WHAT ARE EARNINGS SEASON AND BVP'S CLOUD 100 TELLING US ABOUT CLOUD COMPUTING?

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At WisdomTree, we have the pleasure of working with Bessemer Venture Partners (BVP) to provide the WisdomTree Cloud Computing Fund (WCLD), which is tracking the total return performance of the BVP Nasdaq Emerging Cloud Index.

On an annual basis, BVP puts out research and perspective on what they term the "Cloud 100"—the 100 most significant private market cloud companies. Their most recent report can be accessed on their website.[1] In software, trends of behavior and activity in the private markets have a lot of connections to what we see in the public markets. The single most significant change, year-over-year, was the introduction of ChatGPT and the subsequent focus on large language models (LLMs) and generative artificial intelligence (AI). However, it is also useful to look at fundamentals like growth and valuation in an environment characterized by much higher interest rates.

The peak valuations that we observed in late 2021[2]—even if they feel like forever ago—were actually not far back on the calendar. The 2023 Cloud 100 report, combined with the earnings reports of companies coming in, could serve to give us all important perspective on the software space.

The Valuation Journey

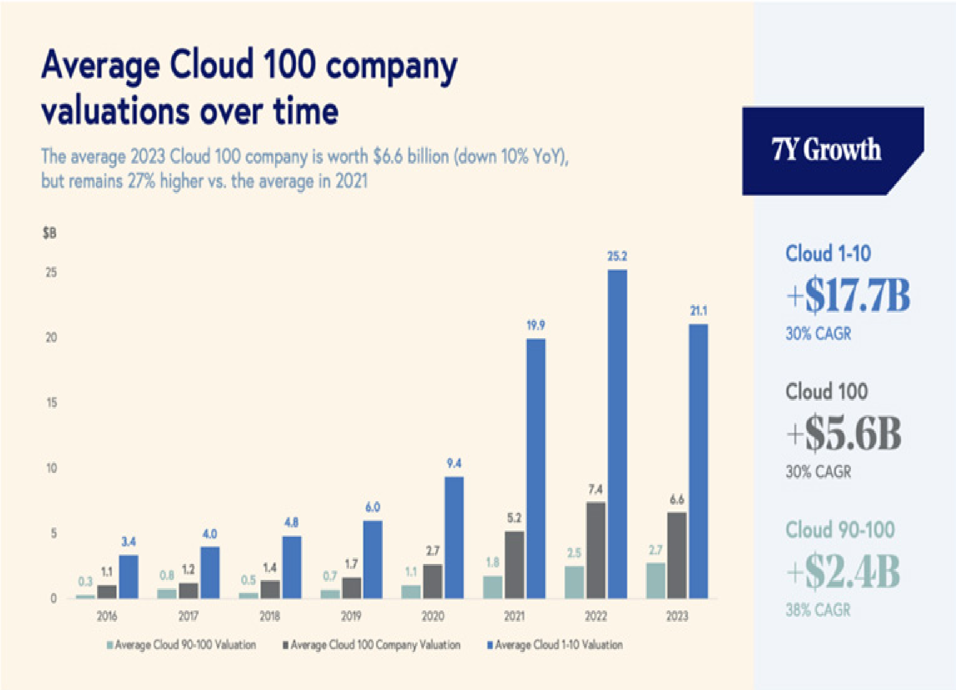
In publicly listed software companies, we experienced a massive run-up in valuations through 2021, with 2022 being a tougher year and now 2023, at least so far, being a bit of a recovery rally. In figure 1, we see BVP's numbers on the valuation of the private Cloud 100 companies:

- Figure 1 specifies three numbers for each year. One number represents the top 10 cloud companies, worth separating because these could represent some of the "best of breed" players in private markets and could also be a place for public investors to look to have a view on who may enter the public markets next. Another number represents the 90th–100th private cloud companies—still on the list, but obviously much different and furthest away from the top 10. Finally, there is the full list, the Cloud 100.

