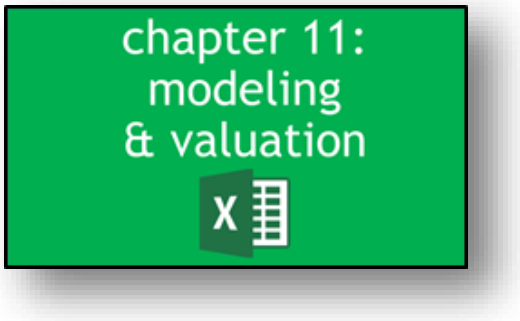
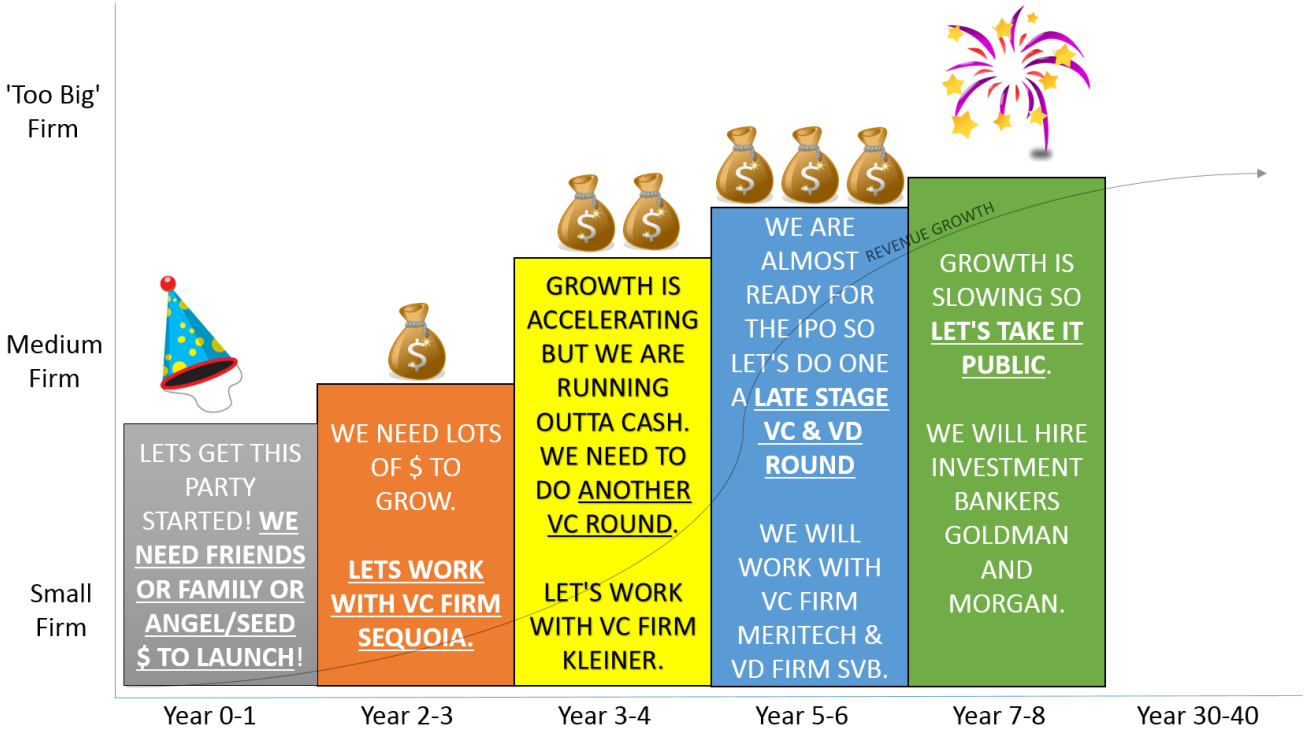
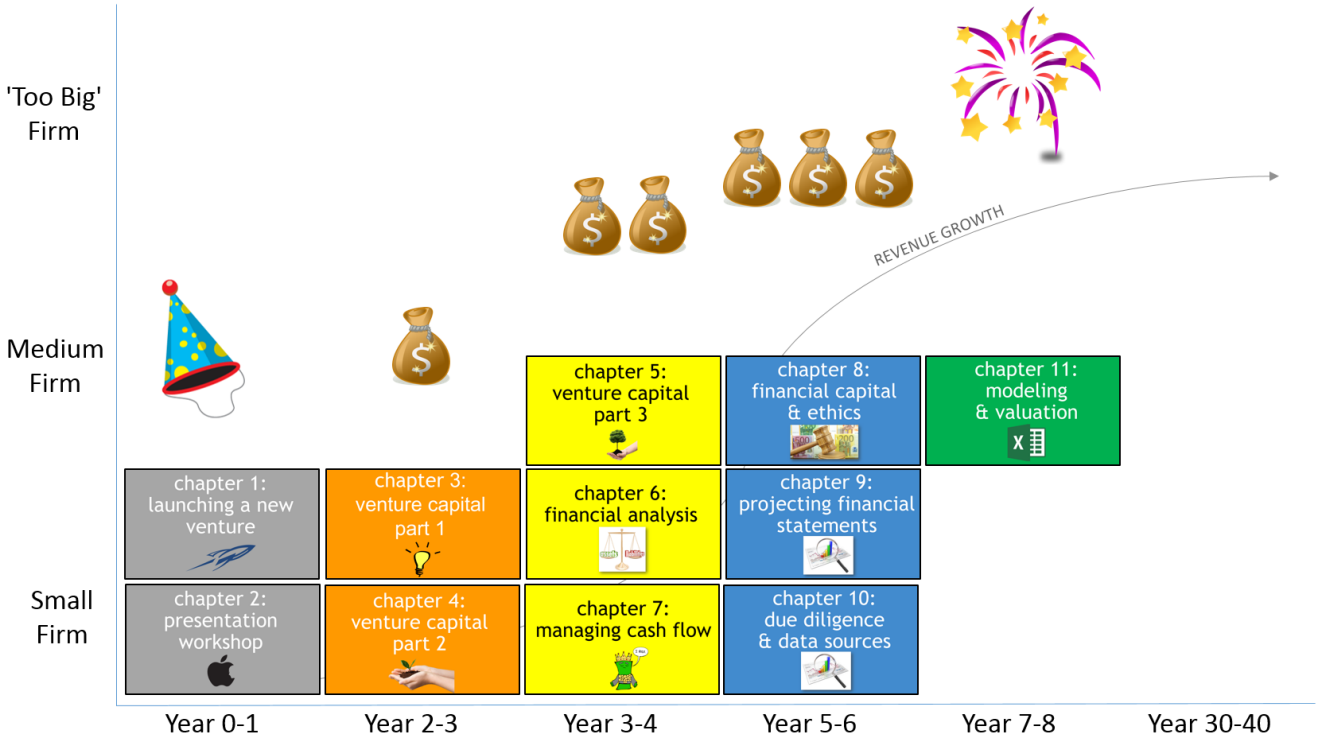
CHAPTER 11: MODELING AND VALUATION

"Valuation is an art, not a science."

- *Mohandas Pai*




'Too Big' Firm
Medium Firm
Small Firm
LETS GET THIS PARTY STARTED! WE NEED FRIENDS OR FAMILY OR ANGEL/SEED $ TO LAUNCH!
WE NEED LOTS OF $ TO GROW.
LETS WORK WITH VC FIRM SEQUOIA.
GROWTH IS ACCELERATING BUT WE ARE RUNNING OUTTA CASH. WE NEED TO DO ANOTHER VC ROUND.
LET'S WORK WITH VC FIRM KLEINER.
WE ARE ALMOST READY FOR THE IPO SO LET'S DO ONE A LATE STAGE VC & VD ROUND
WE WILL WORK WITH VC FIRM MERITECH & VD FIRM SVB.
GROWTH IS SLOWING SO LET'S TAKE IT PUBLIC.
WE WILL HIRE INVESTMENT BANKERS GOLDMAN AND MORGAN.
REVENUE GROWTH
Year 0-1
Year 2-3
Year 3-4
Year 5-6
Year 7-8
Year 30-40

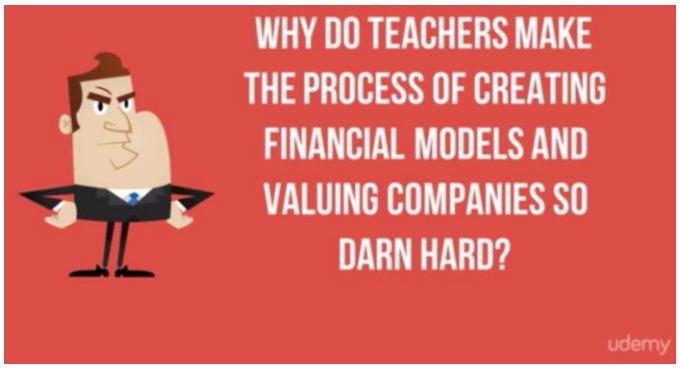

'Too Big' Firm
Medium Firm
Small Firm
chapter 1: launching a new venture
chapter 2: presentation workshop
chapter 3: venture capital part 1
chapter 4: venture capital part 2
chapter 5: venture capital part 3
chapter 6: financial analysis
chapter 7: managing cash flow
chapter 8: financial capital & ethics
chapter 9: projecting financial statements
chapter 10: due diligence & data sources
chapter 11: modeling & valuation
REVENUE GROWTH
Year 0-1
Year 2-3
Year 3-4
Year 5-6
Year 7-8
Year 30-40

BUILD FINANCIAL MODELS AND VALUE COMPANIES THE EASY WAY

BREAKING NEWS!

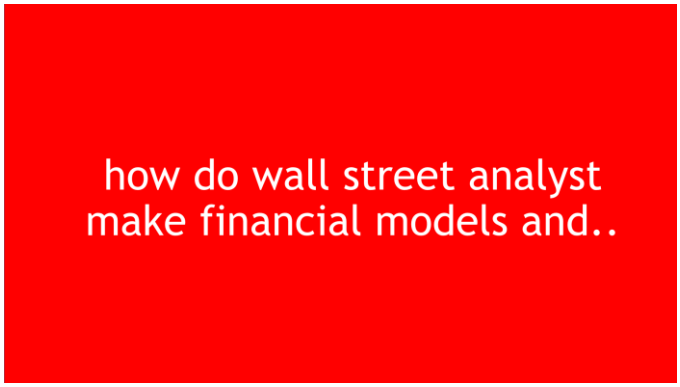
Microsoft's investment bankers just approached us and Microsoft might want to buy our company! We need to decide if we should do an IPO or just sell to Microsoft!

I created an online version of this chapter as well at: www.tiny.cc/chris80



In the previous chapter we modeled and came up with the appropriate valuation for our private company. **We will be going public soon and we will discuss the entire IPO process. Before we do so, let's discuss how to value and model Microsoft, a company that is already public.**

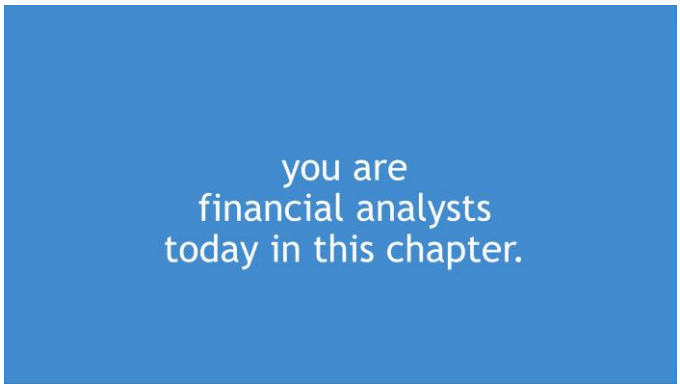
We will make the process very easy to understand! In fact, we will make this chapter more Pinterest like versus previous chapters where we covered the basics of valuing a private company. The difference here is we have WAY more information available!

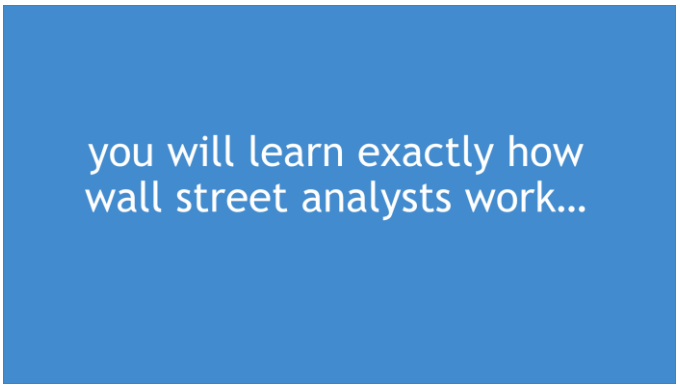

how do wall street analyst
make financial models and..

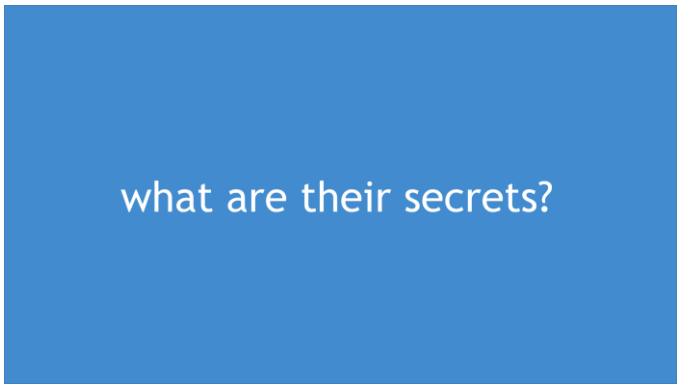

how do they value companies?

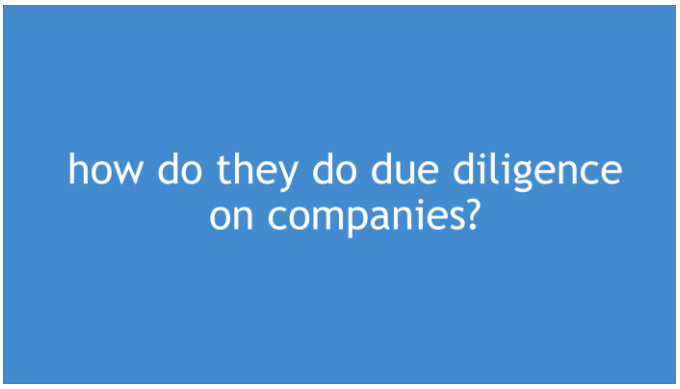

you are no longer students.


that's right.


you are
financial analysts
today in this chapter.


you will learn exactly how
wall street analysts work...


what are their secrets?


how do they do due diligence
on companies?

a good analyst doesn't need others to form their opinions

a great analyst does a sh*t load of due diligence alone.

when analyzing an investment…

the last thing you should do is speak to management….

…why?

because they are incredible salespeople.

don't trust them.

be skeptical until your research is complete.

start with the annual report (also called the 10k).

understand the risks.

understand the market.

we will learn how analysts model companies

we will learn how analysts analyze sectors

we will learn how analysts assess management

we will learn how analysts get access to information…

strap in!

let's do it!

www.tiny.cc/chris81

theory

No theory in this section! We will create a model and value Microsoft the way I did it in the hedge fund industry.

what is investor relations?

Investor relations is a function that exists to help YOU the investor decide whether or not to invest in a company. All large companies have investor relations folks. Smaller companies outsource to investor relations firms.

building a model

what are the sources?

remember…..
you have the same access to information as wall street analysts

first source

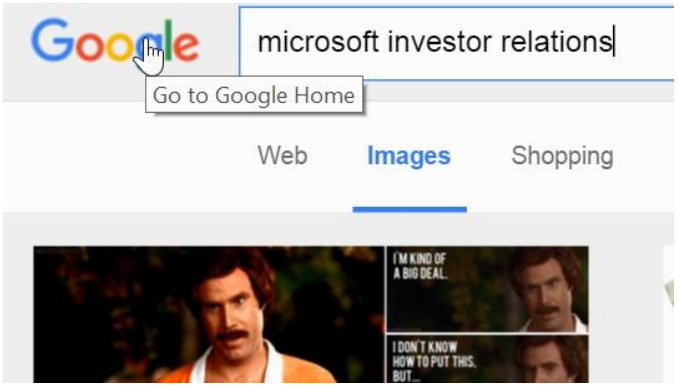
www.sec.gov

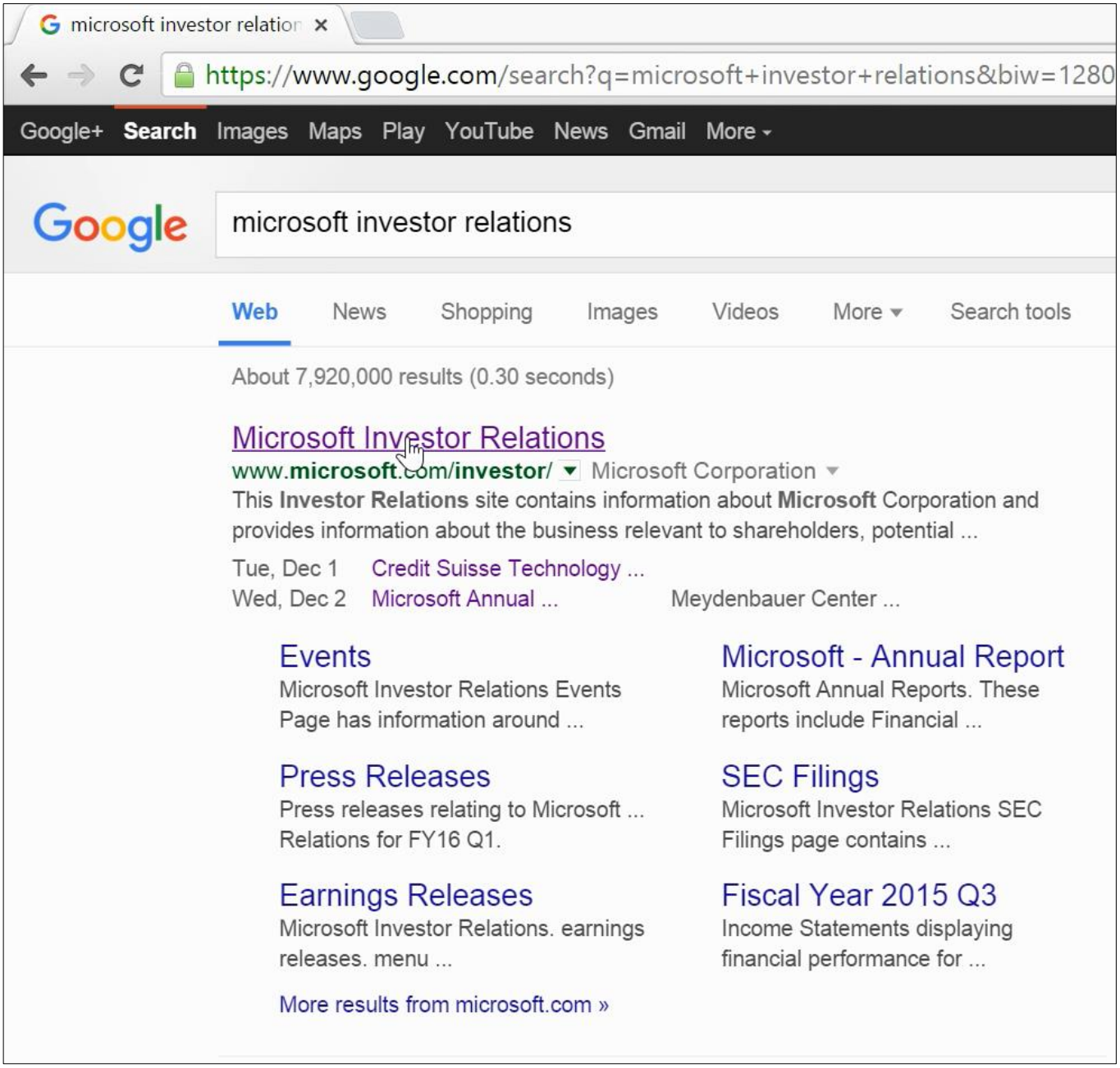
second source

investor relations website

let's model msft

data source 1: ir website




microsoft investor relation
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Google+ Search Images Maps Play YouTube News Gmail More
Google
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Wed, Dec 2 Microsoft Annual ... Meydenbauer Center ...
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Microsoft Annual Reports. These reports include Financial ...
Press Releases
Press releases relating to Microsoft ... Relations for FY16 Q1.
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Fiscal Year 2015 Q3
Income Statements displaying financial performance for ...
More results from microsoft.com »


