

A Comparative Analysis of Private Unicorn Valuations and Public Market Benchmarks

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Abstract

For unicorn startups, it is often unclear whether their valuations are similar to those seen in public stock markets. Here, I compare private unicorn valuations with public-company valuation measures across different industries. Unicorn data was taken from the Global Unicorn Startups 2026 dataset, while public-company data, including market capitalization, revenue, and enterprise value, was collected from Yahoo Finance. The analysis compares median unicorn valuations with public-company EV/Revenue multiples and market capitalizations within similar sectors. The results show that private and public markets do not always value industries in the same way. Food/Delivery and Mobility/Transport have high private unicorn valuations despite relatively low public-market revenue multiples, while Fintech/Payments and AI/Software have some of the highest public-market multiples. Most unicorns are valued between \$1 billion and \$10 billion. Company age also appears to have a weak association with valuation. These findings suggest that private-market investors place greater emphasis on expected future growth and market opportunities.

Introduction

A unicorn startup is a private company that has reached a valuation of at least \$1 billion. Unicorns are important to study because they show where investors believe future growth will happen. However, valuing a private startup is difficult because these companies are not traded every day in public markets [3]. Unlike public companies, their valuations usually come from private funding rounds, investor expectations, and estimates of future growth.

In traditional finance, the value of a company is often connected to its future cash flows. One common method is discounted cash flow analysis, where future cash flows are discounted back to the present using a discount rate. The discount rate is important because risky future cash flows should be worth less today than safer future cash flows. Models such as the Capital Asset Pricing Model (CAPM) help explain how investors think about the relationship between risk and expected return [8, 7]. In practice, investors also compare companies using valuation multiples, such as enterprise value divided by revenue (EV/Revenue). These multiples are useful when future cash flows are uncertain, which is often the case for fast-growing startups.

This paper studies whether private unicorn valuations appear similar to public market valuations [6]. The private-company data comes from the Global Unicorn Startups 2026 dataset on Kaggle [4]. For the public-company comparison, market data and financial information were collected from Yahoo Finance [10, 2]. The main idea is to compare unicorn valuations across sectors with public-company benchmarks such as market capitalization and EV/Revenue multiples.

The main question of this paper is: do private markets value startup sectors in the same way that public markets value comparable public companies? This question matters because private investors may price companies based on future expectations, while public markets may price companies based more directly on current revenue, profitability, and risk [1]. For example, a sector may have very highly valued unicorns, but public companies in the same sector may trade

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at lower revenue multiples. This difference could suggest that private markets are placing a larger premium on expected future growth [5, 9].

The results show that unicorn valuations are highly concentrated by sector and country. Most unicorns are valued between \$1 billion and \$10 billion, while only a small number have extremely high valuations. The United States has the largest number of unicorns in the dataset, and sectors such as fintech, artificial intelligence, software, mobility, and food delivery appear frequently. When these private valuations are compared with public-company valuation multiples, the relationship is not always simple. Some sectors, such as AI/software and fintech/payments, have high public EV/Revenue multiples, while other sectors, such as food delivery and mobility, have high private unicorn valuations but lower public-market multiples.

The message of this paper is the argument that private unicorn valuations do not perfectly match public-market valuation benchmarks. Private markets seem to place different premiums on different sectors, possibly because investors are pricing in future growth, market size, and the chance that a few companies become dominant winners. This makes unicorn valuation an important topic for understanding how private capital markets differ from public stock markets.

Methods

This paper compares private unicorn startup valuations with valuation measures from public companies. The goal is not to calculate the exact fair value of each startup. Instead, the goal is to compare broad patterns across sectors and see whether private unicorn valuations look similar to public market valuation benchmarks.

Dataset

The private-company dataset was taken from the Global Unicorn Startups 2026 dataset on Kaggle [4]. This dataset contains information about private companies that have reached unicorn status, meaning that they have a valuation of at least \$1 billion. The main variables used from this dataset were company name, valuation, country, industry or sector, and founding year.

