamified apps	Attention-driven trading	Financial literacy; reflective interfaces

The second is product structure. Two routes are widely advertised. One platform offers fractional ownership of real US shares from IDR 5,000, held through a custodian, which gives economic exposure but no meaningful voting rights and depends on the platform's custody arrangements. Another offers contracts through a derivatives broker supervised by the authorities, with leverage of up to four times. The two products differ in kind. A fractional share held through a custodian is a claim on part of a real share, whose value depends on the custodian and platform operating as described, while a derivative contract is a claim on the broker that tracks the price but confers no ownership. Readers can check the licensing status of any platform on the public lists of the relevant Indonesian regulators. We did not examine the tax treatment of either route, which depends on the product and on the investor's circumstances. Leverage changes the nature of the position. At four times leverage, a typical daily move of 4.5% becomes about 18% of the investor's capital, and the trading range since listing would have wiped out a leveraged position several times over. Studies of peer-to-peer lending show how leverage and platform design can turn modest risks into large losses for inexperienced users [36], and research on digital lending documents the consequences for financial well-being when credit is easy to obtain [37].

The third is behaviour. A famous founder, constant media coverage and gamified trading apps are a powerful combination. Evidence from Indonesia shows that gamification increases trading frequency and attention-driven decisions among retail investors [5], that financial literacy and risk

preferences shape choices between conventional and speculative assets [32], and that the experience of the cryptocurrency boom left many young investors with losses they did not anticipate [35]. Literacy programmes help: studies of migrant workers and mutual fund users show that knowledge and clear interfaces improve investment behaviour [33, 34]. Regulatory technology can support supervision of these new products [29], but it cannot replace the investor's own understanding of what is being bought.

What, then, does the evidence imply about investing now? Stated in scholarly terms, and without reference to any individual's circumstances, the analysis supports four conclusions. First, at the price of 2 October 2026, the expected return under the model's central estimates is below the cost of equity, and the probability of earning that cost by 2030 is low; standard mean–variance reasoning would therefore assign no weight to the stock unless the investor's beliefs are close to the bull case. Second, a positive position is defensible only as a deliberately sized, speculative holding by an investor who understands that the outcome depends on a few drivers, who can tolerate a large loss and who is buying real shares rather than leveraged contracts. Third, the governance structure means that such an investor is a passenger: the decisions that matter most, including whether to stop failing projects, will be made by a controlling founder. Fourth, for Indonesian investors, currency risk and the structure of locally available products add to, rather than offset, these risks. None of these conclusions is a recommendation to buy, hold or sell, and readers should seek independent, licensed advice for their own situations.

5.5 Lessons for Creative Campuses

The case also offers lessons for the creative campuses and student ventures that motivated the earlier study. The first is that the most valuable discipline in a linked portfolio is the explicit pricing of each link. A campus incubator can ask of every proposed project which proven capabilities it uses, which unproven links it depends on and what it would cost to stop at each gate. Research on predictive models for startup ecosystems and on machine-learning tools for startup collaboration shows that such structured assessments can be built with modest data [3, 18]. The second lesson is that valuation literacy belongs in the curriculum. Students who can build a simple three-scenario model, attach probabilities to it and compare it with a market price are better prepared both as founders and as investors. Research on financial technology in Indonesia and on AI in finance shows that tools for such analysis are widely available [16, 17]. The third lesson concerns governance: founders who want outside capital need governance structures that let investors trust that options will be exercised rationally, a point that applies to a student cooperative as much as to the largest listing of 2026 [11, 28]. Finally, resilience frameworks for small enterprises facing global market volatility offer transferable advice on buffers and diversification for students who invest their own savings [39]. A concrete exercise uses the code and data published with this paper. Students change one assumption they disagree with, rerun the simulation with the same seed, and write a short note explaining how the 2030 distribution and the probability of reaching today's price change, and why. Because the seed is fixed, every difference in the results can be traced to the assumption changed.

6. Conclusion

This paper valued SpaceX, the combined launch, satellite and AI company listed on the Nasdaq since June 2026, from its filed segment data to the end of 2030. A three-segment cash flow model with a bottom-up beta, fifteen uncertain drivers, a seeded Monte Carlo simulation with correlated drivers and an explicit abandonment rule gives a median 2030 equity value of about USD 0.80 trillion and an 80% interval of USD 0.25 to 2.14 trillion. The market capitalisation of USD 2.16 trillion on 2 October 2026 corresponds to a bull case in which AI compute is sold at close to contract prices, margins approach the best peers and capacity grows about sixfold. About one path in ten reaches today's value by 2030, and fewer than one in forty earns the cost of equity. AI

revenue per GW-year, AI margins and the capital cost per GW dominate the sensitivity, while the most dramatic long-range projects add relatively little value even when valued generously as options.

In answer to the four research questions: the range of 2030 values consistent with the filings is wide but centred well below the market price (RQ1); the price requires favourable outcomes on the unit economics of AI compute, not merely on its scale (RQ2); staging and abandonment rights turn the deepest chain from a value-destroying commitment into a modestly valuable option, but explain little of the price (RQ3); and governance, related-party, liquidity, currency and leverage risks strengthen the case, in scholarly terms, for treating the shares as a small speculative position at most rather than as a core holding, especially for Indonesian retail and student investors (RQ4).

6.1 Limitations and Future Research

The study has several limitations. The financial data end on 30 June 2026, and net cash has probably fallen since then; third-quarter results will test the base-year assumptions. The driver ranges, chain probabilities, stage costs and copula loading are judgments, documented and labelled as assumptions but not estimated from long histories, because no such histories exist. The beta is built from industry averages and may understate risk, as the regression sensitivity shows. Bounded triangular distributions cannot generate outcomes beyond their stated limits, so the simulated tails, particularly the right tail, may be too thin if the true range is wider than our evidence suggests. The model treats the segments as separable and does not capture every interaction among them. A few press-reported figures, chiefly about funding rounds and listings of private AI companies that had not taken place, could not be confirmed and were excluded, which is conservative but could omit relevant information. Finally, the Indonesian analysis relies on published platform terms rather than on data about actual investor behaviour.

Future research could update the model with each quarterly report, estimate AI pricing from a broader set of contracts as more are disclosed, survey Indonesian investors who hold the stock about their understanding of product structure and risk, and apply the same link-level and real-options method to other interlinked venture groups, including those on Indonesian campuses.

Declarations

Disclaimer. This paper is a scholarly analysis of a listed company's valuation for research and teaching purposes. It is not personal financial advice, an offer or a solicitation to buy or sell any security, or a recommendation suited to any individual. Model outputs depend on stated assumptions and will change as new information becomes available. Readers should consult a licensed adviser before making investment decisions.

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Data and code availability. All inputs are public. The data file lists every sourced figure with its URL and access date, the assumption file lists every modelling assumption with its rationale, and the model code, random seed and outputs are provided with the paper so that all results can be reproduced. Figures stated in the video are reported as video claims. A verification record lists, for each figure that had been flagged as uncertain, whether it was confirmed, corrected or excluded, with its source.

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Ethics. The study analysed public documents and market data and involved no human partici-

pants.

Use of AI tools. AI-based tools were used to assist with data compilation, coding, literature screening, drafting, editing, figure preparation and formatting. The authors reviewed and verified all content, including every figure, source and reference, and take full responsibility for the manuscript.

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