Introduction to Software as a Service Investing

- Educational Presentation #13
- 30.03.2025
- Property of the ESCP Alternative Investments Society (AIS)
- Sources: Pitchbook, FT, Bloomberg

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Section I: Introduction to SaaS

What is SaaS in B2B?

- Software distribution model in which a cloud provider hosts applications and makes them available to end users over the internet
- One of three categories of cloud computing services including Infrastructure and Platform as a service (Iaas & Paas)
- VC Funds invest in SaaS companies due to their high scalability potentials while maintaining low overhead cost

1. Users access the software application through the internet instead of installing them on their local devices

2. Software provider, as the host provides the application & data using its own servers and databases

3. Application is the accessible to any device within the network

Advantages for VCs

- Subscription-based model that makes revenue streams more predictable
- High gross margin due to a low marginal cost to serve additional customers
- Once product is developed it can be scaled worldwide with low overhead cost
- High customer retention due to high "switching costs" for customers

The Software Stack

- The Software Stack can be considered as the engine behind every Saas-product as it makes independent components work together to support the execution of an application
- A strong and modern stack means high operational efficiency and quick scalability opportunities for VC investors

Frontend (Client Side)	Part of the software the user interacts with directly, like buttons, menus or dashboards	Layout and features of the user interface when opening an application
Backend (Server-side)	Handles all the logic, including processing user requests and stores data	Saves file to the server when user presses "Save"
Database	Destination where all the software's information is stored and organized	Backend password check during login
Infrastructure	Cloud environment that powers the software and delivers it to the users via internet	When opening Netflix, the application is hosted on cloud infrastructure

Interaction with end user

Interaction with hardware

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Further Terms of SaaS

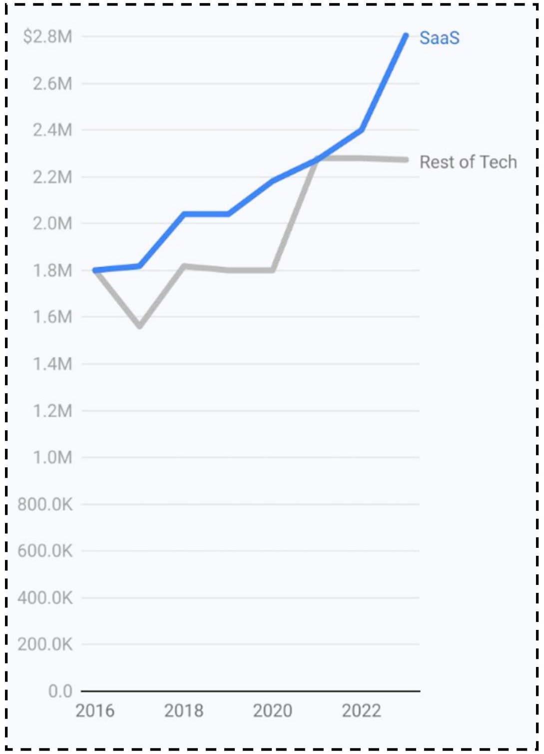
Common metrics and concepts investors and operators should know

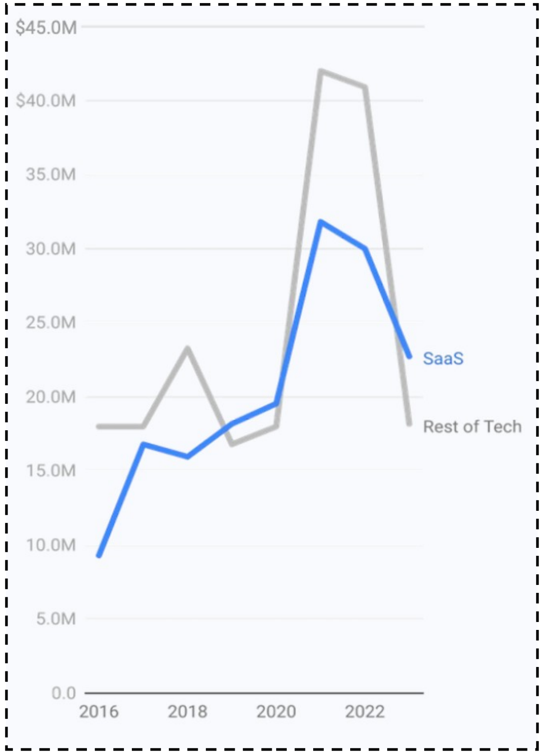
Recurring Revenue	• ARR (Annual Recurring Revenue) is the foundational metric for SaaS valuation, reflecting predictable, contract-based revenue • Growth in MRR or ARR signals product-market fit and scalability - High ARR leads to higher valuation multiples, especially when paired with retention
Retention Rates	• Net Revenue Retention (NRR) over 100% indicates strong expansion within existing customers • Gross Revenue Retention (GRR) measures stability; <85% may indicate high churn risk • Retention is a better predictor of long-term value than new customer acquisition alone
Unit Economics	• LTV:CAC ratio shows how much value is generated per dollar spent on acquisition; 3:1 is a strong benchmark • CAC Payback Period under 12 months signals efficient growth and fast ROI • Strong unit economics suggest a scalable and capital-efficient business model