Companies with missing valuation, sector, country, or founding year data were removed from the parts of the analysis that required those variables. The unicorn data was then grouped by sector and country to study where unicorns are most common and which sectors have the highest private valuations.

To compare private unicorns with public market companies, public-company data was collected from Yahoo Finance [10, 2]. The public-company sample included companies from sectors that were similar to the unicorn sectors. For each public company, market capitalization, enterprise value, and revenue were collected when available.

The main public market valuation measure used in this paper was the enterprise value to revenue multiple, or EV/Revenue:

$$\text{EV/Revenue} = \frac{\text{Enterprise Value}}{\text{Revenue}}.$$

This multiple was used because many startups are not yet profitable, so revenue multiples are often easier to compare than earnings multiples. A higher EV/Revenue multiple means that investors are willing to pay more for each dollar of company revenue. This can happen when investors expect faster growth, higher profit margins, or lower risk in the future.

Sector Matching

The unicorn companies and public companies did not always use the exact same sector names. Because of this, sectors were manually grouped into broader categories. For example, companies related to digital payments and neobanking were grouped under fintech, while companies related to artificial intelligence and software were grouped under AI/software. This step was necessary

because the purpose of the paper is to compare broad sector-level patterns, not individual company valuations.

After grouping the companies, the median unicorn valuation was calculated for each sector. The median was used instead of the mean because valuation data can be strongly affected by a small number of very large companies. For the public companies, the median market capitalization and median EV/Revenue multiple were calculated for each sector.

Private-Public Valuation Comparison

The main comparison in this paper is between private unicorn valuations and public-company valuation benchmarks. For each sector, the analysis compares:

1. the median private unicorn valuation,
2. the median public-company EV/Revenue multiple,
3. the median public-company market capitalization, and
4. a proxy private-market valuation premium.

The proxy private-market valuation premium was calculated as

$$\text{Proxy Premium} = \frac{\text{Median Unicorn Valuation in a Sector}}{\text{Median Public Company Market Capitalization in the Same Sector}}.$$

This is not a perfect measure of overvaluation. It does not prove that a sector is overpriced or underpriced. Instead, it gives a simple way to compare how large private unicorn valuations are relative to public companies in the same general sector. If the proxy premium is high, it means that unicorns in that sector are large compared with public companies in the same sector. If the proxy premium is low, it means that public companies in that sector are much larger than the private unicorns.

Results

Figure 1: Panel (a) shows that the distribution of market capitalization varies widely, but most firms are concentrated between market capitalizations of \$10 billion and \$1 trillion. Additionally, several firms exceed \$1 trillion in market capitalization and very few are below \$1 billion. In general, this distribution represents substantial variation in market capitalization between public firms.

Panel (b) shows that most firms in the sample have EV/Revenue multiples within the middle of the distribution in the 3x - 10x range. The distribution has a right tail, meaning that a few companies trade at much higher EV/Revenue multiples. This indicates that most public companies are valued at a relatively common range in terms of revenue, with just a few companies having extremely high multiples.

Panel (c) shows that Fintech/Payments has the highest median EV/Revenue multiple, exceeding 10x. Fintech/Payments is followed by AI/Software, Cybersecurity, and Design/Dev Tools with relatively high median multiples. Meanwhile, E-commerce/Marketplace has the lowest median multiple among the sectors shown.

Panel (d) displays a general positive association, as companies with a higher market capitalization appear to exhibit higher EV/Revenue multiples. However, there is still variation and some outliers, as some companies have substantially higher multiples compared to the overall trend. This indicates that companies with higher market capitalization generally appear to trade at higher revenue multiples.

