

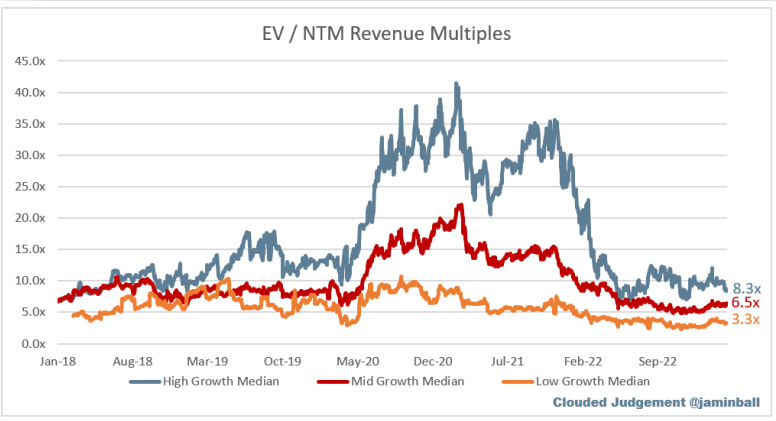
THE SAAS METRICS THAT MATTER IN 2023

OPERATOR VS. INVESTOR

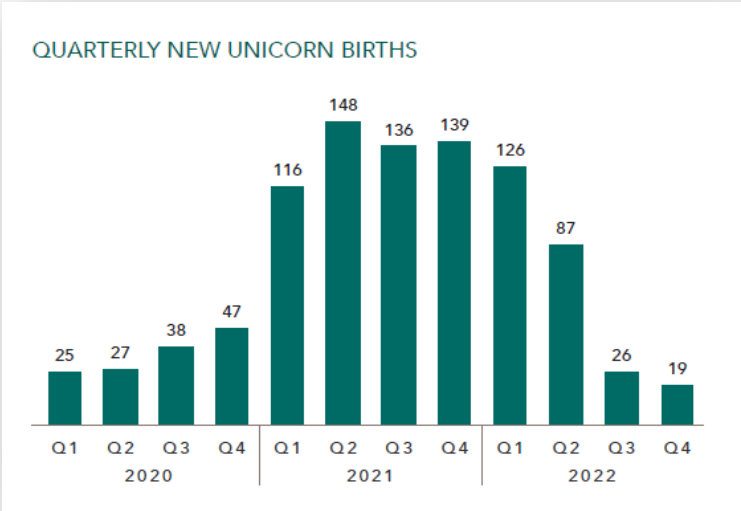
Dave Kellogg & Michael Lavner
June 2023

THE WORLD, AS YOU MAY HAVE NOTICED, HAS CHANGED

10x is the new 20x

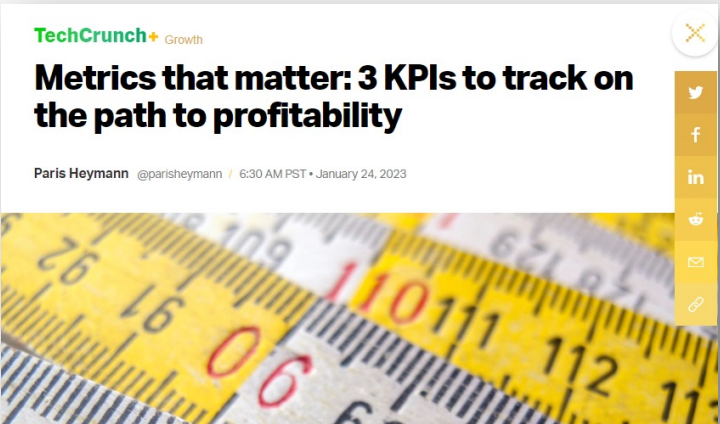


Unicorns are rare again



Source: D.A. Davidson, The Herd

P2P is the new growth



OH, AND THAT'S NOT TO MENTION THAT ...

“Bank run” took on an
old, new meaning

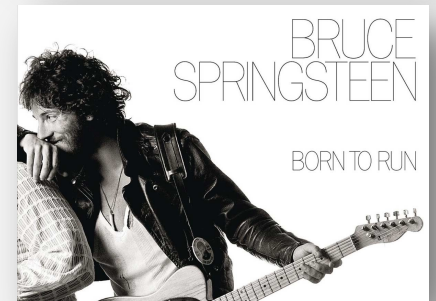
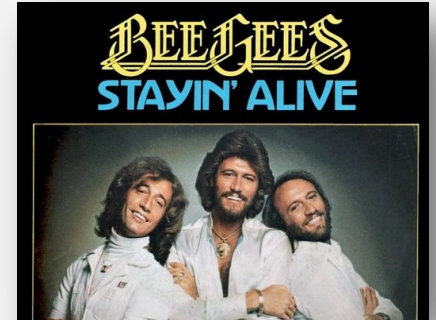


Runway extension was already in focus:
flat is the new up



WHAT'S A STARTUP TO DO?

- Extend your runway
 - Cut burn
 - Venture debt (best set up before you need it for quick cord pull)
 - Inside round (extension round)
 - New round (clean or structured) – beware a “dirty terms sheet”
- Make a plan to “re-earn” your last-round valuation
 - Roughly, how can we double ARR before we run out of cash?
- Enable the next round, likely in 18-24 months
 - Focusing on **the metrics that matter** (in the new world)
 - “Tramps like us, baby, we were born to run.”