SaaS Investing Trends over time

SaaS startups outperformed the rest of tech in Seed and Series C funding, while later-stage rounds saw sharper volatility after 2021

Seed	Series A	Series B	Series C+





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Section II: Main Player in SaaS Investing

Major European Saas Unicorns

Personio	Aircall	Parameters	Typeform	Celonis
Personio	Aircall	**Name**	Typeform	Celonis
		Logo		
Hanno Renner	Olivier Pailhes (ESCP)	**Founder**	Robert Muñoz	Alexander Rinke
Greenoaks Capital Partners	Deutsche Telekom Capital Partners	**Investor**	Index Ventures	83North
2015	2014	**Founding Year**	2012	2011
$200 M (Series E in 2022)	$120 M (Series D in 2021)	**Funding Raised**	$135 M (Series C in 2022)	$1 bn (Series D in 2021)

Major Global Saas Unicorns

Parameters	Gusto	Notion	Canva	Wiz
Name	**Gusto**	**Notion**	**Canva**	**Wiz**
Logo	gusto	Notion	Canva	WIZ
Founder	Joshua Reeves	Ivan Zhao	Melanie Perkins	Assaf Rappaport
Investor	General Catalyst	Index Ventures	Sequoia Capital	Sequoia Capital
Founding Year	2011	2013	2013	2020
Funding Raised	$200 M (Series E in 2019)	$275 M (Series C in 2021)	$200 M (Series F in 2021)	$1 bn (Series D in 2024)

Major VC Funds invested in SaaS - Startups

Sequoia Capital	Andreessen Horowitz	Parameters	Notion Capital	Balderton Capital
Sequoia Capital	Andreessen Horowitz	**Name**	Notion Capital	Balderton Capital
		Logo		
USA	USA	**Region**	Europe	Europe
Roelof Botha	Marc Andreessen & Ben Horowitz	**CEO**	Stephen Chandler	Bernard Liautaud
Snowflake	GitHub	**Notable Investment**	GoCardless	Aircall
$54.6 bn	$42.9 bn	**AUM**	$500 M	$6 bn

Section III: SaaS Valuations & Rule of 40

The 3 Key Valuation Metrics for SaaS startups

- The three key drivers of valuation in the B2B SaaS landscape:

1. Growth Rate

- YoY ARR Growth is one of the strongest predictors of valuation multiple
- Companies growing 30-50%+ annually are valued at premium multiples
- Growth without efficiency, is discounted

2. Revenue Scale - ARR & MRR

- ARR (Annual Recurring Revenue) is the core metric used to benchmark SaaS size
- Higher ARR supports larger valuation multiples, especially with predictable and recurring income streams

3. Profitability & Efficiency

- Investors look at Free Cash Flow Margin, EBITDA, and burn multiples
- Profitable growth boosts valuation certainty
- Efficiency ratios such as CAC Payback Period and LTV/CAC matter for cost control

Valuation = ARR × EV/ARR Multiple

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Introduction of the Rule of 40

- The Rule of 40 measures a SaaS company's ability to balance growth and profitability by adding its revenue growth rate to its profit margin, ensuring sustainable scaling and financial health

Rule of 40 = Revenue Growth Rate (%) + Profit Margin (%)

- The Rule of 40 serves as a benchmark for evaluating SaaS companies, as it highlights the trade-off between aggressive expansion and financial sustainability

Interpretation of the Rule of 40

- Rule of 40 > 40%: The company is considered financially strong, balancing growth and profitability, making it attractive to investors
- Rule of 40 < 40%: Indicates inefficiencies - either rapid growth with unsustainable losses or strong profits but slow expansion, reducing investor confidence