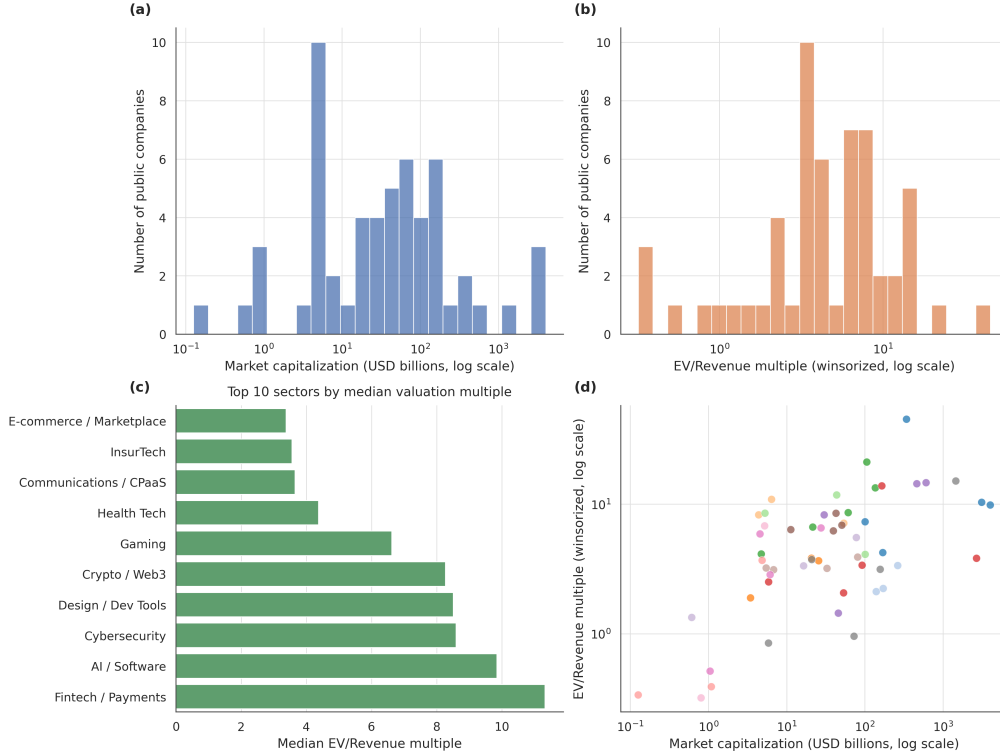


Figure 1: Summary of the public-company comparison sample used to benchmark unicorn valuations. Panel (a) shows the distribution of public-company market capitalizations. Panel (b) shows the distribution of public-company EV/Revenue multiples. Panel (c) shows the sectors with the highest median EV/Revenue multiples. Panel (d) compares public-company market capitalization with EV/Revenue multiple.

Figure 2: Panel (a) shows that Food/Delivery has the highest median private valuation at \$10 billion, with the next closest being Mobility/Transport. In comparison, HR Tech/Workforce is the sector with the lowest median valuation of the sample at about \$3 billion.

Panel (b) presents the median public-company EV/Revenue multiples for each sector. Fintech/Payments and AI/Software have the highest median EV/Revenue multiples as they both near or exceed 10x. Meanwhile, Mobility/Transport, Food/Delivery, and HR Tech/Workforce trade at much lower revenue multiples.

Panel (c) illustrates the proxy private-market valuation premium per sector, showing the comparison of median unicorn valuation with the corresponding public-company valuation benchmarks. Health Tech has the highest proxy premium ratio at approximately 1.0, which is then followed by Food/Delivery. On the other hand, Fintech/Payments and AI/Software have the lowest proxy premiums. This indicates that median private unicorn valuations for Health Tech and Food/Delivery are relatively closer to their public-company benchmarks, while Fintech/Payments and AI/Software have a much larger gap between median unicorn valuations and their public-company benchmarks.

Panel (d) shows the relationship between the median public-company market capitalization within each sector and the median unicorn valuation. There does not appear to be a strong association between these two variables. For example, Food/Delivery has the highest median valuation despite a smaller public-company market capitalization. Thus, it can be observed that these factors do not have a strong apparent relationship.