THE METRICS THAT MATTER

★ = matters now, more, or earlier as a result of the new environment

Metric

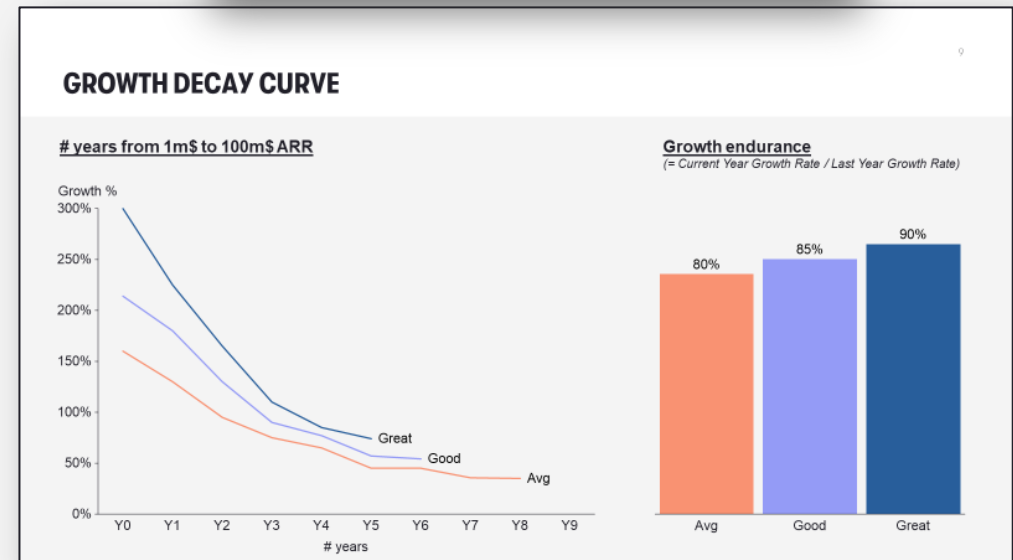
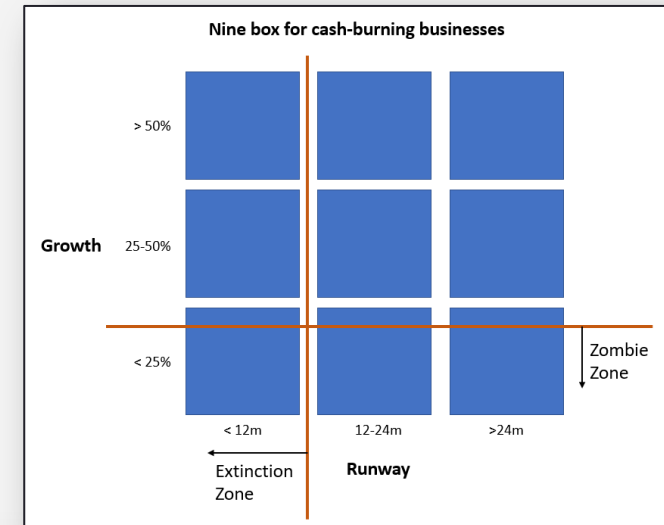
- ARR growth
- Free cashflow margin★
- Rule of 40 score★
- Subscription gross margin
- Burn multiple★
- ARR/FTE★
- CAC ratio
- CAC payback period
- NRR (net retention rate)
- GRR (gross retention rate)★

Question it answers

- Are you an interesting investment?
- At what rate do you generate free cashflow?
- What's your balance of growth and cashflow?
- How efficiently do you run the service?
- How efficiently do you build the ARR base?
- What's your ARR productivity per head?
- How much do you spend to acquire a \$1 of new ARR?
- How long does it take to get that paid back?
- What happens to customers, once acquired (net)?
- What happens, gross (before expansion)?

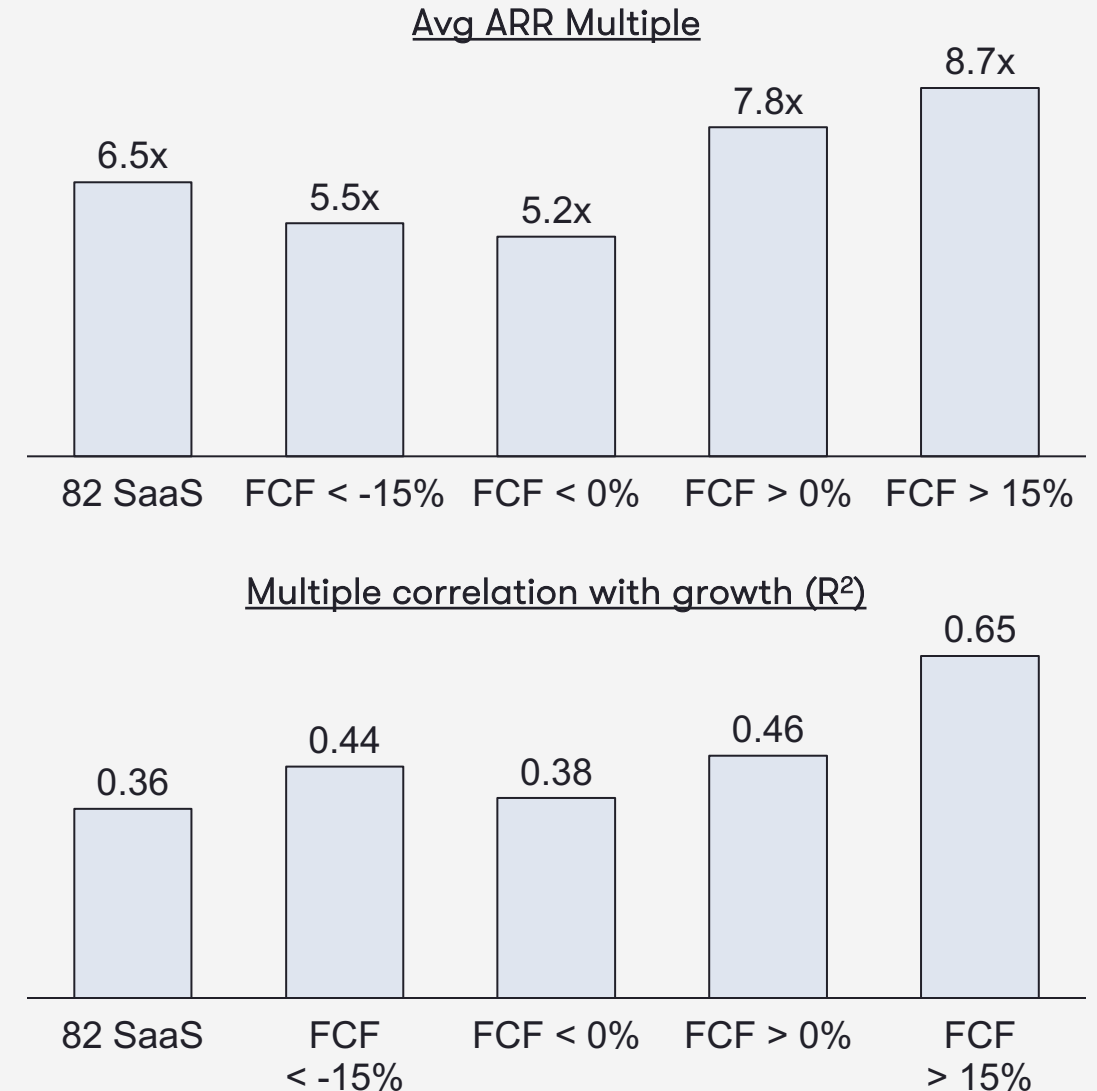
ARR GROWTH

- The top metric in the old world and new
 - Are you an interesting investment?
- The question isn't default alive vs. dead; it's default investable vs. un-investable
- Nine box for cash-burning companies →
- Beware the Zombie Zone
 - <20% growth starts to be un-investable
- Beware the Extinction Zone
 - <12m runway likely not enough to endure storm
 - See Tom Loverro [Twitter thread](#)
- Also see growth endurance (aka growth retention)
 - $GE = \text{Year } N+1 \text{ growth} / \text{Year } N \text{ growth}$
 - Runs in the 70% to 80% range



