

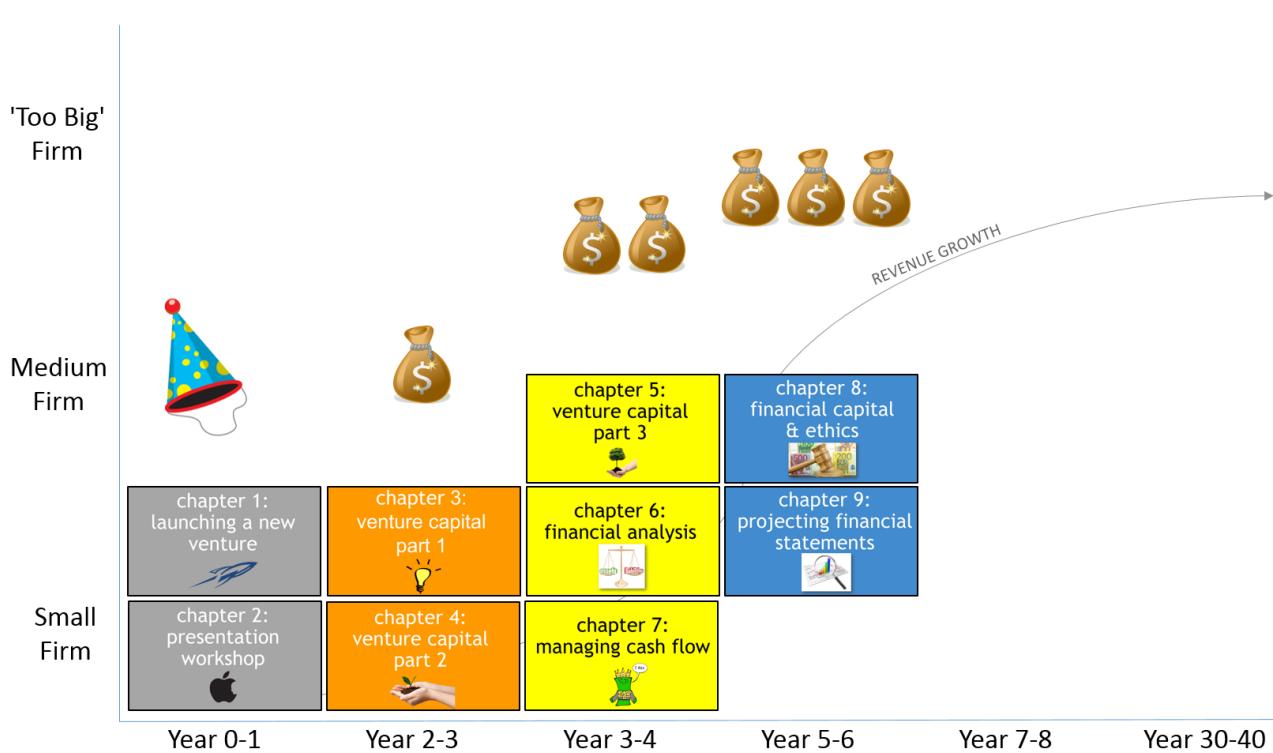
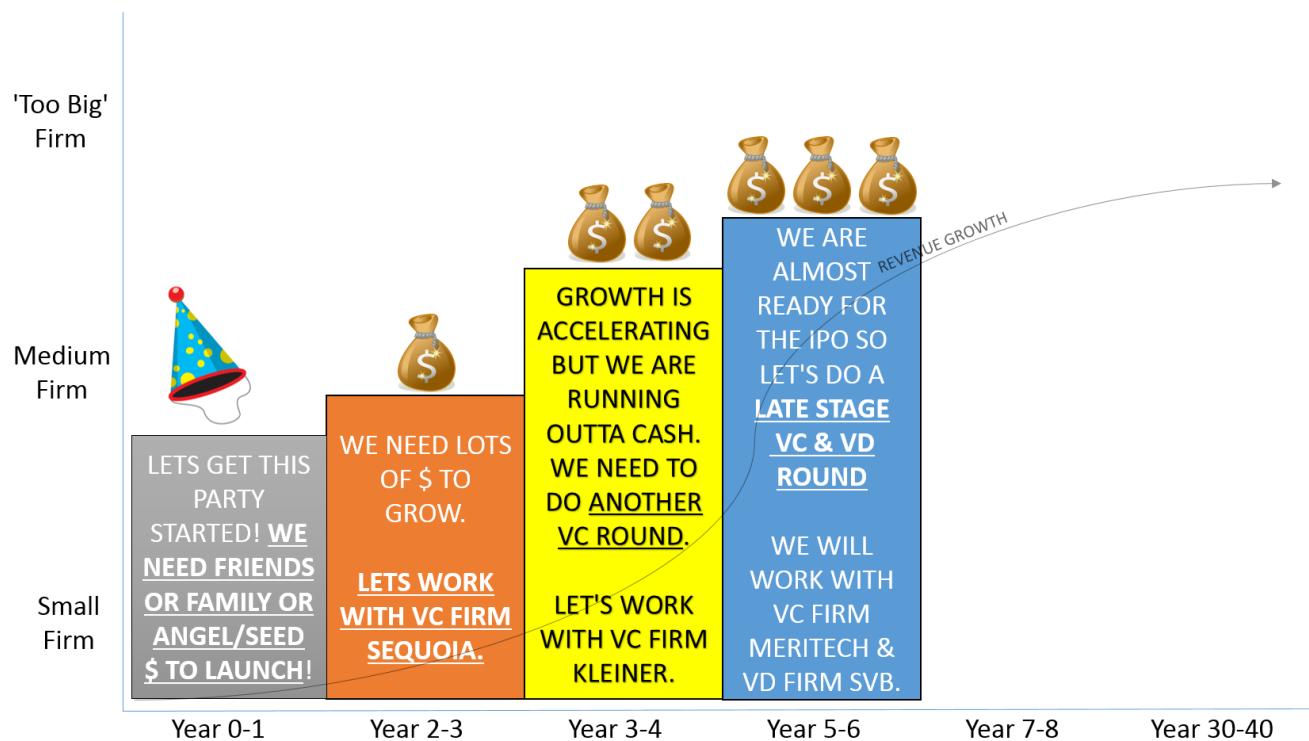
CHAPTER 9: PROJECTING FINANCIAL STATEMENTS

