

Evolution Analysis of Valuation Model of Emerging Technology Enterprises -- Taking Ehang Intelligence as an Example

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Abstract. Against the backdrop of the rapid rise of emerging technology enterprises and the inadaptability of traditional valuation models, this paper explores the dynamic evolution of valuation logics for such firms based on the corporate life cycle theory. Taking EHang Holdings, a pioneer in the global urban air mobility sector, as a typical case, it adopts a longitudinal case study method combined with qualitative analysis and quantitative modeling to systematically track the evolution of its valuation models from the start-up to the expansion stage. The study finds that the valuation models of emerging technology enterprises show a high degree of dynamic adaptation to their life cycle stages, with the valuation logics shifting from qualitative assessment driven by non-financial factors to relative valuation based on operating data, and finally to absolute valuation centered on free cash flow creation capacity. It also reveals that the evolution of valuation models is jointly determined by internal enterprise development, external regulatory policies, capital market sentiment and industry competition patterns. This study enriches the dynamic valuation theoretical system for emerging technology enterprises and provides practical references for valuation decision-making in related sectors.

Keywords: Corporate Life Cycle, Valuation Model, Emerging Technology Enterprises, Case Study, Urban Air Mobility

1. Introduction

Amid the accelerating digital transformation of the global economy, emerging technology enterprises represented by artificial intelligence, urban air mobility, biotechnology, new energy and other sectors have risen rapidly, becoming a core force driving industrial transformation and economic growth. Relying on disruptive technologies and innovative business models, such firms have achieved leapfrog development within a short period, profoundly reshaping the operational logic of the economy and society. At the same time, however, their characteristics of high uncertainty, strong growth potential and highly intangible asset structure have turned valuation into a cross-cutting challenge in finance and innovation management [1]. Traditional valuation models rely heavily on historical financial data and stable operational expectations, whereas emerging

technology enterprises in the early stage usually lack stable revenue streams and profit records. Their core value drivers—including core technologies, intellectual property rights, data assets and the competence of founding teams—are mostly off-balance-sheet intangible assets that are difficult to reflect in conventional balance sheets, let alone subject to unified quantitative standards. This has posed severe challenges to the applicable boundaries of traditional valuation methods. As Damodaran pointed out, the valuation of young, start-up and growth-oriented enterprises faces special difficulties such as insufficient historical data, low survival probability and non-linear growth paths, requiring a critical re-examination of traditional valuation logic [2].

Existing research has explored the valuation of emerging technology enterprises in both academic and industrial circles, yet obvious limitations remain. Most studies focus on a single developmental stage or horizontal comparisons among different valuation approaches. For instance, Yan Xiaomeng noted that the selection of valuation models during the IPO process of technology enterprises constitutes a dynamic optimization balancing market sentiment and fundamentals [3]. Kurniawan et al. verified the applicability of the Dave Berkus method in valuing early-stage non-financial factors among Indonesian start-ups [4]. Nevertheless, few studies have organically integrated corporate life cycle theory with the evolution of valuation methods, and longitudinal case studies that systematically track the dynamic evolution of valuation logic for individual firms along a time dimension are scarce. This research gap not only restricts an in-depth understanding of value creation mechanisms among emerging technology enterprises but also fails to provide comprehensive references for practical valuation decision-making.

To address this gap, this paper adopts the corporate life cycle theory as its analytical framework and selects EHang Holdings, a pioneer in the global urban air mobility (UAM) sector, as a typical case to systematically trace the evolution of its valuation logic from the start-up stage to maturity. Since its establishment in 2014, EHang has completed a full cycle covering concept validation, market transformation, listing and financing, and commercialization, providing an ideal time span for a longitudinal case study. Combining qualitative analysis and quantitative modeling, this paper examines the application of venture capital valuation models and the Dave Berkus method in the start-up stage (2014–2015, pre-Series A to pre-Series B), the introduction and revision of the price-to-sales (P/S) relative valuation approach in the growth stage (2015–2019, Series B to pre-IPO), and the dominance of the discounted cash flow (DCF) absolute valuation method in the expansion stage (2019 to present, post-IPO) [5,6]. It further explores the applicable conditions, evolutionary drivers and internal-external determinants of valuation models at each stage.