FREE CASHFLOW MARGIN

- Free cashflow (FCF) is one of several candidate bottom-line measures
 - Net income, operating income, EBITDA, adjusted EBITDA, ...
- FCF seems to be winning out as today's preferred bottom-line metric
 - The most frequent balancing-metric used in R40 calculations = <something-growth> + FCF margin
- Definition:** Free cash flow (FCF) represents the cash that your company generates, or loses, after netting out its COGS, operating, and capital expenses, and adding back non-cash expenses.
 - Notably, it adds back stock-based compensation (SBC), which is somewhat controversial
 - It also adds back depreciation and amortization (D&A), the DA in EBITDA.
- FCF margin = $\text{FCF} / \text{revenue}$



WHY FREE CASHFLOW MARGIN MATTERS

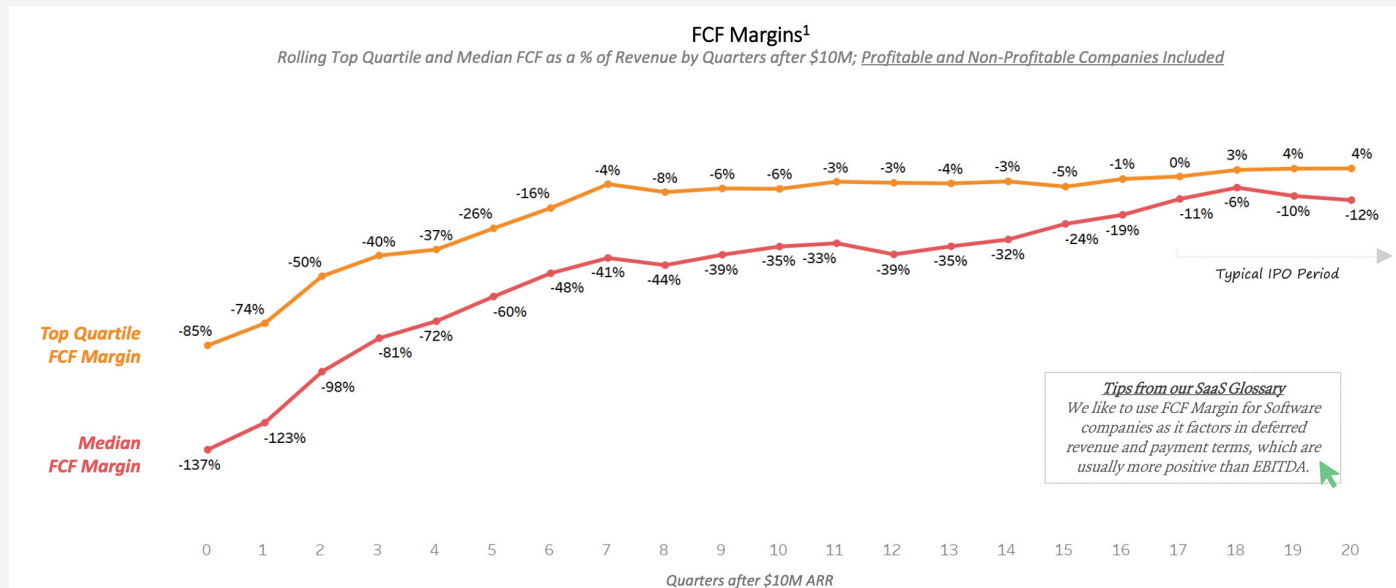
“SaaS companies command high valuations because, at scale, they can print money with 30% FCF margins.” -- @OnlyCFO

The Potential To Do This

Public SaaS Comparables Table

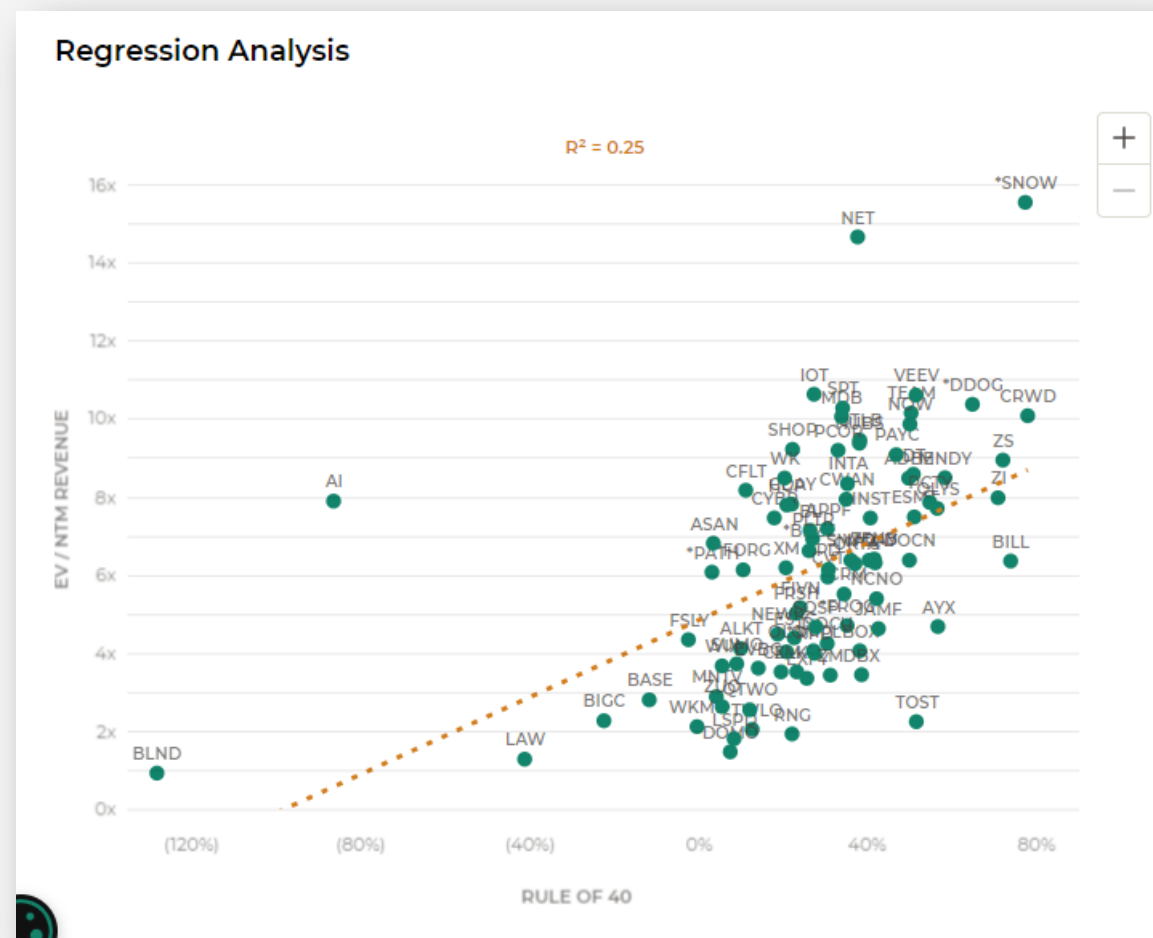
Name ↓	NTM Revenue ↓	% LTM Margins						Rule of 40 ↓
		GM ↓	S&M ↓	R&D ↓	G&A ↓	OpEx ↓	FCF ↓	
Mean	18%	74%	37%	21%	14%	72%	1%	27%
Median	17%	77%	38%	20%	12%	70%	2%	31%
Adobe	10%	88%	27%	14%	6%	48%	41%	50%
Qualys	14%	81%	18%	18%	7%	42%	37%	57%
Veeva	9%	75%	11%	18%	7%	36%	36%	52%
ZoomInfo	17%	89%	27%	12%	9%	51%	35%	71%
Dropbox	7%	82%	16%	28%	7%	59%	33%	39%
CrowdStrike	34%	76%	33%	19%	7%	60%	30%	78%
ServiceNow	22%	82%	33%	17%	7%	57%	30%	50%
Box	7%	77%	28%	18%	9%	54%	28%	38%
Instructure	10%	78%	20%	13%	8%	41%	28%	41%
Dynatrace	19%	84%	34%	15%	10%	62%	27%	51%
Zoom	2%	79%	26%	9%	8%	43%	27%	31%
*Snowflake	40%	71%	40%	18%	9%	66%	24%	78%
Atlassian	21%	85%	17%	35%	13%	66%	24%	50%
*Datadog	25%	80%	25%	30%	6%	60%	21%	65%
Workday	16%	77%	25%	26%	6%	58%	21%	41%