Further Explanation

- Investors and lenders favor companies exceeding 40% since they demonstrate scalable growth with controlled spending, making them more resilient in economic downturns
- Typically, SaaS companies with a Rule of 40 above 40% receive higher valuation multiples, while those below face scrutiny over their financial efficiency and scalability

Key Components of the Rule of 40

- The Rule of 40 is made up of two performance metrics that, when combined, signal a SaaS company's ability to scale sustainably:

Revenue Growth Rate

- Measures year-over-year increase in ARR or MRR
- Indicates a company's ability to acquire new customers and grow market share
- Early-stage SaaS often has high growth but negative margins due to reinvestment

Benchmark

30-50 % = High Growth	<20% = Low Growth

Profit Margin

- EBITDA or Free Cash Flow Margin
- Reflects how efficiently a company turns revenue into profit
- Can vary depending on growth stage and investment strategy

Benchmark

10% = Strong Profitability	Negative Margins = Acceptable for early stage, if growth is high

The Impact of the Rule of 40 on Saas Valuation

Higher Valuation Multiples for Exceeding the Rule

- Investors reward SaaS companies that achieve Rule of 40 scores above 40% with higher valuation multiple
- Enterprise Value-to-Revenue (EV/Revenue) multiples are significantly higher for firms exceeding the Rule of 40 compared to those below it

Market Data on the Rule of 40

- According to Bain & Company, companies that consistently outperform the Rule of 40 enjoy EV/Revenue multiples up to 22x, while those failing to meet it often trade below 10x EV/Revenue
- Public SaaS companies exceeding the Rule of 40 trade at a median multiple of 15-20x ARR, while those below it trade closer to 5-10x ARR

Why It Matters for Investors

- SaaS firms exceeding the Rule of 40 are seen as scalable and capital-efficient, making them attractive acquisition or IPO candidates
- Investors view a low Rule of 40 score as a red flag, signalling either unsustainable losses (high growth, no profits) or stagnation (profitable, but slow-growing)

Valuation Multiples Spectrum

The impact of the Rule of 40 on Valuation Multiples

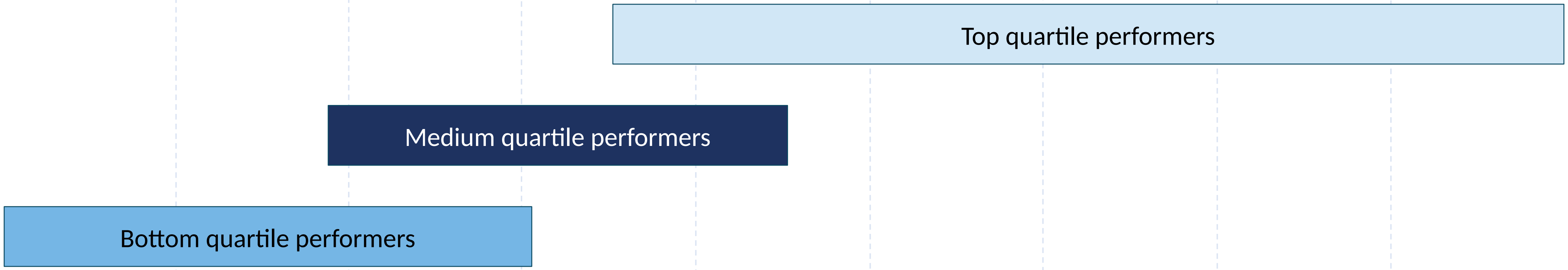
- Higher Rule of 40 scores correspond to significantly higher valuation multiples
- Investors reward SaaS companies that balance growth and profitability with premium EV/Revenue ratios

Rule of 40 Score (Growth % + Profit Margin %)

20%	25%	30%	35%	40%	45%	50%	56%	60%

Median EV / Revenue Multiples

8x	9x	10x	11x	12x	14x	16x	20x	22x



What Top-Performing SaaS Companies Do Differently

Operational strategies behind consistent Rule of 40 outperformance

Top-Performing SaaS = Strategic Growth Execution + Disciplined Profitability

1. Set Realistic Growth Targets: Align growth goals with market size & avoid over-spending on unrealistic expansion plans