The contributions of this study lie in both theoretical and practical dimensions. Theoretically, by integrating corporate life cycle theory and valuation theory, this paper reveals a dynamic adaptation framework characterized by "qualitative assessment in the start-up stage, relative valuation in the growth stage and absolute valuation in the maturity stage", deepening the understanding of value creation patterns among emerging technology enterprises and expanding the dynamic valuation theoretical system for such firms. Practically, it provides actionable valuation insights for investors, policymakers and corporate managers: investors may select appropriate methods based on the firm's life cycle stage; policymakers can optimize institutional design to meet financing needs at different phases; managers can adjust strategic priorities in line with valuation logic to ultimately maximize corporate value. Meanwhile, the longitudinal analysis using EHang as a sample offers a valuable Chinese reference for valuation practices of enterprises in emerging sectors, including global urban air mobility.

2. Research design

2.1. Rationale for case selection

EHang Holdings is chosen as the case study subject in this paper mainly for the following reasons. First, the completeness of its life cycle. Since its founding in 2014, EHang has undergone a full progression from startup and growth to post-IPO commercial expansion, providing an ideal time span for longitudinal research. Second, data availability. As a publicly listed company, EHang discloses detailed prospectuses, periodic financial reports, and announcements of material events. Meanwhile, as a high-profile enterprise, it has abundant publicly available records of early-stage financing, media coverage, and industry research reports, laying a solid data foundation for multi-perspective analysis. Third, industry representativeness. The urban air mobility (UAM) sector in which EHang operates is a typical emerging technology industry characterized by high technological barriers, stringent regulatory environments, and considerable market uncertainty. Its valuation challenges are therefore widely applicable to peer enterprises.

2.2. Data sources and processing

Data for this study are collected from multiple public sources, including statutory filings submitted by EHang to the U.S. Securities and Exchange Commission (SEC), such as its Form F1 prospectus, Form 20F annual reports, and Form 6K quarterly reports. Additional data are drawn from industry research reports on unmanned aerial vehicles and urban air mobility (UAM) issued by leading domestic and international consulting firms and securities research institutes, as well as authoritative financial media coverage and professional databases documenting the firm's financing history, core product milestones, regulatory policy changes, and capital market performance. In the data preprocessing stage, this study divides the sample period into three phases—startup stage, growth stage, and expansion stage—based on key event milestones, including Series A financing, Series B financing, initial public offering (IPO), and the issuance of the world's first type certificate (TC). Data from each stage are then systematically categorized and structurally organized.

3. Evolution analysis of the ehang intelligent valuation model

3.1. Early stage (2014-2015): qualitatively dominated VC valuation model and DAVE BERKUS method

In the Early stage, the core task is to verify the feasibility of the technology and business model. At this point, enterprises often have no revenue, negative profits, and even their products have not yet been finalized, facing extremely high technological and market uncertainties. Ehang Intelligence was in such a state at this stage, so its valuation logic showed a distinctive qualitative dominant feature, completely separated from the traditional valuation framework relying on financial data.

3.1.1. Valuation background and core events

In 2014, Ehang Intelligence was established, and its core product is a so-called "the world's first consumer drone controlled by a mobile App"—Ghost. This product aims to expand the drone market from professional players to the general public through an extremely simple operation experience. In December of the same year, Ehang successively obtained \$2 million angel investment from Zhenfund and Galileo Capital and completed a \$10 million round A financing, with a valuation of

about \$60 million after investment. This valuation process fits VC thinking and the application of Dave Berkus's method.

3.1.2. Dave berkus' specific analysis and assignment of the five elements

Dave Berkus's method assesses five key non-financial elements of start-ups to anchor value benchmarks for companies without revenue before the supply-demand game [5].

Reasonable creativity is the core support of Ehang's early valuation, and its value is judged to be high. At that time, DJI and other manufacturers had a high threshold for UAV control, so Ehang proposed the idea of "dumb control of mobile App", which accurately hit the pain point of insufficient usability in the consumer market, and clearly pointed to the potential market of nearly one million dollars. Combined with the froth of the drone industry at the time, this element could contribute about \$1 million in value, and investors saw its potential to disrupt the market.

The value of the product prototype was judged to be medium-high. Ehang developed a Ghost prototype that can actually fly and appeared in the exhibition, which proved the feasibility of the interaction technology between flight control and App, and reduced the technical risk from "whether it can be realized" to "whether it can be optimized". This factor can contribute about \$0.5 million in value, laying a material foundation for attracting investment from Zhenfund and other institutions.