“The longer the view, the wiser the intention.”

- Warren Buffett

chapter 9:
projecting financial
statements





LATE STAGE INVESTMENT ROUND

We are going to do our last venture capital round now before our IPO. We will work with a late stage company and eventually a venture debt company. Prior to our IPO and last round though, we should complete a detailed model on our company and come up with an appropriate valuation. We re-engineered our product so we are now selling supercomputers and not P.O.S. or banana watches anymore (remember our awful recall issues)! These computers will sell for close to an ASP (average selling price) of \$100k each. The software that runs on these bad boys is off the charts awesome! This last pre IPO VC round valuation might be around \$350mn....we are close to signing a term sheet with a superb late stage VC firm. Fingers crossed...!

project at least 3-5 years.

always start with sales projections

We need to project our financial model for 3-5 years. Creating financial forecasts is a lot of fun and it was easier than you think! Wall Street analysts call projections “pro forma”.

“pro forma” = projections

what is the most important thing to assess for a potential investment in a start-up?

ideas are commodities.
execution is not.

That's right – ideas are commodities and there is no point ever making a model if you don't have the right management team to invest in. As a result, all financial modeling done in this book assumes that you are happy first of all with the management team that you are investing in.

Fortunately our management team is off the charts awesome! The company is relatively new but they are already on a run rate to make \$1mn in revenue this year.

In the previous company that our founder founded, he got the company from founding to \$300mn+ in revenue in 3 years! He is a rock star! He thinks that he can get to \$500mn in revenue in 3 years with this company.

is the TAM big enough?

\$50bn.

Recall that the T.A.M. stands for the total addressable market. We will never invest in a company that doesn't have a T.A.M. of at least \$20bn. Fortunately the T.A.M. of this company is \$50bn!

10% of TAM in 10 years.

The founder tells us that he thinks the company can get 10% market share in 10 years or \$5bn in revenue in 10 years. Wow!

ok let's do a long term model

start with the TAM.

then what percent of TAM can you own within 10 years.

then list assumptions.

then build the model starting with sales.

We always start our financial models with sales. Remember that modeling is easy as everything becomes a percent of revenue (remember that sales is the same thing as revenue)

Financial Model Template					
Market Analysis					
Product Line A					
D21	A	B	C	D	
1					
2					
3	TAM		\$ 50,000,000,000		
4	Market share in year 10		\$ 5,000,000,000		
5					
6					
7					
8					
9					

The average selling price (ASP) of the product is \$100k. Revenue divided by the ASP = 50k units sold in year 10. Remember we are spending the bulk of our modeling time on figuring out what revenue will be. Then almost every other line item in the model becomes a percent of revenue.

The market size is \$50bn and our guy thinks he will get 10% of this market in 10 years.

Financial Model Template					
Market Analysis					
Product Line A					
D7	A	B	C	D	
1					
2					
3	TAM		\$ 50,000,000,000		
4	Market share in year 10		\$ 5,000,000,000		
5	ASP		\$ 100,000		
6	Units by year 10		50,000		
7					
8					

.....ok in year 3 he said he can get to 500mn in revenue

C	Formula Bar	E	F	G	H	I	J
TAM	\$ 50,000,000,000						
Market share in year 10	\$ 5,000,000,000						
ASP	\$ 100,000						
Units by year 10	50,000						
Units expected in year 1	20						
Units year 2	200						
Units year 3	4,000ok in year 3 he said he can get to 500mn in revenue					
Units year 4							
Units year 5							
Units year 6							
Units year 7							
Units year 8							
Units year 9							
Units year 10	50,000						

His forecast of \$500mn in revenue in year 3 seems too high to me; let's haircut it and assume it is \$400mn.