2. Maximize Net Revenue Retention (NRR): Focus on upsell, cross-sell, and customer success & target NRR of 120%+ for strong internal growth

3. Optimize Go-To-Market Efficiency Segment customers and allocate sales resources based on ROI Use metrics like CAC payback and Magic Number

4. Build & Scale New Business Lines Quickly Incubate new product lines early to maintain momentum Support with dedicated resources and operational rigor

Section IV: Key Performance Metrics

Growth and Profitability

- Rule of 40 is a measure of balance between growth and profitability and by extension, sustainability of the business

Rule of 40 = ARR growth + Free Cash Flow margin

- Across a firm's development, it will have to balance profitability and growth. Many use the "Rule of 40" to determine this trade-off
- The Rule of 40 states that the sum of a company's revenue growth and profitability should be greater than 40%
- In other words, a company that grows 80% year-over-year but has a -40% cash flow margin should be valued equally to a company that experiences little to no revenue growth but generates 40% cash flow

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Recurring Revenue Metrics 1/2

- Why do recurring revenue metrics matter for the performance evaluation of SaaS companies?
- Since these companies operate on a subscription model, recurring revenue is the best indicator of their size and growth.
- To ensure consistency, it is typically reported on a monthly or annual basis, depending on the most common contract length among customers.

MRR (Monthly Recurring Revenue)

- Represents the recurring revenue from all subscription contracts, normalized on a monthly basis
- MRR is always equal to one-twelfth of Annual Recurring Revenue (ARR)
- One-time revenues are excluded to maintain a clear and consistent measure of predictable income

ARR (Annual Recurring Revenue)

- Represents the recurring revenue from all subscription contracts, normalized on an annual basis
- ARR is always equal to 12 times Monthly Recurring Revenue (MRR)
- One-time revenues are excluded to maintain a clear and consistent measure of predictable income, as for MRR

➢ In practice, ARR is calculated as the previous month's MRR multiplied by 12

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Recurring Revenue Metrics 2/2

The Components of Recurring Revenue

Metric	Description
Retained ARR	Recurring revenue that continues from existing customers from the previous period
Contraction ARR	Recurring revenue lost due to customers downgrading their contracts from the previous period
New Sales ARR	Recurring revenue acquired from new customers in the current period
Churned ARR	Recurring revenue lost as a result of customers fully cancelling their contracts from the previous period
Resurrected ARR	Recurring revenue regained from former customers who have re-subscribed
Expansion ARR	Additional recurring revenue generated from existing customers compared to the previous period (Cross- or Upselling)

Recurring Revenue at the Account or User Level

ARPR

Average Revenue Per Account:
Measures the average recurring revenue per customer account. It can be reported monthly, quarterly, or annually

ARPU

Average Revenue Per User:
Similar to ARPA but calculates revenue per individual user, considering that one account may have multiple users. In consumer software, ARPA and ARPU are often the same

Retention Rates 1/3

Introduction to Retention Rates

- Retention rates are key performance indicators that reflect product-market fit, sales effectiveness, and customer satisfaction by measuring how well a company retains customers and recurring revenue over time
- Cohort analysis is used to track retention trends, grouping customers based on their signup period (e.g., month, quarter, or year) to assess retention performance over time
- Further segmentation by factors like customer size, industry, or region can provide strategic insights, such as identifying stronger retention among customer segments, helping to refine sales strategies and the ideal customer profile (ICP)

Retention Rate Metrics - An Overview

Customer / Logo Retention

Metric	Description	Formula
Logo Retention	Measures the percentage of customers in a cohort who remain after a set period.	$\frac{\text{\# of customers remaining}}{\text{Initial \# of customers}}$
Logo Churn	The inverse of logo retention, indicating the percentage of customers who leave within a given period.	100% - Logo Retention

Revenue Retention

Metric	Description	Formula
Gross Revenue Retention	Measures how much of the initial recurring revenue remains over time, excluding expansion.	$\frac{\text{Initial ARR in Cohort} - \text{Contraction ARR} - \text{Churned ARR}}{\text{Initial ARR in Cohort}}$
Net Revenue Retention	Tracks total recurring revenue, including expansion, minus churn and contraction.	$\frac{\text{Initial ARR in Cohort} + \text{Expansion ARR} - \text{Contraction ARR} - \text{Churned ARR}}{\text{Initial ARR in Cohort}}$