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Earnings & Financials
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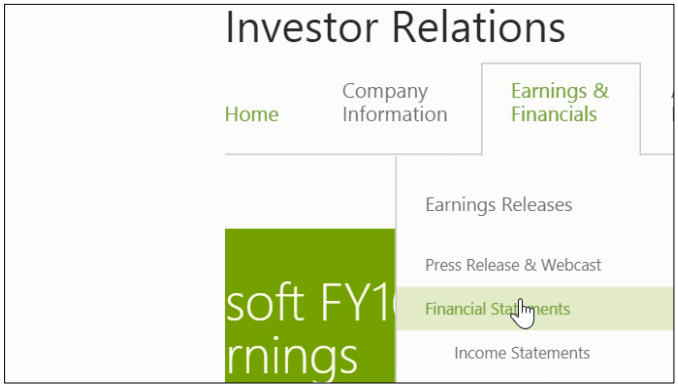
Earnings Releases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Company Information
Earnings & Financials
Earnings Releases
Press Release & Webcast
Financial Statements
Income Statements

arningsAndFinancials/Earnings/FinancialStatements/FY16/Q1/IncomeStatements.as

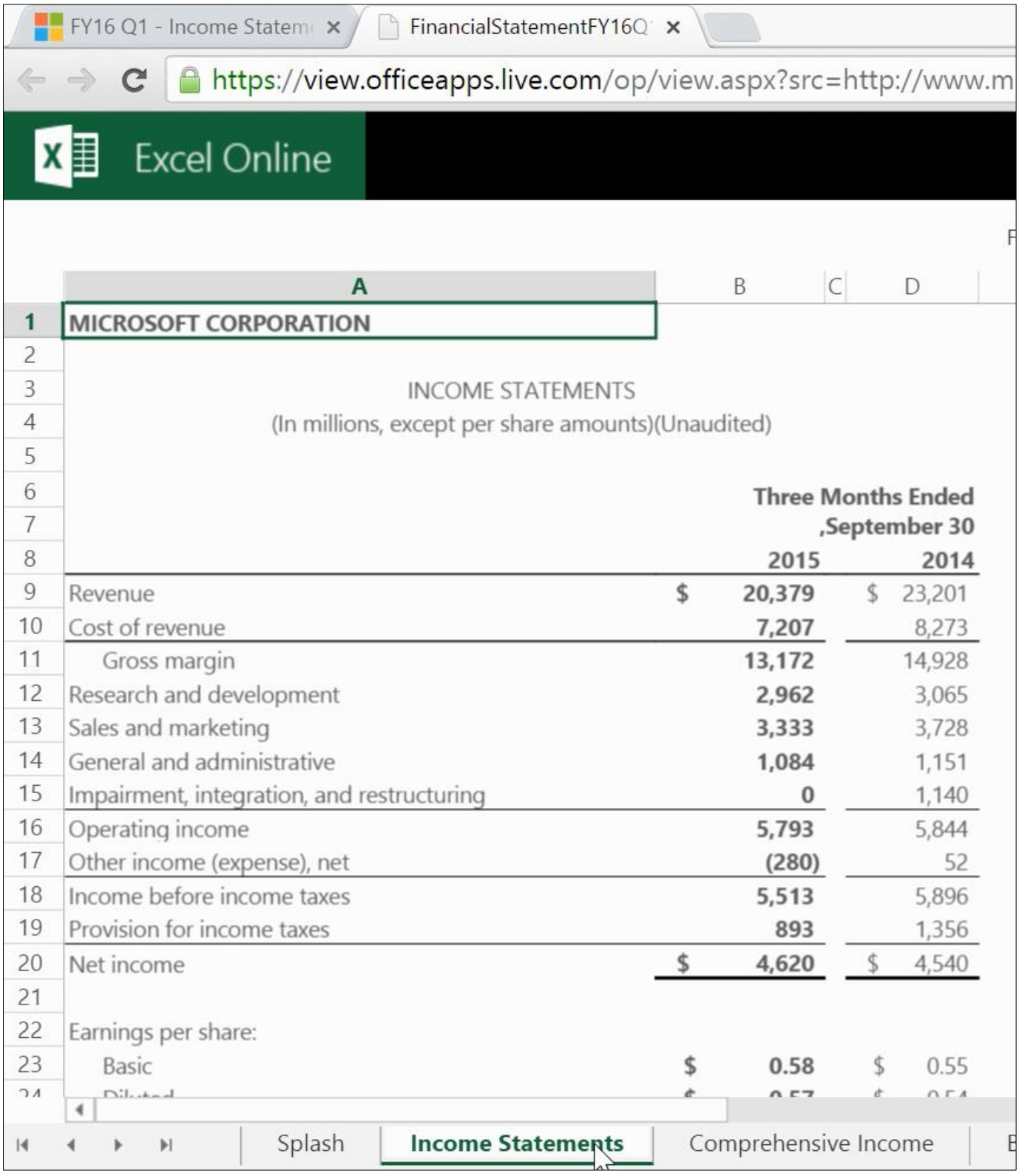
Earnings Release FY16 Q1

Income Statements | Comprehensive Income | Balance Sheets | Cash Flows |

Segment Revenue & Operating Income

Income Statements (in millions, except per share amounts) (Unaudited)

	Three Months Ended September 30,	
	2015	**2014**
Revenue	$ **20,379**	$ 23,201
Cost of revenue	**7,207**	8,273
Gross margin	**13,172**	14,928
Research and development	**2,962**	3,065
Sales and marketing	**3,333**	3,728
General and administrative	**1,084**	1,151
Impairment, integration, and restructuring	**0**	1,140
Operating income	**5,793**	5,844
Other income (expense), net	**(280)**	52
Income before income taxes	**5,513**	5,896
Provision for income taxes	**893**	1,356
Net income	$ **4,620**	$ 4,540
Earnings per share:		
Basic	$ **0.58**	$ 0.55



MICROSOFT CORPORATION

INCOME STATEMENTS
(In millions, except per share amounts)(Unaudited)

	Three Months Ended ,September 30	
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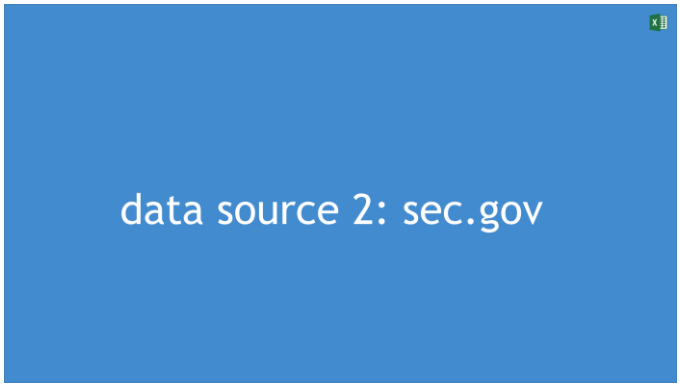
data source 2: sec.gov


FY16 Q1 - Income Statem
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U.S. Securities and Exchange Commissio
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DIVISIONS
ENFORCE
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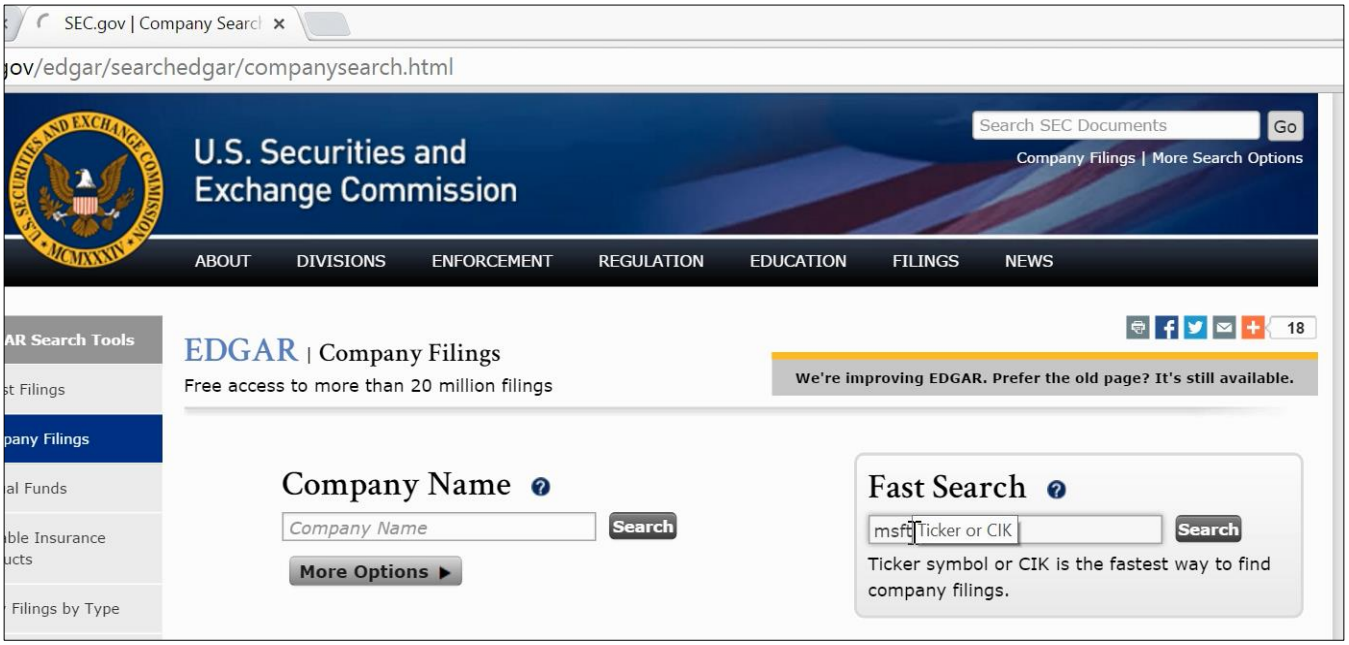
SEC.gov | Company Searcl
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Search
Ticker symbol or CIK is the fastest way to find company filings.


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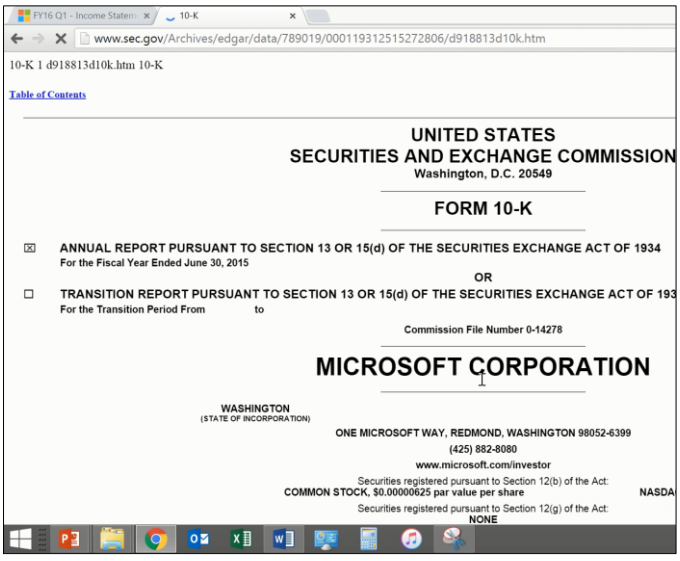
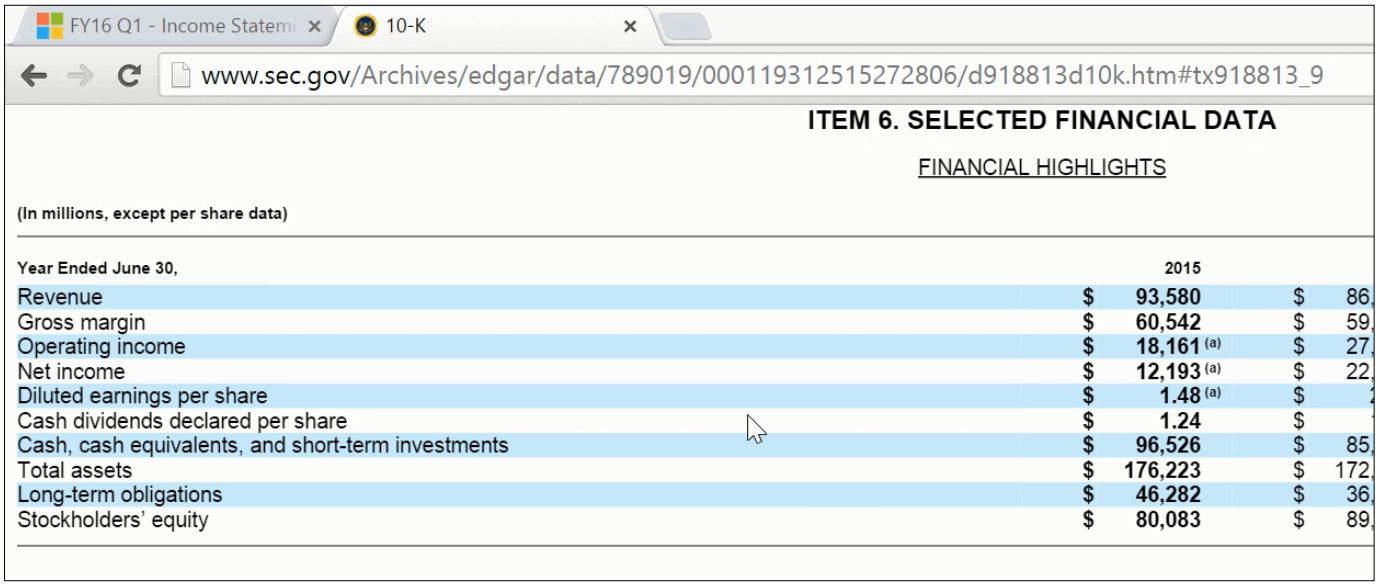
MICROSOFT CORP CIK#: 0000789019 (see all company filings)
SIC: 7372 - SERVICES-PREPACKAGED SOFTWARE
State location: WA | State of Inc.: WA | Fiscal Year End: 0630
(Assistant Director Office: 3)
Get insider transactions for this issuer.
Get insider transactions for this reporting owner.
Filter Results:
Filing Type:
10-k
Prior to: (YYYYMMDD)
Items 1 - 22
RSS Feed
Filings
Format
Description
10-K
Documents
Interactive Data
Annual report [Section 13 and 15(d), not S-K Item 405]
Acc-no: 0001193125-15-272806 (34 Act) Size: 14 MB
10-K
Documents
Interactive Data
Annual report [Section 13 and 15(d), not S-K Item 405]
Acc-no: 0001193125-14-289961 (34 Act) Size: 18 MB


www.sec.gov/Archives/edgar/data/789019/000119312515272806/d918813d10k.htm
10-K 1 d918813d10k.htm 10-K
Table of Contents
UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K
ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the Fiscal Year Ended June 30, 2015
OR
TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 193
For the Transition Period From to
Commission File Number 0-14278
MICROSOFT CORPORATION
WASHINGTON
(STATE OF INCORPORATION)
ONE MICROSOFT WAY, REDMOND, WASHINGTON 98052-6399
(425) 882-8080
www.microsoft.com/investor
Securities registered pursuant to Section 12(b) of the Act:
COMMON STOCK, $0.00000625 par value per share
NASDA
Securities registered pursuant to Section 12(g) of the Act:
NONE