E11 : =E10-0.2

A	B	C	D	E
1				
2				
3	TAM	\$ 50,000,000,000		
4	Market share in year 10	\$ 5,000,000,000		
5	ASP	\$ 100,000		
6	Units by year 10	50,000	YoY Growth	
7	Units expected in year 1	20		
8	Units year 2	200	900%	
9	Units year 3	4,000	1900%	
10	Units year 4	10,000	250%	
11	Units year 5	23,000	230%	
12	Units year 6	48,300	210%	
13	Units year 7	91,770	190%	
14	Units year 8	156,009	170%	
15	Units year 9	234,014	150%	
16	Units year 10	50,000	50%	

....ok in year 3 he said he can get to 500mn in revenue	hmm...pretty aggressive....let's assume 400mn
...hmm this growth is pretty high...let's assume it slows a lot in future years due to the law of large numbers	
50 % unit growth in year 10....still seems high.	
my numbers are way too big....ok lets harcut them a lot	
ok....but the increase between year 2 and 3 seems nutty high	
I don't think 10% share in 10 years can be done.....i mean there will be a recession at some point and these growth rates seem too high....	
ok fine let's assume this is our UBER OPTIMISTIC scenario.....as companies don't grow triple digit that many uears	

Spend a lot of time on forecasting revenue. I often spend a whole day doing this....then I sleep on it and revisit my model the next morning.

	TAM	\$ 50,000,000,000				
	Market share in year 10	\$ 5,000,000,000				
	ASP	\$ 100,000				
YEAR	Units by year 10	50,000	YoY Growth	REVENUE		
2015	Units expected in year 1	20		\$ 2,000,000		
2016	Units year 2	200	900%	\$ 20,000,000		
2017	Units year 3	4,000	1900%	\$ 400,000,000ok in year 3 he said he	
2018	Units year 4	8,400	210%	\$ 840,000,000	...hmm this growth is prett	
2019	Units year 5	15,540	185%	\$ 1,554,000,000		
2020	Units year 6	26,418	170%	\$ 2,641,800,000		
2021	Units year 7	35,664	135%	\$ 3,566,430,000		
2022	Units year 8	44,580	125%	\$ 4,458,037,500		
2023	Units year 9	49,038	110%	\$ 4,903,841,250		
2024	Units year 10	51,490	105%	\$ 5,149,033,313	Christopher Haroun: assumes 10 percent of the \$50b	ok....but the increase betw

When we create financial models, we make many assumptions. Please document all of them per the images in this chapter. You can enter comments in each cell (the yellow boxes) or you can just type your assumptions in your spreadsheet. If you are working in groups modeling a company (which happens often in the asset management and investment banking business), make sure to enter your name at the beginning of each cell comment. When I used to be a software engineer, I would add many comments to my code...this helps a lot when you revisit your model or code in the future.

there must be competition at some point.....so we have to hair cut the average selling price
let's assume competition enters the market in 3 years and hence the price drops.

	B	C	D	E	F
TAM	\$	50,000,000,000			
Market share in year 10	\$	5,000,000,000			
ASP	\$	100,000			
YEAR	Units by year 10	50,000	YoY Growth	REVENUE	
2015	Units expected in year 1	20		\$ 2,000,000	
2016	Units year 2	200	900%	\$ 20,000,000	
2017	Units year 3	4,000	1900%	\$ 400,000,000	
2018	Units year 4	8,400	210%	=D10*(\$D\$5*.9)	
2019	Units year 5	15,540	185%	\$ 1,554,000,000	
2020	Units year 6	26,418	170%	\$ 2,641,800,000	
2021	Units year 7	35,664	135%	\$ 3,566,430,000	
2022	Units year 8	44,580	125%	\$ 4,458,037,500	
2023	Units year 9	49,038	110%	\$ 4,903,841,250	
2024	Units year 10	51,490	105%	\$ 5,149,033,313	

	B	C	D	E	F
TAM	\$	50,000,000,000			
Market share in year 10	\$	5,000,000,000			
ASP	\$	100,000			
YEAR	Units by year 10	50,000	YoY Growth	REVENUE	
2015	Units expected in year 1	20		\$ 2,000,000	
2016	Units year 2	200	900%	\$ 20,000,000	
2017	Units year 3	4,000	1900%	\$ 400,000,000	
2018	Units year 4	8,400	10% 100%	\$ 756,000,000	Christopher Haroun: 10 percent price drop
2019	Units year 5	15,540	185%	\$ 1,554,000,000	
2020	Units year 6	26,418	170%	\$ 2,641,800,000	
2021	Units year 7	35,664	135%	\$ 3,566,430,000	
2022	Units year 8	44,580	125%	\$ 4,458,037,500	
2023	Units year 9	49,038	110%	\$ 4,903,841,250	
2024	Units year 10	51,490	105%	\$ 5,149,033,313	

Growth	REVENUE
	\$ 2,000,000
900%	\$ 20,000,000
1900%	\$ 400,000,000
210%	\$ 756,000,000
125%	\$ 1,243,200,000
170%	\$ 2,377,620,000
135%	\$ 3,209,787,000
125%	\$ 4,012,233,750
110%	\$ 4,413,457,125
105%	\$ 5,149,033,313

Christopher Haroun:
20 percent price cut

YoY Growth	REVENUE
	\$ 2,000,000
900%	\$ 20,000,000
1900%	\$ 400,000,000
210%	\$ 756,000,000
185%	\$ 1,243,200,000
170%	\$ 2,113,440,000
135%	\$ 2,853,144,000
125%	\$ 3,120,626,250
110%	\$ 4,413,457,125
105%	\$ 5,149,033,313

