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Market Breadth vs. Market Depth

A Comparative Analysis of Horizontal and Vertical SaaS Companies

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Introduction

The SaaS market has undergone a precipitous drop in performance metrics over the past several years since its Covid-induced peak from 2020 through Q1 2022. As an example, the median Net Twelve Months (NTM) growth rate for 80 publicly traded "Cloud Software" stocks dropped ~50% from 25% in Q1 2022 to 12% in Q1 2024 based on data from Altimeter Capital.

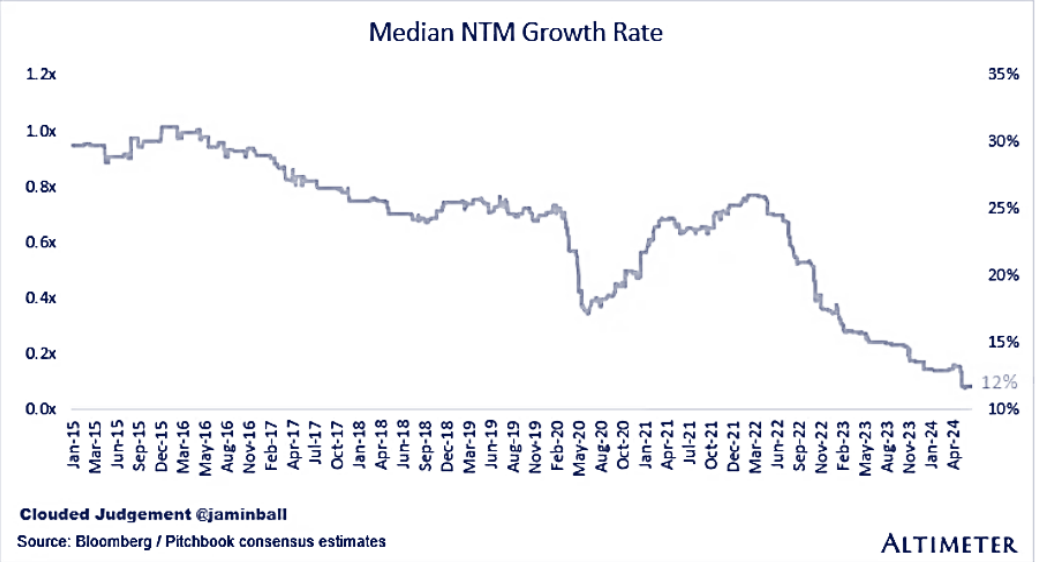

Figure 1: NTM Growth Rates January 2015 – April 2024

Altimeter Capital's data also shows a median Net Retention drop-off from its peak of 121% in Q1 2022 to 110% in Q2 2024.

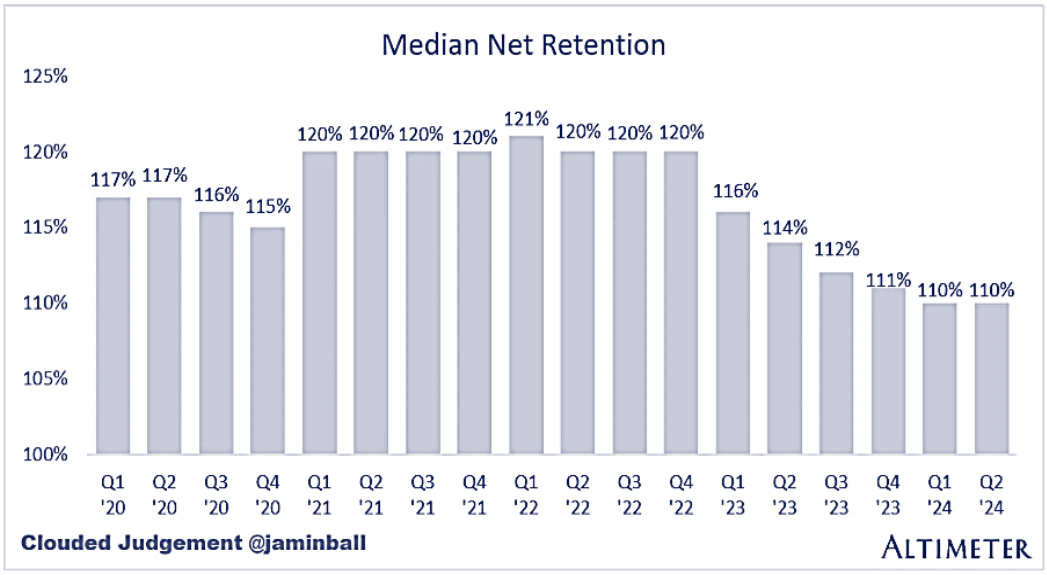

Figure 2: Net Retention Rates Q1 2020 – Q2 2024

Our interest in evaluating Horizontal and Vertical SaaS companies was driven by the following:

- **SaaS Market Articles & Benchmark Data:** Research and Venture Capital firms, like Altimeter Capital, have published articles, and SaaS benchmarking sites have shared data highlighting the recent challenges facing the SaaS market.
- **Direct Experience:** Our prior consulting engagements with SaaS companies have revealed distinct scaling and operational challenges between Horizontal and Vertical SaaS companies.
- **Vertical SaaS Articles:** Venture Capital firms, with deep domain expertise in Vertical SaaS, have published articles highlighting Vertical SaaS as an attractive investment opportunity due to their comparative advantages on certain metrics over Horizontal SaaS.

Based on these drivers, we defined the following research goals:

Gain a Deeper Understanding of Publicly Traded SaaS Company Performance Based on a Key Metrics Comparison between Horizontal and Vertical SaaS Companies

We identified and completed a detailed financial analysis, including 17 comparative charts of 50 publicly traded SaaS companies (refer to Section 5). The scope of the analysis enabled us to compare companies within each group and across the groups.

Validate the Comparative Advantages of Vertical SaaS Companies Identified by Leading Investors in Privately Held Vertical SaaS Companies

In our examination of the financial history and associated metrics of these publicly traded companies, we evaluated four of the seven Vertical SaaS comparative advantages outlined in articles by leading venture capital firms that invest in privately held Vertical SaaS companies (refer to Section 4). For instance, we assessed whether Vertical SaaS companies have superior Sales & Marketing Efficiency, higher Net Retention Rates, and larger Average Contract Values (ACV) in comparison to their Horizontal SaaS peers.

Provide Insights from Comparative Benchmarks to SaaS Executives for More Informed Decision-Making

Our analysis provides SaaS executives with data-driven insights, enabling them to make better-informed decisions through comparative benchmarks. These benchmarks serve as tools for strategic planning, allowing executives to evaluate the health of their SaaS organization with respect to the broader industry. Examples of key questions for SaaS executives to consider include:

Research and Development (R&D):

- How does our R&D Productivity compare to leading SaaS companies?

- Are we positioned within the "Unsustainable Zone" (refer to Section 7), indicating that our R&D expenditure, as a percentage of revenue, isn't driving the desired top-line growth? If so, why is this happening?

Professional Services:

- Should we be providing Professional Services to our customers?
- If so, should these services operate as a profit center, break even, or as a loss leader?

Identify Leaders and Laggards for Investors in Publicly Traded SaaS Companies

By reviewing our SaaS benchmarking data, investors can gain insights into key performance indicators, enabling them to distinguish between industry leaders and laggards. This allows them to make more informed investment decisions by evaluating a target company's relative strengths and weaknesses against industry benchmarks and by conducting a deeper dive into any outlier performance against these metrics.

Additionally, benchmarking data provides crucial insights into areas such as Revenue Growth Rates (CAGRs), Gross Margins, R&D Productivity, Sales & Marketing Efficiency, Customer Acquisition Costs (CAC), and CAC Payback, enabling investors to identify both opportunities and pitfalls for existing or potential investments.

Our research encompasses an analysis of fifty publicly traded SaaS entities – equally divided between twenty five Horizontal and twenty five Vertical firms (refer to Tables 1 and 2). This research provides a comprehensive comparison between these two groups, exploring their unique characteristics and their relative performance across key metrics.

Whether you are a Venture Capital or Private Equity firm looking to make more informed decisions on future SaaS investments or how to optimize the performance of existing SaaS investments by applying insights from this analysis, an executive shaping the trajectory of your SaaS company, an investor seeking data-driven insights to guide your portfolio decisions, or an interested observer looking to deepen your comprehension of this dynamic market, this white paper is designed to deliver actionable intelligence in the ever-evolving SaaS landscape.

1) Definitions: Horizontal vs. Vertical SaaS

What is Horizontal SaaS?

Horizontal SaaS companies develop and provide software that caters to all industries. Examples of the software types included within the analysis are HR (Workday), Marketing (Hubspot), Finance (Bill Holdings), Cybersecurity (Crowdstrike), and Project/Task Management (Asana). The goal is to serve a wide customer base by offering versatile and scalable software solutions that can address common business challenges across numerous industries.

What is Vertical SaaS?

Vertical SaaS companies develop and provide software tailored to the unique needs, requirements, and workflows of a specific vertical market. These companies typically have a deep understanding of the specific requirements, workflows, compliance standards, and nuances of the verticals they serve, allowing them to develop software that aligns closely with the needs of businesses operating in that industry. Vertical SaaS companies will typically employ staff that have expertise in these verticals including prior work experience in their target markets. The end goal is to own the industry by becoming the "business critical operating system used to run their business[1]."

[1] Redpoint Ventures, "The Defining Decade of Vertical SaaS: Why Software Purpose Built for Industry Will Define the Next Wave of SaaS Innovation," September 28, 2023

2) Background

The publicly traded SaaS companies included in our analysis are listed in Tables 1 & 2.

Horizontal SaaS

We identified twenty-five publicly traded Horizontal SaaS companies to include in our analysis as listed in Table 1 below:

Publicly Traded Horizontal SaaS Companies

1	**Amplitude**	9	**Fastly**	17	**SmartSheet**
2	**Asana**	10	**Freshworks**	18	**Snowflake**
3	**Atlassian**	11	**HashiCorp**	19	**UiPath**
4	**AvidXchange**	12	**Hubspot**	20	**Unity Software**
5	**Bill Holdings (bill.com)**	13	**Nutanix**	21	**Workday**
6	**Crowdstrike**	14	**PubMatic**	22	**ZipRecruiter**
7	**Dynatrace**	15	**SEMrush**	23	**Zoom**
8	**Expensify**	16	**SentinelOne**	24	**ZoomInfo**
				25	**Zscaler**

Table 1

We selected these companies with the intention of having a cross-section of product offerings ranging from cybersecurity to marketing automation to recruitment.

The updated Horizontal SaaS analysis replaced Doximity, as previously mentioned, with SEMrush and replaced Salesforce with Fastly. We removed Salesforce from the updated analysis to minimize the impact of having too many high market capitalization companies in the Horizontal SaaS analysis.

We should also note that HashiCorp announced they were being acquired by IBM for $6.4 billion on April 24 and Vista Equity and Blackstone announced on September 16 that they are in advanced talks to acquire Smartsheet for $8.4 billion.

HashiCorp and SmartSheet will be replaced by other Horizontal SaaS companies in any follow-up analysis.

Vertical SaaS

Our initial group of Vertical SaaS companies to include in the analysis were identified from lists of publicly traded Vertical SaaS companies developed by Fractal, Anna Khan, Harlem Capital, and other sources. We then added Enfusion, Definitive Healthcare, Health Catalyst, and PowerSchool Holdings to our analysis given they met our Vertical SaaS criteria as defined in Section 2.

We also include two companies, Lightspeed Commerce and Toast, which sell hardware as part of their overall solution. The hardware sales, however, are negligible, representing less than 5% of revenue for each company. This revenue would be slightly higher except both companies subsidize their hardware sales (e.g., -102.8% Hardware Gross Margin for Toast in 2023).

While Fractal, Anna Khan, and Harlem Capital included Constellation Software in their Vertical SaaS lists, we excluded them from our analysis given we view this company as a Vertical SaaS anomaly. Constellation Software has been a roll-up over the past three decades of more than five hundred Vertical SaaS companies serving over seventy-five vertical markets. Colin Keeley has written a blog with an in-depth profile of Constellation Software for anyone interested in learning more about this unique company.