FY16 Q1 - Income Statem | 10-K

www.sec.gov/Archives/edgar/data/789019/000119312515272806/d918813d10k.htm

MICROSOFT CORPORATION
FORM 10-K
For The Fiscal Year Ended June 30, 2015
INDEX



FY16 Q1 - Income Statem | 10-K

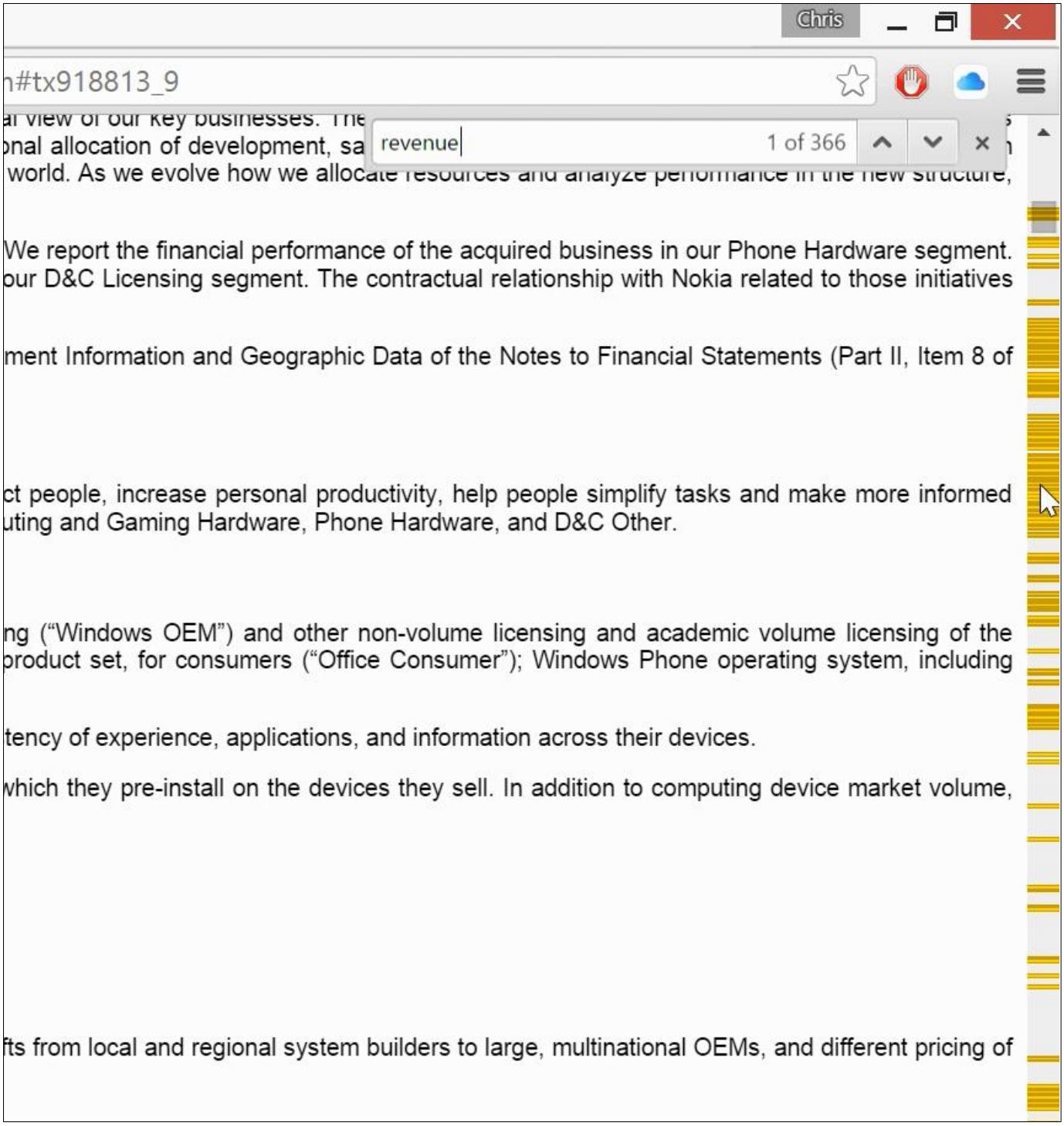
www.sec.gov/Archives/edgar/data/789019/000119312515272806/d918813d10k.htm#tx918813_9

ITEM 6. SELECTED FINANCIAL DATA

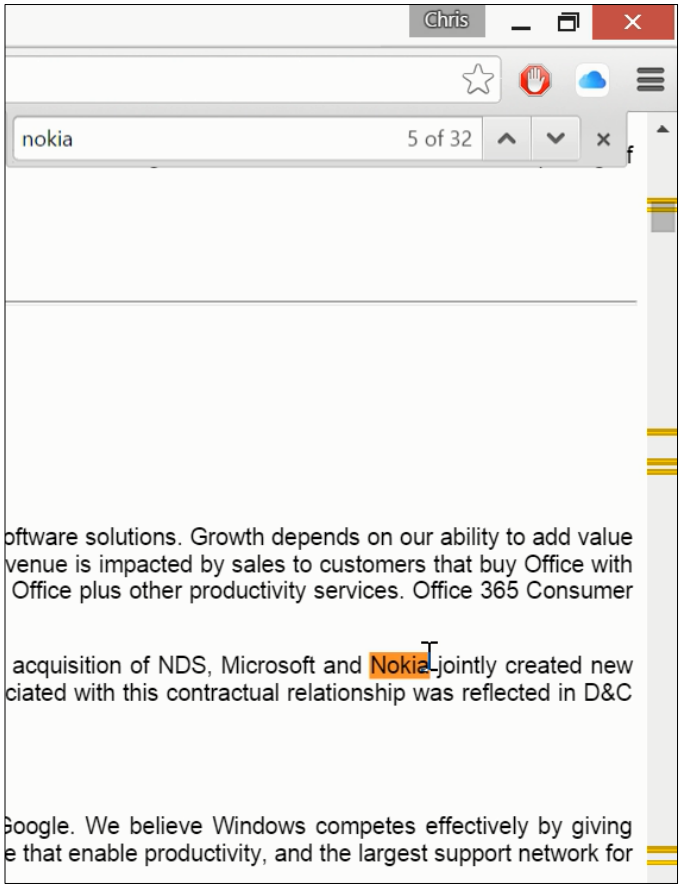
FINANCIAL HIGHLIGHTS

(In millions, except per share data)

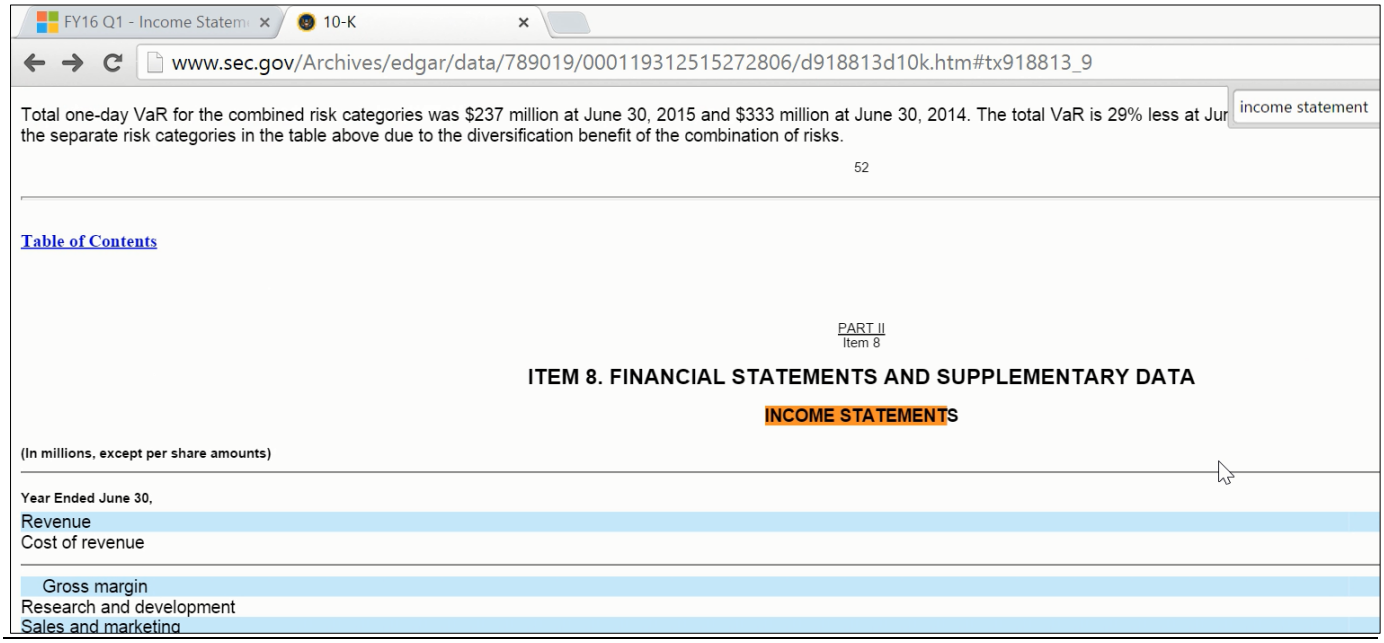
Year Ended June 30,	2015	
Revenue	$ 93,580	$ 86,
Gross margin	$ 60,542	$ 59,
Operating income	$ 18,161 [a]	$ 27,
Net income	$ 12,193 [a]	$ 22,
Diluted earnings per share	$ 1.48 [a]	$
Cash dividends declared per share	$ 1.24	$
Cash, cash equivalents, and short-term investments	$ 96,526	$ 85,
Total assets	$ 176,223	$ 172,
Long-term obligations	$ 46,282	$ 36,
Stockholders' equity	$ 80,083	$ 89,



If you hit control+F while in your browser and type any key word (i.e., revenue), you can see in the scroll bar in yellow all of the results in the lengthy SEC filing of the word revenue. Use the Chrome browser for this feature as it makes navigating financial statements online much more fun.



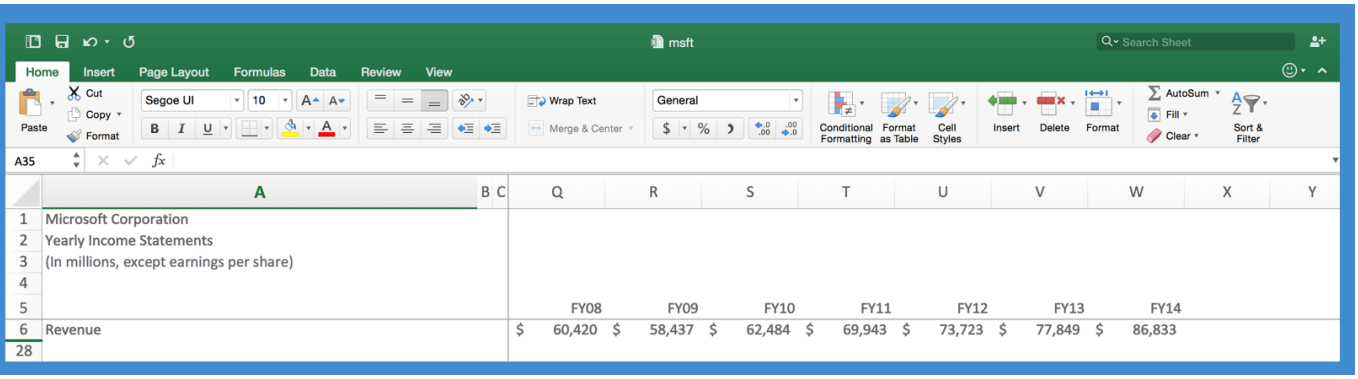
You can search the 10-k for 'Income Statement' etc..



keep it very simple.

less is more.

start with the basics…



Start with revenue.

and add layers.

Home Insert Page Layout Formulas Data Review View

Cut Copy Format Paste

Segoe UI 10 Wrap Text General

Merge & Center

A37

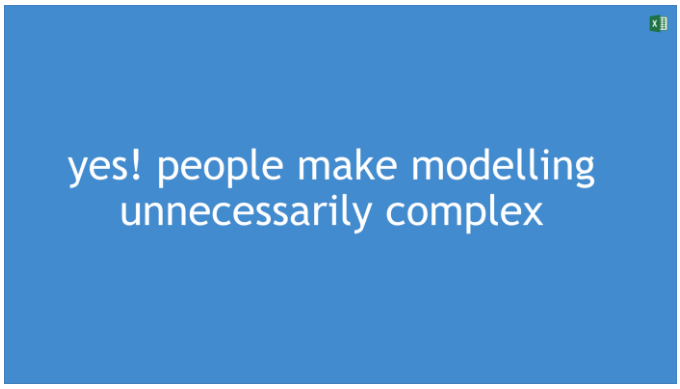
	A	B	C	Q	R	S	T
1	Microsoft Corporation						
2	Yearly Income Statements						
3	(In millions, except earnings per share)						
4							
5				FY08	FY09	FY10	
6	Revenue			$ 60,420	$ 58,437	$ 62,484	$ 69
7	Cost of revenue			11,598	12,155	12,395	1
25							

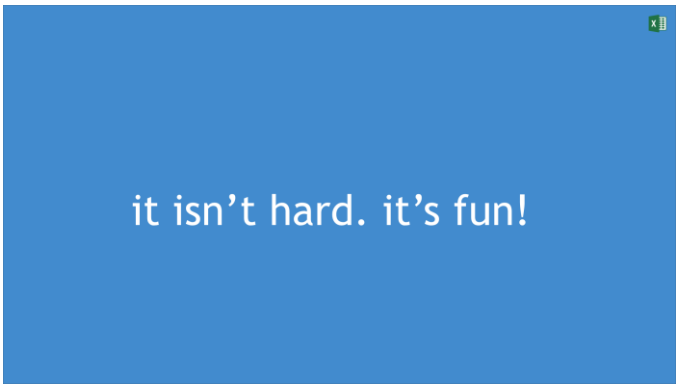
modeling is very easy…

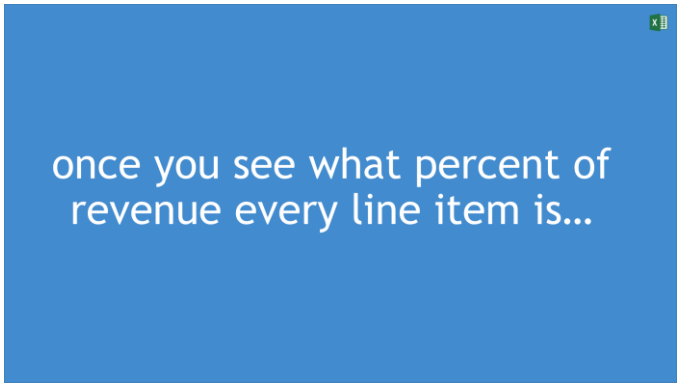
it all comes down to

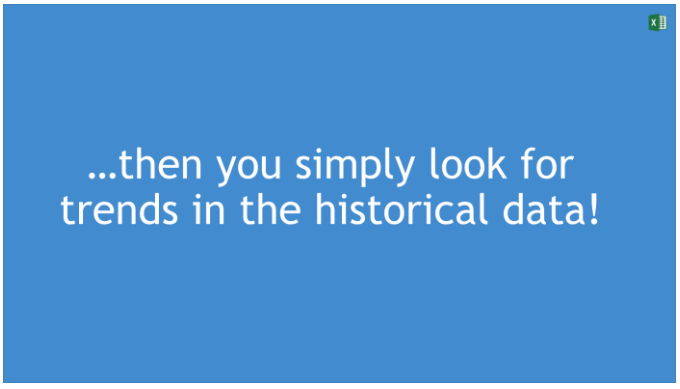
1
simple
rule


everything is just
% of revenue!


yes! people make modelling unnecessarily complex


it isn't hard. it's fun!

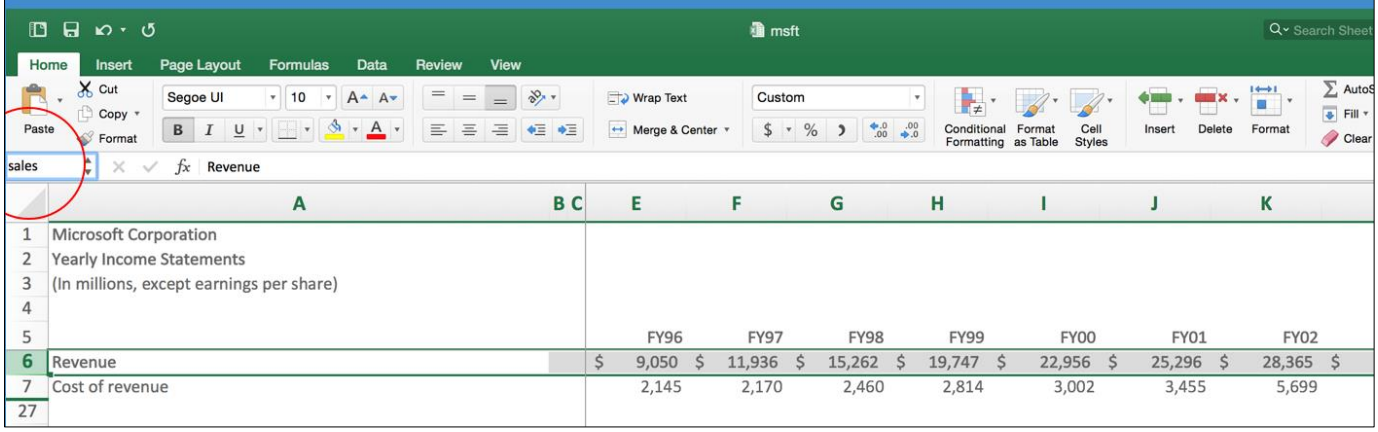

once you see what percent of revenue every line item is…


…then you simply look for trends in the historical data!

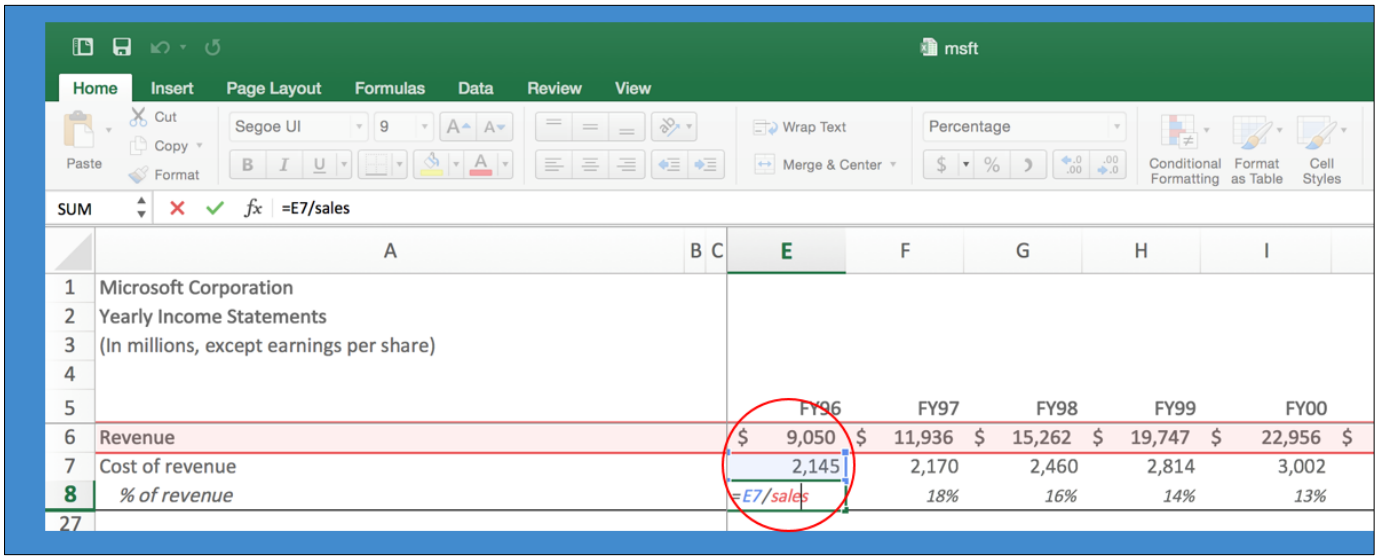
then you make basic assumptions about the future (meaning what percent of sales each line item will be and why)

this is easy!