Christopher Haroun:
20 percent price
cut...especially since
component costs are
always dropping

	TAM	\$ 50,000,000,000			
YEAR	Units by year 10	50,000	YoY Growth	REVENUE	
2015	Units expected in year 1	20		\$ 2,000,000	
2016	Units year 2	200	900%	\$ 20,000,000	
2017	Units year 3	4,000	1900%	\$ 400,000,000	
2018	Units year 4	8,400	210%	\$ 756,000,000	
2019	Units year 5	15,540	185%	\$ 1,243,200,000	
2020	Units year 6	26,418	170%	\$ 2,113,440,000	
2021	Units year 7	35,664	135%	\$ 2,853,144,000	
2022	Units year 8	44,580	125%	\$ 3,120,626,250	
2023	Units year 9	49,038	110%	\$ 2,942,304,750	
2024	Units year 10	51,490	105%	\$ 3,089,419,988	

+

there must be competition at some point....so we have to hair cut the average selling price
 let's assume competition enters the market in 3 years and hence the price drops.
 ok....now I am second guessing my unit estimates....let me hair cut them

TAM	\$ 50,000,000,000			
Market share in year 10	\$ 5,000,000,000			
ASP	\$ 100,000			
YEAR	Units by year 10	50,000	YoY Growth	REVENUE
2015 Units expected in year 1	20		\$ 2,000,000	
2016 Units year 2	200	900%	\$ 20,000,000	
2017 Units year 3	3,500	1650%	\$ 350,000,000	
2018 Units year 4	7,350	210%	\$ 661,500,000	
2019 Units year 5	12,495	170%	\$ 999,600,000	
2020 Units year 6	17,493	140%	\$ 1,399,440,000	
2021 Units year 7	23,616	135%	\$ 1,889,244,000	
2022 Units year 8	29,519	125%	\$ 2,066,360,625	
2023 Units year 9	32,471	110%	\$ 1,948,282,875	
2024 Units year 10	34,095	105%	\$ 2,045,697,019	

there must be competition at some point....so we have to hair cut the average selling price
let's assume competition enters the market in 3 years and hence the price drops.
ok....now I am second guessing my unit estimates....let me hair cut them
ok this feels much better....growth is low by year 10....ok this is more conservative....let's run with this.....

.....ok in year 3 he said he can get to 500mn in revenue
hmm this growth is pretty high...let's assume it slows a lot in future years
50 % unit growth in year 10....still seems high.
my numbers are way too big....ok lets haircut them a lot
ok....but the increase between year 2 and 3 seems nutty high
I don't think 10% share in 10 years can be done....i mean there will be a lot
seem too high....
ok fine let's assume this is our UBER OPTIMISTIC scenario....as companies

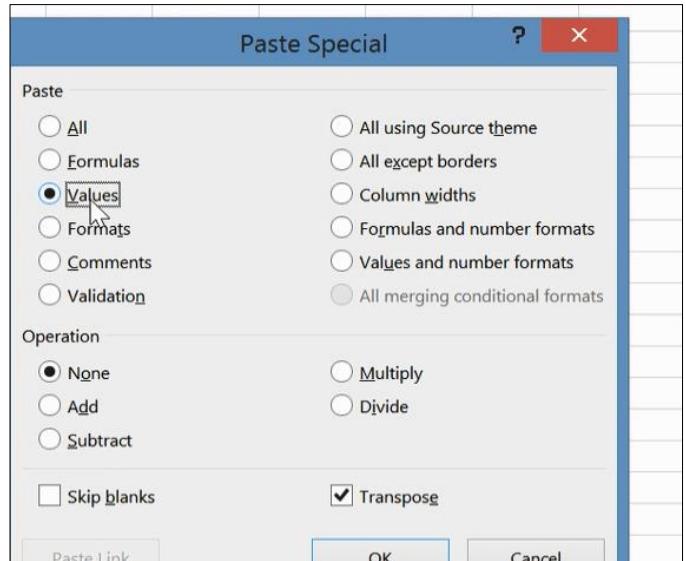
17:38:86

\$ 50,000,000,000				
\$ 5,000,000,000				
\$ 100,000				
50,000	YoY Growth	REVENUE		
20		\$ 2,000,000		
200	900%	\$ 20,000,000		
3,500	1650%	\$ 350,000,000		
7,350	210%	\$ 661,500,000		
12,495	170%	\$ 999,600,000		
17,493	140%	\$ 1,399,440,000		
23,616	135%	\$ 1,889,244,000		
29,519	125%	\$ 2,066,360,625		
32,471	110%	\$ 1,948,282,875		
34,095	105%	\$ 2,045,697,019		

Christopher Haroun:
40 percent price cut

Ok this feels much better. Growth has slowed a lot by year ten. Ok let's use this for revenue. Now the easy part...

Cool. Ok let's copy our revenue column and paste special and transpose it to a revenue row in a new tab in our spreadsheet.