Publicly Traded Vertical SaaS Companies

1	**AppFolio**	9	**Doximity**	17	**nCino**
2	**AspenTech**	10	**Enfusion**	18	**Olo**
3	**Autodesk**	11	**Envestnet**	19	**PowerSchool Holdings**
4	**Blackbaud**	12	**Five9**	20	**Procore**
5	**Blend**	13	**Guidewire**	21	**Q2 Holdings**
6	**Clearwater Analytics**	14	**Health Catalyst**	22	**Shopify**
7	**CS Disco**	15	**Instructure**	23	**Toast**
8	**Definitive Healthcare**	16	**Lightspeed**	24	**Veeva Systems**
				25	**2U**

Table 2

We started this analysis in 2023 and then updated it in 2024 as 2023 and fiscal year 2024 annual reports became available. Our 2023 analysis included two companies, Duck Creek Technologies and Black Knight, which were acquired in 2023. Duck Creek Technologies was acquired by Vista Equity for $2.6 billion in March 2023 and Black Knight was acquired by Intercontinental Exchange (NYSE: ICE) for $11.9 billion in September 2023. These companies were removed from our updated analysis and replaced by Guidewire and Instructure.

We originally had Doximity in the Horizontal SaaS analysis but then moved them to the Vertical SaaS analysis given its focus on the Healthcare vertical. We also removed Vacasa from the updated analysis given they were the only B2C play in the Vertical SaaS analysis and, as a result, were an outlier on many of the comparative metrics.

We should also note that since completing the updated analysis, the status of the following Vertical SaaS companies has changed:

- Envestnet announced it was being acquired by Bain Capital for $4.5 billion on July 11
- 2U announced it had filed for Chapter 11 bankruptcy on July 25 and emerged as a private company from bankruptcy on September 11
- PowerSchool Holdings was acquired by Bain Capital for $5.6 billion on October 11
- AspenTech received an unsolicited offer from Emerson Electric to acquire the remaining common stock it did not already own for $6.53 billion on November 5
- Instructure was acquired by KKR and Dragoneer for $4.8 billion on November 13

Envestnet, 2U, PowerSchool, AspenTech (if acquired by Emerson), and Instructure will be replaced by other Vertical SaaS companies in our planned 2025 follow-up analysis.

3) Awakened Interest in Vertical SaaS Investments

While Horizontal SaaS companies have dominated investor interest and headlines since Salesforce launched the 1st SaaS solution in 1999, there has been renewed appreciation of the Vertical SaaS model driven by the success of prior IPOs and recent privately held unicorns. As an example of the prior IPO success, the Vertical SaaS companies in Table 3 with 2012 – 2015 IPOs have had 10-year returns ranging between 236% to 3,666%:

Vertical SaaS Companies IPOs 2012 – 2015

Company	IPO Date	10-Year Return
Guidewire	2012	236%
Veeva Systems	2013	700%
Q2 Holdings	2014	434%
Five9	2014	806%
AppFolio	2015	1,656%
Shopify	2015	3,666%

Table 3

This interest has also been further fueled by the recent success of privately held unicorns like ServiceTitan (home services; now publicly traded), Aurora Solar (solar), Cloudbeds (hospitality), and Forter (retailers/e-commerce).

The success of these and other Vertical SaaS players demonstrate that companies that build dominant market positions by becoming mission critical to companies in their vertical markets can create very attractive investment returns for venture capital firms, private equity firms, and stock investors. This success has helped change SaaS investment views that Horizontal SaaS companies were the de facto path to generate outsized investment returns.

The reasoning for this investment interest is based on insights generated by leading venture capital firms that have deep domain expertise in Vertical SaaS investments including Bessemer Venture Partners, Fractal Software, Redpoint Ventures, Mucker Capital, and Harlem Capital. FLG Partners, a fractional CFO advisory firm, has also profiled the “operational and financial characteristics between Horizontal and Vertical SaaS companies.” These firms highlight, in a series of Vertical SaaS articles, the following comparative advantages that these companies have over their Horizontal SaaS peers:

- Higher Sales Efficiency
- Higher Retention Rates
- Lower Customer Acquisition Costs (CAC)
- Larger Average Contract Values (ACV)
- Higher Market Penetration
- Higher M&A Activity

Examples of these comparative advantages are listed in Table 4 below:

Vertical SaaS Companies: Comparative Advantages

Higher Sales Efficiency	
FLG Partners	Vertical SaaS companies have "**higher overall sales efficiency than is found in Horizontal SaaS companies**" "**Sales efficiency is the key difference** between Vertical and Horizontal SaaS businesses."
Higher Retention Rates	
Redpoint.	"…when successful, vertical software solutions are **incredibly sticky**, mission critical, and therefore have a **far lower likelihood of displacement given their positioning as core workflow**."
Mucker Capital	**"Vertical SaaS companies also see less churn**…because their products are so hyper-targeted that **customers become unable to live without it**."
Lower Customer Acquisition Costs (CAC)	
Harlem Capital	Having a more potent wedge when selling translates to a **lower cost of customer acquisition**, as refined customer personas make targeting precise and reduce the need for extensive ad spend.
Larger Average Contract Value (ACV)	
Harlem Capital	A core way that vertical software companies scale is by adding layers of various products and services to become an all-encompassing platform for end customers. This model brings numerous benefits like higher customer retention, **larger ACVs**, and a moat that leads to market leadership.
Higher Market Penetration	
Redpoint.	"Vertical SaaS companies can **achieve materially higher market penetration than their horizontal counterparts**."
Bessemer Venture Partners	Vertical SaaS companies "…could grow to be much larger than we expected. By focusing on a vertical market, these companies are able to **trade market size for market share and in some cases achieve 50%+ market penetration**."

Higher M&A Activity	
fractal	**"Tremendous amount of M&A activity in the Vertical SaaS market"**
BESSEMER VENTURE PARTNERS	**"Vertical software companies tend to be more acquisitive** than horizontal players"

Table 4

The above comments highlight that these comparative advantages, excluding higher M&A activity, are driven by how the most successful Vertical SaaS companies become essential to their customers' workflows as highlighted in Table 5 below:

Vertical SaaS Companies
Essential to Customer's Workflows

Essential to Customers' Workflows	
fractal	"Vertical SaaS is **one of the best business models in the game because it is absolutely essential to the customer's workflow**, which yields high LTV and high margins." "Vertical SaaS is an essential service that will be **the last cost to be cut during hard times because it powers the core workflows of its users**."
Mosaic Strategic Advisors	JLA Advisors Client Engagement: Vertical SaaS solution for the Hospitality Industry "We wanted a **system that could enable our workflows** as opposed to following workflows that the system told me to do. We chose [platform name] because of the flexibility, giving us **a tool to implement our vision**."

Table 5

4) Publicly Traded Vertical and Horizontal SaaS Companies Analysis Scope

We completed detailed financial analysis of the Vertical and Horizontal SaaS companies listed in Tables 2 and 3. This analysis included comparative charts of the following metrics:

1) Revenue Multiple
2) Market Capitalization

3) Average R&D Spend vs. Revenue CAGR (5-year view)
4) Average R&D Spend vs. Revenue CAGR split by Growth Rate Tiers
5) R&D Productivity (2023 and average 3-year view)
6) Average Sales & Marketing Spend vs. Revenue CAGR (5-year view)
7) Average Sales & Marketing Spend vs. Revenue CAGR split by Growth Rate Tiers
8) Sales & Marketing Efficiency (2023 and average 3-year view)
9) OpEx Spend: R&D and Sales & Marketing
10) % of OpEx: R&D, Sales & Marketing, and G&A
11) SaaS/Overall Gross Margin (average 3-year view and specific years)
12) Professional Services: Avg. Revenue and Avg. Gross Margin
13) Average Contract Value (ACV)
14) Customer Acquisition Cost (CAC)
15) CAC Payback
16) Net Retention Rates
17) Rule of 40

Our comparative charts do not include key SaaS metrics, such as ARR, CARR, SaaS Magic Number, and Customer Lifetime Value (CLV). The data for these metrics either wasn't included in the annual reports or was inconsistently reported by these companies.

The calculations for select Key Metrics are shown in Table 6 below:

Definitions for Select Key Metrics

Key Metrics	Definitions
R&D Productivity	(Current Year Revenue – Previous Year Revenue) / Previous Year R&D Expense
Sales & Marketing Efficiency	(Current Year Revenue – Previous Year Revenue) / Previous Year Sales & Marketing Expense
Average Contract Value	Current Year Revenue / Current Year # of Customers
Customer Acquisition Cost (CAC)	Current Year Sales & Marketing Expense / (Current Year # of Customers – Previous Year # of Customers)
CAC Payback	**CAC Ratio** = ((Current Year Revenue – Previous Year Revenue) * Current Year Gross Margin) / Current Year Sales & Marketing Expense **CAC Payback Period** = (1 / CAC Catio) * 12

Table 6

5) Horizontal vs. Vertical SaaS Comparison: Summary

While we analyzed Horizontal versus Vertical SaaS companies across the 17 metrics identified in Section 4, our analysis in this white paper is focused on the 10 comparative metrics in Table 7 below:

Comparative Metrics: Horizontal vs. Vertical SaaS

	Horizontal			Vertical		
	2022	2023	% Change	2022	2023	% Change
Revenue Multiple LTM	9.9	6.6	-50%	4.9	6.2	21%
Market Cap (millions)	$ 9,669	$ 7,134	-36%	$ 3,969	$ 3,841	-3%
Revenue Growth (CAGR)	33.6%	28.8%	-17%	20.1%	19.4%	-4%
Gross Margin	78.5%	77.5%	-1%	72.0%	71.4%	-1%
Net Retention Rate	116.0%	106.0%	-9%	110.0%	107.0%	-3%
R&D Productivity	1.32	0.73	-82%	1.01	0.62	-63%
Sales & Marketing Efficiency	0.74	0.40	-85%	0.90	0.50	-80%
Average Contract Value (ACV)	$ 68,730	$ 75,882	9%	$ 183,576	$ 201,775	9%
Customer Acquisition Cost (CAC)	$ 192,832	$ 241,249	-20%	$ 353,462	$ 481,900	-27%
CAC Payback (months)	31	37	-17%	30	38	-21%

Table 7

Notes:

1) The data uses Median instead of Average to minimize the effects of any outlier data (e.g., 2U's $3.6M in ACV)
2) The analysis had planned to include Annual Recurring Revenue (ARR) as a key metric, but most companies did not report ARR in their annual reports

Refer to the Appendix for a more detailed analysis of these comparative metrics.

Horizontal SaaS Comparative Advantages

The Horizontal SaaS companies in our prior analysis using 2022 (FY2023) annual reports had better performance in seven of the ten comparative metrics. As examples, the Horizontal SaaS companies outperformed their Vertical SaaS counterparts on Revenue Growth (CAGR) and Customer Acquisition Cost (CAC) due to their broad market reach and flexibility. The Horizontal SaaS companies had higher growth rates as they cater to a wider audience across various industries, allowing them to capture a larger market share and expand more rapidly.

Horizontal SaaS companies' ability to target customers across multiple industries led to lower CAC as they can leverage standardized sales & marketing strategies to reach a larger audience, resulting in more cost-effective customer acquisition compared to the Vertical SaaS companies. The lower CAC is also in line with lower ACVs for Horizontal SaaS companies.

Harlem Capital mentioned in their article, The Future of Software is Vertical, that Vertical SaaS companies would have lower CAC given their ability to more precisely

target upsell opportunities with existing customers and new business with potential customers. Our analysis, however, did not support this view as Vertical SaaS companies had 2x higher CAC, which is supported by its ~2.7x higher ACVs.
The analysis of R&D productivity revealed an unexpected result – Horizontal SaaS companies demonstrated superior efficiency compared to their Vertical SaaS counterparts. While the venture capital and private equity firms referenced in Section 4 did not specifically highlight this R&D productivity metric in their research articles, our initial hypothesis was that Vertical SaaS companies would outperform their Horizontal counterparts in this area. The rationale was that the same factors that contribute to stronger Sales & Marketing Efficiency for Vertical SaaS companies would also translate to better R&D productivity.

The data, however, suggests that Horizontal SaaS companies can concentrate their R&D efforts on building adaptable, scalable solutions that achieve economies of scale by serving multiple industries and use cases. This broader reach enables these companies to achieve higher overall growth and, consequently, superior R&D productivity compared to their Vertical SaaS counterparts (refer to the Revenue Growth and R&D Productivity comparisons in Table 7).