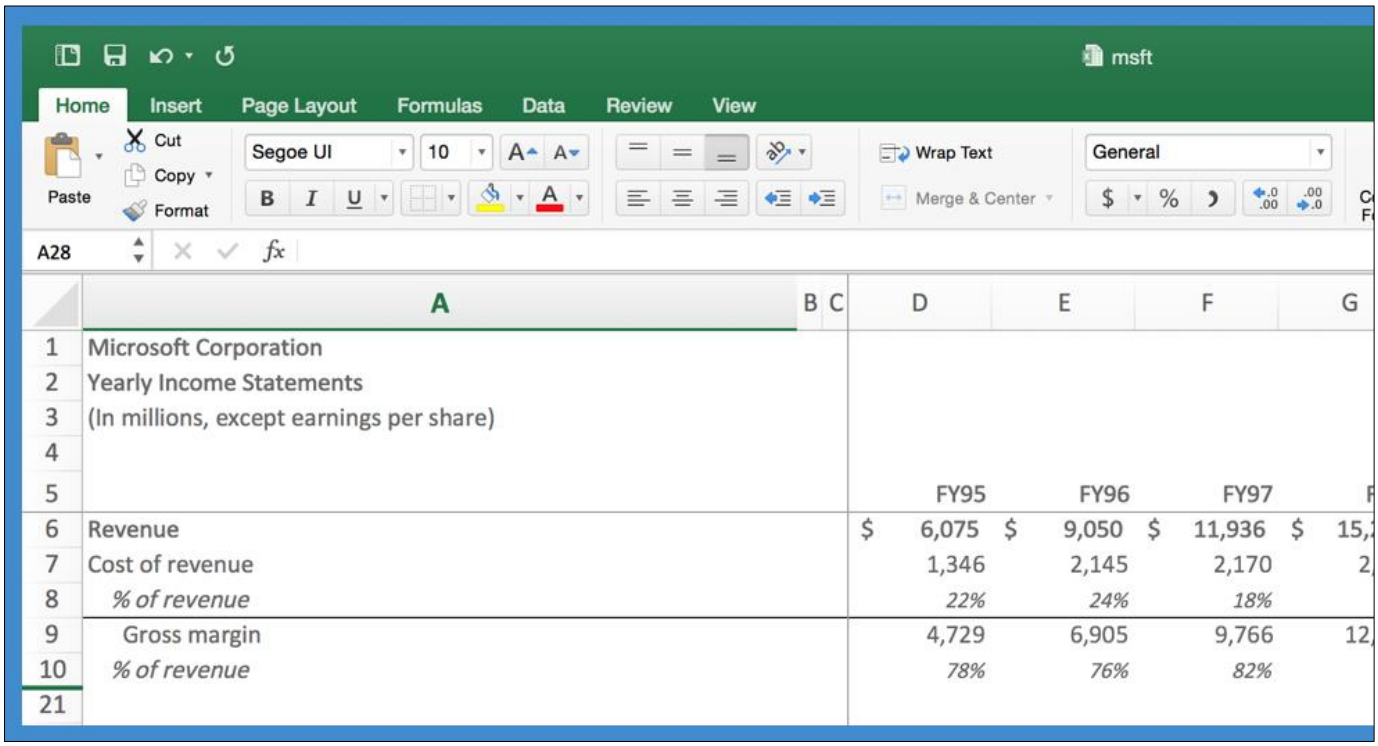
name your revenue row



	A	E	F	G	H	I	J	K
1	Microsoft Corporation							
2	Yearly Income Statements							
3	(In millions, except earnings per share)							
4								
5		FY96	FY97	FY98	FY99	FY00	FY01	FY02
6	Revenue	$ 9,050	$ 11,936	$ 15,262	$ 19,747	$ 22,956	$ 25,296	$ 28,365
7	Cost of revenue	2,145	2,170	2,460	2,814	3,002	3,455	5,699
27								



	A	E	F	G	H	I
1	Microsoft Corporation					
2	Yearly Income Statements					
3	(In millions, except earnings per share)					
4						
5		FY96	FY97	FY98	FY99	FY00
6	Revenue	$ 9,050	$ 11,936	$ 15,262	$ 19,747	$ 22,956
7	Cost of revenue	2,145	2,170	2,460	2,814	3,002
8	*% of revenue*	*=E7/sales*	*18%*	*16%*	*14%*	*13%*
27						



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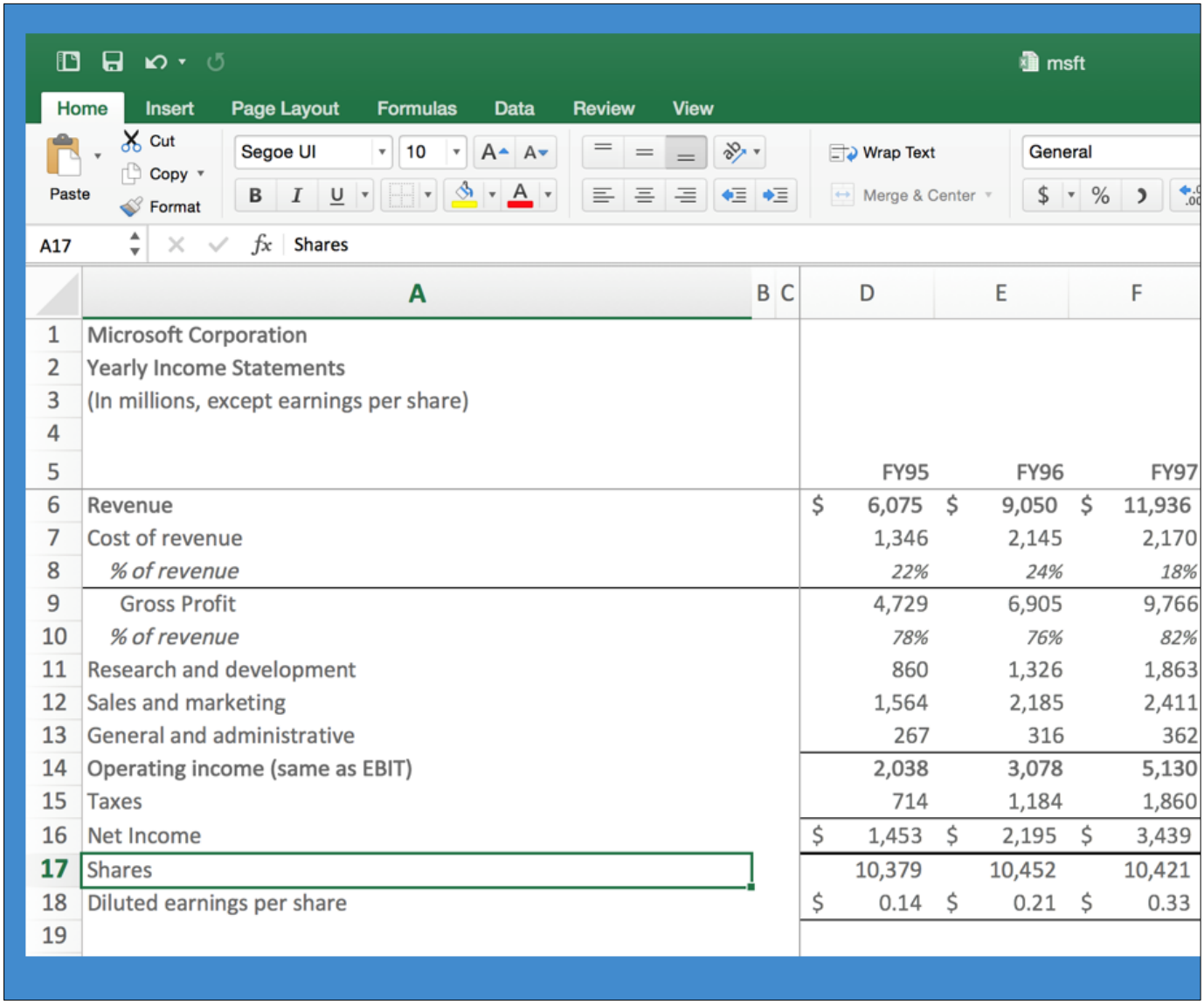
A28

	A	D	E	F	G
1	Microsoft Corporation				
2	Yearly Income Statements				
3	(In millions, except earnings per share)				
4					
5		FY95	FY96	FY97	
6	Revenue	$ 6,075	$ 9,050	$ 11,936	$ 15,
7	Cost of revenue	1,346	2,145	2,170	2,
8	*% of revenue*	*22%*	*24%*	*18%*	
9	Gross margin	4,729	6,905	9,766	12,
10	*% of revenue*	*78%*	*76%*	*82%*	
21					

Put in operating expenses now:

	A	D	E	F
1	Microsoft Corporation			
2	Yearly Income Statements			
3	(In millions, except earnings per share)			
4				
5		FY95	FY96	
6	Revenue	$ 6,075	$ 9,050	$ 11
7	Cost of revenue	1,346	2,145	
8	*% of revenue*	*22%*	*24%*	
9	Gross Profit	4,729	6,905	
10	*% of revenue*	*78%*	*76%*	
11	Research and development	860	1,326	
12	Sales and marketing	1,564	2,185	
13	General and administrative	267	316	
14	Operating income (same as EBIT)	2,038	3,078	

Now complete the rest of the historical statement (you can get all this information online at Microsoft's investor relations site.



	A	D	E	F
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4				
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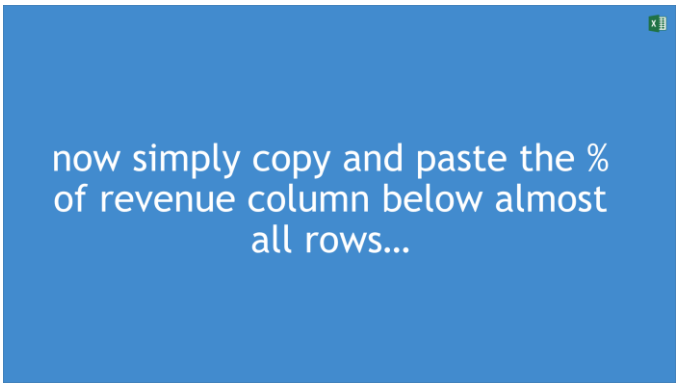
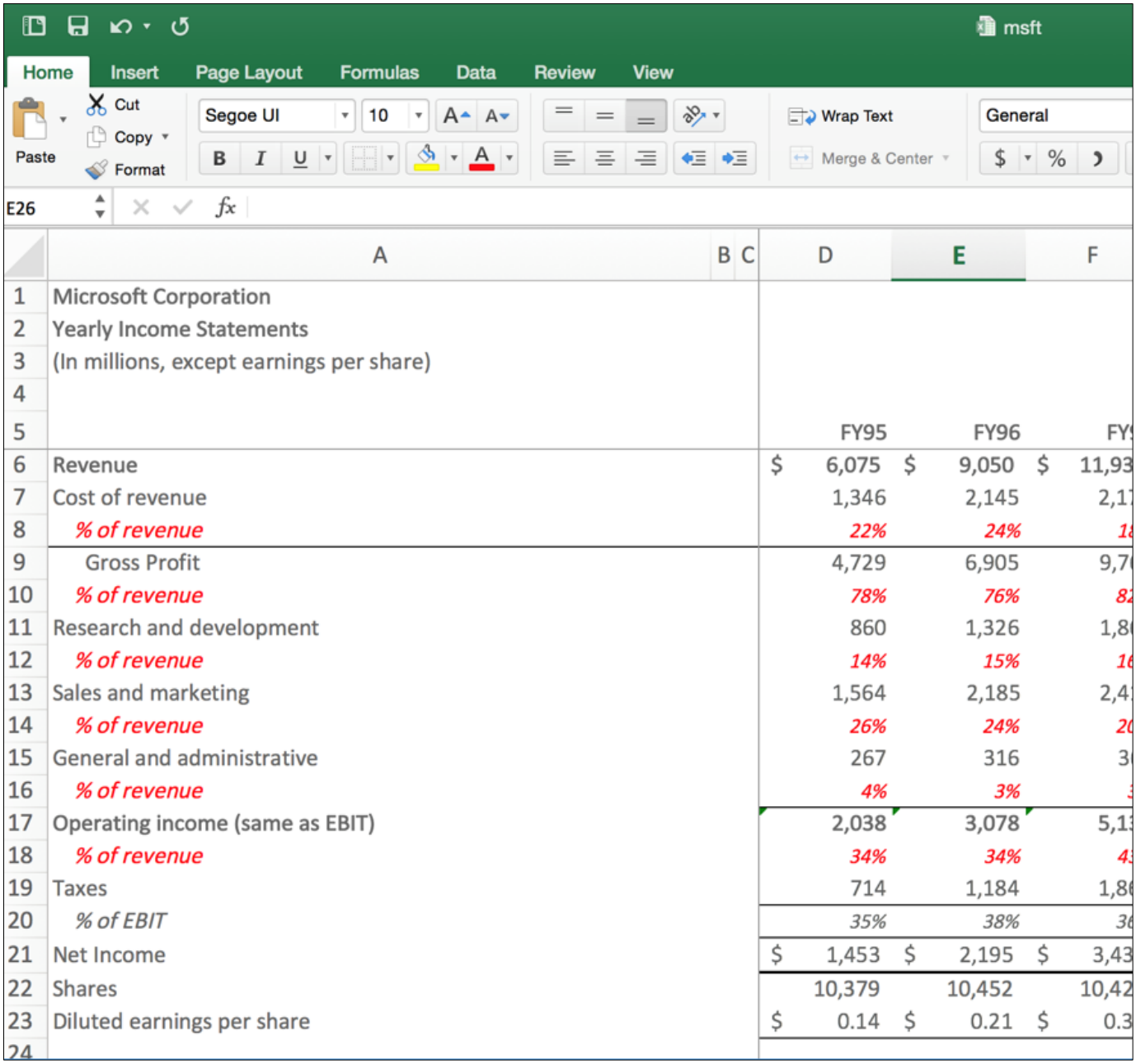
6	Revenue	$ 6,075	$ 9,050	$ 11,936
7	Cost of revenue	1,346	2,145	2,170
8	*% of revenue*	*22%*	*24%*	*18%*
9	Gross Profit	4,729	6,905	9,766
10	*% of revenue*	*78%*	*76%*	*82%*
11	Research and development	860	1,326	1,863
12	Sales and marketing	1,564	2,185	2,411
13	General and administrative	267	316	362
14	Operating income (same as EBIT)	2,038	3,078	5,130
15	Taxes	714	1,184	1,860
16	Net Income	$ 1,453	$ 2,195	$ 3,439
17	Shares	10,379	10,452	10,421
18	Diluted earnings per share	$ 0.14	$ 0.21	$ 0.33
19				





msft

Home | Insert | Page Layout | Formulas | Data | Review | View

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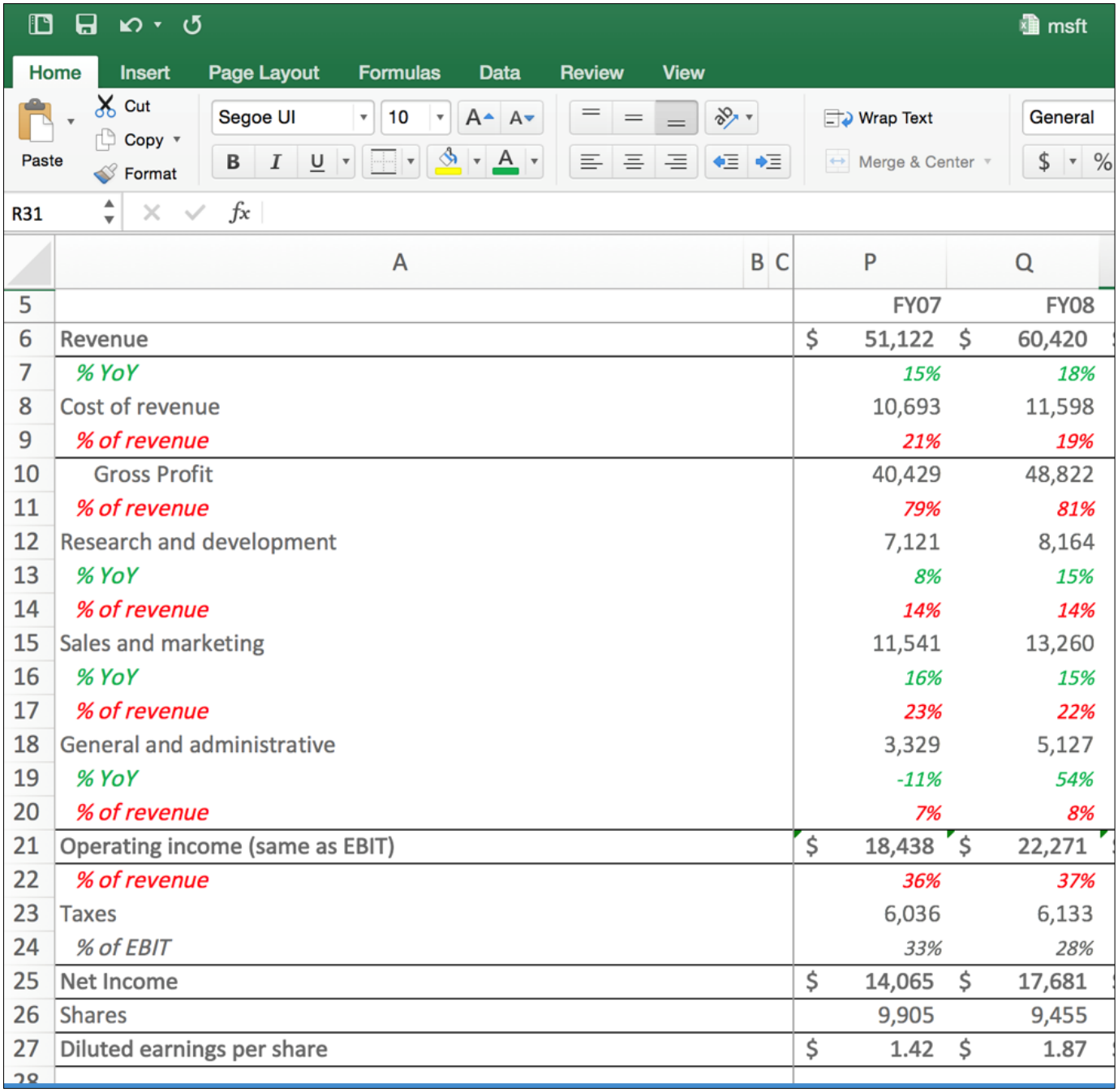
E26