	2015	2016	2017	2018	2019
Revenue	\$ 2,000,000	\$ 20,000,000	\$ 350,000,000	\$ 661,500,000	\$ 999,500,000
+					

Christopher Haroun:
company thinks they can
do \$500mn here....i think
\$350mn is more
appropriate

Again, remember to add many comments to your spreadsheet. The comment above reminds us that we think that \$350mn is more accurate for our revenue estimate in year 3.

Wow – lots going on here....let's take a break and watch this incredibly important video:
www.tiny.cc/chris75

ok let's do expenses now

Recall that COGS is the cost of goods sold. You can ask the founder or their CFO to help you construct the expense line items. Alternatively, you can go to www.sec.gov and find financial statements for companies that are similar to this company and find out what the percent of revenue was for each line item in the early years for their company.

	2015	2016	2017	2018	
Revenue	\$ 2,000,000	\$ 20,000,000	\$ 350,000,000	\$ 661,500,000	\$ 999,500,000
COGS	\$ 1,800,000	\$ 16,000,000	\$ 175,000,000	\$ 264,600,000	\$ 299,500,000
GM pct	10%	20%	50%	60%	
Gross Profit	\$ 200,000	\$ 4,000,000	\$ 175,000,000	\$ 396,900,000	\$ 699,500,000

sales													
	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3													
4				2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
5	Revenue	\$ 2,000,000	\$ 20,000,000	\$ 350,000,000	\$ 661,500,000	\$ 999,600,000	\$ 1,399,440,000	\$ 1,889,244,000	\$ 2,066,360,625	\$ 1,948,282,875	\$ 2,045,697,019		
6	COGS	\$ 1,800,000	\$ 16,000,000	\$ 175,000,000	\$ 264,600,000	\$ 299,880,000	\$ 279,888,000	\$ 358,956,360	\$ 371,944,913	\$ 331,208,089	\$ 327,311,523		
7	GM pct	10%	20%	50%	60%	70%	80%	81%	82%	83%	84%		
8	Gross Profit	\$ 200,000	\$ 4,000,000	\$ 175,000,000	\$ 396,900,000	\$ 699,720,000	\$ 1,119,552,000	\$ 1,530,287,640	\$ 1,694,415,713	\$ 1,617,074,786	\$ 1,718,385,496		
9													
10	Operating Expenses:												
11	S&M												
12	G&A												
13	R&D												
14													

This modeling trick will save you a lot of time: highlight the sales or revenue row and then rename it 'sales', which you can see in the top left hand corner of the previous image. Going forward, don't worry about referring to row 5....just call it sales in your formulas!

ok let's look at operating profit

Cool beans! We are making progress. See how S&M (sales and marketing) is 25% of revenue and improving to 20% the next year?

	C	D	E	F	G	H	I	J	K	L	M		
				2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenue	\$ 2,000,000	\$ 20,000,000	\$ 350,000,000	\$ 661,500,000	\$ 999,600,000	\$ 1,399,440,000	\$ 1,889,244,000	\$ 2,066,360,625	\$ 1,948,282,875	\$ 2,045,697,019			
COGS	\$ 1,800,000	\$ 16,000,000	\$ 175,000,000	\$ 264,600,000	\$ 299,880,000	\$ 279,888,000	\$ 358,956,360	\$ 371,944,913	\$ 331,208,089	\$ 327,311,523			
GM pct	10%	20%	50%	60%	70%	80%	81%	82%	83%	84%			
Gross Profit	\$ 200,000	\$ 4,000,000	\$ 175,000,000	\$ 396,900,000	\$ 699,720,000	\$ 1,119,552,000	\$ 1,530,287,640	\$ 1,694,415,713	\$ 1,617,074,786	\$ 1,718,385,496			
Operating Expenses:													
S&M	\$ 500,000	\$ 4,000,000	\$ 66,500,000	\$ 112,455,000	\$ 159,936,000	\$ 209,916,000	\$ 264,494,160	\$ 268,626,881	\$ 233,793,945	\$ 225,026,672			
% of sales	25%	20%	19%	17%	16%	15%	14%	13%	12%	11%			
% YoY		700%	1563%	69%	42%	31%	26%	2%	-13%	-4%			
G&A	\$ 500,000	\$ 4,000,000	\$ 66,500,000	\$ 112,455,000	\$ 159,936,000	\$ 209,916,000	\$ 264,494,160	\$ 268,626,881	\$ 233,793,945	\$ 225,026,672			
% of sales	25%	20%	19%	17%	16%	15%	14%	13%	12%	11%			
% YoY		700%	1563%	69%	42%	31%	26%	2%	-13%	-4%			
R&D	\$ 4,000,000	\$ 20,000,000	\$ 25,000,000	\$ 25,000,000	\$ 40,000,000	\$ 35,000,000	\$ 35,000,000	\$ 35,000,000	\$ 35,000,000	\$ 35,000,000	\$ 35,000,000		
% of sales	200%	100%	7%	4%	4%	3%	2%	2%	2%	2%			
% YoY		400%	25%	0%	60%	-13%	0%	0%	0%	0%			
Opex Total		=D17+D14+D11											