Figure 3: Panel (a) shows substantial differences in unicorn valuations between sectors. Among the sectors shown, Consumer/Media/Gaming appears to have the highest median valuation of

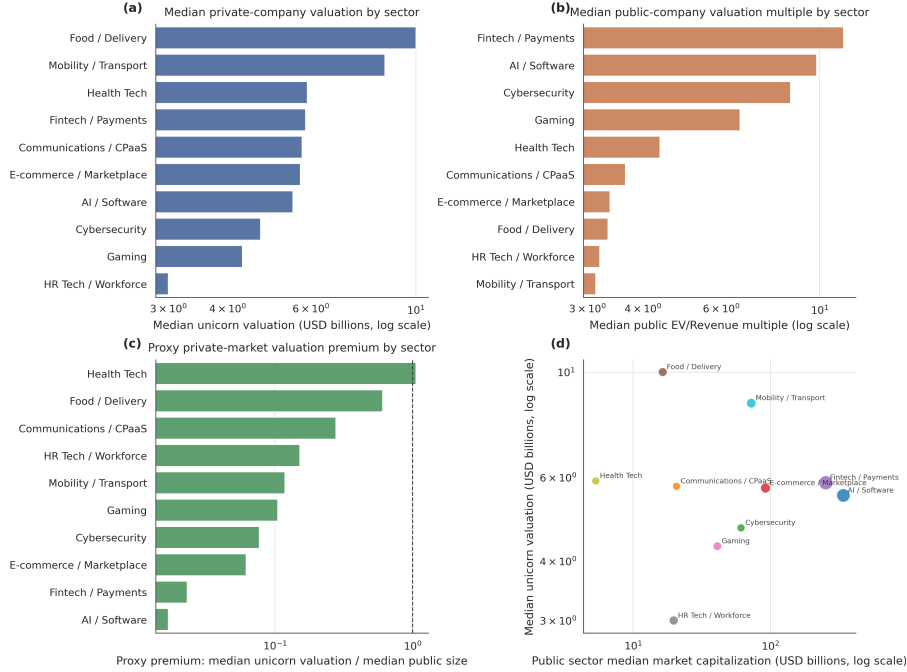


Figure 2: Comparison of private unicorn valuations and public-market valuation benchmarks across sectors. Panel (a) shows the median private unicorn valuation by sector. Panel (b) shows the median public-company EV/Revenue multiple by sector. Panel (c) shows a proxy private-market valuation premium, calculated as median unicorn valuation divided by median public-company market capitalization in the same sector. Panel (d) compares median public-company market capitalization with median unicorn valuation. The figure shows that sectors with high private unicorn valuations do not always have the highest public-market valuation multiples.

around \$10 billion. Meanwhile, EdTech/Workforce and Cybersecurity have the lowest median valuations as they appear to be at or below \$3 billion. AI/Software and Fintech/Payments also contain relatively high valuations, with some extreme companies for AI/Software exceeding \$100 billion.

Panel (b) displays that Consumer/Media/Gaming has the greatest spread in valuation, with an interquartile range exceeding \$10 billion. This is followed by AI/Software with an interquartile range of about \$10 billion. In comparison, Healthcare/Biotech and Cybersecurity have the smallest spread in valuations with an interquartile range of around \$2 billion.

Panel (c) shows that Mobility/Transport and AI/Software have the greatest relative variability in company valuations with coefficients of variation exceeding 2.0. Healthcare/Biotech, meanwhile, has the lowest relative variability which is below 0.5.

Panel (d) presents that AI/Software and Fintech/Payments have the greatest number of unusually valued companies with 6 outliers each. In comparison, Healthcare/Biotech, Cybersecurity, and EdTech/Workforce have the lowest number of unusually valued companies with zero outliers. This indicates that outlier company valuations are concentrated in certain sectors such as Fintech/Payments and AI/Software.