The Progression Towards There



RULE OF 40 SCORE (R40)

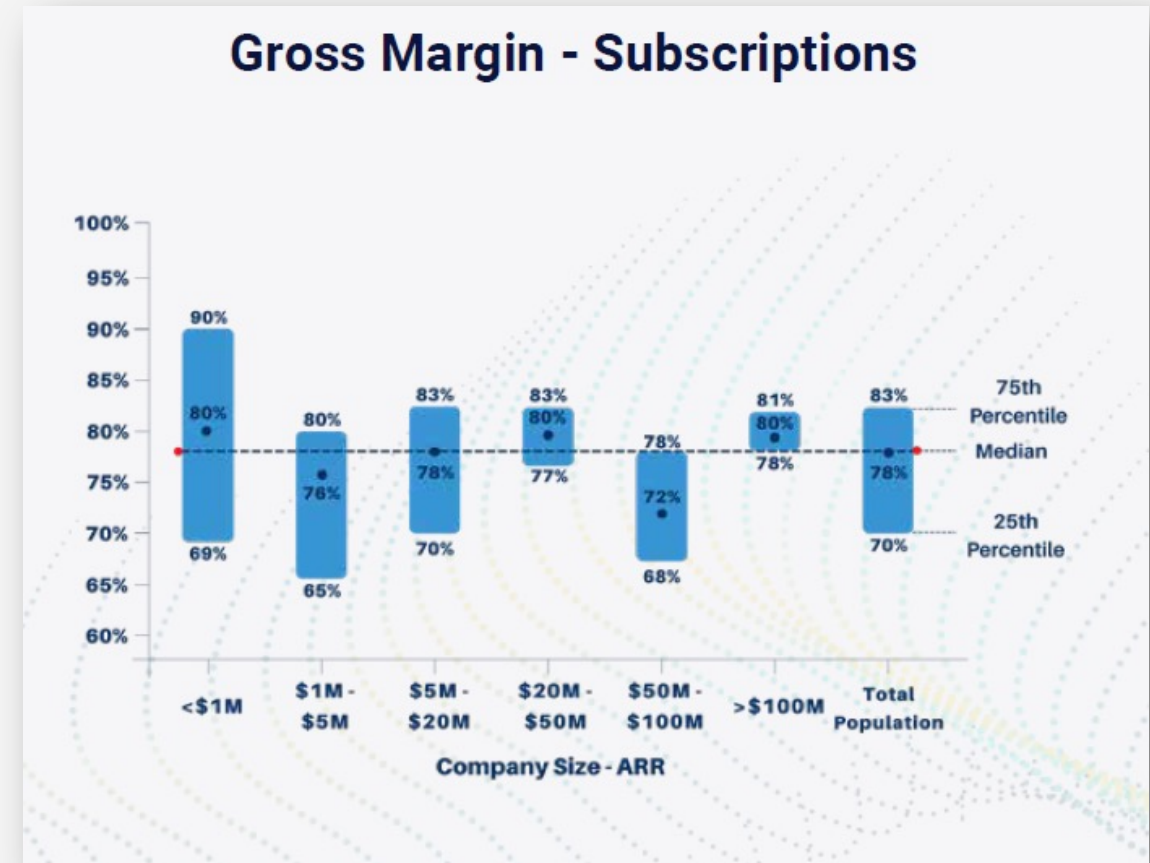
- Attempt to balance growth and profit
- R40 score = ARR growth + FCF margin (private)
- R40 score = revenue growth + FCF margin (public)*
- Idea is that R40 can better predict valuation multiple (e.g., EV/revenue) better than growth alone
- That happens not to be true today
 - R^2 of EV/NTM rev and R40 = 0.25
 - R^2 of EV/NTM rev and NTM growth = 0.35
 - See appendix
- Nevertheless, this will be an important go-forward metric



Source: Meritech Benchmarks

SUBSCRIPTION GROSS MARGIN

- Subscription gross margin = subscription gross profit / subscription revenue
- Measures efficiency of running the SaaS service
- Want to be in the 70-80% range
- Some debate about what costs go into COGS, e.g.,
 - Onboarding services, if bundled
 - Customer success, as a function of role
 - See this [The SaaS CFO post](#) for details
- Has a strong influence on CAC Payback Period



Source: RevOps^2 SaaS Benchmarks 2022

BURN MULTIPLE

- Burn multiple = net burn / net new ARR
 - Net new ARR = new ARR – churn ARR
- How much cash does the company burn to increase the ARR base by \$1 in a period
- Kind of all-in CAC ratio done on a net-new ARR basis
- An overall efficiency metric
- A predictor of cash required to hit a certain ARR level
- When done on inception-to-date basis (and inverted), this becomes BVP's cash conversion score.

Burn Multiple	Efficiency
Under 1x	Amazing
1 - 1.5x	Great
1.5 - 2x	Good
2 - 3x	Suspect
Over 3x	Bad

<https://sacks.substack.com/p/the-burn-multiple-51a7e43cb200>

ARR/FTE

- ARR per full-time equivalent (FTE)
- An overall productivity measure
- Done on an implied basis for public companies
- Public median: \$305K
- Private median: ~\$160K (at ~\$30M)
 - Heavily a function of size, see Appendix.