The lower R&D Productivity may also be due to Mucker Capital's view in their "Understanding The Vertical SaaS Product Stack" blog that Vertical SaaS companies "need to provide services and software that address a customer's entire business operations – the "full stack" – in order to maximize total revenue opportunity and revenue per customer." Developing comprehensive "full stack" solutions requires higher R&D investment compared to simpler "one size fits all" solutions from Horizontal SaaS companies.

It was also surprising to us that Horizontal SaaS had higher Net Retention Rates in our analysis of the 2022 (FY2023) annual reports given its inconsistency with the views from Redpoint Ventures and Mucker Capital in Section 4 that "…when successful, vertical software solutions are incredibly sticky" and that "customers become unable to live without it." This discrepancy, however, reversed in our analysis of 2023 (FY2024) annual reports with Vertical SaaS companies slightly surpassing the Horizontal SaaS companies on this metric.

The Horizontal SaaS companies have higher Market Capitalizations, reflecting their better top line and bottom-line performance. Horizontal SaaS companies can achieve better top line growth by targeting a larger Total Addressable Market (TAM) and diversifying across markets to protect against downturns in any single industry. Horizontal SaaS companies, such as Zoom and ZipRecruiter, also benefit from the Network Effects as their user bases grow. These Networks Effects create barriers to entry and sustainable competitive advantages.

Vertical SaaS Comparative Advantages

Vertical SaaS companies outperformed Horizontal SaaS on Sales & Marketing Efficiency and Average Contract Value (ACV) across both analysis periods.

The higher Sales & Marketing Efficiency for Vertical SaaS companies validates FLG Partners' view that Vertical SaaS companies have higher Sales & Marketing Efficiency. By targeting specific industries, Vertical SaaS firms can tailor their sales strategies and marketing messages to resonate more deeply within their target market. Vertical SaaS companies benefit from a more streamlined sales process, as their products are designed to address specific pain points within a particular industry, making it easier to communicate their value propositions.

Vertical SaaS companies had higher ACVs, as mentioned by Harlem Capital in Section 4, than their Horizontal SaaS peers, because they provide industry-specific solutions that deeply integrate into their customers' workflows. They also achieve higher ACVs due to their ability to introduce additional products and services after establishing a "land and expand" foothold within a company. Bessemer Venture Partners, in their "Ten Lessons from a Decade of Vertical Software Investing" article, states the “best vertical software companies build a layer cake of new products that drive continuous growth.” This Bessemer Ventures Partners article profiles one of their prior portfolio companies, Veeva Systems, using this layer cake strategy to generate high levels of sustained growth.

Overall

The change in relative performance from 2022 to 2023 in Table 7 highlights the better resiliency of Vertical SaaS companies during a downturn in overall SaaS performance. While most of the key metrics deteriorated year-over-year (YoY) for Horizontal and Vertical SaaS companies, Vertical SaaS companies had more limited reductions in Revenue Growth, Net Retention Rates, and R&D Productivity.

The most dramatic YoY key metrics difference between Horizontal and Vertical SaaS was stock performance. While the Horizontal SaaS companies had significant reductions in Revenue Multiples (-50%) and Market Capitalizations (-36%), the Vertical SaaS companies had improvements on their Revenue Multiples (21%) and only a slight decrease in Market Capitalization (-3%) metrics.

While there are a variety of factors driving the divergent YoY Revenue Multiples, Table 7 highlights several key drivers:

- Revenue Growth: Vertical SaaS companies showed more resilience with only a 4% revenue decline, while Horizontal SaaS companies experienced a steeper 17% decrease
- Net Retention Rate: The mission-critical nature of Vertical SaaS resulted in a smaller decline in Net Retention Rates (-3%) compared to Horizontal SaaS (-9%)

6) R&D Overview

It's surprising, when reviewing analyst and research firm reports on publicly traded SaaS companies, that R&D expenditures and metrics are rarely mentioned, particularly given the significant amounts being spent by companies in this area. As an example, 10% of the fifty companies in our analysis spent over $1 billion on R&D including Workday ($2.5B), Atlassian ($2.1B), Autodesk ($1.4B), Snowflake ($1.3B), and Unity Software ($1.1B)

Analysts and research firms typically pay less attention to R&D expenditures in publicly traded SaaS companies for multiple reasons. First, R&D costs are often viewed as a relatively stable percentage of revenue across the industry, making them less of a differentiating factor in company analysis. Second, the long-term and uncertain nature of R&D investments makes it challenging to directly correlate these expenditures with near-term financial performance, which is typically the focus of quarterly earnings analysis. Third, the complexity of software development and the intangible nature of R&D outputs make it difficult for analysts and firms to accurately assess R&D productivity across different companies.

Instead, Wall Street tends to focus on more immediate measurable metrics including Revenue Growth, ARR, Margins, Net Revenue Retention, and CAC, which are perceived as clearer indicators of a SaaS company's current financial health and future performance.

This bias toward readily quantifiable metrics has resulted in R&D productivity remaining an underutilized consideration in the analysis of publicly traded companies, despite their crucial role in long-term value creation and competitive advantage.

Our analysis of R&D spending focused on the following metrics:

- R&D Productivity: Discussed in Section 6 and the Appendix
- Average R&D Spend (% of Revenue) vs. Revenue CAGR (5-year views)

Average R&D Spend (% of Revenue) and Revenue CAGR

The R&D Spend analysis compares average R&D expenditure to Revenue CAGR over the past five years. The objectives of this analysis are to:

- Develop baseline R&D spend benchmarking information to compare companies within a specific market or, in this case, within a SaaS group.
- Analyze companies that deviate significantly from the R&D spending trendline to understand why their R&D investments are notably higher or lower relative to their growth rates.
- Identify companies in the "Unsustainable Zone." Companies in this zone have spent more on R&D relative to their growth rate over the evaluation period which indicates their R&D spend has not driven commensurate revenue growth.

Horizontal SaaS Outliers

The chart in Figure 3 identifies outliers to the trendline for further analysis. Examples of these outliers are companies with R&D spend that exceeds their growth rates, including Unity Software, Asana, Atlassian, Workday, and Nutanix, and companies with R&D spend below their growth rate, such as Zoom and ZoomInfo.

Horizontal SaaS Companies
Average R&D Expenditures vs. Revenue CAGR (5-years)

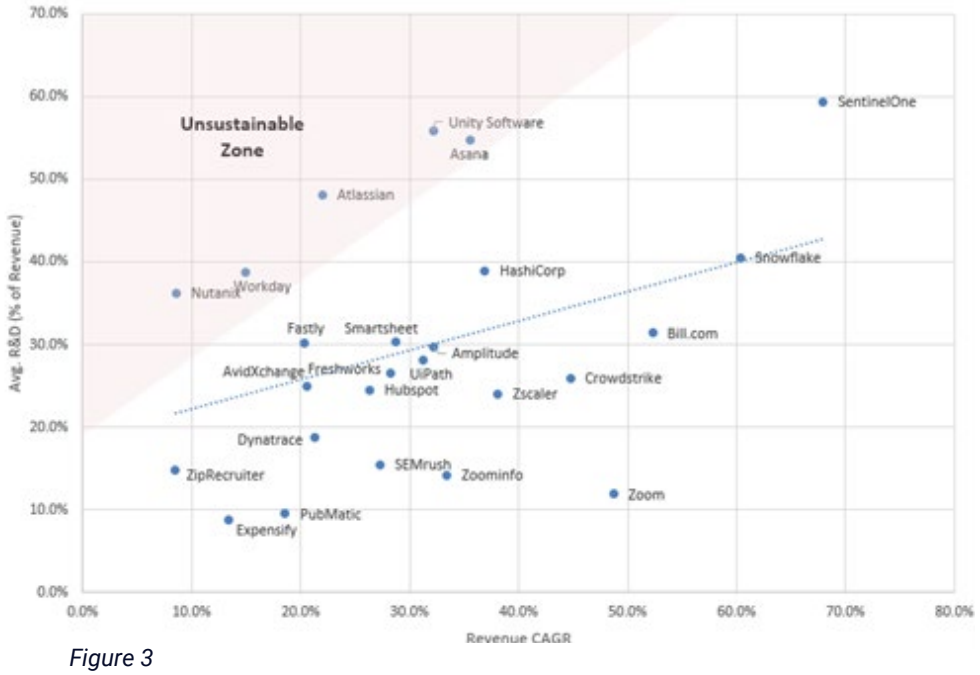

Figure 3

Vertical SaaS Outliers

Figure 4 identifies Vertical SaaS outliers to the trendline for further analysis. Examples of these outliers are companies with R&D spend that exceed their growth rates, such as Blend, Guidewire, and CS Disco, and companies with R&D spend below their growth rate, such as Toast, Lightspeed Commerce, and Definitive Healthcare.

Vertical SaaS Companies
Average R&D Expenditures vs. Revenue CAGR (5-years)

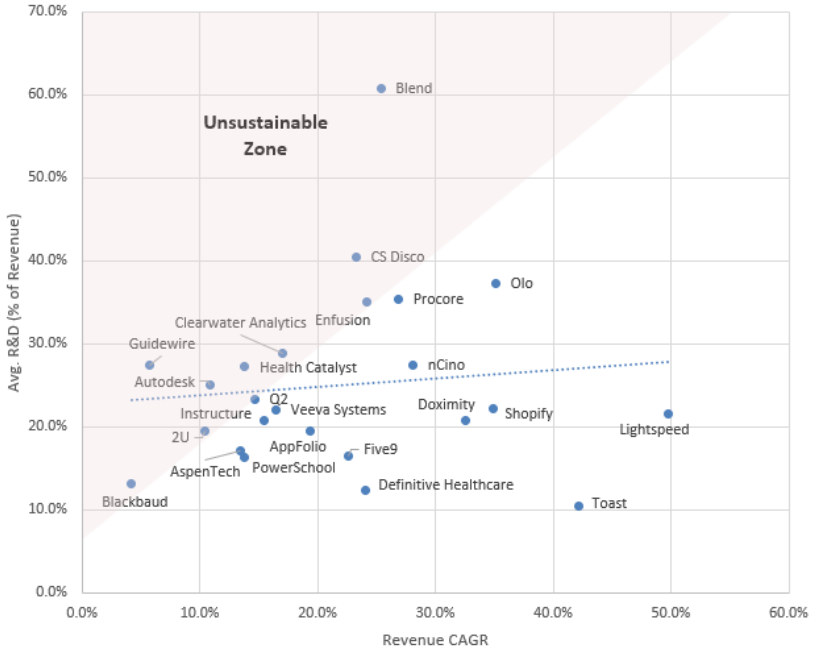

Figure 4
Note: Envestnet was not included in Figure 4 as they did not report R&D as a separate operating expense.

The analysis in Figure 4 also provides a benchmark to evaluate company performance on R&D Spend within Vertical SaaS. The trendline ranges from ~23% to ~28% R&D Spend as a % of Revenue.

This trendline is consistent with Boston Consulting Group's article, "How Software Companies Can Get More Bang for Their R&D Buck," which showed a median R&D spending among high-growth companies of 26% of revenues for thirty five publicly traded software companies. The median R&D spending ranged between 17% to 26% of revenue, depending on their growth rate classifications: Low (< 10%), Medium (10-25%), and High (>25%).

ScaleXP's analysis of R&D spend, in their article, "SaaS Benchmarks: R&D Spend," across 90 SaaS companies that went public between 2016-2019, further validates this trendline, finding that companies typically spend approximately 25% of revenue on R&D.

Unsustainable Zone

Companies that fall within the “Unsustainable Zone” have not demonstrated they can drive revenue growth that exceeds their prior levels of R&D investments. The 5-year analysis period helps minimize any lag effect for a company ramping up their R&D spend to drive higher top-line growth.

Companies in this zone require a deeper dive starting with reviewing their R&D Productivity metrics (refer to Figures 12 & 13 in the Appendix). As an example, CS Disco's position in the “Unstainable Zone” raises concerns. Despite allocating 40% of revenue to R&D over five years, well above the Vertical SaaS trendline, the company only achieved 2.1% YoY growth and 23.2% revenue CAGR during this period. This resulted in a R&D Productivity score of 0.05, ranking 3rd lowest among Vertical SaaS peers (see Figure 13, Appendix).

The company's position in the "Unsustainable Zone" and low R&D Productivity score suggests a deeper dive is required to evaluate their R&D operations to understand why such substantial investment isn't generating stronger top-line growth.