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Revenue	\$ 2,000,000	\$ 20,000,000	\$ 350,000,000	\$ 661,500,000	\$ 999,600,000	\$ 1,399,440,000	\$ 1,889,244,000	\$ 2,066,360,625	\$ 1,948,282,875	\$ 2,045,697,019
COGS	\$ 1,800,000	\$ 16,000,000	\$ 175,000,000	\$ 264,600,000	\$ 299,880,000	\$ 279,888,000	\$ 358,956,360	\$ 371,944,913	\$ 331,208,089	\$ 327,311,523
GM pct	10%	20%	50%	60%	70%	80%	81%	82%	83%	84%
Gross Profit	\$ 200,000	\$ 4,000,000	\$ 175,000,000	\$ 396,900,000	\$ 699,720,000	\$ 1,119,552,000	\$ 1,530,287,640	\$ 1,694,415,713	\$ 1,617,074,786	\$ 1,718,385,496
Operating Expenses:										
S&M	\$ 500,000	\$ 4,000,000	\$ 66,500,000	\$ 112,455,000	\$ 159,936,000	\$ 209,916,000	\$ 264,494,160	\$ 268,626,881	\$ 233,793,945	\$ 225,026,672
% of sales	25%	20%	19%	17%	16%	15%	14%	13%	12%	11%
% YoY	700%	1563%	69%	42%	31%	26%	2%	-13%	-4%	
G&A	\$ 500,000	\$ 4,000,000	\$ 66,500,000	\$ 112,455,000	\$ 159,936,000	\$ 209,916,000	\$ 264,494,160	\$ 268,626,881	\$ 233,793,945	\$ 225,026,672
% of sales	25%	20%	19%	17%	16%	15%	14%	13%	12%	11%
% YoY	700%	1563%	69%	42%	31%	26%	2%	-13%	-4%	
R&D	\$ 4,000,000	\$ 20,000,000	\$ 25,000,000	\$ 25,000,000	\$ 40,000,000	\$ 35,000,000	\$ 35,000,000	\$ 35,000,000	\$ 35,000,000	\$ 35,000,000
% of sales	200%	100%	7%	4%	4%	3%	2%	2%	2%	2%
% YoY	400%	25%	0%	60%	-13%	0%	0%	0%	0%	0%
Opex Total	\$ 5,000,000	\$ 28,000,000	\$ 158,000,000	\$ 249,910,000	\$ 359,872,000	\$ 454,832,000	\$ 563,988,320	\$ 572,253,763	\$ 502,587,890	\$ 485,053,344
Operating Profit (EBIT)	\$ (4,800,000)	\$ (24,000,000)	\$ 17,000,000	\$ 146,990,000	\$ 339,848,000	\$ 664,720,000	\$ 966,299,320	\$ 1,122,161,950	\$ 1,114,486,896	\$ 1,233,332,152
% of sales	-240%	-120%	5%	22%	34%	47%	51%	54%	57%	60%

Alrighty then we are getting there. Let's now do the 'below the line' items

	2015	2016	2017	2018
Revenue	\$ 2,000,000	\$ 20,000,000	\$ 350,000,000	\$ 661,500,000
COGS	\$ 1,800,000	\$ 16,000,000	\$ 175,000,000	\$ 264,600,000
GM pct	10%	20%	50%	60%
Gross Profit	\$ 200,000	\$ 4,000,000	\$ 175,000,000	\$ 396,900,000
Operating Expenses:				
S&M	\$ 500,000	\$ 4,000,000	\$ 66,500,000	\$ 112,455,000
% of sales	25%	20%	19%	17%
% YoY	700%	1563%	69%	69%
G&A	\$ 500,000	\$ 4,000,000	\$ 66,500,000	\$ 112,455,000
% of sales	25%	20%	19%	17%
% YoY	700%	1563%	69%	69%
R&D	\$ 4,000,000	\$ 20,000,000	\$ 25,000,000	\$ 25,000,000
% of sales	200%	100%	7%	4%
% YoY	400%	25%	25%	0%
Opex Total	\$ 5,000,000	\$ 28,000,000	\$ 158,000,000	\$ 249,910,000
Operating Profit (EBIT)	\$ (4,800,000)	\$ (24,000,000)	\$ 17,000,000	\$ 146,990,000
% of sales	-240%	-120%	5%	22%
Interest	\$ -	\$ -	\$ 85,000	
Christopher Haroun: assume half of ebit at a 1% annual interest rate				
00:43:53				

	2015	2016	2017
Revenue	\$ 2,000,000	\$ 20,000,000	\$ 350,000,000
COGS	\$ 1,800,000	\$ 16,000,000	\$ 175,000,000
GM pct	10%	20%	50%
Gross Profit	\$ 200,000	\$ 4,000,000	\$ 175,000,000
Operating Expenses:			
S&M	\$ 500,000	\$ 4,000,000	\$ 66,500,000
% of sales	25%	20%	19%
% YoY		700%	1563%
G&A	\$ 500,000	\$ 4,000,000	\$ 66,500,000
% of sales	25%	20%	19%
% YoY		700%	1563%
R&D	\$ 4,000,000	\$ 20,000,000	\$ 25,000,000
% of sales	200%	100%	7%
% YoY		400%	25%
Opex Total	\$ 5,000,000	\$ 28,000,000	\$ 158,000,000
Operating Profit (EBIT)	\$ (4,800,000)	\$ (24,000,000)	\$ 17,000,000
% of sales	-240%	-120%	5%
Interest	\$ -	\$ -	\$ 85,000
Tax	\$ -	\$ -	\$ 4,250,000
% of EBIT	0%	0%	25%
Net Income	\$ (4,800,000)	\$ (24,000,000)	\$ 12,835,000
% of sales	-240%	-120%	4%

Sweet nectar we are done! Note that we are not paying any tax in the first few years as we are not yet profitable.