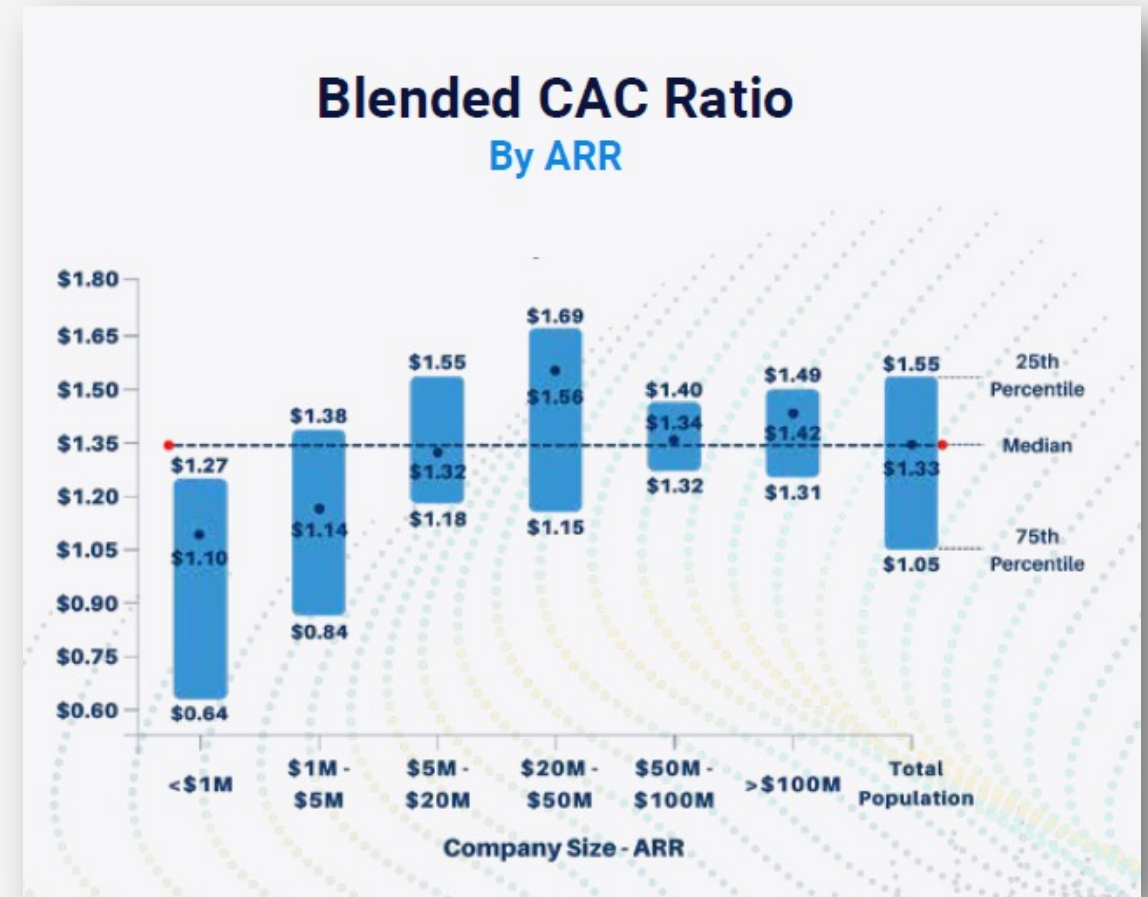
Name ↓	Rule of 40 ↓	Magic Number ↓	Payback Period ↓	Implied Average ACV ↓	Implied ARR / FTE ↓	Annualized OpEx / FTE ↓
Mean	27%	0.8	28.7	\$218	\$329	\$227
Median	31%	0.7	22.9	\$67	\$305	\$217
Expensify	26%	0.4	49.8	-	\$1,260	\$813
Dropbox	39%	0.3	44.4	\$4	\$768	\$609
Adobe	50%	0.4	31.2	-	\$635	\$341
Shopify	22%	5.4	4.7	\$3	\$598	\$261
DigitalOcean	50%	2.8	7.1	\$1	\$542	\$277
RingCentral	22%	0.3	53.3	-	\$538	\$350
C3.ai	(86%)	0.7	23.5	\$1,130	\$533	\$528
Palantir	27%	0.9	16.0	\$5,544	\$530	\$313
Zoom	31%	0.2	71.1	\$9	\$527	\$230
Squarespace	28%	0.6	23.4	\$0	\$508	\$299
*Twilio	13%	0.7	35.3	\$14	\$437	\$238
Fastly	(2%)	1.3	16.2	\$161	\$429	\$288
*Salesforce	35%	0.7	70.3	-	\$422	\$265
Alteryx	57%	3.0	4.3	\$144	\$415	\$337
Box	38%	0.4	39.5	\$9	\$413	\$217
*Snowflake	78%	0.6	27.7	\$301	\$400	\$261
*Datadog	65%	1.2	12.2	\$81	\$391	\$243
Tenable	42%	0.5	29.1	\$17	\$389	\$263
Monday	58%	0.6	21.1	\$3	\$387	\$312
ServiceNow	50%	0.8	19.3	\$1,008	\$380	\$207
Workday	41%	0.5	33.0	-	\$372	\$218
New Relic	19%	0.6	23.9	\$61	\$371	\$293
Elastic	23%	0.4	43.3	\$55	\$370	\$250

Source: Meritech Benchmarks

CONFIDENTIAL

CAC RATIO

- CAC ratio = S&M expense (prior quarter) / new ARR (this quarter)
- How much do we spend to acquire \$1 of new ARR?
- Variables
 - Net-new vs. new, phase shift, GAAP vs. cash
 - I prefer new, 1 quarter, and cash
 - See this [breakdown](#) by David Spitz
- See also [magic number](#) = 1 / CAC ratio (usually)
 - Beware that some do CAC or magic number on (sub-GM% * new ARR) and not just ARR
 - I prefer to [keep metrics atomic](#) and if you want sub-GM% in the equation, you can use CPP
 - Magic number remains popular (“[you say tomato, I say tomato](#)”)