	A	B C	D	E	F
1	Microsoft Corporation				
2	Yearly Income Statements				
3	(In millions, except earnings per share)				
4					
5			FY95	FY96	FY
6	Revenue		$ 6,075	$ 9,050	$ 11,93
7	Cost of revenue		1,346	2,145	2,1
8	*% of revenue*		*22%*	*24%*	*1*
9	Gross Profit		4,729	6,905	9,7
10	*% of revenue*		*78%*	*76%*	*8*
11	Research and development		860	1,326	1,8
12	*% of revenue*		*14%*	*15%*	*1*
13	Sales and marketing		1,564	2,185	2,4
14	*% of revenue*		*26%*	*24%*	*2*
15	General and administrative		267	316	3
16	*% of revenue*		*4%*	*3%*	
17	Operating income (same as EBIT)		2,038	3,078	5,1
18	*% of revenue*		*34%*	*34%*	*4*
19	Taxes		714	1,184	1,8
20	*% of EBIT*		*35%*	*38%*	*3*
21	Net Income		$ 1,453	$ 2,195	$ 3,43
22	Shares		10,379	10,452	10,42
23	Diluted earnings per share		$ 0.14	$ 0.21	$ 0.3
24					

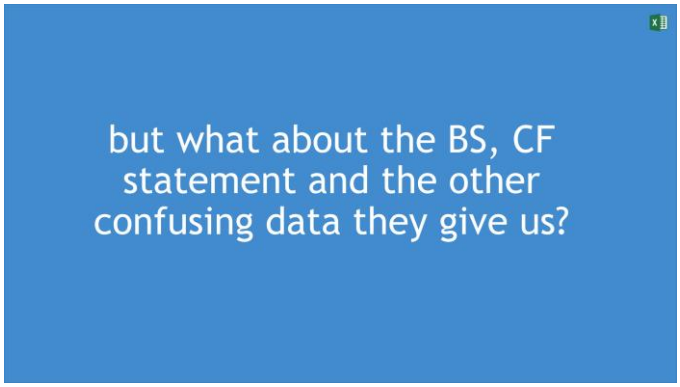
let's add the YoY % change now



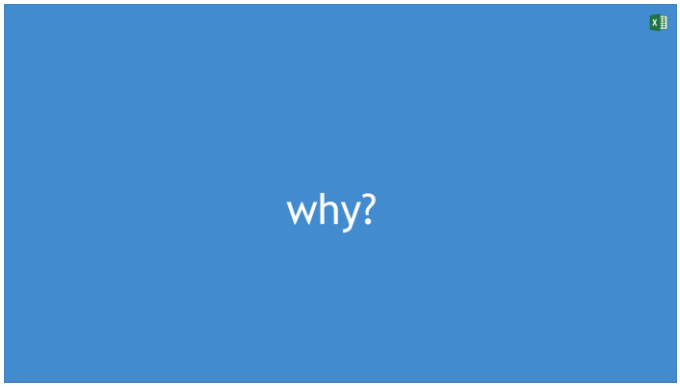
	A	P	Q
5		FY07	FY08
6	Revenue	$ 51,122	$ 60,420
7	*% YoY*	*15%*	*18%*
8	Cost of revenue	10,693	11,598
9	*% of revenue*	*21%*	*19%*
10	Gross Profit	40,429	48,822
11	*% of revenue*	*79%*	*81%*
12	Research and development	7,121	8,164
13	*% YoY*	*8%*	*15%*
14	*% of revenue*	*14%*	*14%*
15	Sales and marketing	11,541	13,260
16	*% YoY*	*16%*	*15%*
17	*% of revenue*	*23%*	*22%*
18	General and administrative	3,329	5,127
19	*% YoY*	*-11%*	*54%*
20	*% of revenue*	*7%*	*8%*
21	Operating income (same as EBIT)	$ 18,438	$ 22,271
22	*% of revenue*	*36%*	*37%*
23	Taxes	6,036	6,133
24	*% of EBIT*	*33%*	*28%*
25	Net Income	$ 14,065	$ 17,681
26	Shares	9,905	9,455
27	Diluted earnings per share	$ 1.42	$ 1.87

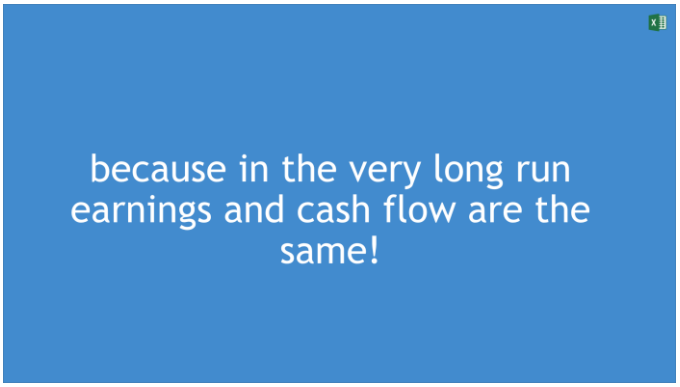
isn't cash flow and earnings different?

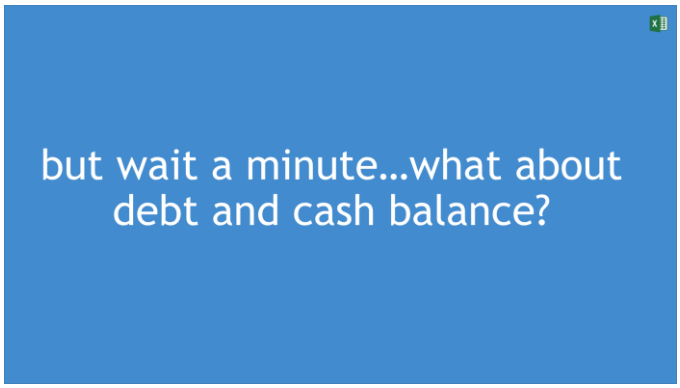
no! they are the same in the long run!

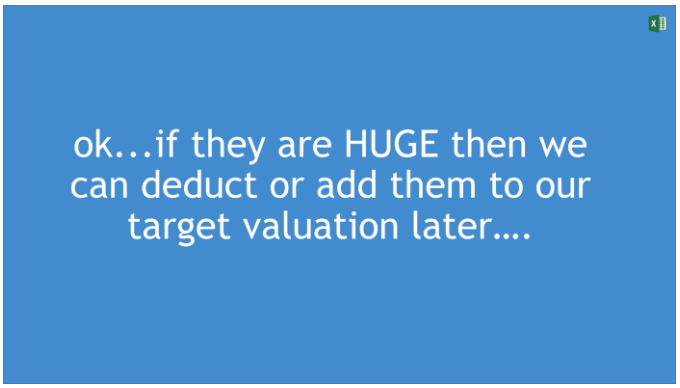

but what about the BS, CF statement and the other confusing data they give us?

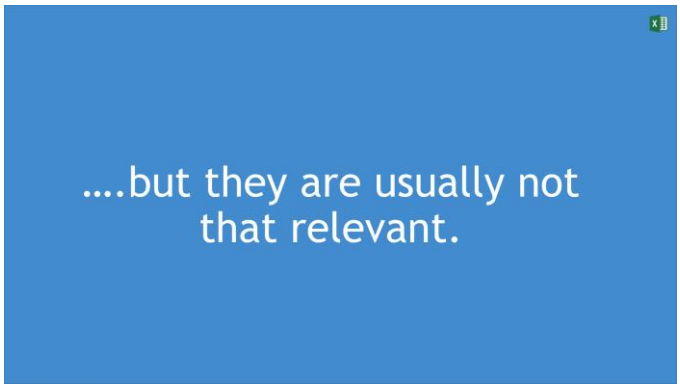

who cares!

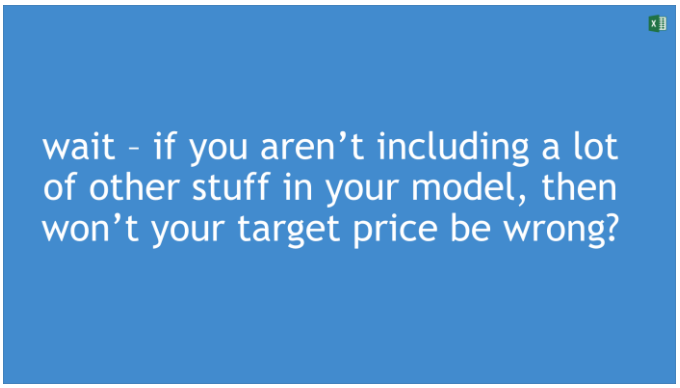

why?


because in the very long run earnings and cash flow are the same!


but wait a minute…what about debt and cash balance?


ok…if they are HUGE then we can deduct or add them to our target valuation later….


….but they are usually not that relevant.


wait – if you aren't including a lot of other stuff in your model, then won't your target price be wrong?

no! it might be a few percent off but who cares…it's only a few percent.

close enough is good enough. you have a 1 in a 1,000,000 chance of predicting the exact target price…

Yep; a 1 in a million chance….

www.tiny.cc/chris82

Make sure you see the forest from the trees!!!

back to the model…getting there

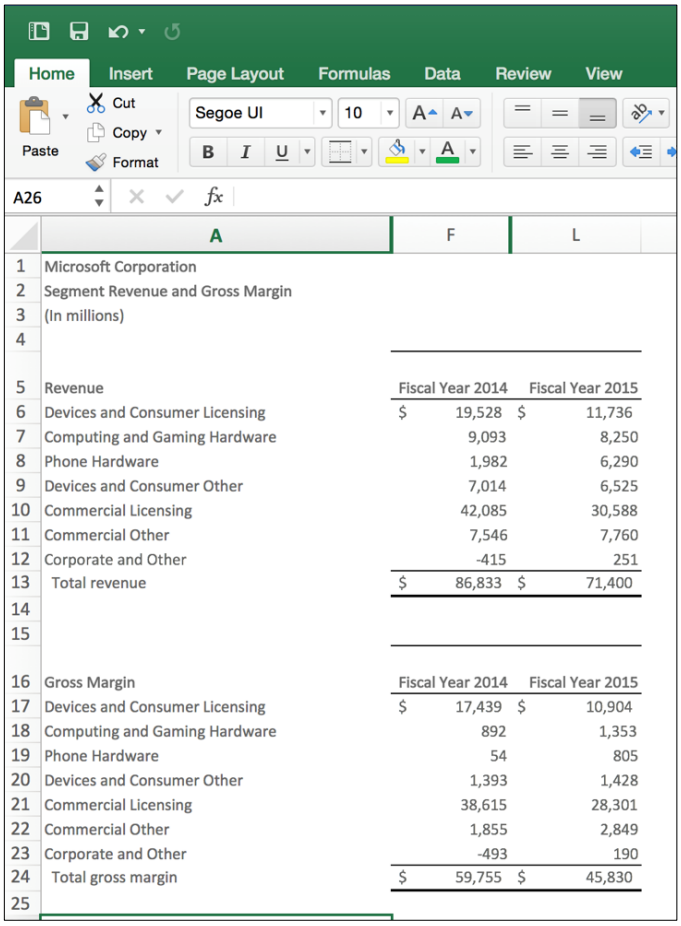
ok we have everything we need to make forecasts now!

assume we are at the start of 2015 for this exercise

A	B	C	T	U	V	W	X
			FY11	FY12	FY13	FY14	FY15e
Revenue			$ 69,943	$ 73,723	$ 77,849	$ 86,833	
% YoY			*12%*	*5%*	*6%*	*12%*	
Cost of revenue			15,577	17,530	20,249	27,078	
% of revenue			*22%*	*24%*	*26%*	*31%*	
Gross Profit			54,366	56,193	57,600	59,755	
% of revenue			*78%*	*76%*	*74%*	*69%*	
Research and development			9,043	9,811	10,411	11,381	
% YoY			*4%*	*8%*	*6%*	*9%*	
% of revenue			*13%*	*13%*	*13%*	*13%*	
Sales and marketing			13,940	13,857	15,276	15,811	
% YoY			*5%*	*-1%*	*10%*	*4%*	
% of revenue			*20%*	*19%*	*20%*	*18%*	
General and administrative			4,222	4,569	5,149	4,677	
% YoY			*4%*	*8%*	*13%*	*-9%*	
% of revenue			*6%*	*6%*	*7%*	*5%*	
Operating income (same as EBIT)			$ 27,161	$ 27,956	$ 26,764	$ 27,886	
% of revenue			*39%*	*38%*	*34%*	*32%*	
Taxes			4,921	5,289	5,189	5,746	
% of EBIT			*18%*	*19%*	*19%*	*21%*	
Net Income			$ 23,150	$ 16,978	$ 21,863	$ 22,074	
Shares			8,606	8,489	8,474	8,393	
Diluted earnings per share			$ 2.69	$ 2.00	$ 2.58	$ 2.63	

wait! I want to add more detail on revenue to my model…

….because msft provides us with revenue line items for each part of the company (consumer, xbox, companies, crappy nokia etc).



	A	F	L
1	Microsoft Corporation		
2	Segment Revenue and Gross Margin		
3	(In millions)		
4			
5	Revenue	Fiscal Year 2014	Fiscal Year 2015
6	Devices and Consumer Licensing	$ 19,528	$ 11,736
7	Computing and Gaming Hardware	9,093	8,250
8	Phone Hardware	1,982	6,290
9	Devices and Consumer Other	7,014	6,525
10	Commercial Licensing	42,085	30,588
11	Commercial Other	7,546	7,760
12	Corporate and Other	-415	251
13	Total revenue	$ 86,833	$ 71,400
14			
15			
16	Gross Margin	Fiscal Year 2014	Fiscal Year 2015
17	Devices and Consumer Licensing	$ 17,439	$ 10,904
18	Computing and Gaming Hardware	892	1,353
19	Phone Hardware	54	805
20	Devices and Consumer Other	1,393	1,428
21	Commercial Licensing	38,615	28,301
22	Commercial Other	1,855	2,849
23	Corporate and Other	-493	190
24	Total gross margin	$ 59,755	$ 45,830
25			

we can add this too..

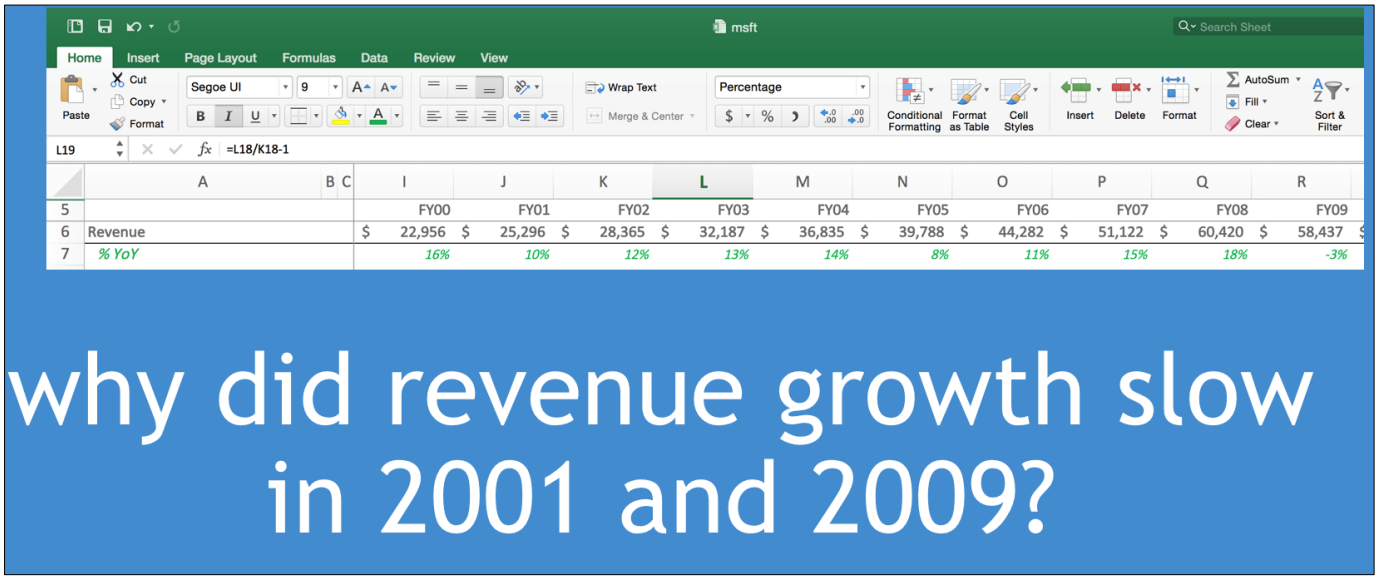
copy + paste the historicals into your spreadsheet.

but let's not do this as it will take too much time for today's session.

before we make forecasts, let's look for trends in the data

learn to enjoy reading financials like a good

understand why revenue grew or contracted.



	A	I	J	K	L	M	N	O	P	Q	R
5		FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09
6	Revenue	$ 22,956	$ 25,296	$ 28,365	$ 32,187	$ 36,835	$ 39,788	$ 44,282	$ 51,122	$ 60,420	$ 58,437
7	*% YoY*	*16%*	*10%*	*12%*	*13%*	*14%*	*8%*	*11%*	*15%*	*18%*	*-3%*

why did revenue growth slow in 2001 and 2009?

The answer because of two horrific recessions. Look for patterns in the data. Look for trends.

5		FY00	FY01	FY02
6	Revenue	$ 22,956	$ 25,296	$ 28,365
7	*% YoY*	*16%*	*10%*	*12%*
8	Cost of revenue	3,002	3,455	5,699
9	*% of revenue*	*13%*	*14%*	*20%*
10	Gross Profit	19,954	21,841	22,666
11	*% of revenue*	*87%*	*86%*	*80%*

why did gross profit % decline as a percent of revenue?