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Retention Rates 2/3

Logo Retention and Logo Churn In More Detail

Logo retention measures the percentage of customers from a cohort who remain after a specific period. It is often expressed as a single percentage. For example, a 67% logo retention rate means the company retains 67% of its customers annually, which compounds to 45% over two years (67% × 67%)

Example of Logo Retention Analysis

Cohort	Cohort size	Share of customers remaining													
Sign-up month	#of customers added	Month 0	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Month 7	Month 8	Month 9	Month 10	Month 11	Month 12	Month 13
2021 July	178	100%	97%	93%	90%	87%	84%	82%	80%	78%	75%	73%	71%	60%	58%
2021 August	180	100%	97%	97%	93%	91%	89%	87%	84%	84%	82%	80%	78%	69%	67%
2021 September	149	100%	100%	97%	95%	92%	92%	89%	89%	87%	84%	81%	79%	68%	68%
2021 October	191	100%	98%	96%	96%	94%	92%	90%	87%	85%	83%	81%	79%	69%	
2021 November	200	100%	98%	96%	94%	92%	90%	90%	90%	88%	88%	86%	86%		
2021 December	210	100%	98%	96%	94%	92%	90%	89%	87%	87%	87%	87%			
2022 January	208	100%	100%	98%	98%	98%	98%	96%	96%	94%	92%				
2022 February	179	100%	98%	98%	98%	98%	97%	96%	94%	94%					
2022 March	176	100%	100%	100%	100%	100%	100%	99%	98%						
2022 April	227	100%	100%	99%	98%	97%	96%	96%							
2022 May	193	100%	100%	100%	99%	99%	99%								
2022 June	233	100%	99%	99%	99%	99%									
2022 July	202	100%	100%	99%	98%										
2022 August	243	100%	99%	99%											
2022 September	213	100%	100%												
2022 October	215	100%													
Weighted average		**100%**	**99%**	**98%**	**96%**	**95%**	**93%**	**91%**	**90%**	**87%**	**85%**	**82%**	**79%**	**67%**	**64%**

A. **Increasing Customer Acquisition** – More new customers added each month, signaling better acquisition
B. **Higher Retention in Recent Cohorts** – Newer customer cohorts show stronger retention rates, suggesting either more engaged customers or better retention strategies
C. **Retention Surge in Early 2022** – Higher retention between Dec 2021 and Jan 2022 suggests better customer targeting.
D. **Retention Drop After One Year** – Sharp decline in months 11-12, likely due to annual plan churn
E. **67% Retained After One Year** – Two-thirds of customers stay, emphasizing retention over acquisition

Benchmark for Strong Retention: Enterprise clients retain **>95%** of customers, SMBs **>80%,** with continuous growth in new customer acquisition

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Retention Rates 3/3

Revenue Retention In More Detail

Gross Revenue Retention

Measures how much of the initially acquired recurring revenue is retained over time

Key Insights:

- Higher gross revenue retention than logo retention suggests strong retention of high-paying customers
- If lower, it indicates a reliance on smaller, less revenue-generating customers
- For example: 76% one-year gross revenue retention vs. 67% logo retention, so the company retains higher-value customers better

Benchmark for Strong GR Retention:

- >90% for enterprise clients, >80% for SMBs
- Retention is spread across the cohort, not driven by a few power users

Net Revenue Retention

Measures how much recurring revenue a cohort generates over time compared to its initial revenue, factoring in retention, expansion, contraction, and churn

Key Insights:

- A net revenue retention of 100% or higher means the company can maintain or grow revenue without acquiring new customers
- If below 100%, the company relies on new customer acquisitions to sustain revenue, indicating potential revenue leakage
- High net revenue retention signals strong expansion revenue and upsell growth

Benchmark for Strong NR Retention:

- >120% for enterprise clients, >100% for SMBs
- Improving retention, upsell, and contract value over time
- Retention should be distributed across customers, not dependent on a few large accounts

Unit Economics 1/3

Introduction to Unit Economics

Importance of Unit Economics:

- Revenue-Cost Mismatch in SaaS – Unlike traditional businesses that recognize revenue and costs immediately, SaaS companies incur costs upfront while revenue is recognized over time, making standard financial metrics like income statements and gross margins less effective for evaluating business health
- ➢ Understanding unit-level growth helps assess whether a company is scaling efficiently and sustainably, providing deeper insights beyond traditional financial reports

Key Contract Size Metrics
- Total Contract Value (TCV)
- Annual Contract Value (ACV)

