Key Metrics and Issues for SaaS and Other Recurring Revenue Businesses

Maxwell Locke & Ritter Financial Due Diligence

Introduction

Software-as-a-Service ("SaaS") is a software licensing and delivery model in which software is licensed on a subscription basis and centrally hosted.

The SaaS business model is fundamentally different than a traditional enterprise software license model due to the recurring nature of the revenues and the upfront nature of the costs.

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Key Metrics

The keys to evaluating SaaS and similar recurring revenue businesses lies in understanding what constitutes recurring revenue, the relationship between the upfront costs to acquire customers and the expected go-forward revenue streams, and how to measure customer retention.

These relationships can be assessed by understanding the following key metrics:

- Monthly recurring revenue (“MRR”)
- Customer acquisition costs (“CAC”)
- Customer retention and churn rates
- Lifetime value of customers (“LTV”)
- Rule of 40

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Monthly Recurring Revenue (“MRR”)

MRR overview

- Monthly recurring revenue for each customer represents the monthly subscription price charged by a SaaS business.
- The SaaS company’s aggregate MRR represents the contracted monthly recurring revenue for all customers at a point in time.
- Most businesses require an annual contract with monthly billings.
- Annual recurring revenue (“ARR”) is measured as MRR x 12.
- SaaS businesses are often valued at multiples of ARR, so the higher the ARR, the higher the valuation.
  - Understanding what service lines represent true recurring versus non-recurring or “re-occurring” revenue is extremely important when evaluating the business because it affects the valuation.
  - SaaS businesses focus on increasing the number of recurring revenue customers, upselling to existing customers, and minimizing downsells and customer churn.
- Consider the timing of bookings and activation dates when reconciling ARR to GAAP revenue.

Understanding what revenue streams represent true recurring revenue is important to establishing enterprise value.

Monthly Recurring Revenue ("MRR")

MRR upsells

- Upselling (sales expansion) to existing customers generally requires less sales and marketing spend compared to acquiring new customers.
- Accordingly, upselling provides a better return on sales and marketing resources.
- Sales expansion to existing customers can happen in several different ways:
  - Increase in number of users or "seats,"
  - Increase in usage or services, and
  - Add-on products.

MRR downsells and churn

- Downsells and churn represent lost recurring revenue due to reduction of services, cancellation of customer subscriptions, and non-renewals.
- Refer to *Customer Retention and Churn Rates* section of this presentation for further discussion of churn.

Minimizing downsells and customer churn is just as important to retaining value as acquiring new customers via sales and marketing investment.

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Monthly Recurring Revenue ("MRR")

Recurring revenue rollforward

	2014	2015	2016	2017	2015-2017 average
Beginning ARR	-	1,627,149	3,571,223	6,133,558	
Plus: New customer ARR	1,805,916	1,629,536	1,611,727	3,100,001	
Plus: Existing customer upsells/expansion	779,229	2,007,039	5,005,375	8,460,014	
Less: Existing customer downsells/contraction	(649,883)	(1,254,362)	(3,630,908)	(6,024,234)	
Less: Churned ARR from customer terminations	(308,113)	(438,139)	(423,859)	(1,063,280)	
Ending ARR	**1,627,149**	**3,571,223**	**6,133,558**	**10,606,059**	
Churn rate %		*-26.9%*	*-11.9%*	*-17.3%*	*-18.7%*
Net expansion / (contraction) %		*46.3%*	*38.5%*	*39.7%*	*41.5%*
Net ARR expansion, (contraction) and (churn) %		*19.3%*	*26.6%*	*22.4%*	*22.8%*

A recurring revenue rollforward analysis demonstrates the effect of new customers, upsells, downsells and customer churn on a company's ARR base.

Customer Acquisition Costs ("CAC") and the CAC Ratio

Calculation of CAC

- CAC represents the sales and marketing spend required to acquire new customers and the resulting incremental ARR.
- The *CAC Ratio* measures the payback time on the company's sales and marketing investment.

$$\text{CAC Ratio} = \frac{\text{Sales and marketing costs}}{\text{New ARR created for the period}}$$

- The CAC Ratio may be used to assess the company's sales and marketing efficiency:

CAC Ratio	How to manage sales and marketing investment
≤1.0	Invest more aggressively in S&M and/or optimize S&M spend
1.0-3.0	Maintain current S&M investment and focus on productivity improvement
≥3.0	"Slam on the breaks" and focus on S&M productivity improvement

Understanding the relationship between customer acquisition costs and increased ARR and/or profitability helps SaaS companies assess current sales and marketing efforts and plan future marketing strategies.