See how easy the rest of this income statement was!

all based on a percent of sales.

is our \$350mn valuation attractive or not?

Now that we are done with the model we can ask ourselves if the \$350mn valuation of the private company we just invested in is attractive or not?

stock market paying 10x's revs.
(for growth investors)

Since the stock market is valuing similar companies to ours that go public at close to 10x's revenue, then is our company cheap or expensive at a valuation of \$350mn? I would argue that it is a damn bargain as we will go public in a few years when revenue is higher than \$400mn annually..... which means that 10x's revenue over \$400mn implies an IPO valuation of way over \$4bn, which means that we have more than a 10 bagger here!

Woohoo! Yeah! Can you feel that!!!!!! www.tiny.cc/chris76

stock market paying 10x's eps.
(for value investors)

Value investors suck at tech so we will only stick with appeasing our growth investors. You are either a growth investor (meaning you don't mind paying high perceived near term valuations as a company will be uber profitable in the future...like Amazon or LinkedIn).....or you are a value investor and you like companies that have low price to earnings ratios, of which there are relatively few that are relevant in tech.

ok let's assume an IPO in 5 years

assume IPO in 2020								
growth investors to pay 10x revs								
\$ 13,994,400,000								
value investors (who suck at tech) pay 10x's earnings (which is way too low given the growth rate)								
\$ 5,085,108,000								

Assume we are in 2015 today and we will go public in 2020. Assume that the market will pay 10x's revenue for a high growth company like ours. Cool as this means that our company can be valued at almost a \$14bn market cap by then. Value investors (who again suck at tech investing) will argue that they should pay 10 times earnings on our earnings estimate in 5 years. We think we can make about \$500mn in net income in 5 years to those investors would pay 10 times' earnings or about \$5bn. Either way, we are looking to make a damn impressive return on investment in our company!

Wait a second....10x's revenue is what investors pay in a bull (or great) stock market environment. Ok let's be conservative and haircut our target price for both methodologies by say 25%. Let's be even more conservative by taking an average valuation of the growth investor's math and the value investor's math. This very conservatively values our company at over \$4.8bn, which is still a hefty 14 bagger return given our \$350mn investment.

fx	this means a 14 bagger....and this is very conservative.	D	E	F	G	H	I
assume IPO in 2020							
growth investors to pay 10x revs							
\$ 13,994,400,000							
value investors (who suck at tech) pay 10x's earnings (which is way too low given the growth rate)							
\$ 5,085,108,000							
ok...we are in a bull market now....let's hair cut these by 25% to be conservative							
\$ 6,997,200,000							
\$ 2,542,554,000							
\$ 4,769,877,000							
we invested at \$350mn valuation							
\$ 14							
this means a 14 bagger....and this is very conservative.							

Wait a second. Is our revenue multiple estimate too high? Well we can compare our company to other amazing high growth tech companies to compare for a sanity check.

Google search results for "salesforce valuation". The top result is "Salesforce Current Valuation CRM NYSE" from YCharts, which provides analysis of Salesforce's current valuation, enterprise value, and various financial ratios.



We see that Salesforce is trading at close to 9x's revenue and its growth rate is way lower than our firm. Even if you think Salesforce is overvalued, you likely see tremendous value in our investment (there is a cloud software component to our business model too which is why we compare it to Salesforce's valuation).

assume IPO in 2020	
growth investors to pay 10x revs	
\$ 13,994,400,000	
value investors (who suck at tech) pay 10x's earnings (which is way too low given the growth rate)	
\$ 5,085,108,000	
ok...we are in a bull market now....let's hair cut these by 25% to be conservative and assume we could be in a bear market then	
\$ 6,997,200,000	
\$ 2,542,554,000	
\$ 4,769,877,000	
we invested at \$350mn valuation	
\$ 13.63	
this means a 14 bagger....and this is very conservative.	
what does a mature large cap growth company like salesforce trade at?	
wow 9x revenue for salesforce.....and growth is way slower for them....	
this \$350mn valuation is a bargain!	

Heck our growth rate in 2020 is 40% which is likely at least 2x's higher than Salesforce's growth in 2020. So if we apply a 9x's revenue multiple on 2020 revenue, then our return on our \$350mn investment is off the charts!