Customization Work

Based on our prior client work, companies may be in the “Unsustainable Zone” due to high levels of creating custom solutions for their customers, especially if they serve a disproportionate number of large enterprise accounts. Enterprise customers often demand customization as the price for securing and keeping them as accounts. As an example, one of our former clients was in the “Unsustainable Zone” due to frequent development of custom instances of their software for several major accounts. As a result of this hybrid approach, the company endured a vicious cycle of repeated software releases with numerous bugs, requiring a significant number of QA resources to fix and, as a result, driving high R&D expenditures.

An additional analysis to validate if companies are developing excessive custom software is to evaluate the software developer to QA resources ratio. If the company’s ratio is < 1.5 then it should not be a surprise that they’re likely developing custom software for customers, which in turn increases the burden and number of QA resources required to manage update and release cycles and one-off features or capabilities.

7) Conclusion

Research Highlights / Key Takeaways

- Horizontal SaaS companies outperformed Vertical SaaS companies on 7 of the 10 key metrics profiled in the analysis.

  - The ability for Horizontal SaaS companies to target larger TAMs drives better revenue growth, R&D Productivity, and CAC, while a laser focus on a core market with a mission-critical solution enabled Vertical SaaS companies to have better Sales & Marketing Efficiency, Net Retention Rates, and ACV.

- Vertical SaaS companies showed better resilience to the 2022-2023 SaaS market downturn, which suggests that their deep integration into customer workflows provides stronger protection against customer churn or spend reductions.
  - During the YoY performance downturn, Horizontal SaaS companies experienced greater than ~10% year-over-year declines across 80% of key metrics, while Vertical SaaS companies showed similar declines in only 40% of metrics.

- The comparative analysis validated the views of leading venture capital firms, with deep Vertical SaaS domain expertise, that Vertical SaaS has superior performance on Sales & Marketing Efficiency, Net Retention Rate, and ACV.
  - The only discrepancy was the view that Vertical SaaS companies would have lower CAC
  - Vertical SaaS companies' Net Retention Rate, however, was only slightly better than Horizontal SaaS in 2023 (FY2024) and was comparatively worse in 2022 (FY023)

- The Horizontal vs. Vertical analysis provides SaaS executives with a relevant comparison group to evaluate their company's performance and, in the event they are within the "Unstainable Zone" for R&D Productivity, to complete a deeper dive to identify root causes and define and implement corrective actions.
  - As an example, 2U was in the "Unstainable Zone" for R&D Productivity and Sales & Marketing Efficiency with one of the lowest CAGRs prior to the company declaring bankruptcy in July

- The analysis also showed a high correlation between leaders and laggards on the key performance metrics and their stock performance although with several notable outliers
  - Outlier examples include Toast and SmartSheet, which were leaders in the key performance metrics, but were not in the top tier of companies with high Revenue Multiples suggesting that Wall Street may have undervalued these companies

- Toast stock has increased 102% YTD, so investors are closing the valuation gap
- Vista Equity and Blackstone announced on September 16 that they are in advanced talks to acquire Smartsheet for $8.4 billion which may be due to their recognition of an undervalued asset.

Based on a review of fifty publicly traded SaaS companies, the 25 Horizontal SaaS companies had better performance on six of the ten comparative metrics, although only slightly better on CAC Payback. The Horizontal SaaS companies had superior performance on Market Capitalization, Revenue Growth (CAGR), Gross Margin, R&D Productivity, Customer Acquisition Cost (CAC), and CAC Payback with the reasons outlined in Section 6.

The Vertical SaaS companies had slightly better performance on Net Retention Rates and significantly better results on Average Contract Value (ACV) and Sales & Marketing Efficiency. The Vertical SaaS companies had better YoY resiliency with the SaaS downturn described in Section 1 with lower performance drop-offs for Revenue Growth (CAGR), Net Retention Rate, and R&D Productivity. The only metrics with worse YoY performance compared to the Horizontal SaaS companies were Customer Acquisition Cost (CAC) and CAC Payback. Further research is required to determine why the Vertical SaaS companies underperformed on these metrics.

Venture Capital and Private Equity Firms

The analysis indicated that Horizontal SaaS companies had superior performance on seven of the ten key performance metrics including better Revenue Growth, Gross Margins, CAC, and CAC Payback. The CAC Payback, however, was only marginally better.

It also validated the Vertical SaaS comparative advantages highlighted by leading venture capital and private equity firms in Section 4, including having higher Sales & Marketing Efficiency, higher Net Retention Rates, and larger ACVs. The Net Retention Rate, however, was only slightly better for Vertical SaaS companies in 2023 (FY2024) and was below Horizontal SaaS companies in 2022 (FY2023). Further research is required to determine why Horizontal SaaS companies outperformed Vertical SaaS companies on Net Retention Rates in 2022 (FY2023).

The Vertical SaaS companies did not have lower Customer Acquisition Costs (CAC), and it was not even close. This finding was a surprise as we expected, prior to completing the analysis, that the Vertical SaaS companies would have

better Sales & Marketing Efficiency and lower CAC. We had expected a high correlation between these metrics given prior discussion on the benefits of a laser focus on a specific market. However, the analysis highlighted that the higher CAC aligns with the significantly higher ACVs achieved by Vertical SaaS companies.

This analysis, highlighting the comparative advantages of publicly traded Horizontal vs. Vertical SaaS companies, may prompt a recalibration of investment strategies in the SaaS space for venture capital and private equity firms given the recent downturn in SaaS performance metrics. Historically, investors have focused most of their SaaS investments on Horizontal SaaS companies, attracted by their ability to achieve scale and capture a larger addressable market, with a smaller subset of firms specializing in Vertical SaaS investments. Our analysis has highlighted, however, that Vertical SaaS companies have had better resilience in this current market environment.

The comprehensive data set, which breaks down performance metrics for Horizontal versus Vertical SaaS companies, offers a valuable benchmark that venture capital and private equity firms can leverage when evaluating potential investments and assessing the performance of their existing portfolio companies. By understanding how their prospects or portfolio firms measure up against the established key performance indicators for each SaaS model, investors gain critical insights to guide their decision-making.

Maintaining this contextual view of performance allows venture capital and private equity firms to spot outliers - both positive and negative - more effectively. This, in turn, enables them to make more informed decisions on potential SaaS company investments, provides guidance on how to optimize the performance of existing investments, and where to focus on building sustainable competitive advantages with its SaaS portfolio executives.

SaaS Executives

The analysis we've conducted allows SaaS company executives to benchmark their performance across a range of key metrics, comparing their results within the relevant peer group - whether that's Horizontal SaaS or Vertical SaaS. This provides invaluable insights to identify areas where the company's performance exceeds, aligns, or falls short against these benchmarks.

For example, by examining their R&D Productivity metrics against the Horizontal or Vertical SaaS benchmarks, executives can quickly determine if their R&D efforts are in the "Unsustainable Zone." If so, this signals the need for a deeper dive to uncover the root causes. It may be that excessive customization work for key customers, as

discussed in Section 7, is driving higher than necessary R&D costs. Or there could be other systemic issues behind the subpar R&D Productivity performance.

Regardless of the specific metric, having this comparative data enables SaaS executives to pinpoint performance outliers. This empowers them to make more informed, data-driven decisions about where to focus their optimization efforts, how to direct scarce resources, and what strategic adjustments may be required to align their operations with industry best practices or where to create a sustainable competitive advantage such as having the best Sales & Marketing Efficiency performance.

Investors

Our analysis enables investors to gain insights into a company's relative performance against key metrics, enabling them to distinguish between industry leaders and laggards. This allows investors to make more informed investment decisions by evaluating a target company's relative strengths and weaknesses against industry benchmarks and by flagging any outlier performance for further analysis.

Horizontal SaaS

The Horizontal SaaS companies with the best and worst overall performance against seven of the ten key performance metrics, excluding Customer Acquisition Cost (CAC), Revenue Multiple and Market Capitalization, in Section 2 are listed in Table 8 below:

Key Performance Metrics
Horizontal SaaS Leaders & Laggards

Company	Revenue Multiple LTM Rank
Leaders	
Crowdstrike	1
Dynatrace	7
Snowflake	2
Zscaler	5
SmartSheet	12
Laggards	
Expensify	24
ZipRecruiter	25
Zoom	16
PubMatic	23
Amplitude	20
Fastly	22

Table 8

CAC was excluded from the metric ranking as a high rank for a low CAC may be due to a company's target market (e.g., Hubspot has a low ACV and CAC given it primarily focuses on SMBs).

Despite Smartsheet's strong performance across multiple key metrics, its Revenue Multiple LTM ranking is an outlier. This discrepancy between strong metric performance and share valuation may have been a key driver for Vista Equity and Blackstone announcing in September 2024 that they were in advanced talks to acquire the company for $8.4 billion.

Hubspot (14.3x) and Atlassian (13.9x) were ranked in the top five for Revenue Multiples but were not identified as performance metrics leaders within the Horizontal SaaS companies. Additional research is required to determine the valuation gap between Revenue Multiples and key metric performance for these companies.

Vertical SaaS

The Vertical SaaS companies with the best and worst overall performance are listed in Table 9 below:

Key Performance Metrics
Vertical SaaS Leaders & Laggards

Company	Revenue Multiple LTM Rank
Leaders	
Shopify	2
Lightspeed Commerce	21
Toast	17
Veeva Systems	5
Doximity	1
Laggards	
Blackbaud	18
AspenTech	4
2U	25
Envestnet	20
Health Catalyst	24

Table 9

Given their strong performance against the key performance metrics, as highlighted in the Appendix, the 21st ranked Revenue Multiples for Lightspeed Commerce and the 17th ranked Revenue Multiple for Toast (4x Revenue Multiple LTM) are outliers.

Despite its strong historical key metric performance, Lightspeed Commerce's stock price decreased by ~20% in 2024 due to a continued deterioration in its Gross Margin (decrease from 67.1% in FY2020 to 42.4% in FY2024) and by barely beating its revenue forecasts over the past year. Toast's stock price, as noted earlier in the Conclusion, has increased 102% YTD, so investors appear to be closing the valuation gap.

Clearwater Analytics, with the 3rd highest ranked Revenue Multiple LTM, is missing from the Leaders list due to its mid-range performance on Revenue Growth, Gross Margin, Net Retention Rate, and R&D Productivity. However, it had a nice turnaround in 2024 with its stock increasing by ~40% after beating its consensus revenue and earnings estimates for Q1 through Q3 2024.

The 4th highest ranked Revenue Multiple LTM for AspenTech at 14x is a major outlier given their overall laggard performance on the key metrics. AspenTech was among the worst performing Vertical SaaS companies on Revenue Growth, Gross Margin, R&D Productivity, Sales & Marketing Efficiency, and CAC Payback. Its only strong performance among its peer group on these key metrics was having one of the highest ACVs. AspenTech's 2024 stock price performance had been down over 10% through early August prior to releasing its Q4 2024/ FY2024 earnings report. The company's results significantly surpassed analyst earnings per share estimates and AspenTech announced a 5% headcount reduction which contributed to a dramatic stock price turnaround by year-end.

The companies with the lowest ranked Revenue Multiples that were not included in the Laggard list are CS Disco (#22) and Definitive Healthcare (#23). CS Disco's overall metric performance was aided by its relatively strong historical CAGR (23.2%) and high average Gross Margins (72.5%).

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Appendix

Horizontal vs. Vertical SaaS Comparison: Detailed Analysis

This appendix provides a deep dive of the ten metrics from Table 7, comparing performance between Horizontal and Vertical SaaS groups as well as the relative performance of the twenty five publicly traded companies within each group.

This analysis also extends the available SaaS benchmarking data available from other sources including Benchmarkit, Meritech Capital, Bloom Street Ventures, BenchSights (David Spitz), Mostly Metrics (CJ Gustafson), and Open View Partners.

Key SaaS Metrics *(Table 7)*

Stock Performance

The Horizontal SaaS companies had significantly higher Market Capitalization and better Revenue Multiples in 2022 which reinforced the view that the Horizontal SaaS model is a superior investment path. In 2023, however, the Vertical SaaS companies closed the Market Capitalization performance gap and surpassed the Horizontal SaaS companies on Revenue Multiples.

Revenue Multiple LTM[1,2]

Horizontal	6.6	Vertical	6.2

The Horizontal SaaS companies had higher median Revenue Multiples compared to the Vertical SaaS companies. Horizontal SaaS high performers on this metric are Crowdstrike, Snowflake, and Hubspot[2]. Noteworthy Vertical SaaS companies with the highest multiples are Doximity, Shopify, and Clearwater Analytics[2].