The value of a high-quality management team is judged to be high and has a prominent weight in the Berkus method. Founder Hu Huazhi has a technical background and aerospace passion, the core team has software and hardware development experience, and shows strong vision, presentation and execution ability, which fits the core logic of early venture capital "investment". This element can contribute about \$0.5 million in value and, in essence, is a bet by investors on the potential of the team to realize the vision.

The value of strategic relationships is judged to be low. At this stage, Ehang has not yet established an exclusive alliance with key upstream and downstream players, and the supply chain and sales channel are still in their infancy, with a value contribution range of \$0 to \$0.25 million.

The value of product launches and sales is judged to be low. Ghost products have not been launched to the market on a large scale, have no substantial sales revenue, market acceptance is questionable, and the value contribution range is also \$0 to \$0.25 million.

3.1.3. Valuation results and motivation analysis

Summing up the above non-financial factors, the underlying value of Ehang at the end of 2014 was approximately US \$2 million to US \$2.75 million. After its Series A round, its valuation rose 25 times to about \$60 million, well above the theoretical ceiling of Berkus's method, which confirms that the method only provides valuation anchors or floor prices, and the final transaction price is the result of a narrative-driven game of supply and demand.

Narrative drive is the core driving force for valuation rise. Ehang's story of "mobile phone controlling UAV" has strong communication and imagination. After Ghost product won the Best UAV Award of CES in the United States in 2015, it further built a grand narrative of "future mass flight", which greatly stimulated investors' interest.

The market environment of the supply and demand game amplifies the valuation premium. In the tech investment boom of 2014-2015, when high-quality projects were scarce, Zhenfund, Galileo Capital and other institutions rushed in to form a seller's market, driving a sharp jump in valuations. At this time, valuations more reflected investors' fear of missing out, as well as an advanced premium on the future growth potential and market size of companies.

3.2. Growth stage (2015-2019): the PS relative valuation method is introduced

After 2015, the competition in the consumer UAV market is white-hot, and DJI's dominant position is difficult to shake. Ehang's Ghost product did not achieve the expected explosion. In the face of changes in the market, Ehang showed strategic "resilience" and embarked on a key transformation: from the consumer market to industrial applications, with the surprise release of the manned autonomous piloted aircraft "Ehang 184" at CES 2016. At this stage, the enterprise began to generate sustained but limited revenue, the business model took initial shape, and the valuation logic shifted from pure "storytelling" to the two-wheel drive of "story + data".

3.2.1. The transformation of valuation logic

After entering round B and beyond, the company has certain operating history and financial data. Investors can no longer make decisions based on ideals and prototypes alone; they need to see the potential for commercialization. Although the company was not yet profitable, revenue growth and order backlog became a new core focus. This makes the price-to-sales (PS) relative valuation method the most mainstream and practical valuation tool.

3.2.2. The specific deductions and challenges of the PS valuation method

The core formula of PS valuation method is: enterprise value = revenue \times reference PS multiple. Table 1 shows the industry data, when determining the revenue base, investors interpret "revenue" not only as historically recognized revenue but also as expectations of future revenue, as evidenced by the fact that from 2017 to 2019 the cumulative order reserve of commercial-grade UAVs exceeded five hundred units across security, logistics, and other fields with an order amount of approximately 114 million U.S. dollars, thereby providing support for revenue growth; and when determining the "reference price-to-sales (P/S) multiple," which constitutes both the difficulty and the core of the valuation, investors select a group of comparable technology-driven companies that are similarly in a rapid growth phase—such as leading UAV enterprises in the primary market—to serve as a benchmark, and then apply either a discount or a premium adjustment to the benchmark P/S multiple based on the unique nature of Ehang's business and its elevated risks in technology and regulation, wherein the relative immaturity of passenger drone technology at the time and the higher uncertainties stemming from Ehang's ongoing transition may prompt investors to assign a certain discount, while the scarcity and future imaginative potential inherent in its "manned autonomous aerial vehicle (AAV)" concept simultaneously warrant a conceptual premium.

Based on the data from DJI, this paper added more data from enterprises in the drone industry, such as XAG Technology and Arashi Vision, and calculated the PS multiple for the valuation of EHang by weighting according to their ecological positions in the industry, making the multiple more accurate [7].