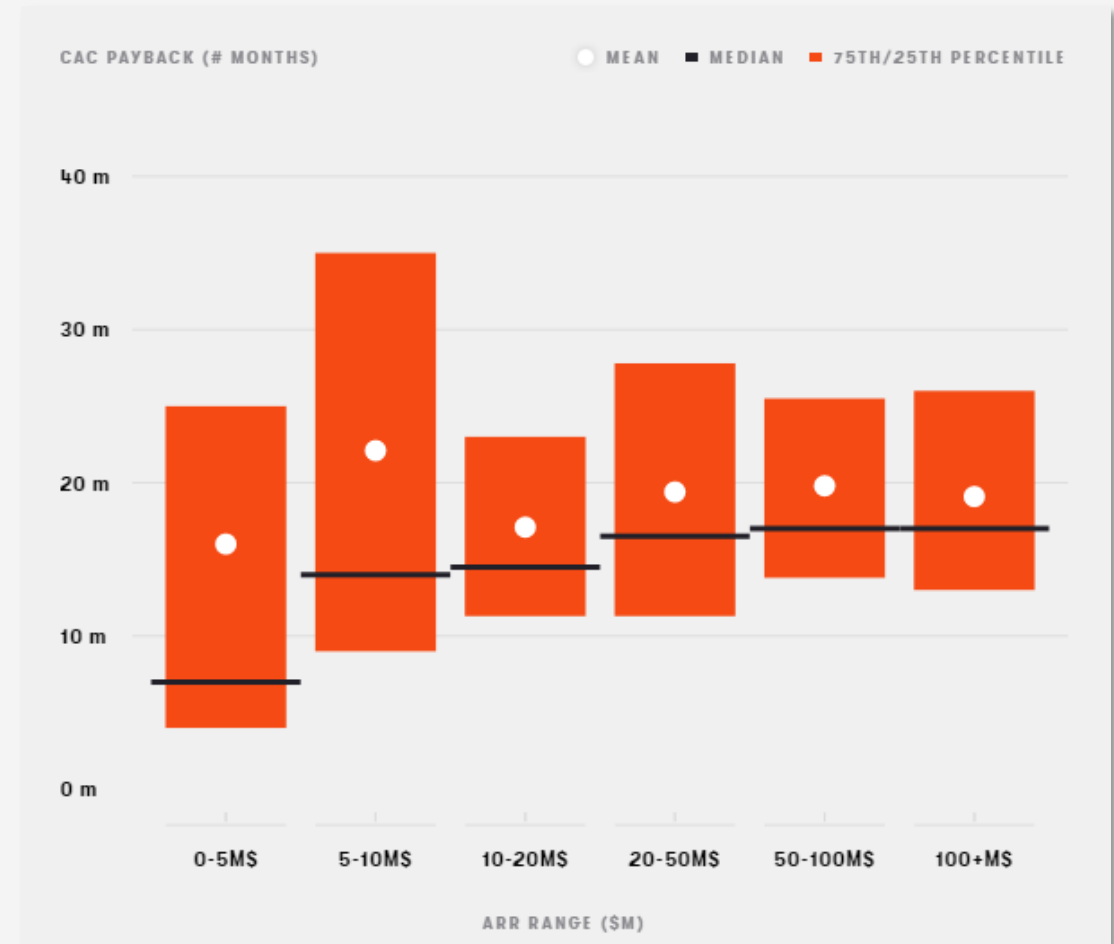


Source: RevOps^2 SaaS Benchmarks 2022

CAC PAYBACK PERIOD (CPP)

- How many months of subscription gross margin to pay back the cost of customer acquisition?
- My shortcut calculation
 - $CPP = (CAC \text{ ratio} / \text{subscription GM}) * 12$
- A risk metric, not a return metric or efficiency metric
- Payback period = how long is my money on the table
 - They say nothing about what happens after payback
 - Say you have 12-month CPP and 100% churn rate?

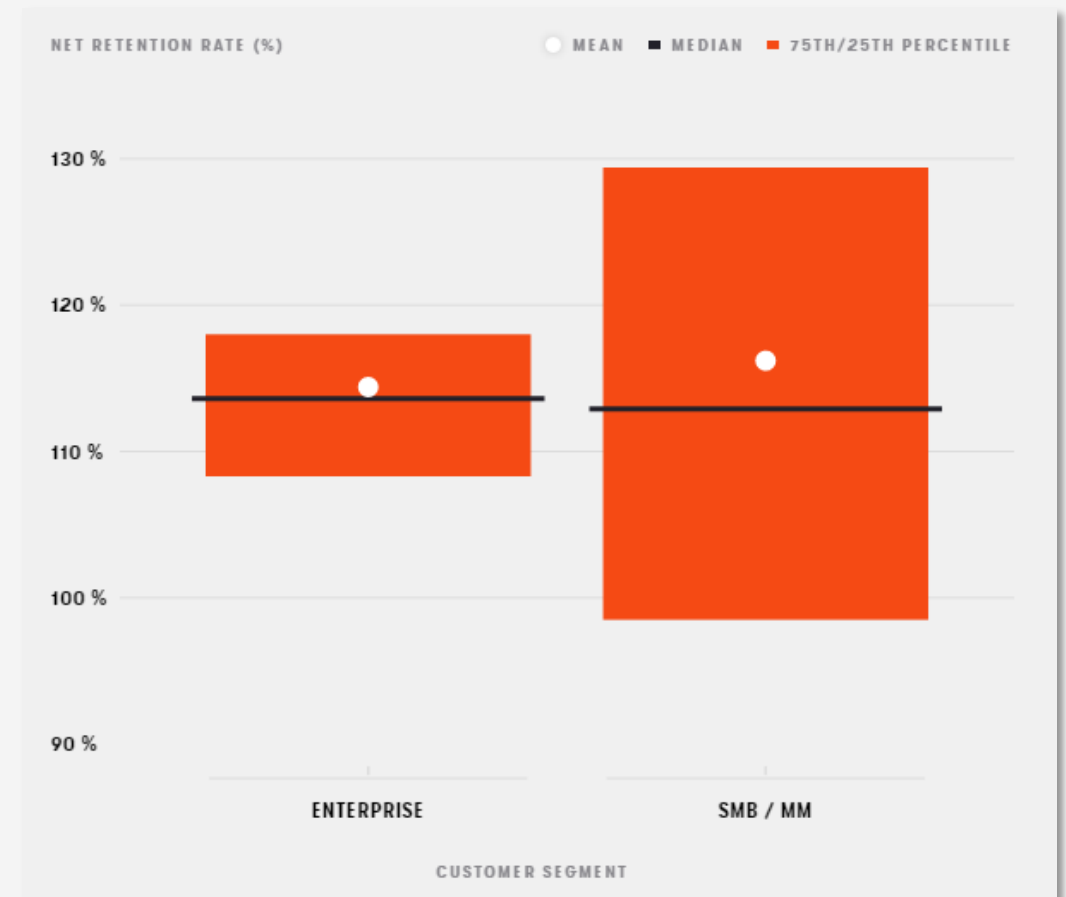
CAC Payback Period
by ARR Bucket



NET REVENUE RETENTION (NRR)

- What happens, all in, to a cohort of customers in a year?
- Net revenue retention (NRR) rate = $\text{value-today (year-ago cohort)} / \text{value-year-ago (year-ago cohort)}$
 - Simple to calculate; hard to game
 - Best not calculated via shortcuts (starting + new – churn / starting)
 - But instead via two snapshots
- Avoid survivor bias
 - Value-today (today cohort) / value-year-ago (today cohort)
- Awesome when combined with detailed cohort charts
 - See appendix