[1] The Revenue Multiples were calculated using Last Twelve Months (LTM) data
[2] Revenue Multiples for Horizontal SaaS were based on 1/14/2024 stock prices, while Revenue Multiples for Vertical SaaS were based on 1/12/2024 stock prices driven by the initial start of this analysis

Market Capitalization

Horizontal	$7.1 B	Vertical	$3.8 B

The Horizontal SaaS companies had significantly higher Market Capitalization than their Vertical SaaS peers. The Horizontal SaaS companies with the highest market capitalizations are Crowdstrike ($84.3B), Workday ($68.6B), , Atlassian ($63.4B), Snowflake ($51B), and, while the Vertical SaaS top performers are Shopify ($137B), Autodesk ($63.7B), and Veeva Systems ($34.2 B).

Growth Rates (CAGR)	Horizontal	28.8%	Vertical	19.4%

The median CAGR from 2019 – 2023 (FY2020 – FY2024) was 28.8% for Horizontal SaaS companies and 19.4% for Vertical SaaS. The higher CAGR for Horizontal SaaS companies, as discussed earlier, is due to their broader market reach and larger total addressable markets.

The Horizontal SaaS companies with the highest CAGRs from 2019 – 2023 (FY2020 – FY2024) in Figure 5 are SentinelOne, Snowflake, Bill Holdings, Zoom, and Crowdstrike, which all had > 40% CAGR over this period. Zoom's growth rate, however, is distorted given its meteoric growth during COVID. Its year-over-year growth rate over the past two years has dropped precipitously with only 3.1% growth from FY2023 - FY2024.

Horizontal SaaS Growth Rates (CAGR)

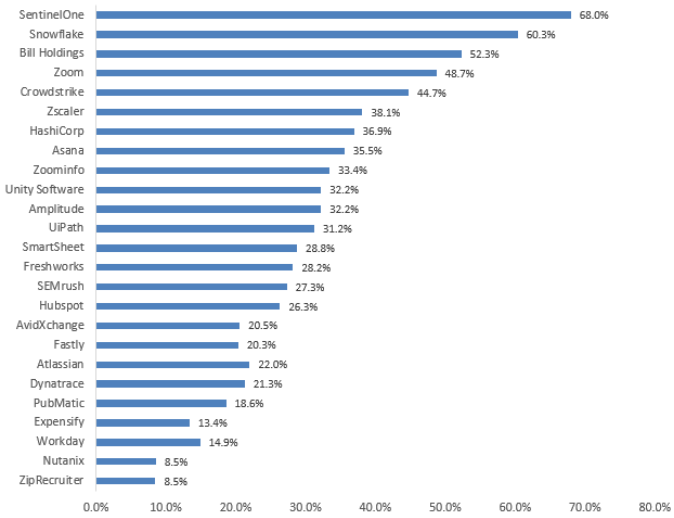

Figure 5

The Vertical SaaS companies with the highest CAGRs from 2019 – 2023 (FY2020 – FY2024) in Figure 6 are Lightspeed Commerce, Toast, Olo, Shopify, and Doximity, which all had > 30% CAGRs over this period.

Company Profile: Doximity

While the recent growth of most of these top-performing companies continues to be strong, Doximity has seen a slowdown in its recent growth with a 13.5% year-over-year increase from FY 2023 – FY2024 and has provided guidance of ~9% growth for FY 2024 - FY2025. The company announced in August 2024 that it would cut its workforce by 10% given its $43 million downgraded annual revenue guidance during its Q1 FY2025 earnings call. The company shared that the downgrade was due to slowing sales to its pharmaceutical customers.

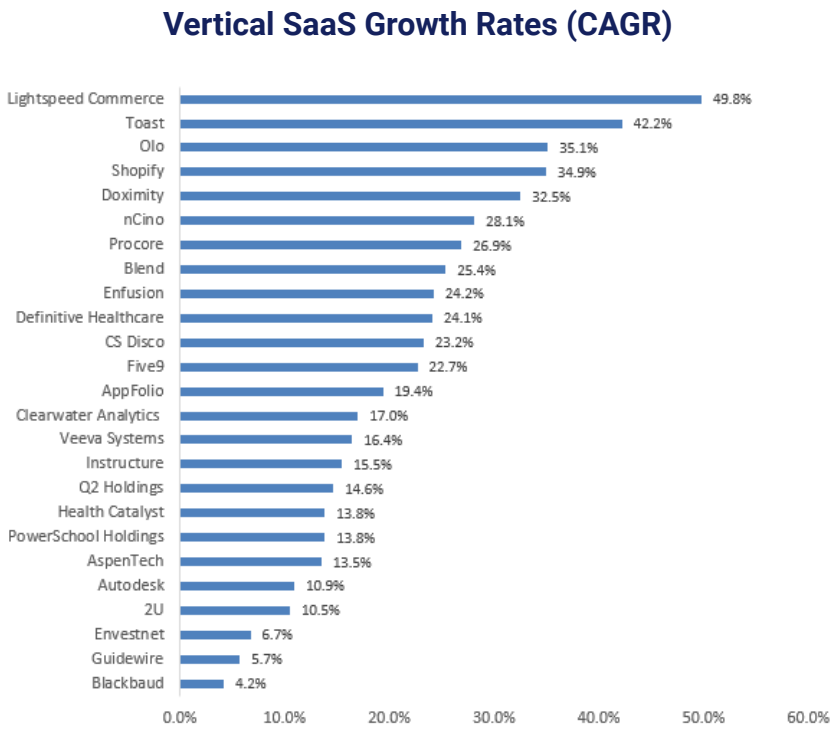

Figure 6

Gross Margin[3]

Horizontal	78.5%	Vertical	71.4%

The median gross margin was 78.5% for the Horizontal SaaS companies and 71.4% for Vertical SaaS. SaaS Gross Margin industry benchmarks from SEG (Software Equity Group) state that SaaS companies should achieve Gross Margins above 75% and anything below 70% is a potential concern for further research. Only six of the Horizontal SaaS companies had average Gross Margins under the 70% threshold as shown in Figure 7.

Three of these six companies, Snowflake (68%), AvidXchange (68.1%), and SentinelOne (71.1%), have been improving their YoY Gross Margin % and are now close to the 70% target or, in the case of SentinelOne, moved above this target in 2023 (FY2024). Unity Software, however, has seen a YoY deterioration in its Gross Margin %, falling from 78.1% in 2019 to 66.5% in 2023.

[3] It should be noted that 8 Horizontal SaaS companies (32%) separately reported their subscription revenue, while the Gross Margins for the other 17 companies were determined by using the overall revenue and total cost of revenue reported in their annual reports. The Gross Margins for 16 of the Vertical SaaS companies (64%) were determined from separately reported subscription revenue.

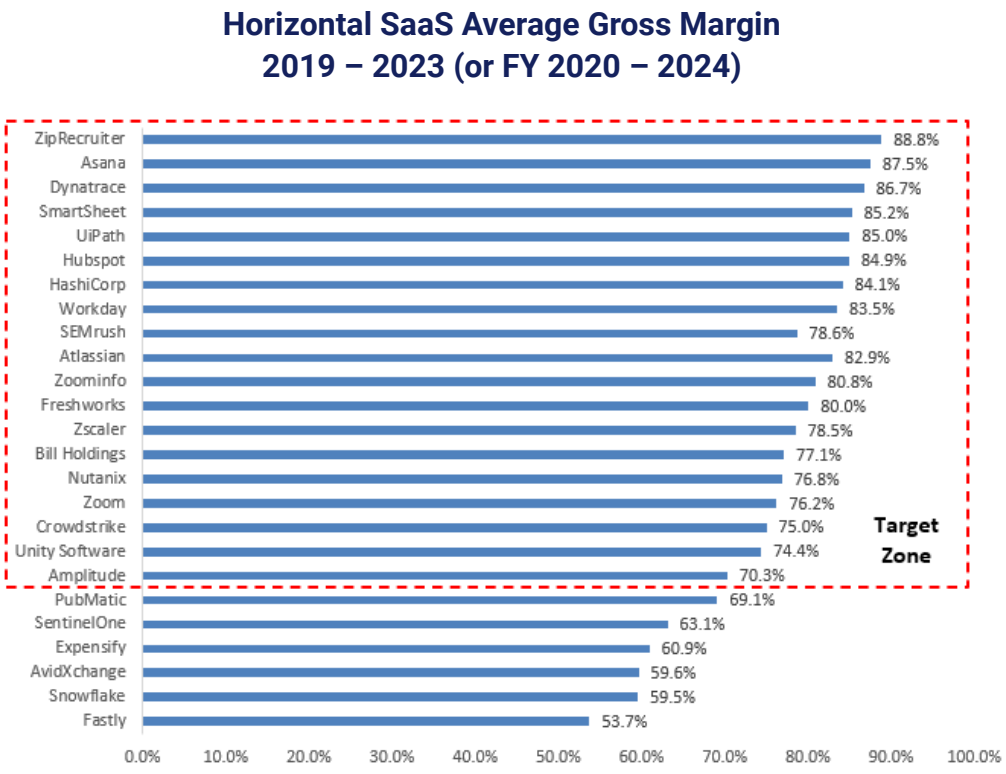

Figure 7

Nine of the Vertical SaaS companies had Gross Margins under the 70% threshold shown in Figure 8. Toast's Gross Margin is impacted by the hardware component of their business which is used as a loss leader with a -63% average Gross Margin from 2019 - 2023.

Three of these nine companies, Enfusion (68.6%), Olo (62.2%), and AspenTech (61.5%), had deteriorating Gross Margin % performance, falling below the 70% target in 2023 (FY2024).

Company Profile: Olo

Olo had a rapid Gross Margin decline in its Platform segment from a high of 84.5% in 2020 to 62.2% in 2023. In its 2022 Annual Report, Olo attributed its overall Gross Margin decrease from 79.4% in 2021 to 69% in 2022 to higher platform and employee costs to support transaction growth, the addition of new features and modules, and higher Olo Pay processing costs. Olo did not, however, provide more granular insights in its annual report to explain why its overall Gross Margin % decreased from 81% in 2020 to 62.2% in 2023.

Company Profile: Guidewire

Guidewire, on the other hand, had a significant improvement from 42.4% in 2020 to 62.7% in 2023 but is still below the 70% target zone. Guidewire attributed its Platform Gross Margin % improvement in its FY2024 annual report due to lower headcount, cloud hosting cost efficiencies, and decreases in professional services costs.

Vertical SaaS Average Gross Margin
2019 – 2023 (or FY 2020 – 2024)

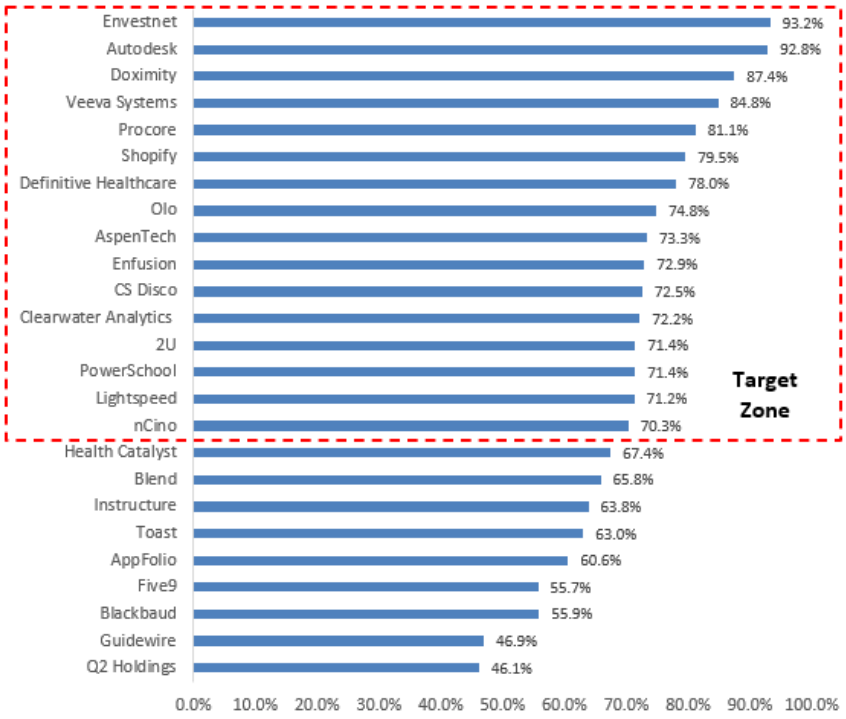

Figure 8

One of the reasons that Vertical SaaS companies have lower Gross Margins is due to a higher concentration of these companies offering low margin Professional Services. 56% of Vertical SaaS, compared to 32% of Horizontal SaaS companies offer Professional Services as highlighted in Table 10 below:

Professional Services Offerings

	# of Companies	Average % Revenue	Average Gross Margin
Vertical SaaS	14 (56%)	12.7%	0.4%
Horizontal SaaS	8 (32%)	6.3%	-9.2%

Table 10

Notes:
1) 12 of 14 Vertical SaaS and 7 of 8 Horizontal SaaS companies provided Professional Services expenses in their annual reports

2) Toast was excluded from the Vertical SaaS Average % of Revenue and Average Gross Margin data given their high negative gross margins for their Professional Services.