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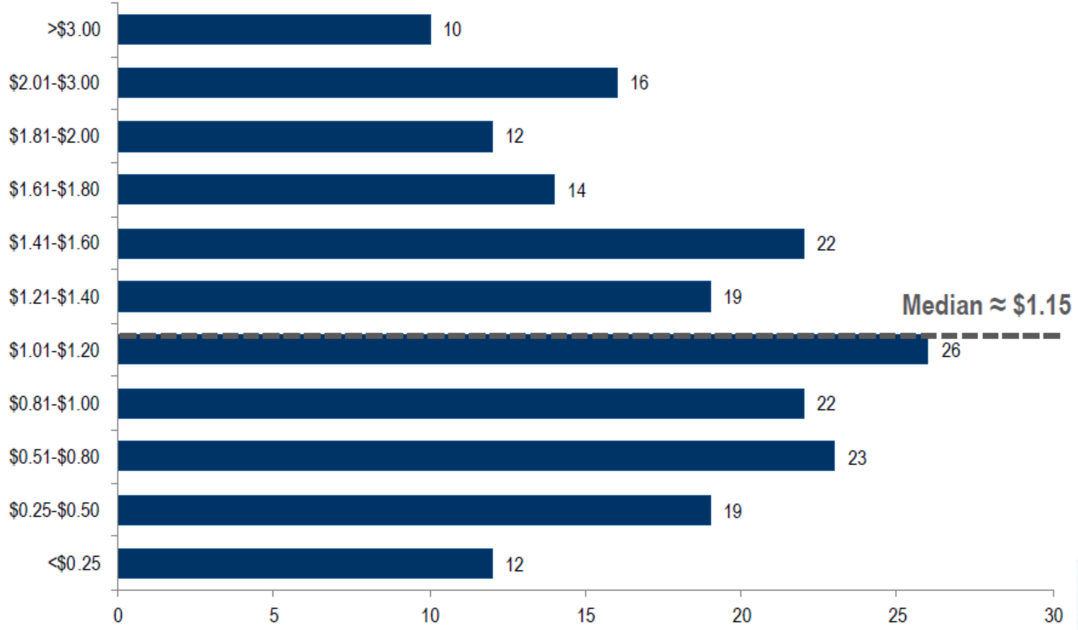
Customer Acquisition Costs ("CAC") and the CAC Ratio

Average customer acquisition costs



KeyBanc Capital Markets, 2017 Private SaaS Company Survey Results, *CAC Ratio: How Much Do You Spend for $1 of New ARR from a New Customer?*

*2018 survey results indicated the median value moved from **$1.15** to **$1.11***

Based on a 2017 survey of subscription-based businesses with ARR >$5 million, companies spent a median of $1.15 to acquire each dollar of new ARR from a new customer.

CAC payback period (or CAC recovery period)

CAC payback period

- CAC payback period measures the number of periods it takes for a customer's cumulative ARR to "payback" the initial sales and marketing spend.

$$\text{CAC payback period} = \frac{\text{CAC per customer}}{\text{ARR per customer x gross margin (\%)}}$$

A CAC payback of 2.0 implies that half of your S&M investment is paid back within a year (two-year payback period).

- The CAC payback period is one of the best ways to look at the efficiency of a SaaS business. SaaS companies generally target 12 to 18 month time frame to recover their initial customer acquisition cost.