This occurred because of the release of the first Xbox. Hardware margins suck compared to software margins.

check out the share count:

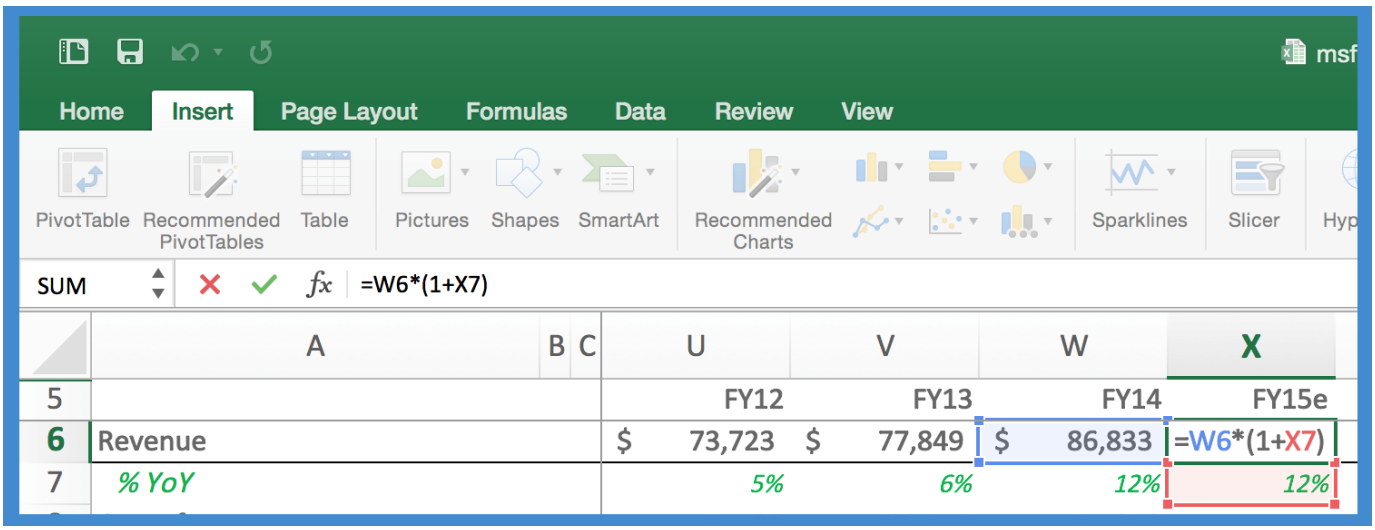
		FY97	FY98	FY99	FY00	FY01	FY02
6	Revenue	$ 11,936	$ 15,262	$ 19,747	$ 22,956	$ 25,296	$ 28,365
7	*% YoY*	*32%*	*28%*	*29%*	*16%*	*10%*	*12%*
26	Shares	10,421	10,624	10,925	11,068	11,130	11,156

		FY08	FY09	FY10	FY11	FY12	FY13	FY14
6	Revenue	$ 60,420	$ 58,437	$ 62,484	$ 69,943	$ 73,723	$ 77,849	$ 86,833
7	*% YoY*	*18%*	*-3%*	*7%*	*12%*	*5%*	*6%*	*12%*
26	Shares	9,455	8,993	8,933	8,606	8,489	8,474	8,393

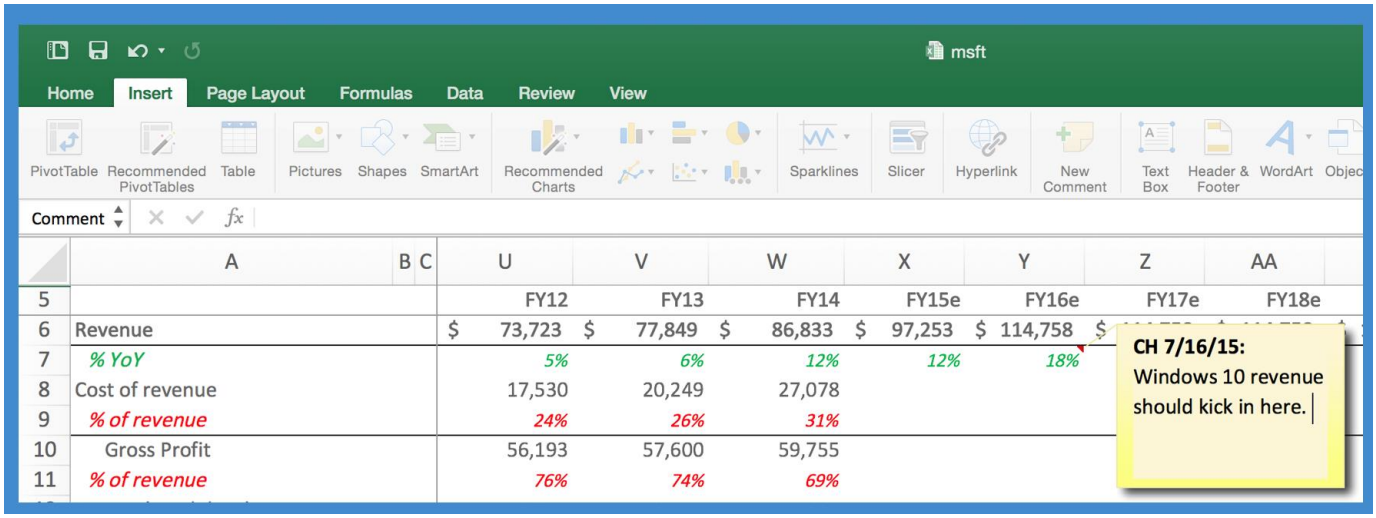
what patterns do you see?

Microsoft started buying back a lot of shares!

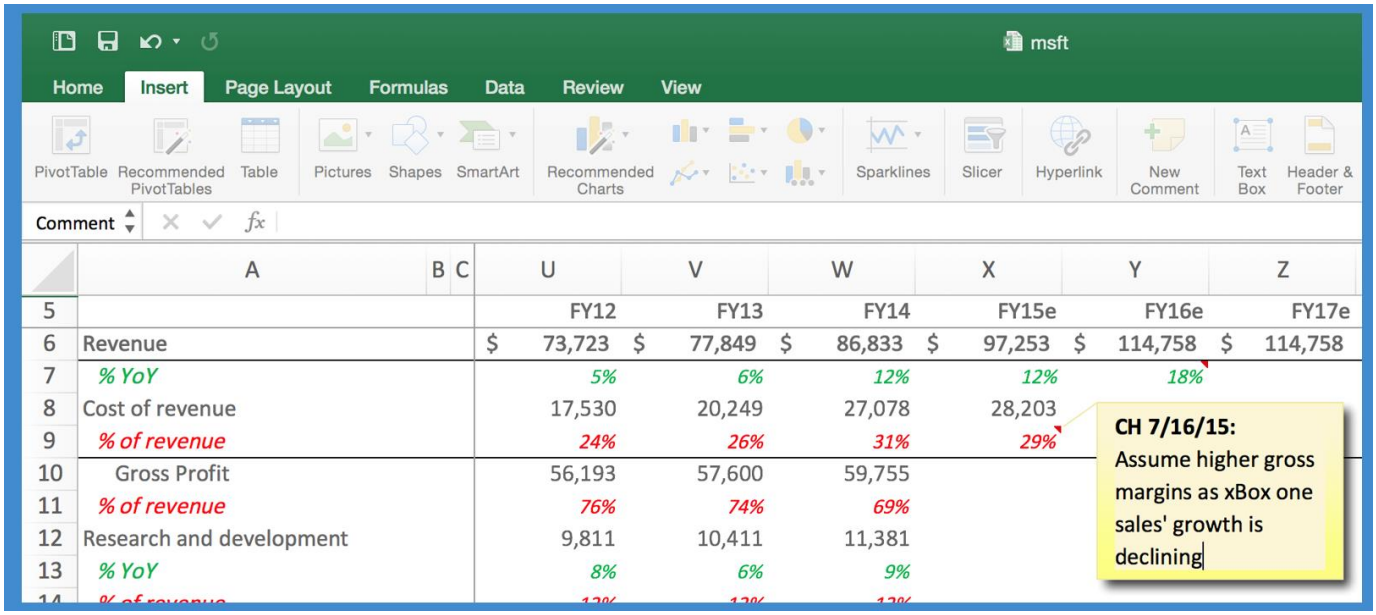
ok let's forecast revenue



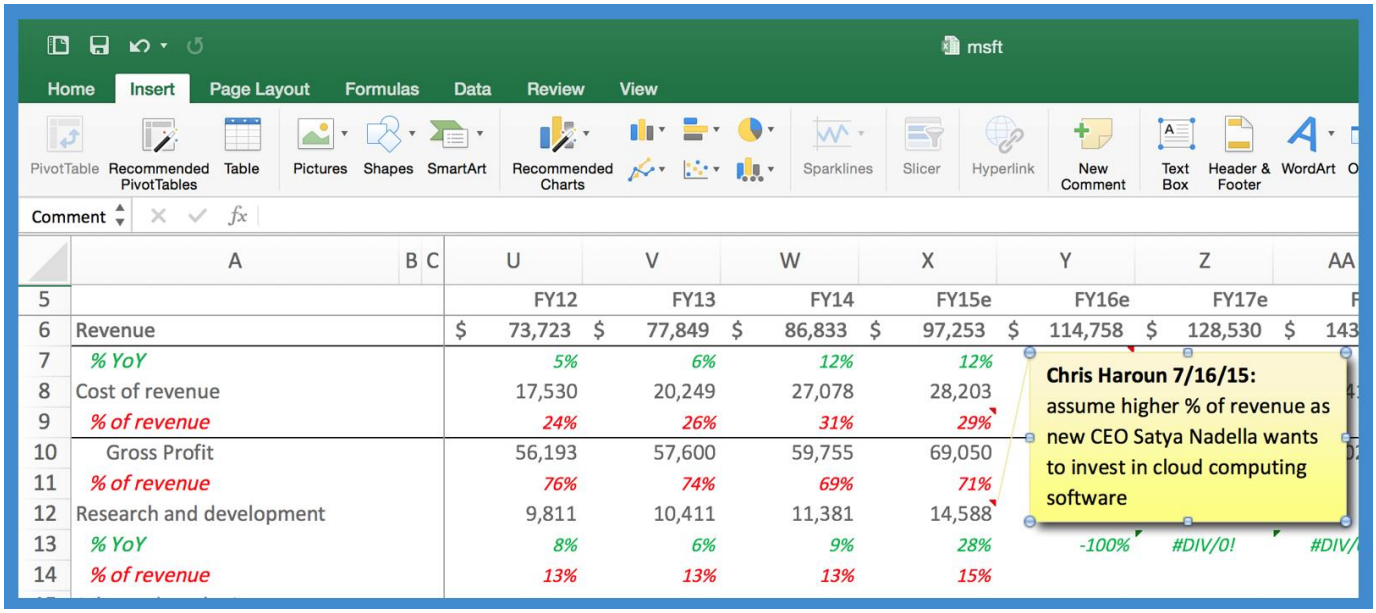
add assumptions (i.e., why the forecasted number)…



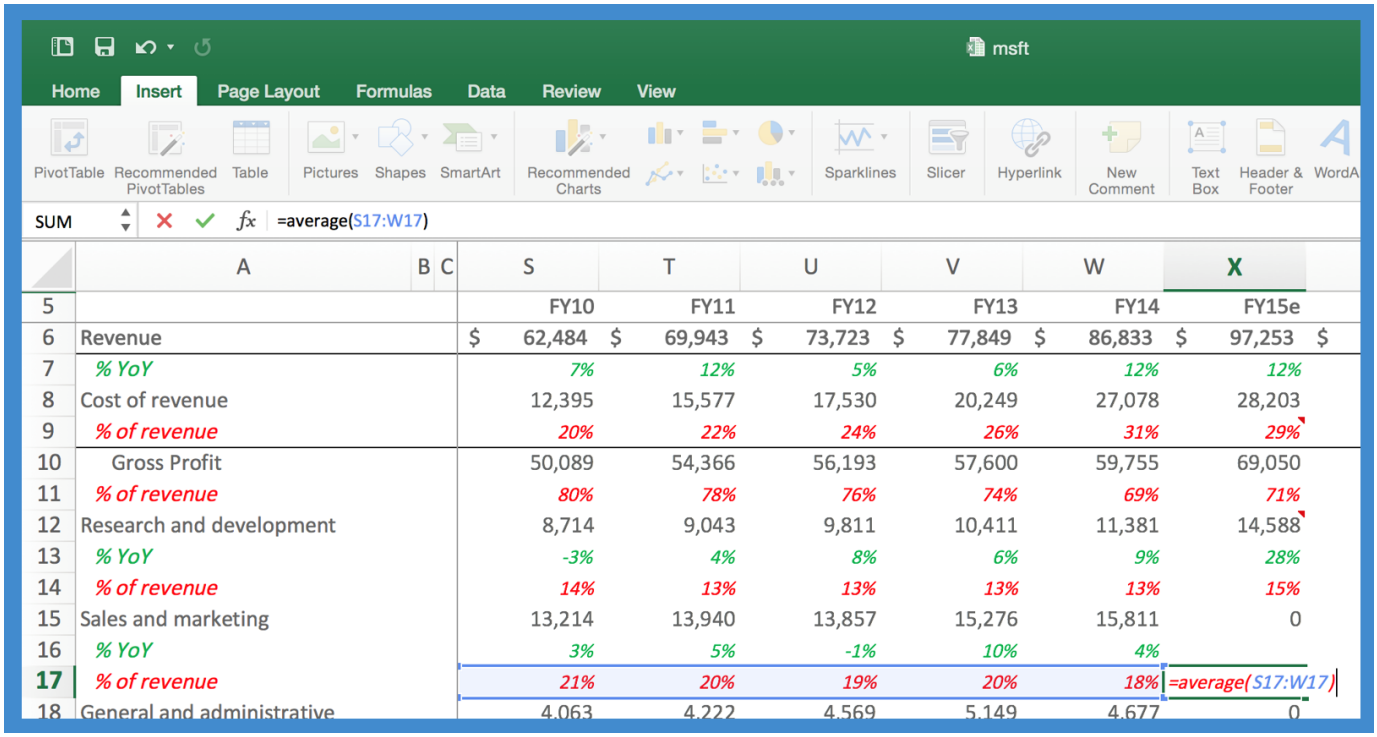
	A	U	V	W	X	Y	Z	AA
5		FY12	FY13	FY14	FY15e	FY16e	FY17e	FY18e
6	Revenue	$ 73,723	$ 77,849	$ 86,833	$ 97,253	$ 114,758	$	
7	*% YoY*	*5%*	*6%*	*12%*	*12%*	*18%*		
8	Cost of revenue	17,530	20,249	27,078				
9	*% of revenue*	*24%*	*26%*	*31%*				
10	Gross Profit	56,193	57,600	59,755				
11	*% of revenue*	*76%*	*74%*	*69%*				



	A	U	V	W	X	Y	Z
5		FY12	FY13	FY14	FY15e	FY16e	FY17e
6	Revenue	$ 73,723	$ 77,849	$ 86,833	$ 97,253	$ 114,758	$ 114,758
7	*% YoY*	*5%*	*6%*	*12%*	*12%*	*18%*	
8	Cost of revenue	17,530	20,249	27,078	28,203		
9	*% of revenue*	*24%*	*26%*	*31%*	*29%*		
10	Gross Profit	56,193	57,600	59,755			
11	*% of revenue*	*76%*	*74%*	*69%*			
12	Research and development	9,811	10,411	11,381			
13	*% YoY*	*8%*	*6%*	*9%*			

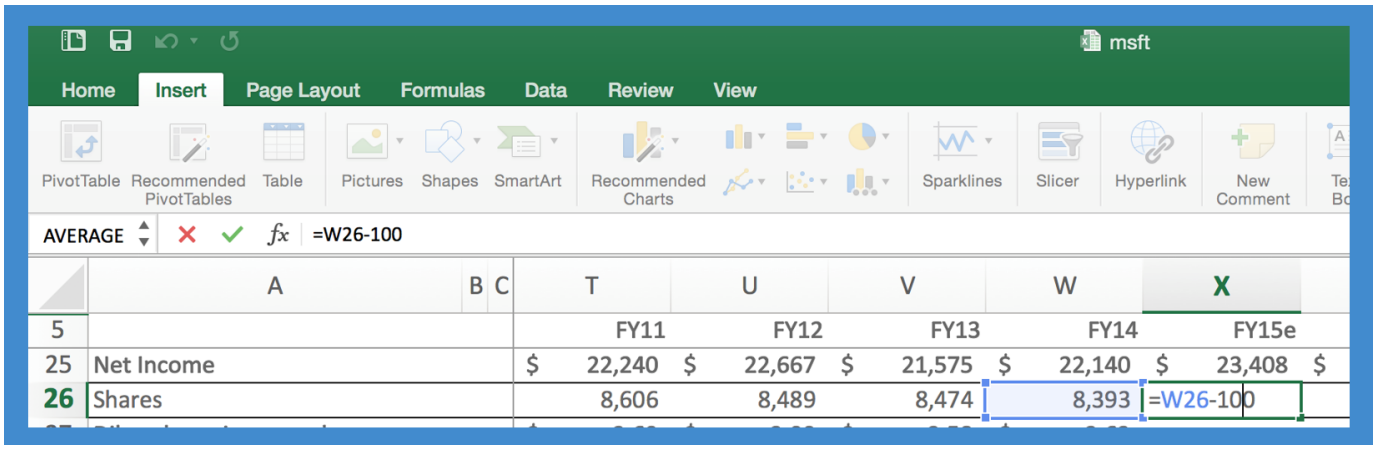


	A	U	V	W	X	Y	Z
5		FY12	FY13	FY14	FY15e	FY16e	FY17e
6	Revenue	$ 73,723	$ 77,849	$ 86,833	$ 97,253	$ 114,758	$ 128,530
7	*% YoY*	*5%*	*6%*	*12%*	*12%*		
8	Cost of revenue	17,530	20,249	27,078	28,203		
9	*% of revenue*	*24%*	*26%*	*31%*	*29%*		
10	Gross Profit	56,193	57,600	59,755	69,050		
11	*% of revenue*	*76%*	*74%*	*69%*	*71%*		
12	Research and development	9,811	10,411	11,381	14,588		
13	*% YoY*	*8%*	*6%*	*9%*	*28%*	*-100%*	*#DIV/0!*
14	*% of revenue*	*13%*	*13%*	*13%*	*15%*		