Five of the nine Vertical SaaS companies, Health Catalyst, Instructure, Toast, Blackbaud, and Guidewire, with Gross Margins below the 70% Target Zone, offer Professional Services as shown in Figure 9 below:

Vertical SaaS Professional Services

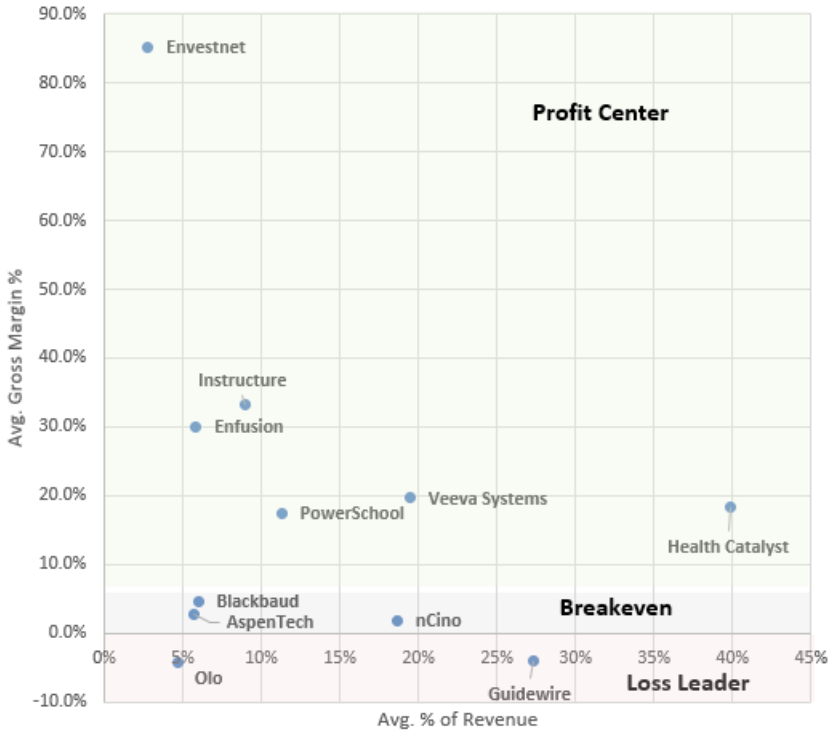

Figure 9

Guidewire and Toast (not on chart) operate their Professional Services as a Loss Leader, while Blackbaud uses a Breakeven model. Health Catalyst and Instructure run their Professional Services as Profit Centers although with ~20% to 35% Gross Margins.

Net Retention Rate

Horizontal	106%	Vertical	107%

Jasmin Ball's Clouded Judgement blog, A Look Back at Q2 '24 Public Cloud Software Earnings, classifies a Net Retention Rate of "> 130% as best in class, 115% - 130% as good, and anything less than 115% as subpar. The blog clarifies that SaaS companies selling to SMB customers, such as Bill.com, have lower Net Retention Rate benchmarks.

ChartMogul reiterates the importance of sustaining high net retention rates by stating in their SaaS Retention Report that "companies with best-in-class retention grow at least 1.5-3x faster than their peers."

The Horizontal and Vertical SaaS Net Retention Rate leaders and laggards are listed in Table 11 below:

Net Retention Rates: Leaders & Laggards

Leaders		Laggards	
Horizontal SaaS			
Snowflake	131%	ZoomInfo	87%
Nutanix	123%	Bill Holdings	92%
Crowdstrike	119%	Atlassian	98%
UiPath	119%	Expensify	99%
SmartSheet	116%		
HashiCorp	115%		
Zscaler	115%		
Vertical SaaS			
Olo	120%	Blackbaud	91%
nCino	117%	Definitive Healthcare	91%
		CS Disco	92%

Table 11

The Vertical SaaS companies had slightly higher average Net Retention Rates compared to their Horizontal SaaS peers. This result is consistent with the views from Redpoint Ventures and Mucker Capital that Vertical SaaS companies have higher net retention rates.

In our prior analysis, however, the Horizontal SaaS companies had higher median Net Retention Rates of 116% compared to 110% for the Vertical SaaS companies as shown in Table 5.

The drop in Net Retention Rates for these SaaS companies from 2022 to 2023, as previously shown in the Altimeter Capital data in Section 1, is primarily attributed to a challenging macroeconomic environment, with factors like economic uncertainty and customer budget constraints leading to increased churn and reduced upselling opportunities, causing customers to reassess and cut back on their SaaS spending. Our analysis has previously highlighted that Vertical SaaS companies had less revenue drop in YoY Net Retention Rates due to their solutions being mission critical to their customers' workflows and daily operations.

Only one Horizontal SaaS company, Snowflake, exceeded the “best-in-class” target with another six companies exceeding the 115% – 130% “good” threshold as shown in Figure 10.

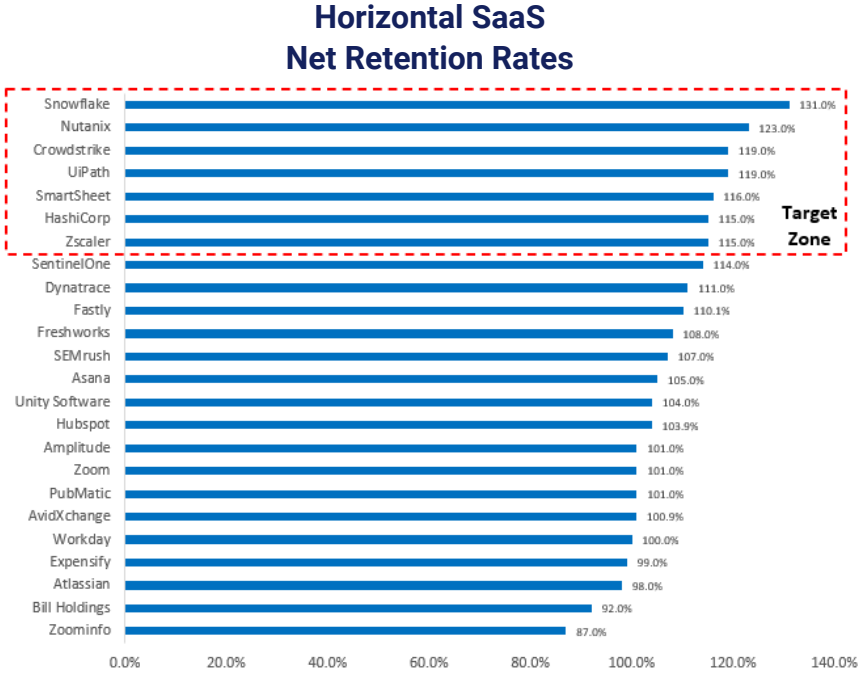

Figure 10:
Note: 24 of 25 Horizontal SaaS companies reported their Net Retention Rates

Only two Vertical SaaS companies, exceeded the 115% – 130% “good” threshold, as shown in Figure 11, although Procore and Doximity just missed this Target Zone.

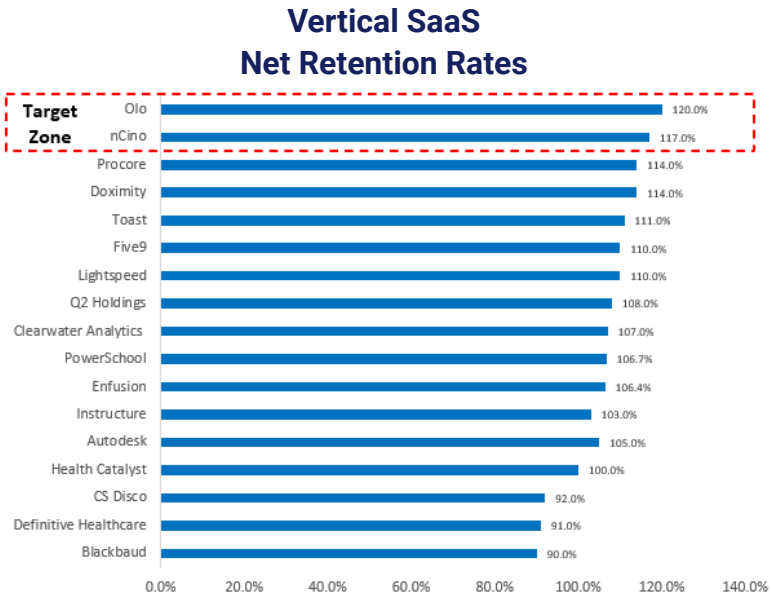

Figure 11
Note: 17 of 25 Vertical SaaS companies reported their Net Retention Rates

78% of the companies (32/41) that reported their Net Retention Rates experienced year-over-year decreases with the largest decreases being experienced by nCino (-26.5%), Bill Holdings (-20.7%), Snowflake (-20.6%), and Amplitude (-17.8%).

Olo, with a 10% increase from 108% in 2022 to 120% in 2023, was the only company that had a material year-over-year increase. However, this improvement was an anomaly, as their 108% Net Retention Rate in 2022 was an outlier in a historical run of 120% Net Retention Rates from 2019 – 2021.

R&D Productivity

Horizontal	0.73	Vertical	0.62

Horizontal SaaS companies have better R&D Productivity compared to the Vertical SaaS companies. As previously discussed in Section 6, Horizontal SaaS companies build versatile solutions that have broader applicability, targeting a wide range of industries, which allows R&D investments to yield returns across multiple industries and use cases and benefit a larger customer base.

FLG Partners' article, SaaS 'Industry-Centric' Business Models: Horizontal vs Vertical, mentions that Vertical SaaS "software development is also much more resource intensive because digitizing specific industry functions is much more complex."

There is a wide disparity on the R&D Productivity metric for the Horizontal SaaS companies ranging from 1.57 for Zscaler to -2.03 for ZipRecruiter as shown in Figure 12. ZipRecruiter's negative R&D Productivity was the result of a -28.6% year-over-year growth rate from 2022 to 2023.

Figure 12

R&D Productivity varies widely among Vertical SaaS companies, from Toast's 4.02 to Blend's -0.57 in Figure 13. Toast's high score stems from its revenue composition: 83% from Financial Technology Solutions (payments, payroll, lending) versus just 13% from Subscription Services in 2023. While Toast appears in Vertical SaaS listings as referenced in Section 2 and within our analysis, its minimal SaaS revenue warrants reconsidering its inclusion in future updates.

Vertical SaaS
2023 (FY2024) R&D Productivity

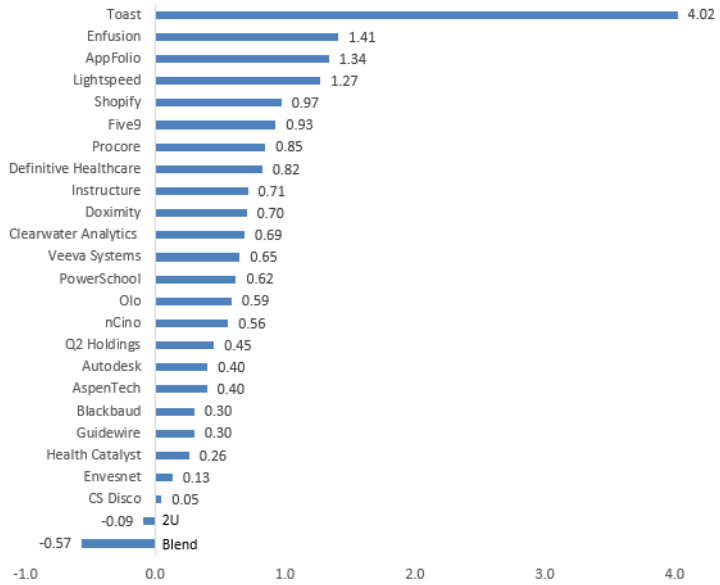

Figure 13

Sales & Marketing Efficiency

Horizontal	0.40	Vertical	0.50

The Sales and Marketing Efficiency was 0.50 for Vertical SaaS companies and 0.40 for the Horizontal SaaS companies. Our analysis validates FLG Partners' view in Section 4 that Vertical SaaS companies have "higher overall sales efficiency than is found in Horizontal SaaS companies." FLG Partners states that Vertical SaaS companies "gain unique experience selling into industry verticals and typically employ a 'Land and Expand' Go-To-Market strategy."