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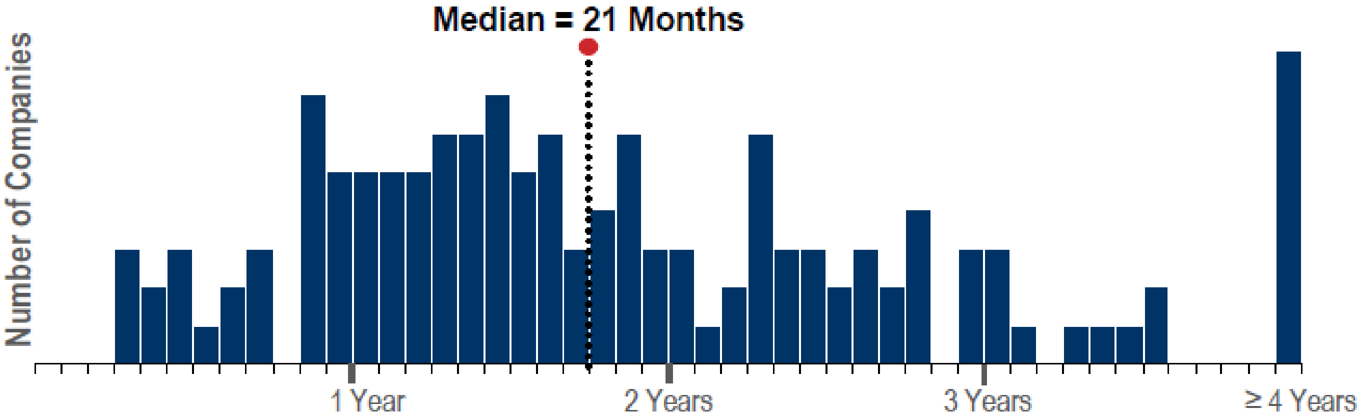
CAC payback period

CAC payback period



Although there was a wide distribution of responses, a 2018 survey of subscription-based companies revealed a median CAC payback period of 21 months.

KeyBanc Capital Markets, 2018 SaaS Survey Results, *CAC Payback Period (Gross Margin Basis)*

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Customer Retention and Churn Rates

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Churn overview

- The "stickiness," or rate of renewal after annual subscription contracts expire is measured by retention or churn.
- A small change in the monthly churn rate makes a significant difference in long term ARR retention. The 1-, 3- and 5-year customer retention rates based on monthly churn rates is shown below:

Monthly churn	1.0%	2.0%	3.0%	4.0%
Monthly retention	**99.0%**	**98.0%**	**97.0%**	**96.0%**
1-year retention	88.6%	78.5%	69.4%	61.3%
3-year retention	69.6%	48.3%	33.4%	23.0%
5-year retention	54.7%	29.8%	16.1%	8.6%

Griffin, Carter and Hartz, Neil, *Cloud Computing: A Closer Look at Churn,* Updata Partners, June 2012.

Even with 2% monthly churn, half of all customers will be gone in three years.

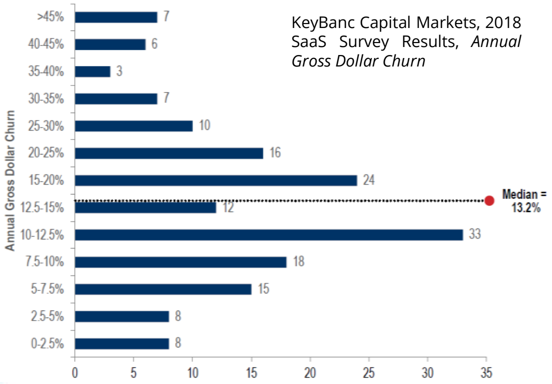
At 4% churn, more than 75% of customers will be lost

Customer churn rates directly impact a Company's ability to scale.

Customer Retention and Churn Rates (cont.)

Types of churn

- Customer (account) churn measures the rates that customer accounts are lost
  - Typically, a customer is considered churn at the expiration of a contract term (assuming no renewal of services is in process).
- Dollar churn measures the actual recurring revenue value lost over time
  - Dollar churn is often a more valuable measure, as it takes into account the relative value of large and small customers, as well as intra-period customer "upsells" and "downsells"
- "Acceptable" churn rates are typically dependent on the particular industry, customer acquisition costs, the total addressable market, and the potential to increase retention post-transaction.
- Refer to chart at above right for the results of a 2018 survey of average churn rates.



KeyBanc Capital Markets, 2018 SaaS Survey Results, *Annual Gross Dollar Churn*

Based on a 2018 survey of over 150 subscription-based businesses, the median annual gross dollar churn rate was 13.2%.

A company's measure of "tolerable" churn is dependent on a wide variety of company- and industry-specific factors.

Customer Retention and Churn Rates (cont.)