Key Unit Economic Metrics
- Customer Acquisition Cost (CAC)
- CAC Payback
- Customer Lifetime Value (LTV)
- LTV/CAC

Unit Economics 2/3

Introduction to Unit Economics

Metric	Description	Formula
TCV	Total Contract Value (TCV) - The full value of a contract at the time of sale, covering its entire duration but excluding any future upsell	Total Contract Size
ACV	Annual Contract Value (ACV) - The revenue generated from a customer contract over a 12-month period. For example, if a \$2,000 contract spans two years, the ACV is \$1,000.	$\frac{\text{ARR}}{\text{\# of customers}}$

Since customer contract sizes differ across companies, the most useful metrics for evaluating unit economics and sales efficiency focus on customer acquisition cost and lifetime value

Unit Economics Metrics

Unit Economics 3/3

Key Unit Economics Metrics

Metric	Description	Formula
CAC	**Customer Acquisition Cost (CAC)** – Measures the cost to acquire a new customer, typically calculated using the previous period's sales and marketing expenses divided by new customers acquired	$\frac{\text{S\&M expenses in preceding period}}{\text{\# of new customers acquired in the current period}}$
CAC Payback	**CAC Payback** – The time required for revenue from acquired customers to cover acquisition costs, adjusted for gross margin	$\frac{\text{CAC}}{\text{ARPA x Gross Margin}}$
LTV	**Customer Lifetime Value (LTV)** – Total revenue an average customer generates over their lifetime, factoring in gross margin and contract duration	(Landing Contract + Upsell) x Gross Margin X Average # of Years Lifetime
LTV/CAC	**LTV/CAC Ratio** – Compares revenue generated per customer to acquisition cost; a ratio below 1 means the company won't recover acquisition expenses	$\frac{\text{LTV}}{\text{CAC}}$

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Burn Rate and Capital Efficiency

- These are used to understand the capital efficiency of a company and when it needs to raise additional capital

Metric	Description	Formula
Gross Burn	**Gross Burn** – The total cash a company spends each month	Monthly Cash Outflows
Net Burn	**Net Burn** – Monthly cash outflows minus the cash generated, reflecting net cash loss	Monthly Cash Outflows - Monthly Cash Inflows
Runway	**Runway** – The number of months a company can operate before depleting its cash reserves; if cash flow is positive, the runway is unlimited	$\frac{\text{Cash Burn}}{\text{Net Burn}}$
Burn Multiple	**Burn Multiple** – The amount of cash required to generate each dollar of new recurring revenue (ARR)	$\frac{\text{Net Burn}}{\text{Net New ARR}}$

Benchmark for Strong Runway: Ideally >18 month runway at all times with an easy option to extend to 24 months

Sales Metrics

- Used to understand the efficiency of the sales strategy and the productivity of the sales team
- The most important metric is the Magic Number:

Metric	Description	Formula
Magic Number	It calculates the output of a year's worth of revenue growth for every dollar spent on sales and marketing, i.e. how many dollars of ARR do you create for every dollar in S&M spend	$\frac{\text{Net Burn} - \text{ARR preceding period}}{\text{Net New ARR}}$

Benchmark for Great Magic Number:
- Magic Number < 0.50 = Suggests some areas need to be improved (Not ready to invest in S&M)
- Magic Number < 0.75 = Decent (Evaluate Investment)
- Magic Number > 0.75 = Great (Ready to invest in S&M)

Venture Debt: Debt and Leverage in SaaS Companies

- Investors prioritize revenue stability and closely analyze a company's balance sheet
- Liabilities Assessment – Debt providers review existing loans, repayment obligations, maturity dates, and secured vs. unsecured debt
- Asset Evaluation – Key focus areas include business assets, intellectual property value, receivables (impacting retention), and cash runway