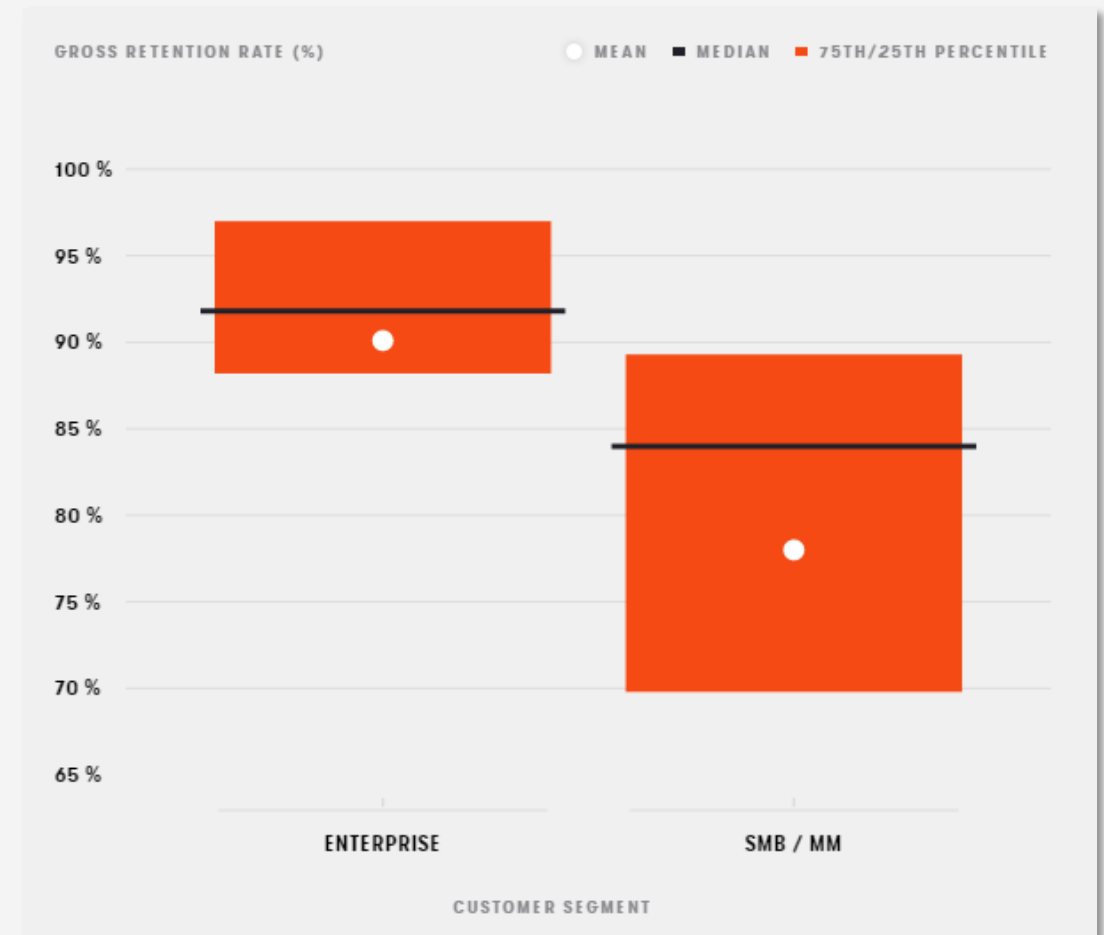
Net Dollar Retention Rate
by customer segment



GROSS REVENUE RETENTION (GRR)

- What happens, excluding expansion, to a cohort of customers in a year?
- Gross revenue retention (GRR) rate = $\text{value-today (year-ago cohort excluding expansion)} / \text{value-year-ago (year-ago cohort)}$
- Basically, a new and improved way of looking at churn rate
 - Expansion can't hide shrinkage
- Was rarely discussed during the heyday but strongly gaining attention now
- Avoid survivor bias
 - $\text{Value-today (today cohort)} / \text{value-year-ago (today cohort)}$

Gross Dollar Retention Rate
by customer segment



CONCLUSIONS

- The world has changed
- The SaaS metrics that matter going forward include some of the ones that have always mattered ...
- But have added a few new ones along the way
- I don't think we're in a brief blip phase where 2021 will return anytime soon
- I think we're at the start of an extended back-to-basics phase with a focus on building real businesses
- I wish you all the best of luck in navigating this transition

PEOPLE TO FOLLOW, SITES TO USE

SaaS Business

- General and go-to-market
 - [SaaStr](#) ([Jason Lemkin](#))
 - [Kellblog](#) ([Dave Kellogg](#))
 - [Tomasz Tunguz](#)
 - [Next Big Teng](#) ([Janelle Teng](#))
 - [Scaling to \\$100M](#) (BVP)
 - [Breaking SaaS](#) ([Thomas Robb](#))
- Sales performance
 - [Balderton Founder's Guide to B2B Sales](#)
 - [Benchsights](#) ([David Spitz](#))
 - [RepVue](#) ([Twitter](#))

SaaS Financial (including metrics)

- Private companies
 - [RevOps^2](#) ([Ray Rike](#))
 - [KeyBanc SaaS report](#)
 - [OpexEngine](#)
- Public companies
 - [Meritech public comparables](#)
 - [Clouded Judgement](#) ([Jamin Ball](#))
 - [Meritech S-1 breakdowns](#) ([Alex Clayton](#))
- CFOs on SaaS
 - [OnlyCFO](#)
 - [The SaaS CFO](#) ([Ben Murray](#))

APPENDIX

SECOND-ORDER METRICS

It's worth understanding these and deciding the extent to which you want to goal and track

Metric

- NPS ([net promoter score](#)) measures CSAT, ideally by role
 - Not really a hard investment metric but certainly useful operationally
- Employee NPS (eNPS) in conjunction with Glassdoor reviews to measure employee satisfaction
- Funnel metrics
 - Cost/oppty = variable cost of an oppty, useful in segment and channel analysis
 - Cost/deal = ditto
 - Sales-accepted-oppty to close rate (what % of oppties do you close?)
 - ASP (average sales price), compare to cost/deal
 - Quota attainment – see @[repvue](#) data, my rule of thumb is 80% @ 80% on the year is good
- CCS ([cash conversion score](#)) –inception-to-date burn efficiency with regression to VC IRR
- RPO ([remaining performance obligation](#)) – value of contracted but not prepaid long-term contracts
 - Popular public-company SaaS metric
- [DEV and QCR density](#) – percent of ENG that codes, percent of SALES with incremental (“real”) quota

But Even in This Current Market Environment, Revenue Growth is ~1.5x as Important as FCF margin, as Implied by the 2-Factor Regression

Excerpted from this [OnlyCFO SaaS World blog post](#)