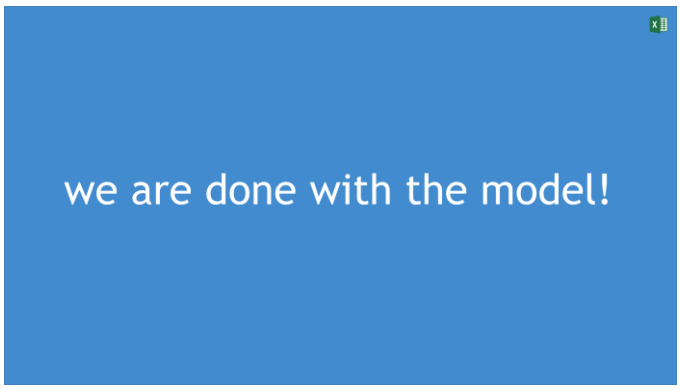


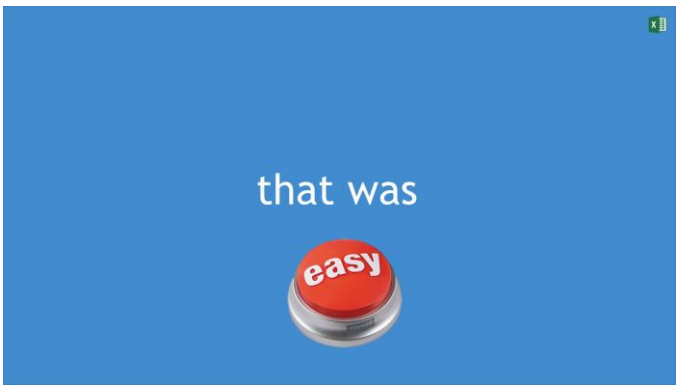
	A	S	T	U	V	W	X
5		FY10	FY11	FY12	FY13	FY14	FY15e
6	Revenue	$ 62,484	$ 69,943	$ 73,723	$ 77,849	$ 86,833	$ 97,253
7	*% YoY*	*7%*	*12%*	*5%*	*6%*	*12%*	*12%*
8	Cost of revenue	12,395	15,577	17,530	20,249	27,078	28,203
9	*% of revenue*	*20%*	*22%*	*24%*	*26%*	*31%*	*29%*
10	Gross Profit	50,089	54,366	56,193	57,600	59,755	69,050
11	*% of revenue*	*80%*	*78%*	*76%*	*74%*	*69%*	*71%*
12	Research and development	8,714	9,043	9,811	10,411	11,381	14,588
13	*% YoY*	*-3%*	*4%*	*8%*	*6%*	*9%*	*28%*
14	*% of revenue*	*14%*	*13%*	*13%*	*13%*	*13%*	*15%*
15	Sales and marketing	13,214	13,940	13,857	15,276	15,811	0
16	*% YoY*	*3%*	*5%*	*-1%*	*10%*	*4%*	
17	*% of revenue*	*21%*	*20%*	*19%*	*20%*	*18%*	*=average(S17:W17)*
18	General and administrative	4,063	4,222	4,569	5,149	4,677	0

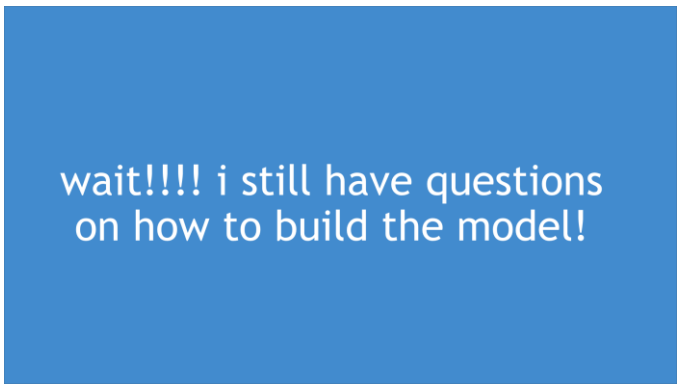
If you have no clue on how to forecast a certain expense line item, then start with taking an average of all prior percents of revenue (per the previous image)!

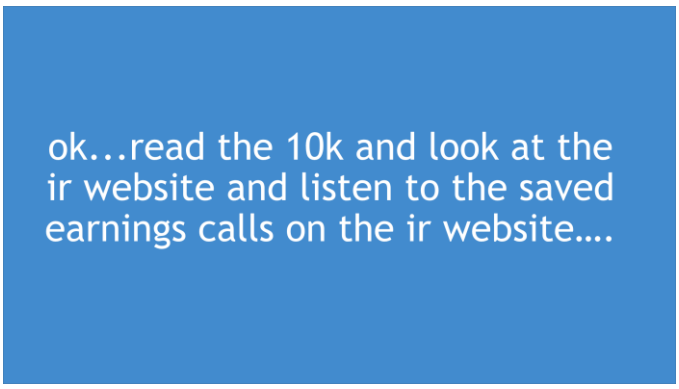


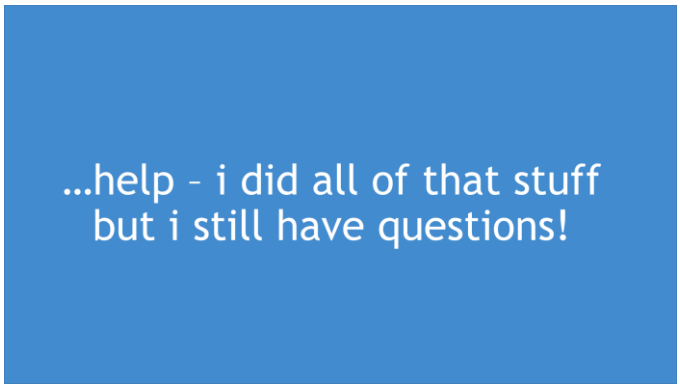
Look for patterns….an object in motion will stay in motion…oki dokki in this case it looks like Microsoft is buying back about 100,000,000 shares per year. Wow!

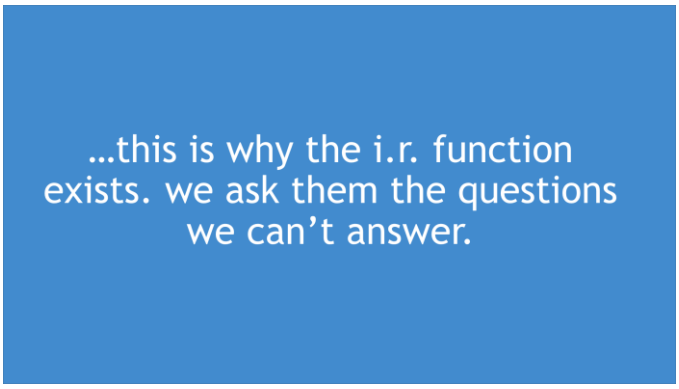












call i.r. as it's
their job to help you

why call management towards
the end of your due diligence?

because CEOs and CFOs are the
best salespeople in the world...

...do your own research before
calling them or listening to
anyone (especially the media)!

everyone has their own bias...

http://tiny.cc/chris110

capiche?

don't be intimidated by financial
modelling.

you have the same info access as wall street analysts.

reg fd.

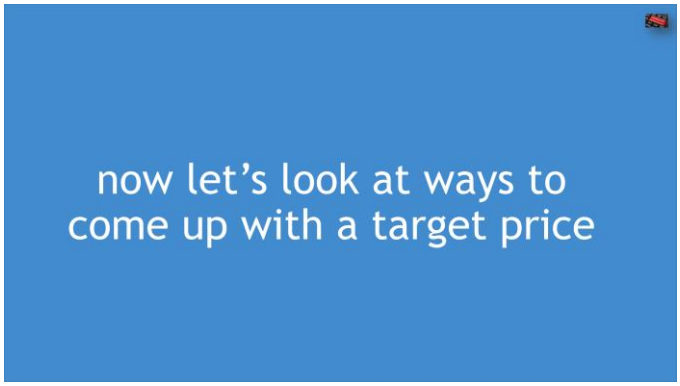
modeling and valuation is **very easy** to do.

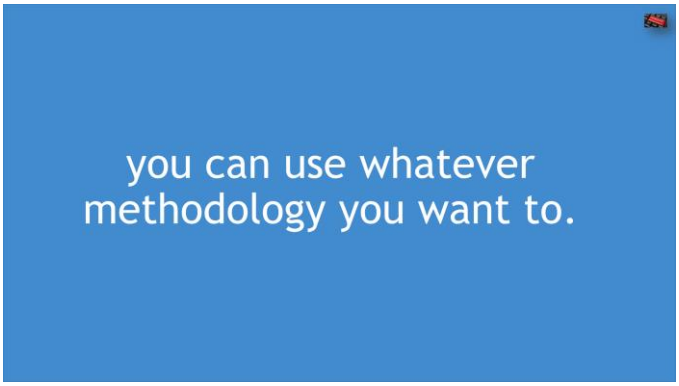
next topic:

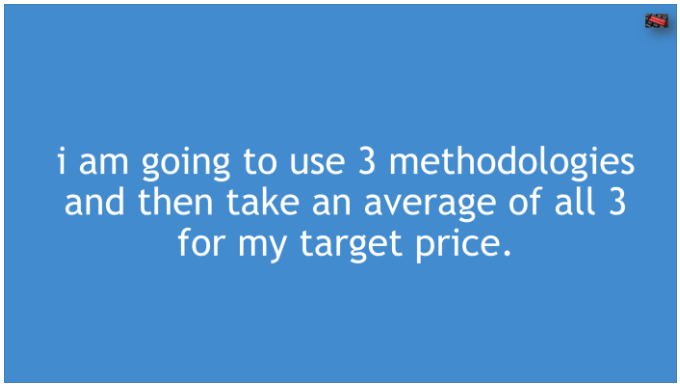
valuation

	FY19e	FY20e	FY21e	FY22e	FY23e	FY24e	Assumptions
Revenue	$ 161,227	$ 180,575	$ 202,244	$ 226,513	$ 253,694	$ 284,138	you can list revenue assumptions here too
% YoY	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*	
Cost of revenue	46,756	52,367	58,651	63,424	68,498	73,876	
% of revenue	*29%*	*29%*	*29%*	*28%*	*27%*	*26%*	
Gross Profit	114,471	128,208	143,593	163,089	185,197	210,262	
% of revenue	*71%*	*71%*	*71%*	*72%*	*73%*	*74%*	
Research and development	20,960	23,475	26,292	29,447	32,980	36,938	you can list r&d assumptions here too
% YoY	*4%*	*12%*	*12%*	*12%*	*12%*	*12%*	
% of revenue	*13%*	*13%*	*13%*	*13%*	*13%*	*13%*	
Sales and marketing	27,409	28,892	32,359	36,242	40,591	45,462	you can list s&m assumptions here too
% YoY	*6%*	*5%*	*12%*	*12%*	*12%*	*12%*	
% of revenue	*17%*	*16%*	*16%*	*16%*	*16%*	*16%*	
General and administrative	8,061	9,029	10,112	11,326	12,685	11,366	you can list g&a assumptions here too
% YoY	*12%*	*12%*	*12%*	*12%*	*12%*	*-10%*	
% of revenue	*5%*	*5%*	*5%*	*5%*	*5%*	*4%*	
Operating income (same as EBIT)	$ 58,042	$ 66,813	$ 74,830	$ 86,075	$ 98,941	$ 116,496	
% of revenue	*36%*	*37%*	*37%*	*38%*	*39%*	*41%*	
Taxes	11,668	13,365	14,880	17,177	19,775	23,284	you can list tax assumptions here too
% of EBIT	*20%*	*20%*	*20%*	*20%*	*20%*	*20%*	
Net Income	$ 46,373	$ 53,448	$ 59,951	$ 68,898	$ 79,166	$ 93,213	
Shares	7,893	7,793	7,693	7,593	7,493	7,393	you can list shares assumptions here too
Diluted earnings per share	$ 5.88	$ 6.86	$ 7.79	$ 9.07	$ 10.57	$ 12.61	

Don't forget to add many comments…which you can also do in an assumptions column.







valuation methodology # 1

p/e

your target price should be based on estimates 5 year from now.

in 5 years earnings are growing 12%

so our target price should be 12x's that eps number.

Stocks usually trade near their earnings growth rate. Huh? Well if a company's earnings are growing 20% next year, then the stock should trade at about 20x's that year's earnings at that point in time. If a ocmpany is growing at 8% earnings, then the stock should trade at about 8x's that earnings number that year. Simple enough eh!

A	B C	Z	AA
		FY19e	FY20e
Diluted earnings per share		$ 3.93	$ 4.90
			YoY EPS %: 12%

12 x $4.90 = $59

assume msft is $47 today.

in 5 years we expect 25% appreciation to $59.

seems reasonable as msft is a mature company.

valuation methodology #2: p/r

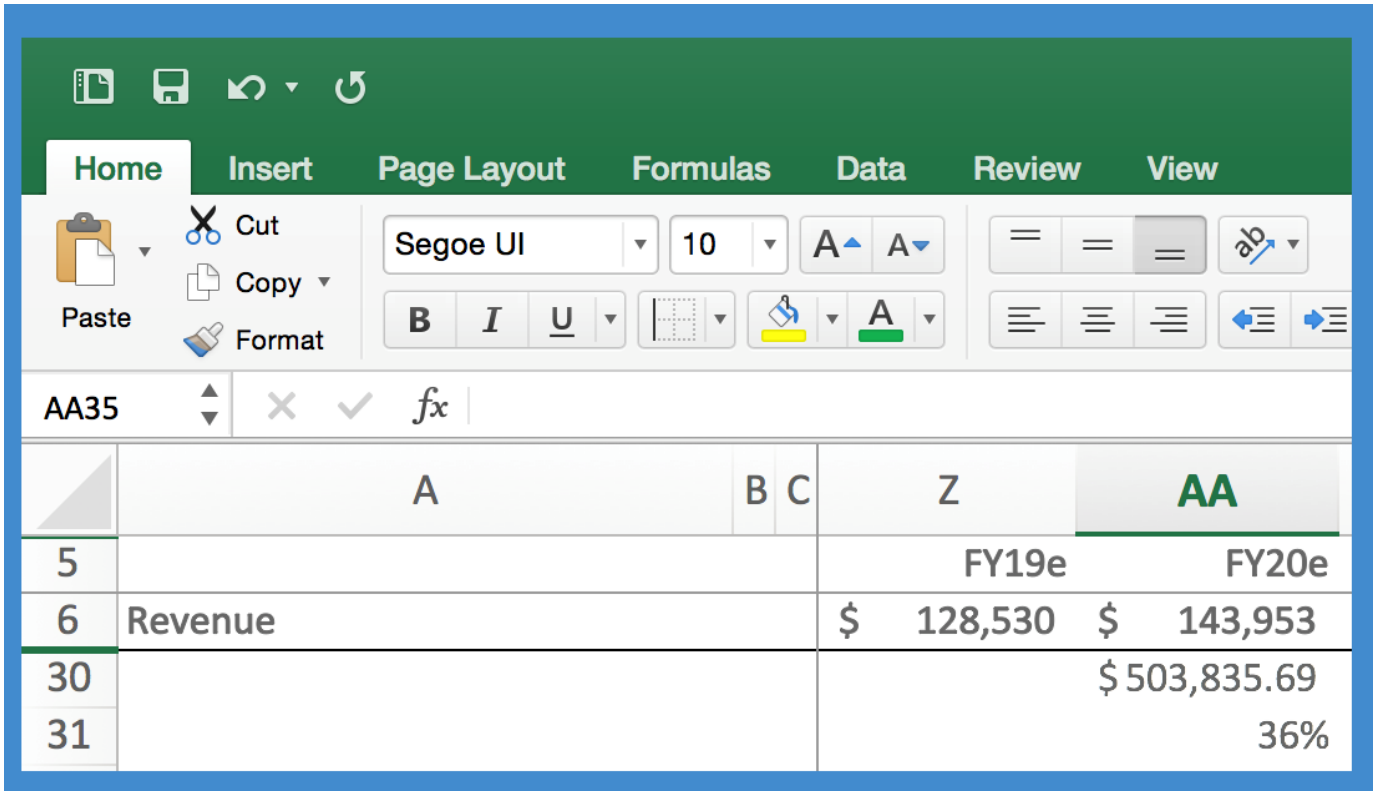
assuming the average software company trades at 5x revenue in 5 years….

and msft is a big mature company with 70% of the growth of the average software company.

therefore it should trade at a discount at say 3.5x revenue in 5 years (versus sector at 5x).

so the market cap should be $504bn in 5 years.

the market cap is $372 today. so this means about 35% upside.



	A	B	C	Z	AA
5				FY19e	FY20e
6	Revenue			$ 128,530	$ 143,953
30					$ 503,835.69
31					36%

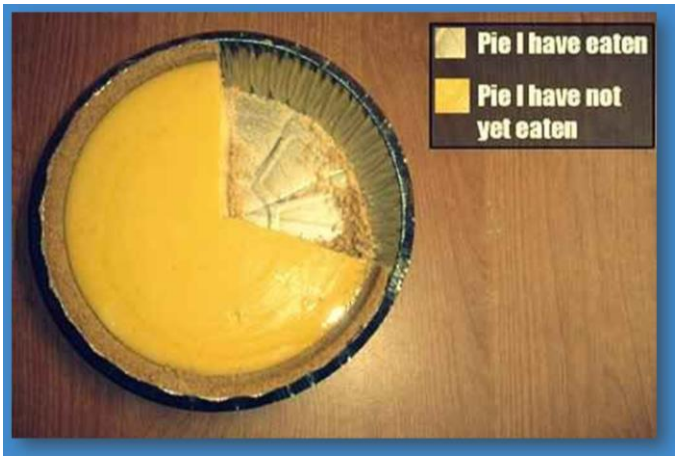
recall valuation methodology #1 predicted 25% upside

now let's do valuation methodology #3 and take an average of all 3 approaches.

dcf

[not an exact science…and i am not a fan…but let's do it anyway]

but let's look at an important pie chart first



i'm going to make dcf easy.

I know I know I know. Not funny!

earnings and cash flow are the same in the long run

great! so we don't need to forecast the bs or the cf statements!