Bessemer Venture Partners describes as one of their Ten Lessons from a Decade of Vertical Software Investing using a "layer cake" approach as another path to efficiently grow sales. They mention that "the best vertical software companies build a layer cake of new products that drive continuous growth." Bessemer further states that the "one thing that separates the good from the truly great in vertical software—a 'layer cake' strategy of building additional products to sell into their core vertical market."

Company Profile: Atlassian

Atlassian had the 2nd highest Sales & Marketing Efficiency in Figure 14. This performance is attributed to its strong product-led growth strategy where their user-friendly products are designed to be easily on-boarded by customers, minimizing the need for extensive sales involvement and allowing them to acquire new users organically through word-of-mouth from their large, active user community.

Figure 14
Note: Expensify (-0.38) and ZipRecruiter (-0.53) have negative S&M Efficiency due to decreases in YoY revenue growth

Company Profile: Toast

Toast significantly outperformed its Vertical SaaS peers on Sales & Marketing Efficiency as shown in Figure 15. One of the key drivers of their strong performance on this metric is their concerted effort to obtain customer referrals. SaaStr, in an interview with Toast's CRO, Jonathan Vassil, shared that "a staggering 20% of deals come from referrals."

Figure 15
Note: 2U (-0.04) and Blend (-0.92) had negative S&M Efficiencies due to decreases in YoY revenue growth

Average Contract Value (ACV)

Horizontal	$76 k	Vertical	$202 K

Vertical SaaS companies have higher Average Contract Values compared to Horizontal SaaS companies as previously discussed in Section 6.

Given the diverse range of Horizontal SaaS companies included in the analysis, there is a wide disparity in ACVs ranging from $691,000 for Workday to $2,718 for Bill Holdings as shown in Figure 16.

Company Profile: Workday

Workday has historically been one of the most expensive Human Capital Management (HCM) systems on the market coupled with a one-time deployment fee that typically costs 100% of the first year software fees. Workday also had previously had a $250k minimum annual contract commitment which was recently discontinued to provide a more affordable option for mid-market companies. The five Horizontal SaaS companies that have < $10k ACVs target SMBs.

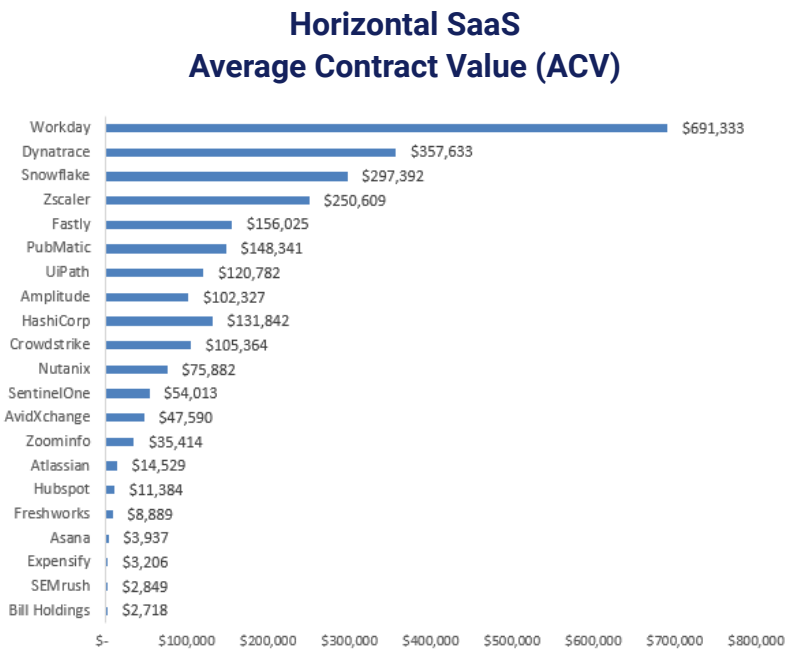

Figure 16
Note: 21 of the 25 Horizontal SaaS companies reported their # of customers for the ACV calculation

There is also wide disparity on ACVs for the Vertical SaaS companies, as shown in Figure 17, ranging from $3.6 million for 2U to $5.5k for Lightspeed.

Company Profile: 2U

2U's ACV is high due to the revenue share model it uses with its ~250 university customers. The company had previously charged universities a 60% or more revenue share of the tuition fees charged to students but lowered this to 35% in 2022 due to pressure from consumer advocates and an alignment with other online program managers. This adjustment, however, did not prevent the company from its Chapter 11 filing in July 2024 after a series of missteps, including losing several of its high-profile customers such as USC.

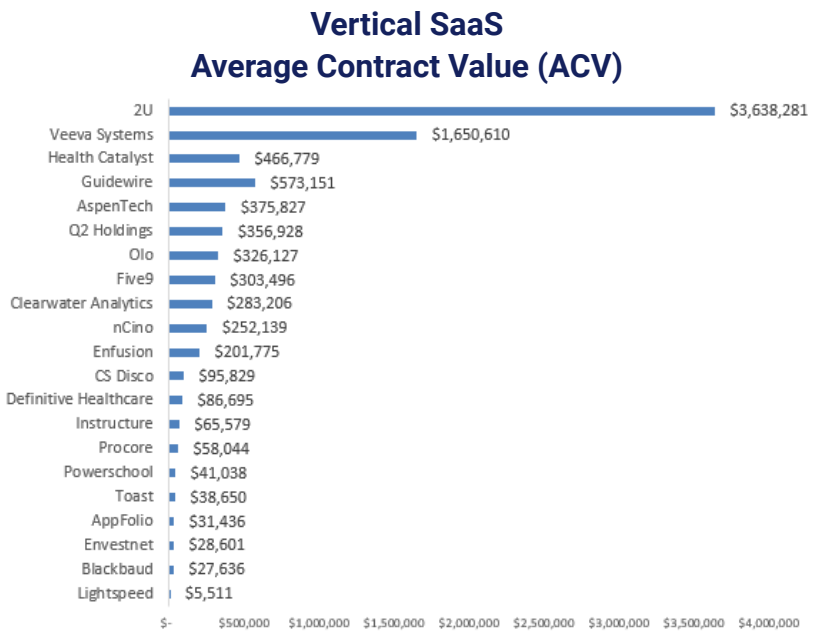

Figure 17
Note: 21 of the 25 Vertical SaaS companies reported their # of customers for the ACV calculation

Customer Acquisition Cost (CAC)

Horizontal	$241 k	Vertical	$482 K

Horizontal SaaS companies have lower Customer Acquisition Costs (CAC) compared to Horizontal SaaS companies as also previously discussed in Section 6.

Despite a 9% decline in YoY revenue growth, Horizontal SaaS companies maintained aggressive Sales & Marketing spending throughout 2023 (FY2024). This resulted in two concerning outcomes: an 85% drop in Sales & Marketing efficiency and a 20% rise in CAC.

As examples of this aggressive spend, five companies, Workday, Fastly, Dynatrace, HashiCorp, and Zscaler, had CACs greater than $1 million. The high CACs for these companies, however, are understandable given they represent five of the nine highest ACVs in Figure 16.

Company Profile: HashiCorp

HashiCorp experienced a dramatic spike in Customer Acquisition Cost (CAC) in FY2024, reaching ~$1.3 million per customer, nearly 6x higher than their FY2020-FY2023 average of $228,000. This surge stemmed from a sharp decline in new customer additions (292) while maintaining steady Sales & Marketing expenditure of ~$360 million annually over the past two years.

There are, however, inconsistencies in HashiCorp's customer reporting in their annual reports: while the difference between their stated total customers in FY2023 (4,123) and

FY2024 (4,423) indicates 292 new additions, their FY2024 report claims 553 new customers were added during this period.

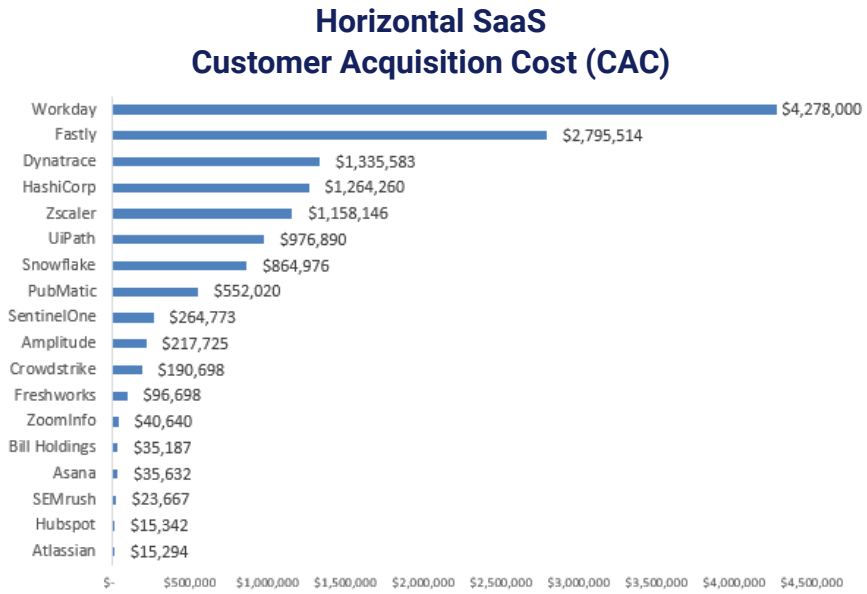

Figure 18

Notes:
1) 18 of the 25 Horizontal SaaS companies reported their # of customers for the CAC calculation
2) Expensify and AvidXchange were not included in the chart given they had negative CACs
3) Nutanix was not included in the chart as they did not report their customer data for 2023

The Vertical SaaS companies included in Figure 18 had a 27% YoY increase in median CAC, which was higher than their Horizontal SaaS peers. Further research is required to understand why the median CAC for Vertical SaaS companies increased slightly more than Horizontal SaaS companies.

Q2's high CAC is due to the cost of targeting leading financial institutions with a $357k ACV, while Toast's low CAC benefits from the customer referrals mentioned earlier as an explanation for their top ranking for Sales & Marketing Efficiency. Toast's low CAC is also aligned with its ~$39k ACV.

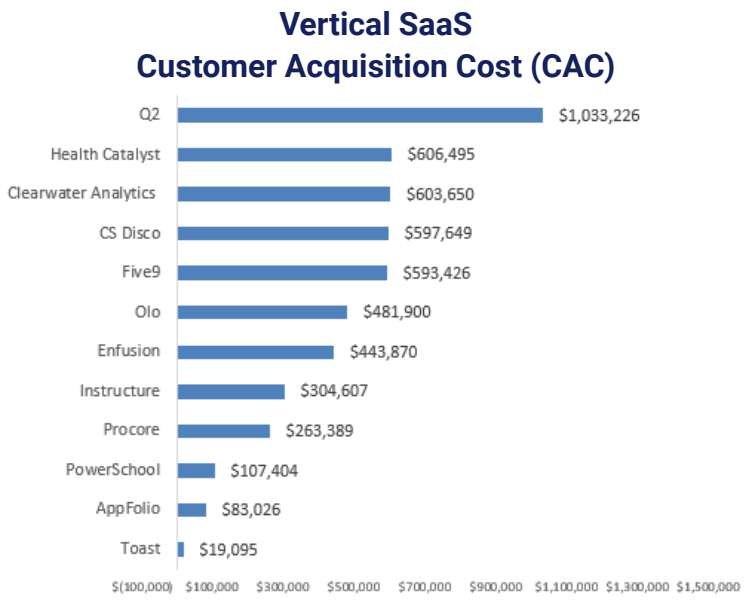

Figure 19

Notes:
1) 14 of the 25 Vertical SaaS companies reported their # of customers for the CAC calculation; Veeva Systems ($8.7M) and 2U ($12.4M) were not included in the chart given their significant CAC #s (distorts chart)
2) Definitive Healthcare, Blackbaud, nCino, AspenTech, Guidewire, and Envestnet were not included in this analysis as they either had negative or no YoY customer growth
3) Autodesk, Doximity, Blend, and Shopify were not included in the analysis as they did not report their # of 2023 (FY2024) customers

CAC Payback

Horizontal	37 months	Vertical	38 months

The Horizontal SaaS companies had slightly better CAC Payback compared to the Vertical SaaS companies. Horizontal SaaS (-17%) and Vertical SaaS (-21%) had YoY deterioration in CAC Payback which is consistent with the overall metric decrease with the exception of Average Contract Value (ACV) and the stock performance improvement for Vertical SaaS companies.