Table 1. Industry data (Unit: \$100 million)

Company	Revenue in 2019	Valuation in 2019	PS multiples	Weight
DJI	28.6	175	6.12	0.40
XAG	0.51	4.3	8.43	0.35
Arashi Vision	0.86	2.7	3.14	0.25

According to the data in Table 2, the benchmark PS multiple is 6.18, and different scenarios are introduced to evaluate Ehang Intelligence. (Because of the overall bubble in the UAV industry, the risk discount factor is set higher than the premium factor.)

Table 2. Valuation process

Ehang's revenue: 1.14, Base PS: 6.18, Valuation: 7.05		
Circumstances	Correction factor=Risk discount factor × Concept premium factor	Enterprise valuation (\$100 million)
Conservative scenario (50% discount)	$(1-0.5)*(1+0)=0.5$	3.53
Neutral scenario (30% discount + 10% premium)	$(1-0.3)*(1+0.1)=0.77$	5.43
Current assumption (40% discount + 20% premium)	$(1-0.4)*(1+0.2)=0.72$	5.076
Optimistic scenario (20% discount + 30% premium)	$(1-0.2)*(1+0.2)=0.96$	6.77

3.2.3. The logical shift of valuation leap: from narrative to data

From 2015 to 2019, Ehang's valuation continued to rise in subsequent financing processes, such as B round and B + round, and its core driving logic also changed significantly. The development narrative constructed by manned autonomous vehicles is still an important basis to attract the attention of the capital market, but investors pay more attention to the supporting role of actual business data while paying attention to the vision of the enterprise, and will focus on key information such as the number of orders intended by the enterprise, the specific implementation arrangement of strategic cooperation agreements signed with local governments, and the composition and growth of revenue.

Order reserves have become an important variable affecting the valuation of enterprises. According to the information disclosed in EHang's prospectus, the company had accumulated hundreds of orders and pre-orders for EH216 series products from around the world before its listing. Although these orders have not been fully converted into actual revenue, they can clearly reflect the revenue expectations for the next one to two years. It effectively supports the judgment of future revenue in the price-to-sales ratio valuation model, and then promotes the overall valuation level of the enterprise.

As the IPO stage approaches in 2019, investment banks and underwriters will carry out more rigorous valuation calibration. Relevant IPO data show that Ehang issued 3.2 million shares on Nasdaq at \$12.50 per ADS in 2019, raising a net amount of about \$46 million and giving the company a market value of about \$680 million at the issue price. This result is close to the valuation level of the price-to-sales ratio in the optimistic scenario, which fully reflects that the overall attitude of the capital market to the UAV industry will directly affect the valuation results of enterprises. Previous studies have pointed out that the selection of valuation models for technology enterprises during the IPO process is a dynamic optimization process, which requires taking into account both market sentiment and fundamental factors simultaneously [3].

3.3. Outbreak stage (2019 to present): DCF absolute valuation method dominates

In December 2019, Ehang Smart was successfully listed on Nasdaq in the United States, marking its entry into a new stage of development. After the listing, the company becomes a public company, facing the pressure of quarterly performance disclosure, and the valuation also changes from the agreement pricing in the primary market to the continuous bidding transaction in the secondary market. The anchor of valuation also shifted from "revenue growth expectations" to "long-term free cash flow generation ability". Especially from the end of 2023 to 2024, the milestone breakthrough in airworthiness certificates has cleared the biggest obstacle for the large-scale application of the DCF model.

3.3.1. Airworthiness certificate acquisition: the "singularity" of valuation logic

Before 2023, although Ehang has a clear development narrative and sufficient order reserve, it will always face the core problem of unclear regulatory compliance qualifications for commercial operation. This situation makes enterprises need to bear a very high risk premium of regulatory uncertainty in the discounted cash flow model, which ultimately leads to a low present value of enterprises measured by the model.

In October 2023, the Ehang EH216-S model obtained the world's first model qualification certificate, and subsequently obtained the production license and standard airworthiness certificate. The landing of a series of key qualifications has become an important node of the logic transformation of enterprise valuation. Relevant events eliminate the core regulatory risks faced by enterprises, so that commercial operations have a complete legal compliance foundation, but also so that enterprise orders can be steadily converted into actual delivery results, capacity planning, cost structure, revenue recognition and other key business indicators have a reliable calculation basis.