Negative churn

- Negative churn occurs when upsells/expansion outpaces contraction and churned recurring revenue
- Negative churn is ideal, and can be a big growth multiplier. It typically results from a strong inside sales group focused on renewals and upselling the existing customer base

Recurring revenue rollforward

	2015	2016	TTM 2017
Beginning ARR	6,449,312	8,192,899	10,109,311
Plus: New customer ARR	1,695,242	2,109,399	2,114,514
Plus: Existing customer upsells/expansion	215,248	473,294	457,657
Less: Existing customer downsells/contraction	(25,232)	(43,285)	(38,950)
Less: Churned ARR from customer terminations	(141,671)	(212,441)	(240,297)
Ending ARR	**8,192,899**	**10,519,866**	**12,402,235**
Net new ARR added	*1,743,587*	*2,326,967*	*2,292,924*
Net ARR growth	*27.0%*	*28.4%*	*22.7%*
Net expansion / (contraction) %	*2.9%*	*5.2%*	*4.1%*
Net ARR expansion, (contraction) and (churn) %	*0.7%*	*2.7%*	*1.8%*

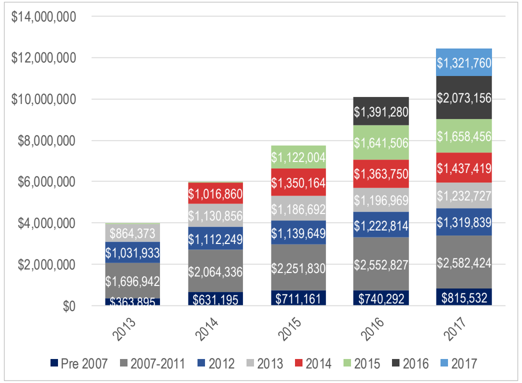
In this example, the company demonstrated **“negative churn”**.

Customer Retention and Churn Rates (cont.)

Analyzing churn

- Since customer retention is critical to the growth (and valuation) of a SaaS-based business, management teams typically monitor churn closely.
- Performing a cohort analysis is one technique used to gain insight into churn trends.
  - A cohort analysis groups customers into buckets, or cohorts, and analyzes trends within those buckets over time.
- In high-growth environments, small changes to the inside sales team, problems with implementation, or any other factors may contribute to significant changes in customer retention.
  - Cohort analyses enable management teams to track customer behavior and their reactions to variables over time.
  - Frequent cohort analyses allow management teams to continuously assess the effect of those variables on customer churn.

Example cohort analysis



Cohort analyses help demonstrate a SaaS business' customer and dollar churn rate trends over time.

Customer Retention and Churn Rates (cont.)

Methods to limit churn

- Companies can increase retention in a number of ways, including:
  - Improving customer service;
  - Increasing the number of users/adopters at each client;
  - Improving the onboarding/adoption process;
  - Improving integration with customer's systems and processes; and
  - Improving the contract renewal process.

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Lifetime Value of Customers ("LTV")

Lifetime value

- Customer LTV is an estimate of the profit that a customer will generate before they churn. LTV is typically calculated as follows:

$$\text{LTV} = \frac{\text{ARR x gross margin (\%)}}{\text{Annual churn rate}}$$

- Knowing the average customer LTV helps a SaaS business to –

  (1) *Apply guardrails around customer acquisition costs* – if a SaaS business is spending more on customer acquisition than it anticipates earnings from a customer in revenue, it needs to reassess its S&M strategy.

  (2) *Evaluate marking channels* – measuring LTV for each marketing channel can help prioritize S&M spend.

  (3) *Focus on retaining most valuable customers* – focusing on customers belonging to the segment with the highest LTV could help a SaaS business maintain or accelerate MRR growth.

Understanding LTV trends for different customer types or segments can help focus a SaaS business' sales and marketing strategy.

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LTV:CAC ratio

LTV:CAC

- LTV:CAC measures the lifetime value of a customer compared to the cost to acquire the customer. The metric is essential for evaluating the return on investment for each customer. It provides an answer to the simple question, is the customer worth more than what it costs to sell to them?

$$\text{LTV:CAC} = \frac{\text{Lifetime value of customers}}{\text{Customer acquisition costs}}$$

- Calculating the LTV:CAC ratio is a great way to assess a company's position for sustainable growth.
- A ratio of 1:1 means you lose money the more you sell. For growing SaaS companies, the industry standard LTV:CAC ratio is 3x or higher.
- However, higher is not always better. If the ratio is too high, the company is likely restraining its growth by underspending on sales and marketing.