- Notably, the average 2023 Cloud 100 company is worth $6.6 billion, 10% lower year-over-year but still 27% higher relative to the average seen in 2021. It has been a tougher environment, but even if returns have been more challenging, this signifies that it hasn't been a disaster either.

- Over the past seven years, we see that the top 10 private cloud companies grew their valuations at a 30% average annual rate—adding $17.7 billion in value—but we can also note that the companies ranked 90th to 100th grew their valuations at a 38% average annual rate. The important point is that the private markets are seeing valuation expansion across the spectrum, not just across the top companies.

Figure 1: Average Cloud 100 Company Valuations over Time



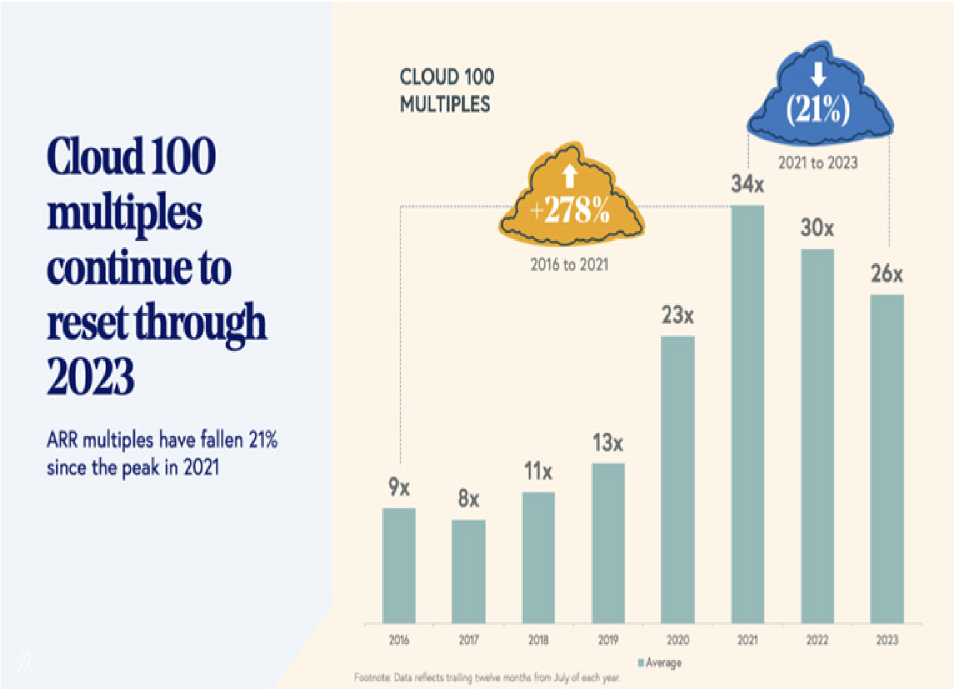
Source: D'onofrio et al., "The Cloud 100 Benchmarks Report 2023," Bessemer Venture Partners, 8/8/23. Past performance is not indicative of future results. CAGR = Compound Annual Growth Rate.

For definitions of terms in the chart above, please visit the glossary.

Another important metric for software companies regards "annual recurring revenue" (ARR). One can take the market value of private companies and relate this to the ARR. Figure 2 shows that, from the near-term peak in 2021, the Cloud 100 has gone from 34x to 26x (a 21% decline) on this basis.

- However, we know that nothing tends to progress in straight-line trends indefinitely. From 2016 to 2021, we saw the ARR multiple go from 9x to 34x, an increase of 278%. With interest rates now significantly higher, it was natural to see multiples adjust.

Figure 2: Cloud 100 Multiples Based on Annual Recurring Revenue



Source: D'onofrio et al., "The Cloud 100 Benchmarks Report 2023," Bessemer Venture Partners, 8/8/23. Past performance is not indicative of future results.