3.3.2. DCF model construction and core parameter setting

At this time, mainstream brokerage analysts and institutional investors began to build detailed DCF models to conduct an absolute valuation of Ehang. Table 3 lists the summary of core financial data.

Table 3. Summary of core financial data(Unit: \$1million)(Data from S&P Global)

Project	2020	2021	2022	2023	2024	TTM 2025 Q3
Total operating income	182	56.8	44.4	117.4	456.2	803.1
Revenue growth rate	47.84%	-68.46%	-21.99%	164.97%	288.46%	23.39%
Net loss (GAAP)	-91	-327.8	-335.1	-305.4	-226.1	-307.3
Cash flow from operating activities	-151.7	-121.63	-173.46	-88.41	157.96	-49.2
Capital expenditure	-8.74	-15.65	-12.17	-7.83	-38.97	-173
Free cash flow	-160.44	-137.27	-185.62	-96.24	118.99	-222.2

Historically, Ehang Intelligent achieved its first positive cash flow from operating activities in 2024. However, it is affected by high capital expenditures(Mainly used for research and development and production facilities), and free cash flow is still negative today, which is the core difficulty of DCF valuation [8].

Table 4 shows the enterprise value sensitivity analysis. The model begins with a detailed forecast of free cash flow for the next 5-10 years, based on airworthy aircraft models and the delivery

schedule derived from the reserve order book. Key input variables include: annual delivery capacity, determined by the production certificate (PC) and the capacity rampup plan for new production lines; selling price and unit cost (batteries, materials, manufacturing costs), along with the downward cost trend driven by scale effects; and the forecasted ratios of R&D, sales, administration, and other expenses to revenue. After the detailed forecast period (ending in 2031), the company is assumed to enter a sustainable growth phase, with a sustainable growth rate (g) of 4%. This rate respects the industry ceiling of the global urban air mobility (UAM) market and is conservatively aligned with nominal GDP growth. Finally, the weighted average cost of capital (WACC) is used as the discount rate to link future cash flows to their present value, thereby valuing the company by discounting its projected free cash flows [9].

The CAPM model was used to calculate the cost of equity, in which the beta value (β) reflected the volatility risk of the company's stock price relative to the market [10]. The cost of debt is based on the firm's capital structure and credit profile. Most importantly, with the acquisition and commercialization of airworthiness certificates, the "scale premium" and "uncertainty premium" representing unique risks in the model have significantly decreased.

According to the calculation of Valueinvestings.io, the beta coefficient of Ehang Intelligence is 1.52, reflect that the volatility of the company's stock price is significantly higher than the market average. Taking 4.5% as the risk-free interest rate (10-year US Treasury yield) and 4.6% as the equity risk premium, the equity cost is calculated as follows:

$$r_e = r_f + \beta \times (r_m - r_f) = 4.5\% + 1.52 \times 4.6\% = 11.49\% \tag{1}$$

Debt Cost and Capital Structure: The company's current interest-bearing liabilities are low, Asset-liability ratio of about 20%. Model hypothesis target capital structure is 90% stake in weight, 10% debt weight, after-tax cost of debt is about 5.49% (Pre-tax cost was 5.5%, the rate of 0.1%).

$$WACC = \frac{E}{V} \times R_e + \frac{D}{V} \times R_d \times (1 - T_c) \tag{2}$$

$$WACC = 0.90 \times 11.5\% + 0.10 \times [5.5\% \times (1 - 1\%)] \approx 10.90\% \tag{3}$$

Free cash flow in 2031, the first year of perpetuity:

$$FCFF = 29.6 \times (1 + 4\%) = 41.184 \text{ million dollars} \tag{4}$$

To calculate the perpetual value:

$$TV = \frac{FCFF}{WACC - g} = \frac{41.184}{10.9\% - 4\%} = 596.87 \text{ million dollars} \tag{5}$$

Final value discount:

$$TV \times \frac{1}{(1 + WACC)^5} = 362.40 \text{ million dollars} \tag{6}$$

Table 4. Enterprise value sensitivity analysis table (unit: million US dollars)

	8%	9.0%	10.0%	11.0%	12.0%	13.0%	14.0%
2.0%	592.13	502.30	435.10	382.97	341.39	307.47	279.30

Table 4. (continued)