Like many of the preceding metrics, there is a wide CAC Payback range from 181 months for Zoom to 16 months for Atlassian for the Horizontal SaaS companies in Figure 20.

Company Profile: PubMatic

PubMatic had the most significant decrease in YoY performance (-263%) with its CAC Payback increasing from 41 months in 2022 to 149 months in 2023. PubMatic's drop-off was due to a high marketing spend (31% of revenue) only driving a 4.1% YoY revenue increase, coupled with a relatively low 62.8% gross margin.

Company Profile: Zoom

Zoom's high CAC Payback was also due to a high marketing spend (34% of revenue) driving only a 3.1% YoY revenue increase. Zoom's CAC Payback almost doubled from 93 months in FY2023 to 181 months in FY2024.

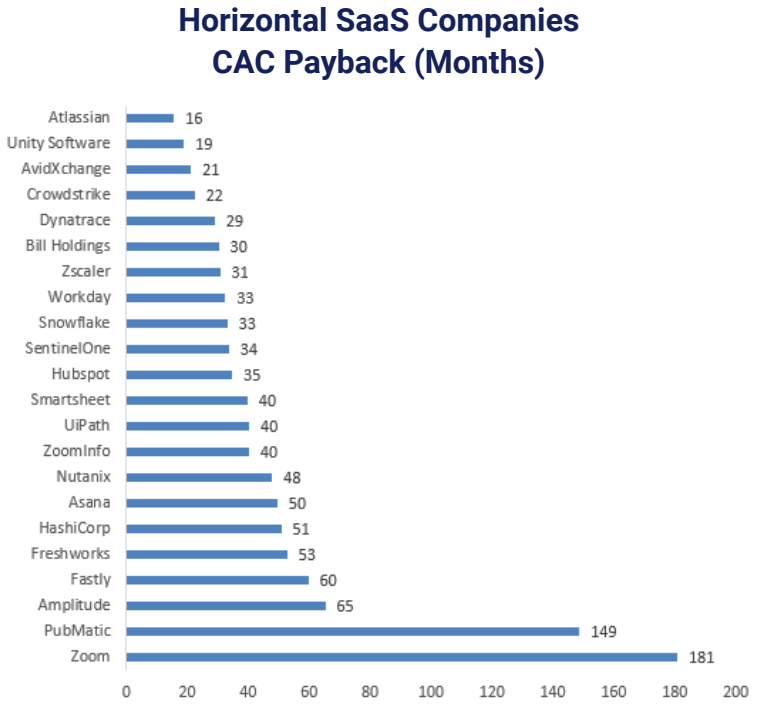

Figure 20

Notes:

1) Expensify and ZipRecruiter were not included in the chart given their negative revenue growth from 2022 – 2023

2) SEMrush was not included in the chart given they had negligible revenue growth from 2022 – 2023

The CAC Payback for the Vertical SaaS companies ranged from 110 months for AspenTech to 14 months for AppFolio in Figure 21.

Company Profile: AspenTech

AspenTech had the most significant decrease in YoY performance (-586%) with its CAC Payback increasing from 16 months in FY2023 to 110 months in FY2024. AspenTech's

significant drop-off was due to a high marketing spend (46.2% of revenue) only driving an 8% YoY revenue increase, coupled with a relatively low 64.2% gross margin.

The high CAC Paybacks for Blackbaud and Health Catalyst are also due to the dynamic of having low YoY revenue growth, high Sales & Marketing spending, coupled with low Gross Margins.

Vertical SaaS Companies
CAC Payback (Months)

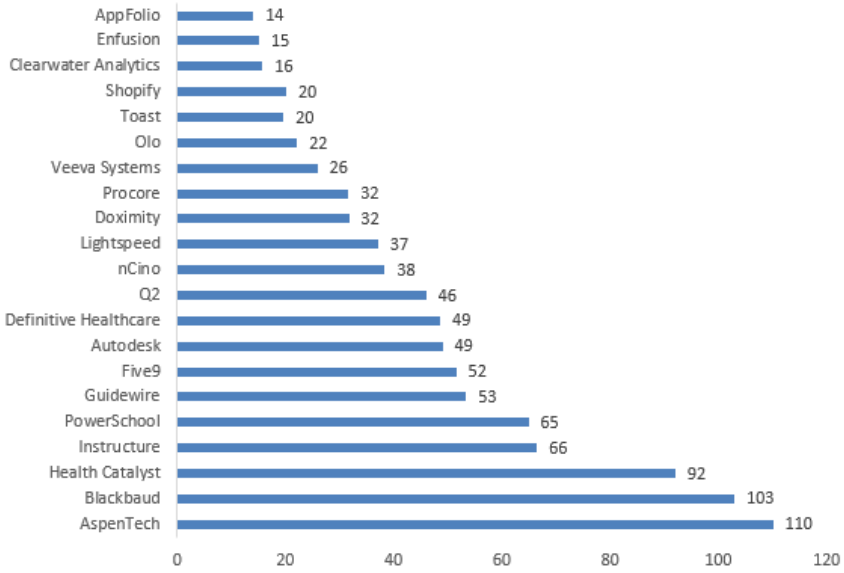

Figure 21

Vertical and Horizontal SaaS Companies Summary

IPO Dates

58% (29/50) of the companies in our analysis had their IPOs between 2020 – 2022 with 72% (21/29) of these companies going public in 2021 alone. An additional 36% of these SaaS companies went public between 2010 – 2019.

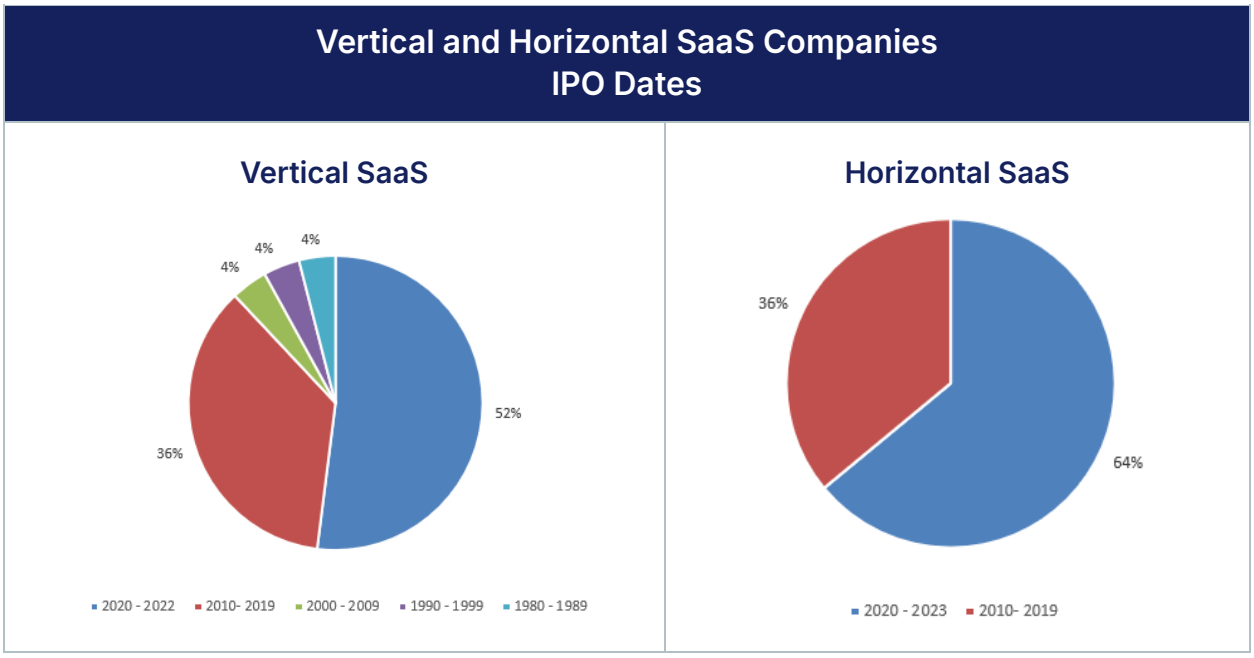

Figure 22

Vertical SaaS

Thirteen companies had their IPOs between 2020 – 2022 with eleven during the IPO-frenzy in 2021. Vertical SaaS had three companies, Autodesk (1985) and AspenTech (1994), and Blackbaud (2004), that went public before 2010.

Horizontal SaaS

Sixteen companies had their IPOs between 2020 – 2022 with ten in 2021. There were no Horizontal SaaS companies included in the analysis that went public before 2010.

Years in Business (Age)

96% of the fifty companies in our analysis have been in business ≥ 10 years with Amplitude, founded in 2014, being the only exception. Blossom Street's SaaS Metrics data identifies an 11-year median age at IPO.

Vertical and Horizontal SaaS Companies
Years in Business (Age)

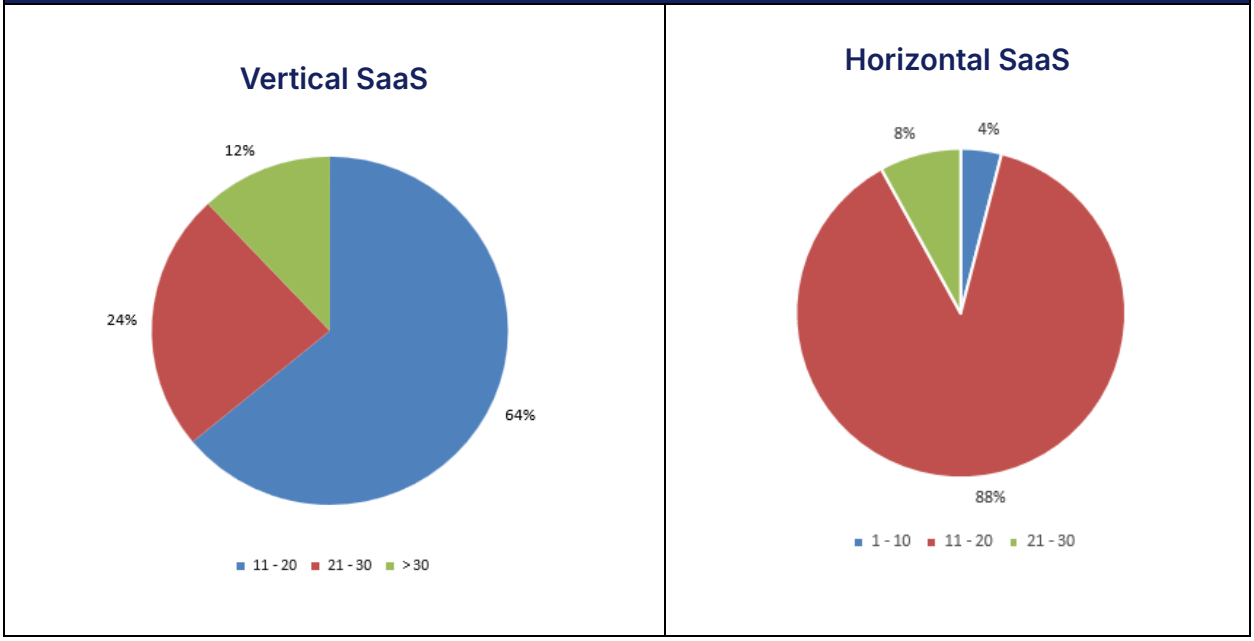

Figure 23

JLA Incisive Intelligence

JLA Advisors is a boutique consulting firm committed to empowering businesses with transformative strategies and tailored solutions for success.

Contact us at info@jlaadvisors.io to explore how we can support your SaaS initiatives.