The LTV:CAC ratio is a metric used to measure the efficiency of the sales and marketing function.

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Example calculations

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▶ If the data is available, the best approach is to evaluate a company's SaaS metric trends over time. This approach provides insight into whether a Company is improving its sales and marketing efficiency as it scales.

	2015	2016	TTM Sep17
Employee Costs			
Sales Wages	970,921	1,064,955	881,508
Sales Commissions	749,052	754,906	846,933
Sales - Other	536,068	466,145	523,101
Marketing Wages	569,349	775,616	871,681
Advertising and Promotion	220,679	221,114	210,687
Marketing - Other	379,163	432,941	446,310
Business Development	639,287	-	-
Total Sales & Marketing	**4,064,519**	**3,715,678**	**3,780,219**
New ARR	**1,695,242**	**2,109,399**	**2,114,514**
GAAP Revenue	**8,380,529**	**10,550,040**	**12,348,939**
New Customers	407	488	525
Total Customers	1,857	2,169	2,706
Average revenue per account (ARPA)	4,513	4,864	4,564
Gross margin (adjusted)	*78.9%*	*75.9%*	*78.2%*
Contribution per account	3,562	3,692	3,570
Churn rate	*2.2%*	*2.6%*	*2.4%*
Lifetime value (LTV)	162,150	142,819	150,170
Customer acquisition costs (CAC)	9,987	7,614	7,200
LTV:CAC	16.2x	18.8x	20.9x
CAC ratio	2.40	1.76	1.79
CAC recovery (years)	2.80	2.06	2.02

Average revenue per account ("ARPA" or "ARPU") is the average revenue per user. Tracking ARPA over time helps demonstrate upsell/downsell trends. However, different products have different economics and assessing the ARPA at the product or channel level is often more useful.

The more useful **churn rate** is gross dollar churn, which is calculated as the lost revenue churned customers.

CAC ratio is the cost to acquire $1 of new ARR from a new customer. The CAC ratio includes the "fully-loaded" amount spent on sales and marketing. Refer to chart at right for sales and marketing recommendations based on the calculated CAC ratio.

CAC recovery is the number of periods (years in the example) required to break even on the cost of acquiring a customer. In this example, a two year recover period is longer than ideal, but the LTV of a customer justifies the long payback period.

CAC Ratio	How to manage sales and marketing investment
≤1.0	Invest more aggressively in S&M and/or optimize S&M spend
1.0-3.0	Maintain current S&M investment and focus on productivity improvement
≥3.0	"Slam on the breaks" and focus on S&M productivity improvement

Importance of gross margins

Gross margins

- SaaS gross margins are high relative to other industries, typically in the 70%-90% range. Part of what makes a SaaS business attractive to investors is its ability to service current customers at nominal cost.