2.5%	637.99	534.36	458.54	400.70	355.16	318.41	288.14
3.0%	693.03	571.77	485.33	420.65	370.47	330.44	297.78
3.5%	760.30	615.97	516.24	443.26	387.58	343.73	308.33
4.0%	844.39	669.02	552.30	469.09	406.82	358.50	319.94
4.5%	952.50	733.86	594.92	498.91	428.63	375.01	332.78
5.0%	1096.65	814.90	646.07	533.69	453.56	393.58	347.04
5.5%	1298.46	919.10	708.58	574.79	482.32	414.63	362.97
6.0%	1601.18	1058.03	786.71	624.12	515.88	438.69	380.90

3.3.3. Sensitivity analysis and market value fluctuations

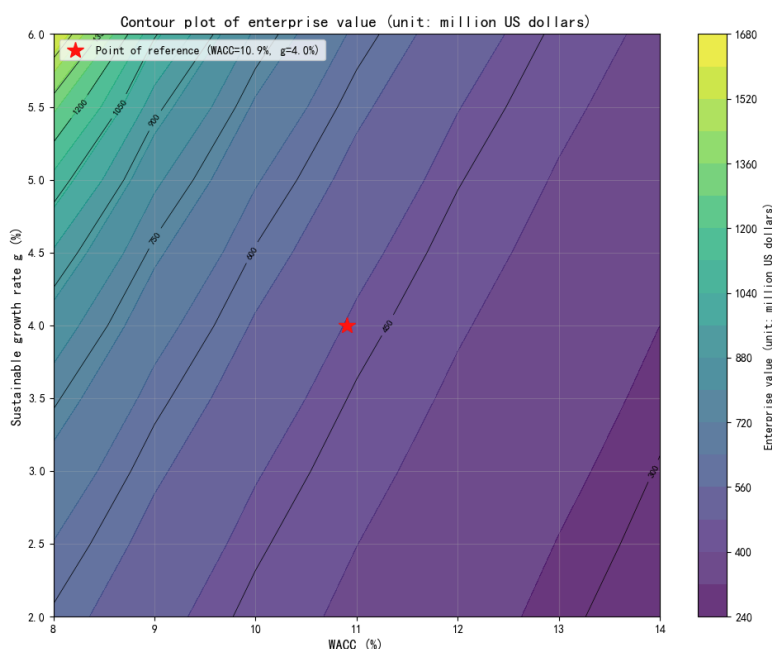


Figure 1. Sensitivity analysis (picture credit : original)

Figure 1 shows that valuations remain highly sensitive to key assumptions even after commercialization: In the range of 8%-14% WACC and 2%-6% g, Ehang's enterprise value fluctuates by more than 40% (from about \$400 million to \$850 million). Which mean milestones such as the acquisition of airworthiness certificates have caused wild swings in stock prices, essentially a market risk premium in the DCF model model (WACC) and growth expectations (g) dynamic revaluation. This finding reinforces the value of dynamic and uncertainty characteristics, also explains the emerging technology companies often present non-linear wave.

The DCF model is not static; it is a dynamic analytical framework whose results are highly sensitive to key assumptions. This is the fundamental reason for the sharp fluctuations in the stock price after the listing of Ehang, especially after the acquisition of the airworthiness certificate.

Positive drive: When a company announces a higher-than-expected quarterly order volume, an exclusive operating partnership with a city, or a new policy dividend, the market immediately raises the short-term cash flow forecast in the DCF model and even raises the sustainable growth rate

(g). Small increases in these two parameters, when discounted, lead to large positive changes in the valuation results, driving up the stock price.

Negative drive: If the delivery schedule is slower than expected, a safety incident occurs, or policy support is not as strong as expected, the market will lower the delivery forecast, or increase the risk premium in the discount rate (WACC), resulting in a significant contraction in DCF's valuation and a decline in the stock price.

Therefore, during the outbreak period, the fluctuation of Ehang's market value is essentially a process of market participants dynamically adjusting and repricing the key parameters (growth rate, risk and time) in the DCF model based on the latest commercialization progress information.