Figure 4: Panel (a) shows that most unicorn valuations in the distribution are between \$1 billion and \$10 billion. There are a relatively small number of companies that exceed a valuation of \$30 billion, and very few that exceed \$100 billion, indicating that highly valued unicorns are uncommon.

Panel (b) demonstrates that Fintech-related sectors are the most prevalent among those sampled. Fintech/Payments and Fintech/Neobank both contain the highest number of unicorns at 7 each. Fintech and Artificial Intelligence follow closely with 4 unicorns each. Electric vehicles and

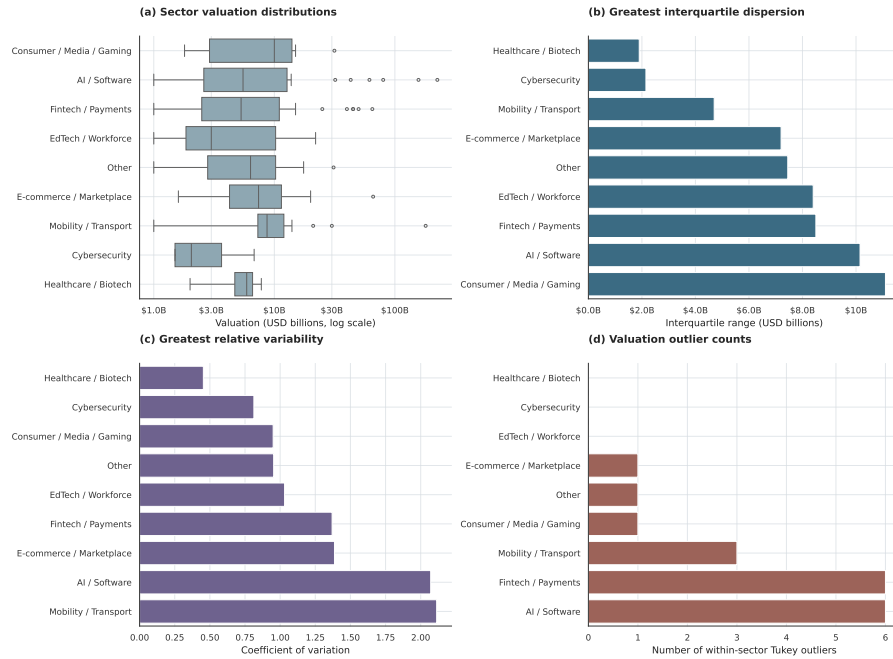


Figure 3: Comparison of unicorn valuation across sectors. Panel (a) displays unicorn valuation across each sector. Panel (b) compares variability of each sector using interquartile range. Panel (c) compares relative variability of each sector using the coefficient of variation. Panel (d) compares the number of unicorn valuation outliers across sectors. This figure shows that unicorn valuations vary substantially more in certain sectors than others.