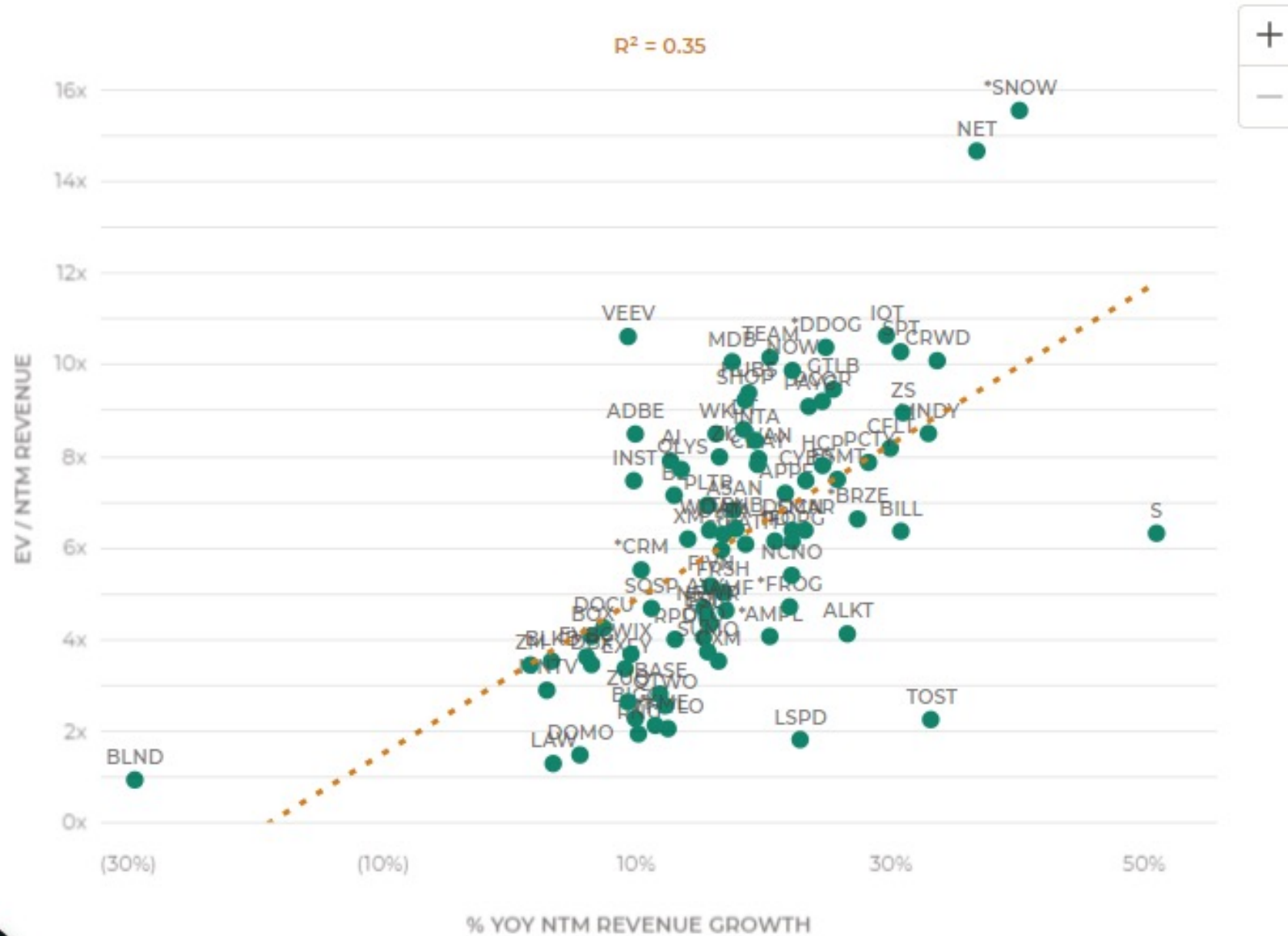


A ~1% Improvement in Revenue Growth Will Have the Same Impact on Valuation as ~1.5% Improvement in FCF Margin, Keeping the Other Variable Constant



Source: Company filings and FactSet as of December 31, 2022.
Note: FCF defined as CFO less CAPEX. Relative importance of revenue growth calculated as dividing the coefficients of revenue growth by coefficient of FCF margin by running a 2-Factor regression.
(1) Outliers excluded from regression.
(2) Metric represents the relative importance of revenue growth based on the CY22 coefficients of revenue growth and CY22 coefficients of FCF Margin.
(3) Metric represents the relative importance of revenue growth based on the CY23 coefficients of revenue growth and CY23 coefficients of FCF Margin.

Regression Analysis



Growth predicting multiple
better than R40

Annual Recurring Revenue per FTE By ARR

RevOps Squared showing ARR/FTE for
private companies as strongly a function
of size



ChartMogul example of a detailed cohort analysis

See [here](#)

Column 0 shows changes (if any) that happen in the same month the customer signs up.

Each row contains one group (cohort) of customers who started paying in a particular month. We follow the lifespan of each cohort (from left to right), starting in the month they converted. The columns (1, 2, 3, etc) represent the number months since they joined.

Customer churn cohort (% of customers churned relative to previous month)

	Cohort value	0	1	2	3	4	5	6	7	8	9	10	11
Feb 2014	\$999	2.50%	0.80%	5.93%	2.12%	1.35%	0.40%	1.04%	0.90%	0.90%	0.90%	0.90%	0.90%
Mar 2014	\$293	0.00%	1.50%	4.09%	3.65%	1.04%	1.43%	1.04%	1.04%	1.04%	1.04%	1.04%	
Apr 2014	\$89	1.22%	4.69%	5.80%	4.23%	2.15%	2.46%	2.46%	1.18%	1.18%	1.18%		
May 2014	\$999	2.40%	5.66%	5.82%	3.54%	1.35%	3.49%	1.04%	1.32%	1.32%			
Jun 2014	\$293	3.50%	2.67%	7.23%	2.12%	1.04%	4.52%	0.90%	1.46%				
Jul 2014	\$89	1.55%	2.56%	5.00%	3.65%	2.15%	5.55%	1.04%					
Aug 2014	\$999	1.34%	0.80%	4.09%	4.23%	1.35%	6.58%						
Sep 2014	\$293	2.50%	1.50%	4.12%	3.54%	1.04%							
Oct 2014	\$89	0.00%	4.69%	3.80%	2.12%								
Nov 2014	\$999	1.22%	5.66%	3.93%									
Dec 2014	\$293	2.40%	2.67%										
Jan 2015	\$89	3.50%											
Average	\$89	1.80%	2.98%	5.04%	3.39%	1.51%	3.49%	1.04%	1.18%	1.11%	1.04%	0.97%	0.90%

Lifetime month

The first two columns show the month and the value of the cohort for that month; the total MRR (or customer count) of customers who converted in that month.

The reason these cells are empty is because this is the future, it hasn't yet been 6 months since November 2014 for example.

THANK YOU.

DAVE KELLOGG

dkellogg@balderton.com

<https://twitter.com/kellblog>

www.kellblog.com

MICHAEL LAVNER

michael@balderton.com