Growth Is the Other Side of Valuation

Whenever we speak to investors about the valuation of software companies, we make sure to bring growth into the discussion because, relative to many other business models, it may be that software just has a structurally higher valuation multiple. One reason for this is that many software companies also have a structurally higher growth rate.

In figure 3, we see:

- The average Cloud 100 company was forecasting 60% growth in 2017—a figure that grew to 100% in 2022. It is natural that there is some volatility in this measure—it is very much dependent on the overall economic environment—so the 2023 figure dropped back to 55%.

- Within software, the best companies frequently have fundamentals that are an order of magnitude above the average or poorer companies. If we see the top quartile of the Cloud 100, the average company was forecasting 65% revenue growth in 2017, which expanded to 120% in 2022. This figure also dropped in 2023, but in this case, to 70%.

Figure 3: Cloud 100 Growth Rates

Source: D'onofrio et al., "The Cloud 100 Benchmarks Report 2023," Bessemer Venture Partners, 8/8/23. Past performance is not indicative of future results.

Earnings Season for Period Ended June 30, 2023: Optimization vs. Recession

Often, market expectations are path dependent. We all saw inflation spike, then the U.S. Federal Reserve and other global central banks reacted, and it was natural to assume that raising policy rates to combat inflation could yield a recession as a consequence. While a possible recession was widely discussed for a period of roughly two years, it was important to view overall technology budgets through this lens. Spending on software is not unlimited, and it is this spending from which the revenue growth across cloud computing companies largely comes. One of the most important barometers is the revenue growth at the "big three," specifically Google Cloud, Amazon Web Services and Microsoft Azure, since this combination does represent a large majority of the cloud market. If these companies start to see revenue contraction, it becomes that much more challenging for the general cloud company to showcase strong growth.

- **Google Cloud:** Google Cloud is the smallest of the big three in aggregate, generating a little more than $8 billion in revenue for the quarter ended June 30, 2023, representing about 28% annual growth.[3]
- **Amazon Web Services:** Amazon Web Services is the largest of the big three on a market share basis, and the platform generated more than $22.1 billion in revenue for the quarter, representing about 12% year-over-year growth. Trailing 12-month net sales for the platform were at $85.4 billion.[4]
- **Microsoft Azure:** Microsoft Azure is in the number two position on a market share basis within the big three, and Microsoft reported that Azure and other cloud services grew revenues by 27% year-over-year on a constant currency basis.[5]

What we notice is that the year-over-year revenue growth on these platforms is no longer above 30%. However, we also notice that it is still positive and that we are talking about an overall pool of revenues that is in the range of $200 billion annually.

AI Could Be an Accelerant

The story of 2023, at least so far, has been artificial intelligence. Alphabet's earnings call included the following quote:[6]

> *Our AI-optimized infrastructure is a leading platform for training and serving generative AI models. More than 70% of Gen AI unicorns are Google Cloud customers, including Cohere, Jasper, Typeface, and many more.*

While the future may include more and more AI being done at the edge on physical devices like smartphones, the majority of development, training and inference in AI is currently done in the cloud.

Microsoft has jumped out ahead in the AI storytelling battle, offering access to GPT-4 through its Azure platform and also setting a premium price point of $30 per user per month for access to Copilot as part of Office 365.[7]

Many see a so-called "battle" developing between Alphabet and Microsoft in terms of AI, but Amazon.com is no slouch. Within the AWS ecosystem, they have specially designed semiconductors for training (Trainium) and inference (Inferentia) for the efficient training and deployment of large AI models.[8]

Conclusion: AI and Cloud Are Closely Related

We support the view espoused by BVP and others that AI represents an accelerant to the growth of software, as it gives users yet another reason to look at their tech ecosystem and evaluate whether it is up to their evolving needs. While performance is certainly unlikely to be uniform, we believe that if AI is taking off, the drivers for AI's takeoff will be related to the drivers for the cloud's takeoff in that it is difficult to view the two as completely separate.