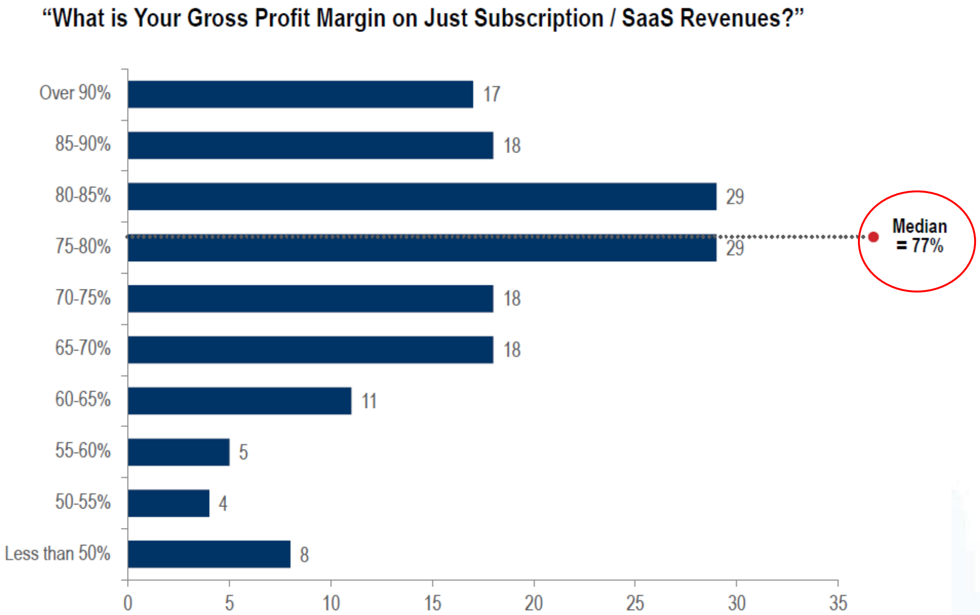
Cost of goods sold

- Expenses typically included in cost of goods include the following:
  - Application hosting and monitoring costs,
  - Implementation-related costs,
  - Employee costs related to keeping the production environment running,
  - Customer support and account management costs,
  - Third-party software license or data fees used in the delivered product, and
  - *Any other direct costs to deliver the ongoing service*

Because gross margins are important in evaluating a business' ability to scale, SaaS management teams must be careful to assess what costs are required to deliver the services and ensure those costs are reflected in cost of goods sold.

Importance of gross margins

Gross margins on SaaS revenues



KeyBanc Capital Markets, 2018 SaaS Survey Results, *Subscription Gross Margin*

Based on a 2018 survey of over 150 subscription-based businesses, the median annual gross margin was 77%.

Importance of gross margins

Typical SaaS cost structure

	Size of Company (2016 GAAP Revenue)						
	All Respondents	$5MM - $10MM	$10MM - $15MM	$15MM - $25MM	$25MM - $40MM	$40MM - $60MM	>$60MM
Total Gross Margin	73%	73%	72%	76%	68%	73%	73%
Subscription	78%	76%	77%	79%	77%	78%	80%
Professional Services	27%	30%	40%	28%	20%	35%	18%
Operating Expense Margins:							
Sales & Marketing	35%	33%	37%	37%	29%	24%	43%
Research & Development	28%	29%	33%	29%	24%	21%	22%
General & Administrative	19%	22%	19%	19%	18%	16%	14%
EBITDA Margin	(14%)	(39%)	(23%)	(13%)	(6%)	(7%)	(8%)
YoY GAAP Revenue Growth Rate	33%	54%	46%	39%	24%	27%	26%
YoY Organic ARR Growth Rate	35%	57%	47%	32%	22%	27%	23%

KeyBanc Capital Markets, 2017 Private SaaS Company Survey Results, *Median Cost Structure by Size*

Rule of 40

- To be a healthy software company, some investors abide by the Rule of 40:

PROFIT/EBITDA + YEAR-OVER-YEAR MRR GROWTH RATE => 40%

- The measurement is generally reserved for companies with at least $1 million of MRR

- The 40% rule is that your growth rate + your profit should add up to 40%. So, if you are growing at 20%, you should be generating a profit of 20%. If you are growing at 40%, you should be generating a 0% profit. If you are growing at 50%, you can lose 10%. If you are doing better than the 40% rule, that's great.

The 40% rule is that your growth rate + your profit should add up to 40%.

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Rule of 40

▶ The graph below measures participants of the 2018 KeyBanc SaaS survey against "The Rule of 40%"

Just ~20% (21 of 106) of the participants with >$10MM ARR meet or exceed "The Rule of 40%". The median {Growth + Profitability} for the group is +8%

KeyBanc Capital Markets, 2018 SaaS Survey Results, *Measuring Survey Participants Against "The Rule of 40%"*

Deferred revenue “haircut”

Deferred revenue “haircut”

- Under FASB Accounting Standards Codification (“ASC”) 805, an acquirer must recognize any assets acquired and liabilities assumed, measured at fair value as of that date. This includes the deferred revenue balance at transaction close.
- The process of determining the fair value of deferred revenue can result in a significant downward adjustment, or “haircut,” to the target company’s deferred revenue book value.
- Under the guidance, the deferred revenue liability may be estimated as the costs associated with delivering the services plus a “reasonable” profit margin.
- In the current market, the majority of lenders allow companies to remove the deferred revenue haircut from consideration in the calculations of loan covenants. *However, GAAP revenue will be affected post-close.*

Thank You

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