Metrics to Consider in Case of Raising Venture Debt

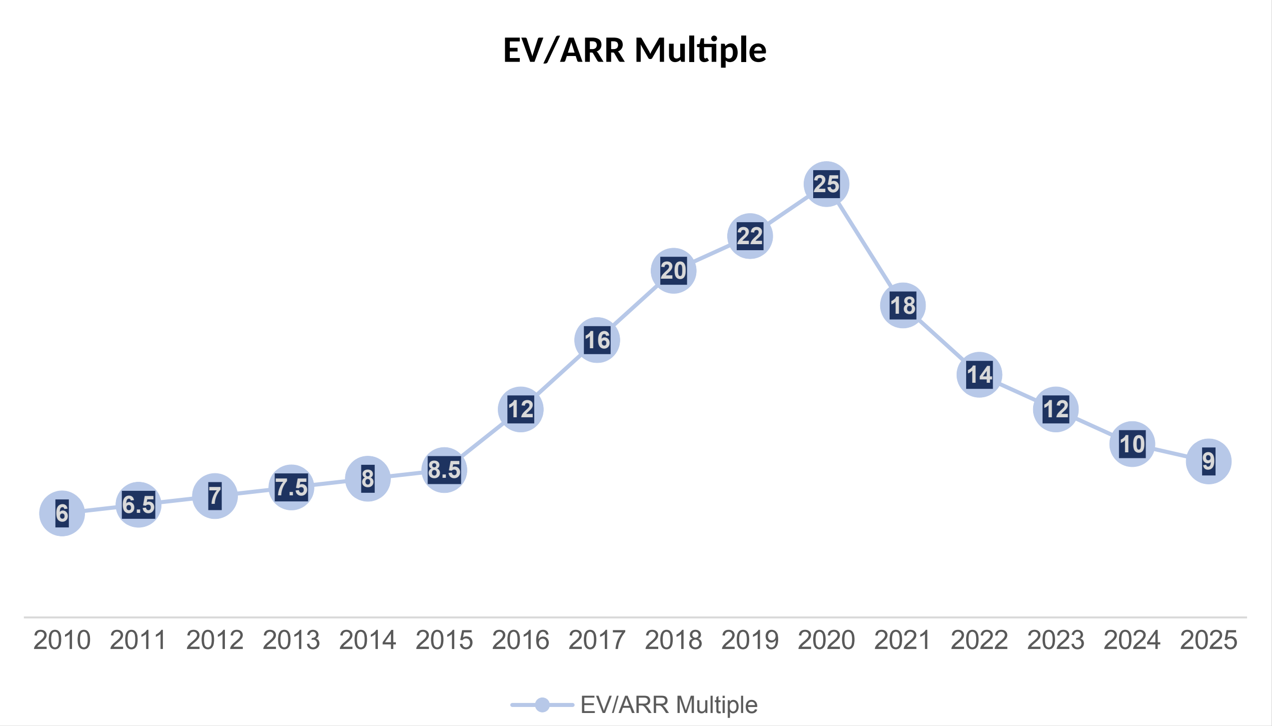
Metric	Description	Formula
Total Debt to ARR	**Total Debt to ARR** – Assesses a company's ability to repay debt based on its annual recurring revenue; a lower ratio indicates better financial health	$\frac{\text{Total Debt}}{\text{ARR}}$
Debt to Cash Equity Ratio	**Debt to Cash Equity Ratio** – Evaluates lending risk by comparing total debt to available cash equity; higher ratios suggest increased financial risk	$\frac{\text{Debt Facility Amount}}{\text{Cash Equity}}$

Benchmark for Strong Runway:
- Total Debt to ARR ratio: 2x (in US), 1x (in Europe)
- Debt to cash equity ratio < 80%

Section V: SaaS Multiples

SaaS Multiples over the Years

- The Software hype is slowing down – and so are the valuation multiples:



Analysis

- EV/ARR multiples peaked in 2020 - 2021, with many top-tier SaaS firms trading at 20x - 30x + ARR
- Driven by: Pandemic-fueled digitization low interest rates & a growth-at-all-costs mindset
- Since 2022, macro tightening (rates, inflation) and skepticism around unprofitable growth have caused a reset

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What has impacted SaaS Multiples

Effects on Multiples	Explanation:
Rising Interest Rate	Higher rates increase the discount rate applied to future cash flows, lowering valuations. Growth companies (like SaaS) are more affected because much of their value lies in future earnings
Shift from Growth-at-All-Costs to Profitability	Investors now favor companies that can grow efficiently and show a clear path to profitability, penalizing those with high burn and weak margins
Public Market Valuation Reset	The dramatic compression of public SaaS multiples, from over 30x to under 10x in some cases, has directly lowered private market expectations
Macroeconomic Uncertainty	Geopolitical instability, including the Ukraine war, has fueled inflation, disrupted markets, and contributed to risk-off investor sentiment, pressuring SaaS valuations

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