4. Conclusion

This study takes EHang, a leading enterprise in the global urban air mobility field, as a case study. Based on the enterprise life cycle theory, it systematically sorts out the evolution path of its valuation logic from start-up to commercial explosion throughout the entire stage, and forms a core research summary. The research confirms that the valuation model of emerging technology enterprises is highly adaptive to the dynamic evolution characteristics of the life cycle stage. In the initial stage, the VC valuation model such as Dave Berkus method is relied on to focus on non-financial qualitative factors such as technical creativity and management team to anchor the basic value. In the growth stage, it turns to the price-to-sales ratio relative valuation method, with quantitative business indicators such as revenue growth and order reserve as the core valuation anchor, and the valuation logic gradually shifts from pure narrative drive to data support. Listed after the outbreak of the period is dominated by cash flow discount absolute valuation method, core anchor into long-term free cash flow creation ability, aviation authority will enable key regulation such as breakthrough to further consolidate the foundation the application of the model. Meanwhile, the evolution of valuation models is the result of the combined effect of an enterprise's internal development stage, external regulatory policies, capital market sentiment, and the competitive landscape of the industry. Traditional valuation models are difficult to adapt to the demands throughout the entire cycle, and a single method cannot accurately measure the value of emerging technology enterprises with high uncertainty, high growth potential, and light assets. There are also obvious limitations in this study, which only adopts a single case study, and the uniqueness of the low-altitude economic track where Ehang is located limits the universality of the conclusion. The applicability of relevant conclusions to other emerging technology industries still needs to be further verified.

Based on the research results, this paper puts forward future directions and practical suggestions from both academic research and industry practice. At the academic research level, subsequent multi-case comparative studies can be expanded. Different emerging enterprises in fields such as artificial intelligence and biotechnology can be selected for comparative analysis to break through the limitations of single cases and enhance the universality of the conclusions. Meanwhile, by integrating quantitative techniques with machine learning methods, aim to solve the quantitative problems of core non-financial elements such as intangible assets and team capabilities, improve the theoretical framework of dynamic valuation, and build a unified and standardized valuation database for emerging technology enterprises. At the industry practice level, investors should abandon the single valuation thinking, dynamically switch valuation methods based on the enterprise life cycle, and pay attention to core value indicators in layers. Policy makers need to optimize the information disclosure and financing regulations of enterprises in different stages to reduce the information asymmetry in the capital market. Enterprise managers should adjust the strategic layout according to

the valuation logic, promote the gradual maturity of the valuation system with the implementation of phased goals, help enterprises achieve long-term value maximization, and also provide a feasible reference for the valuation practice and capital market value discovery of similar high-growth emerging technology enterprises.

Author contribution

All the authors contributed equally and their names were listed in alphabetical order.

References

- [1] Patterson, A. (2025). The art of (valuing) the deal: Valuation best practices in emerging markets M&A. In *Valuation in emerging markets* (p. 247).
- [2] Damodaran, A. (2009). Valuing young, start-up and growth companies: Estimation issues and valuation challenges. SSRN Electronic Journal.
- [3] Yan, X. M. (2025). Research on the selection and optimization of valuation model in the IPO process of technology enterprises. CNKI.
- [4] Kurniawan, E. P., Putri, I. G. A. P. D., & Darmawan, I. M. D. H. (2025). Analisis valuasi startup Warkop Djaja Abadi dengan metode The Dave Berkus. *JATI (Jurnal Mahasiswa Teknik Informatika)*, 9(2), 2767–2755.
- [5] Berkus, D. (2010). Berkus: After 35 years of angel investing, here's how to value a startup. *AngelBlog*.
- [6] Tripathi, M., Laddhu, S., Parashar, P., & Raghav, K. (2025). Application of discounted cash flow model: A case on LTI-Mindtree Limited; an IT mastodon. *International Journal of Humanities & Social Science Studies (IJHSS)*, 62.
- [7] Barg, J. A., Drobetz, W., & Momtaz, P. P. (2021). Valuing start-up firms: A reverse-engineering approach for fair-value multiples from venture capital transactions. *Finance Research Letters*.
- [8] Kim, N. K. (2025). Quantifying intangibles: Operating model assumptions in biotech valuation. *International Journal of Advances in Signal and Image Sciences*, 9(10).
- [9] Scariati, S., Dal Mas, M., & Ceka, M. (2025). Firm valuation in practice: A case study analysis of DCF valuation. *ResearchGate*, 12.
- [10] Tian, X. H. (2025). The application differences of WACC in firm valuation: Technology industry versus manufacturing industry. *Journal of Innovation and Development*, 13(1), 200–205.