2019	2020	
\$ 999,600,000	\$ 1,399,440,000	\$ 1,399,440,000
51%	40%	40%
\$ 299,880,000	\$ 279,888,000	\$ 279,888,000
70%	80%	80%
\$699,720,000	\$1,119,552,000	\$1,119,552,000

what is their sustainable growth rate in 2020 when they ipo?

sustainable growth =

what is the maximum growth rate they can achieve without additional equity or debt financing

sustainable growth =

(ending equity - beginning equity)
/
beginning equity

retained earnings is part of equity....which is how much profits we have derived over the years.

let's checkout our sustainable growth rate in 2020 - the year of our IPO
(assume no dividends)

sustainable growth	
beginning equity	\$ 351,597,690
ending equity	\$ 860,108,490
	145%
so the most we can grow in 2020 is 145%.....let's make sure we are below this metric...	
2020 growth=	98%
we are growing at a rate below our sustainable growth rate. All good!	

if we were growing above the sustainable growth rate we would need to raise money (equity sale or debt).

sustainable growth = 145%
and we are at 98%

but if an activist investor like Carl Icahn pressures
us to issue a dividend of say 40%....

then you simply multiply the sustainable growth
rate by 1-d.

$$145\% * (1-0.40) = 87\%$$

sustainable growth =
 $\frac{\text{net income}}{\text{beginning equity}} * \text{retention rate}$

sustainable growth =

this is ending equity MINUS
beginning equity

net income
/
beginning equity
*

this is 1 MINUS the dividend rate

retention rate

Heavy chapter! Another break time: www.tiny.cc/chris77

let's manipulate that last formula
and have some fun with math so we
can better understand how to
manipulate our financials to meet
our sustainable growth targets.

net income
/
equity
=

return on equity (or ROE)

NI
/
E

=

ROE (or sustainable growth)

$$\text{ROE} = \text{NI}/\text{E}$$

$$\text{ROE} = \text{NI}/\text{E} * \text{S}/\text{S} * \text{A}/\text{A}$$

$$\text{ROE} = \text{NI}/\text{E} * \text{S}/\text{S} * \text{A}/\text{A}$$

$$\text{ROE} = \text{NI}/\text{S} * \text{S}/\text{A} * \text{A}/\text{E}$$

$$G = \text{NI}/\text{S} * \text{S}/\text{A} * \text{A}/\text{E}$$

$$G = \text{NI}/\text{S} * \text{S}/\text{A} * \text{A}/\text{E}$$

$G = \text{Net Profit Margin}$
 $* \text{Asset Turnover}$
 $* \text{Equity Multiplier}$

$$G = \text{NI}/\text{S} * \text{S}/\text{A} * \text{A}/\text{E}$$

$G = \text{Net Profit Margin}$
 $* \text{Asset Turnover}$
 $* \text{Equity Multiplier}$

I can increase my sustainable growth using one of those 3 equations

$G = NI/S * S/A * A/E$

let's increase our NI/S so our G can increase.

$G = \text{Net Profit Margin}$
 * Asset Turnover
 * Equity Multiplier

I can increase my sustainable growth using one of those 3 equations

Cool. So let's increase our sustainable growth rate by increasing our net profit margin, which is currently 98%:

C	I
	2020
Revenue	\$ 1,399,440,000
% YoY	40%
COGS	\$ 279,888,000
GM pct	80%
Gross Profit	\$1,119,552,000
Operating Expenses:	
S&M	\$ 209,916,000
% of sales	15%
% YoY	31%
G&A	\$ 209,916,000
% of sales	15%
% YoY	31%
R&D	\$ 35,000,000
% of sales	3%
% YoY	-13%
Opex Total	\$ 454,832,000
Operating Profit (EBIT)	\$ 664,720,000
% of sales	47%
Interest	\$ 9,970,800
Tax	\$ 166,180,000
% of EBIT	25%
Net Income	\$ 508,510,800
% of sales	36%
% YoY	+ 98%
assumptions and revenue	(+) ::

Ok note how Sales and Marketing (S&M) as a percent of revenue is 15%? Let's decrease this to 14% and see what happens to our YoY (year over year) net income growth. It should increase from 98%.to....

	2020
Revenue	\$ 1,399,440,000 \$
% YoY	40%
COGS	\$ 279,888,000 \$
GM pct	80%
Gross Profit	\$1,119,552,000 \$
Operating Expenses:	
S&M	\$ 195,921,600 \$
% of sales	14%
% YoY	23%
G&A	\$ 167,932,800 \$
% of sales	12%
% YoY	5%
R&D	\$ 35,000,000 \$
% of sales	3%
% YoY	-13%
Opex Total	\$ 398,854,400 \$
Operating Profit (EBIT)	\$ 720,697,600 \$
% of sales	51%
Interest	\$ 10,810,464 \$
Tax	\$ 180,174,400 \$
% of EBIT	25%
	wow nice leverage!!
Net Income	\$ 551,333,664 \$
% of sales	39%
% YoY	115%

Holy leverage! Wow – our net income growth increased from 98% to 115% year over year by tweaking our Sales and Marketing as a percent of revenue from 15% to 14!!!! Leverage is a beautiful thing.

Questions Based on Chapter 9:

1: When creating models and valuing private companies, we can focus on the TAM metric to help us determine our revenue metric.

True or False

2: It is crucial that you add many comments to your model.

True or False

3: Growth investors only invest in companies that have very low price to earnings ratios in year 1.

True or False

CHAPTER SUMMARY



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longer term forecasts are annual estimates. % of sales is the most important part of financial modelling. expenses are easy to tweak. spend most of your time on revenue.