At WisdomTree, those looking to execute a thesis more tilted to software and the cloud may consider the WisdomTree Cloud Computing Fund (WCLD), whereas those investors looking to execute a thesis on AI may consider the WisdomTree Artificial Intelligence and Innovation Fund (WTAI).

[1] https://www.bvp.com/atlas/the-cloud-100-benchmarks-report?from=feature

[2] Source: Bloomberg, using the BVP Nasdaq Emerging Cloud Index universe, with valuations measured during November and December 2021.

[3] Source: https://abc.xyz/assets/20/ef/844a05b84b6f9dbf2c3592e7d9c7/2023q2-alphabet-earnings-release.pdf

[4] Source: https://s2.q4cdn.com/299287126/files/doc_financials/2023/q2/Webslides_Q223_Final.pdf

[5] Source: https://view.officeapps.live.com/op/view.aspx?src=https://c.s-microsoft.com/en-us/CMSFiles/SlidesFY23Q4.pptx?version=6e2b873e-6d6a-10c5-ac0b-62f8950909be

[6] Source: https://abc.xyz/assets/f1/cc/ee9f31bd40e399789d3fb8315bc7/2023-q2-earnings-transcript.pdf

[7] Source: Weiss et al., "Inspire-d by an Even Larger Microsoft 365 Copilot," *Morgan Stanley Research*, 7/29/23.

[8] Source: Amazon Web Services general AI capability information.

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For current Fund holdings, please click on the respective tickers: WCLD, WTAI. Holdings are subject to change.

WCLD: There are risks associated with investing, including the possible loss of principal. The Fund invests in cloud computing companies, which are heavily dependent on the internet and utilizing a distributed network of servers over the internet. Cloud computing companies may have limited product lines, markets, financial resources or personnel and are subject to the risks of changes in business cycles, world economic growth, technological progress and government regulation. These companies typically face intense competition and potentially rapid product obsolescence. Additionally, many cloud computing companies store sensitive consumer information and could be the target of cybersecurity attacks and other types of theft, which could have a negative impact on these companies and the Fund. Securities of cloud computing companies tend to be more volatile than securities of companies that rely less heavily on technology and, specifically, on the internet. Cloud computing companies can typically engage in significant amounts of spending on research and development, and rapid changes to the field could have a material adverse effect on a company's operating results. The composition of the Index is heavily dependent on quantitative and qualitative information and data from one or more third parties, and the Index may not perform as intended. Please read the Fund's prospectus for specific details regarding the Fund's risk profile.

WTAI: There are risks associated with investing, including the possible loss of principal. The Fund invests in companies primarily involved in the investment theme of artificial intelligence (AI) and innovation. Companies engaged in AI typically face intense competition and potentially rapid product obsolescence. These companies are also heavily dependent on intellectual property rights and may be adversely affected by loss or impairment of those rights. Additionally, AI companies typically invest significant amounts of spending in research and development, and there is no guarantee that the products or services produced by these companies will be successful. Companies that are capitalizing on innovation and developing technologies to displace older technologies or create new markets may not be successful. The Fund invests in the securities included in, or representative of, its Index regardless of their investment merit, and the Fund does not attempt to outperform its Index or take defensive positions in declining markets. The composition of the Index is governed by an Index Committee, and the Index may not perform as intended. Please read the Fund's prospectus for specific details regarding the Fund's risk profile.

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DEFINITIONS

BVP Nasdaq Emerging Cloud Index : designed to track the performance of emerging public companies primarily involved in providing cloud software to their customers.

Fundamentals : Attributes related to a company’s actual operations and production as opposed to changes in share price.

Growth : Characterized by higher price levels relative to fundamentals, such as dividends or earnings. Price levels are higher because investors are willing to pay more due to their expectations of future improvements in these fundamentals.

Valuation : Refers to metrics that relate financial statistics for equities to their price levels to determine if certain attributes, such as earnings or dividends, are cheap or expensive.