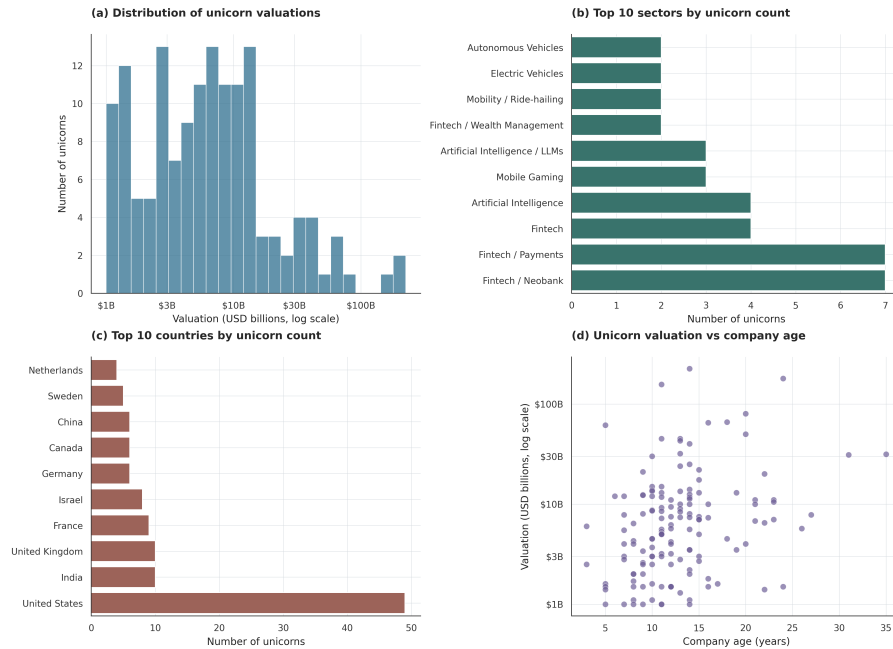


Figure 4: Overview of unicorn valuations and market characteristics. Panel (a) shows the distribution of unicorn valuations. Panel (b) shows the top 10 sectors by unicorn count. Panel (c) shows the top 10 countries by unicorn count. Panel (d) compares company age with unicorn valuation. The figure shows that unicorns greatly vary in valuation and are mainly concentrated in particular countries and sectors with no clear relationship between valuation and company age.

autonomous vehicles have the lowest number of unicorns among the sectors shown, with just 2 each. This indicates that the Fintech and Artificial Intelligence sectors have a substantial share of the unicorns in the sample.

Panel (c) shows that the United States has the largest number of unicorns in the dataset with 49, substantially more than any other country. The United States is followed by India and the United Kingdom, which have 10 unicorns each. The Netherlands and Sweden, meanwhile, have the two lowest counts of unicorns among the countries shown. This indicates that the US dominates the sample in terms of the number of unicorns.

In panel (d), the figure shows a weak association between company age and unicorn valuation. Most companies appear to be clustered between 8 and 15 years old with valuations below \$15 billion. There are just a few high-value outliers that exceed \$100 billion. This indicates that a higher company age does not seem to be strongly associated with higher valuations.

Conclusion

The findings illustrate that private unicorn valuations do not always match public-market valuation benchmarks across industries. For example, sectors such as Food/Delivery and Mobility/Transport have high median private unicorn valuations even though they have lower public-market multiples. The research also found substantial variation across sectors, as Consumer/Media/Gaming had a high median valuation while EdTech/Workforce and Cybersecurity were much lower. Additionally, AI/Software and Fintech/Payments had the greatest number of valuation outliers at 6 each. Most unicorns were in the range of \$1 billion to \$10 billion, with few unicorn valuations exceeding \$100 billion. Unicorns were also found to be concentrated based on geography, as the United States had by far the largest number of unicorns in the sample, with 49.

In conclusion, I found that private markets do not always value industries in the same way as public markets. Private unicorn valuations in a sector did not always align with public-market valuation multiples. A possible explanation is that private and public markets may place greater importance on different things. For example, a private investor may place greater importance on future company growth, market size, innovation, and dominance in a specific sector. Meanwhile, a public investor may place more importance on profits, steady revenue, and risk management. These differences may help explain why high-private valuation sectors do not always have the highest public-market valuation multiples.

There are a few limitations of this study. The sample of public companies only includes sectors that are comparable to the private unicorn data, which means that the sample may not be representative of all public companies across different industries. Additionally, the proxy private-market valuation premium does not directly determine if a company is undervalued or overvalued, so it should not be heavily relied upon as a direct measurement of overvaluation or undervaluation. Some private and public companies also did not use the exact same sector groupings, which required some companies to be grouped into broader categories, thus limiting accuracy. Future research could use larger samples of both private and public companies, include more comparable data, and use more metrics to measure valuation.

Code Availability: <https://github.com/krishtacker5-web/Unicorn-Private-and-Public-Valuation-Analysis>

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