A	B	C	X	Y	Z
			FY15e	FY16e	FY17e
Revenue			$ 97,253	$ 114,758	$ 128,530
% YoY			*12%*	*18%*	*12%*
Cost of revenue			28,203	33,280	37,274
% of revenue			*29%*	*29%*	*29%*
Gross Profit			69,050	81,479	91,256
% of revenue			*71%*	*71%*	*71%*
Research and development			14,588	17,214	19,279
% YoY			*28%*	*18%*	*12%*
% of revenue			*15%*	*15%*	*15%*
Sales and marketing			19,004	22,056	24,520
% YoY			*20%*	*16%*	*11%*
% of revenue			*20%*	*19%*	*19%*
General and administrative			5,978	6,973	7,820
% YoY			*28%*	*17%*	*12%*
% of revenue			*6%*	*6%*	*6%*
Operating income (same as EBIT)			$ 29,479	$ 35,235	$ 39,636
% of revenue			*30%*	*31%*	*31%*
Taxes			6,071	6,880	7,851
% of EBIT			*21%*	*20%*	*20%*
Net Income [SAME AS FREE CASH FLOW]			$ 23,408	$ 28,356	$ 31,786
Shares			8,293	8,193	8,093
Diluted earnings per share			$ 2.82	$ 3.46	$ 3.93

A	B C	X	Y	Z
		FY15e	FY16e	FY17e
Revenue		$ 97,253	$ 114,758	$ 128,530
% YoY		*12%*	*18%*	*12%*
Cost of revenue		28,203	33,280	37,274
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Gross Profit		69,050	81,479	91,256
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% of revenue		*15%*	*15%*	*15%*
Sales and marketing		19,004	22,056	24,520
% YoY		*20%*	*16%*	*11%*
% of revenue		*20%*	*19%*	*19%*
General and administrative		5,978	6,973	7,820
% YoY		*28%*	*17%*	*12%*
% of revenue		*6%*	*6%*	*6%*
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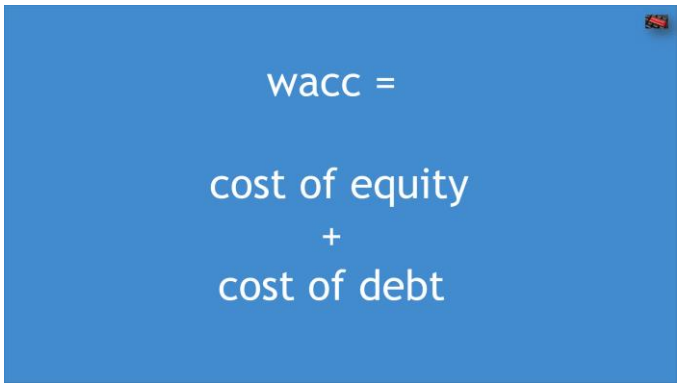
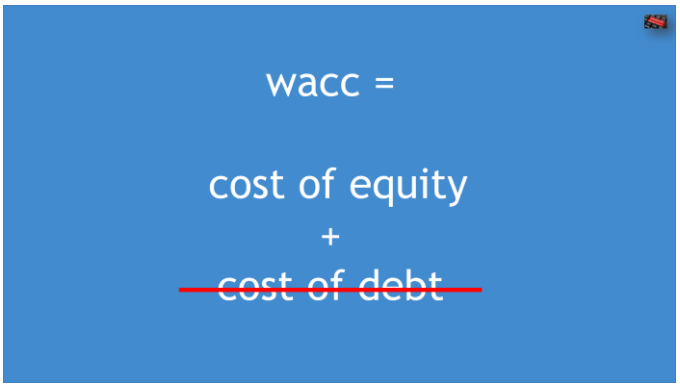
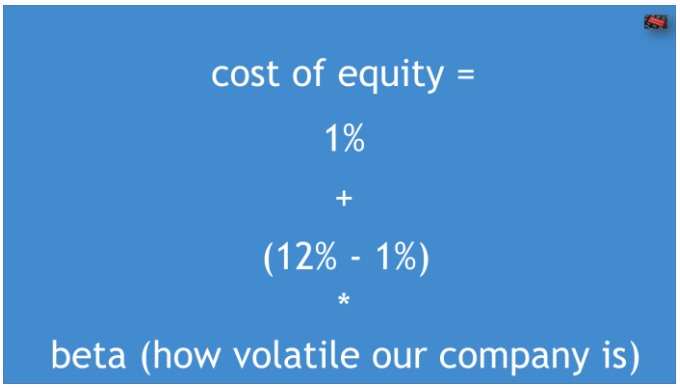
% of revenue		*30%*	*31%*	*31%*
Taxes		6,071	6,880	7,851
Net Income [SAME AS FREE CASH FLOW]		$ 23,408	$ 28,356	$ 31,786
Diluted earnings per share		$ 2.82	$ 3.46	$ 3.93

The WACC stands for the weighted average cost of capital….basically what is the cost of renting money for Microsoft. Note: it will be a heck of a lot less than for a private company as Microsoft is pretty stable. We then use the WACC to find out what Microsoft's future net income or cash flow is worth today (rember that a dollar in the future is worth a heck of a lot less than it is worth today…..the trick is to find the right WACC to discount future net income or cash flow to today).



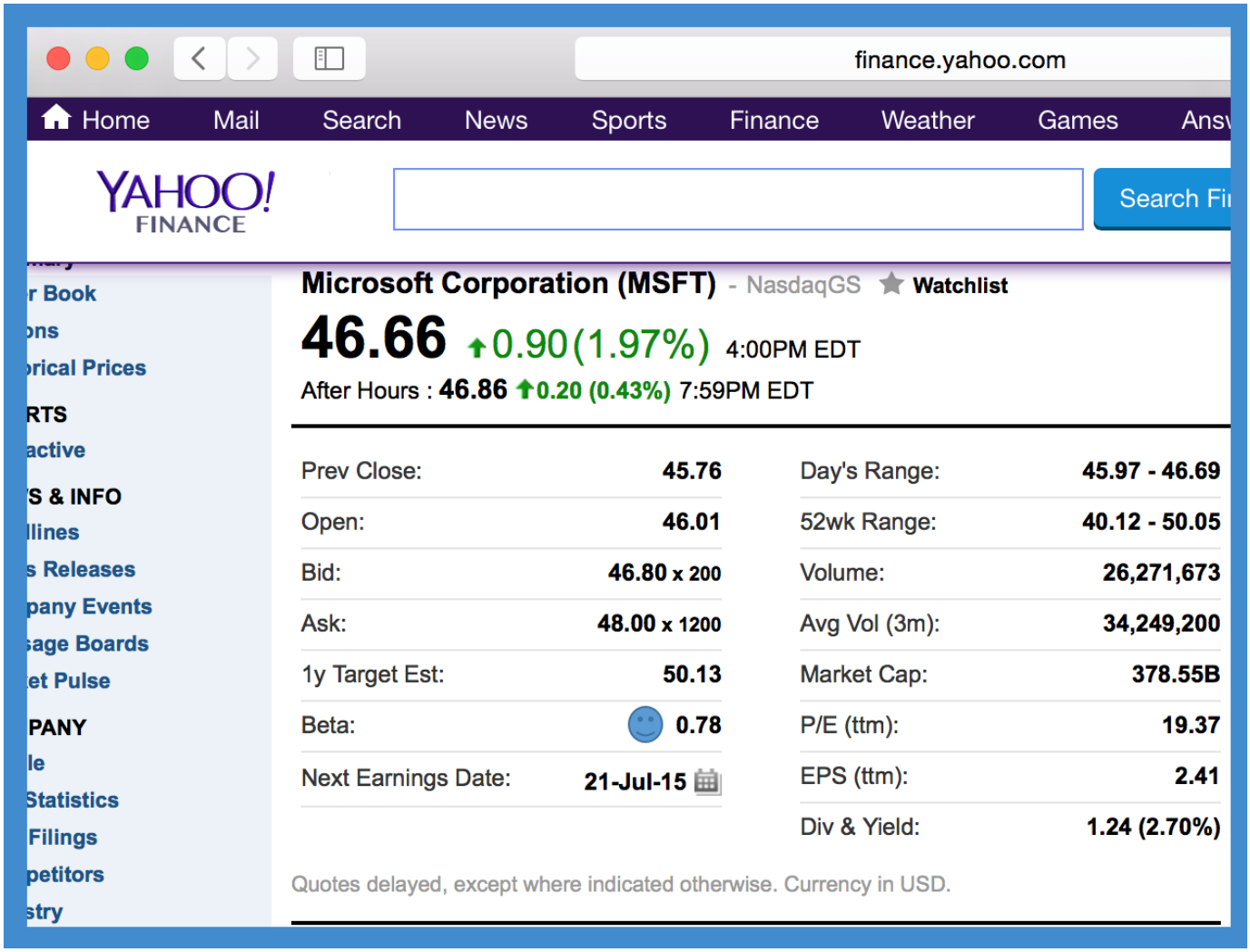


Rmember tech firms don't usually have much debt. If they have some then deduct the debt from your target market capitalization (after accounting for the cash balance).....I know that this is not an exact science but it is close enough for government work! With Microsoft I am bearish on the company longer term as the founders don't run the company any more so I will just assume that growth will be anemic and they will use their cash balance to keep buying back shares.



Let's just assume that the stock market goes up about 12% per year. Microsoft is likely to grow slower than the stock market in the long run and it is likely less volatile as it is a stable old company....so I expect the beta to be less than 1. The market's beta or volatility is 1. Your stock is either more volatile (meaning higher beta and riskier) or less volatile than the market (meaning lower beta and less risky than the market).

You can find a company's beta at Yahoo Finance or any good finance website. In fact, I used to pay $25k per year for Bloomberg's financial data system when I was running my company but I ditched Bloomberg because you can get almost everything that Bloomberg provides online now for free!


finance.yahoo.com
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Mail
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News
Sports
Finance
Weather
Games
YAHOO!
FINANCE
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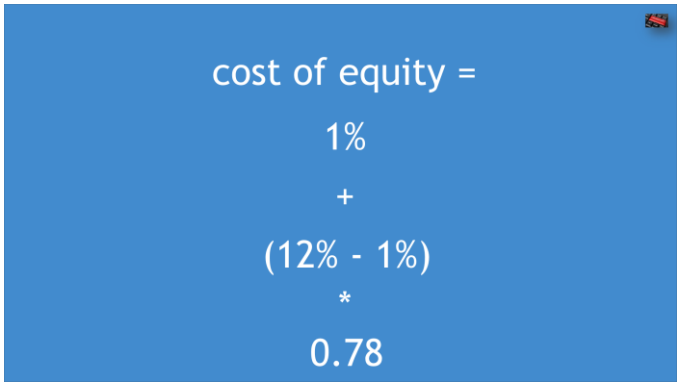
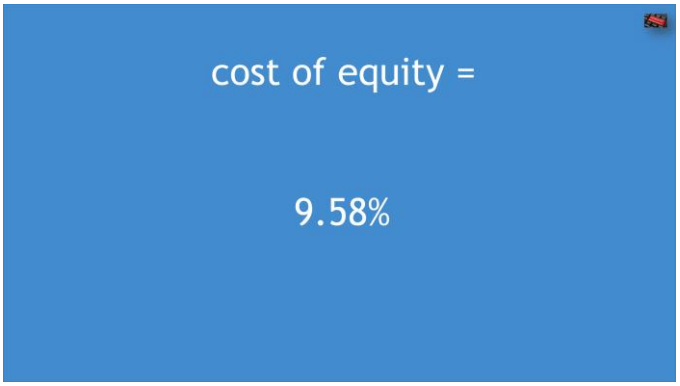
Microsoft Corporation (MSFT) - NasdaqGS
Watchlist
46.66
0.90 (1.97%)
4:00PM EDT
After Hours : 46.86 0.20 (0.43%) 7:59PM EDT
Prev Close: 45.76
Open: 46.01
Bid: 46.80 x 200
Ask: 48.00 x 1200
1y Target Est: 50.13
Beta: 0.78
Next Earnings Date: 21-Jul-15
Day's Range: 45.97 - 46.69
52wk Range: 40.12 - 50.05
Volume: 26,271,673
Avg Vol (3m): 34,249,200
Market Cap: 378.55B
P/E (ttm): 19.37
EPS (ttm): 2.41
Div & Yield: 1.24 (2.70%)
Quotes delayed, except where indicated otherwise. Currency in USD.

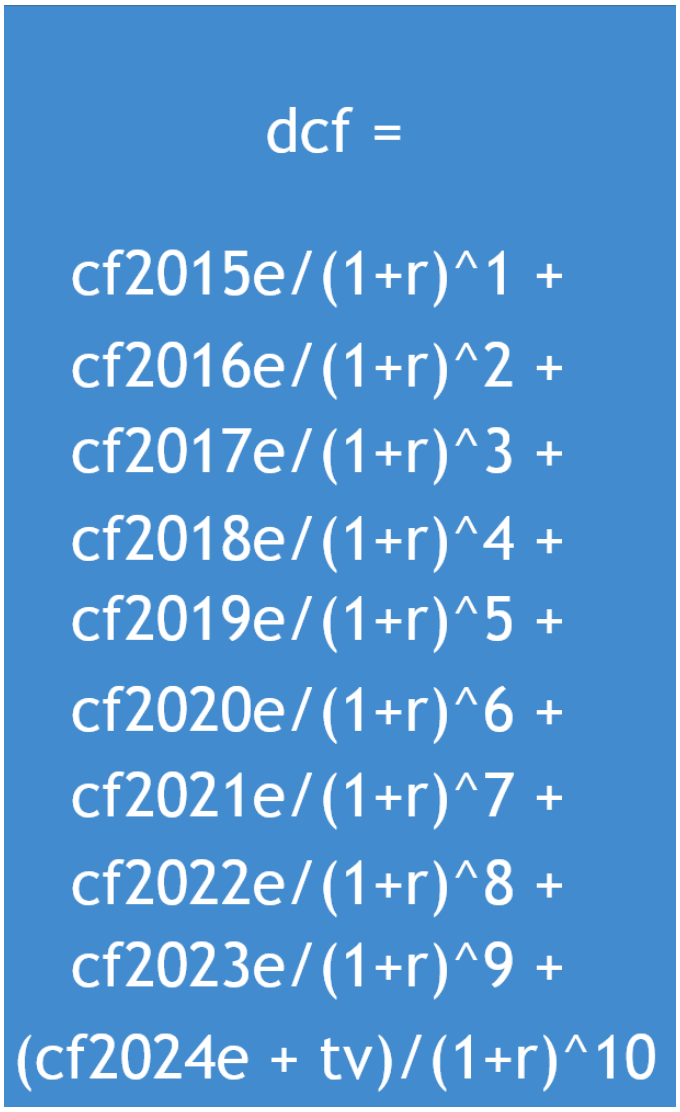

cost of equity =
1%
+
(12% - 1%)
*
0.78

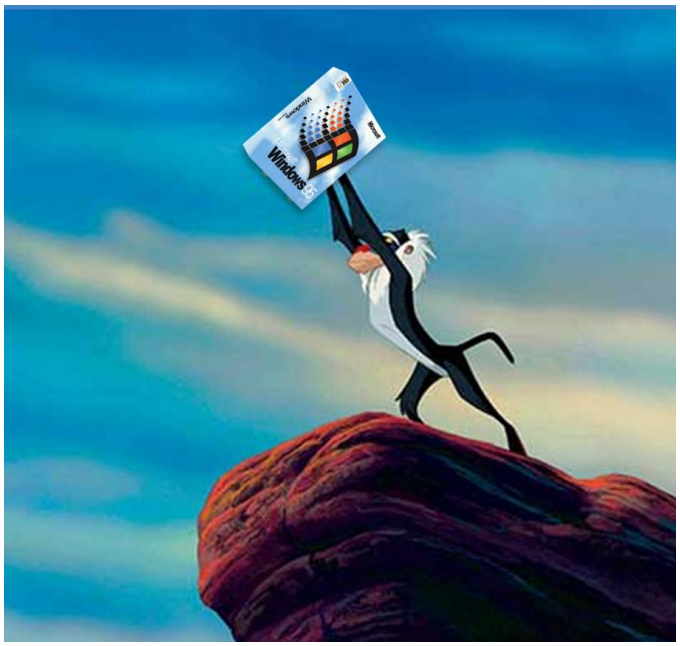

cost of equity =
9.58%

Alright now we need to discount our future net income to today's value. We discount next year's earnings by 1 year. We discount the following year's earnings by 2 years. We discount the year after that's earnings by 3 years……all the way up to 10 years from now per the discounted cash flow formula on the right →.

What about years 2025 to infinity? Don't worry about it…see the first image on the next page for calculating cash flow from years 2025 to infinity!

http://tiny.cc/chris112





tv = cf2024 / (r - g)

assume g is our long term g

tv = cf2024 / (r - g)

we already know r. assume the long term growth rate for msft is about 1% (i am bearish on it)

dcf =

cf2015e/(1+r)^1 +
cf2016e/(1+r)^2 +
cf2017e/(1+r)^3 +
cf2018e/(1+r)^4 +
cf2019e/(1+r)^5 +
cf2020e/(1+r)^6 +
cf2021e/(1+r)^7 +
cf2022e/(1+r)^8 +
cf2023e/(1+r)^9 +
(cf2024e + tv)/(1+r)^10

cf2015e/(1+r)^1 +
cf2016e/(1+r)^2 +
cf2017e/(1+r)^3 +
cf2018e/(1+r)^4 +
cf2019e/(1+r)^5 +
cf2020e/(1+r)^6 +
cf2021e/(1+r)^7 +
cf2022e/(1+r)^8 +
cf2023e/(1+r)^9 +
(cf2024e + cf2024 / (r - g))/(1+r)^10

	FY15e	FY16e	FY17e
Net Income [SAME AS FREE CASH FLOW]	$ 23,408	$ 28,356	$ 31,786

23,408/(1+0.0958)^1 +
cf2016e/(1+r)^2 +
cf2017e/(1+r)^3 +
cf2018e/(1+r)^4 +
cf2019e/(1+r)^5 +
cf2020e/(1+r)^6 +
cf2021e/(1+r)^7 +
cf2022e/(1+r)^8 +
cf2023e/(1+r)^9 +
(cf2024e + cf2024 / (r - g))/(1+r)^10

	FY15e	FY16e	FY17e
Net Income [SAME AS FREE CASH FLOW]	$ 23,408	$ 28,356	$ 31,786

23,408/(1+0.0958)^1 +
28,356/(1+0.0958)^2 +
cf2017e/(1+r)^3 +
cf2018e/(1+r)^4 +
cf2019e/(1+r)^5 +
cf2020e/(1+r)^6 +
cf2021e/(1+r)^7 +
cf2022e/(1+r)^8 +
cf2023e/(1+r)^9 +
(cf2024e + cf2024 / (r - g))/(1+r)^10

	FY15e	FY16e	FY17e	FY18e	FY19e	FY20e	FY21e	FY22e	FY23e	FY24e
Net Income [SAME AS FREE CASH FLOW]	$ 23,408	$ 28,356	$ 31,786	$ 39,163	$ 43,282	$ 50,559	$ 51,647	$ 45,772	$ 47,128	$ 49,728

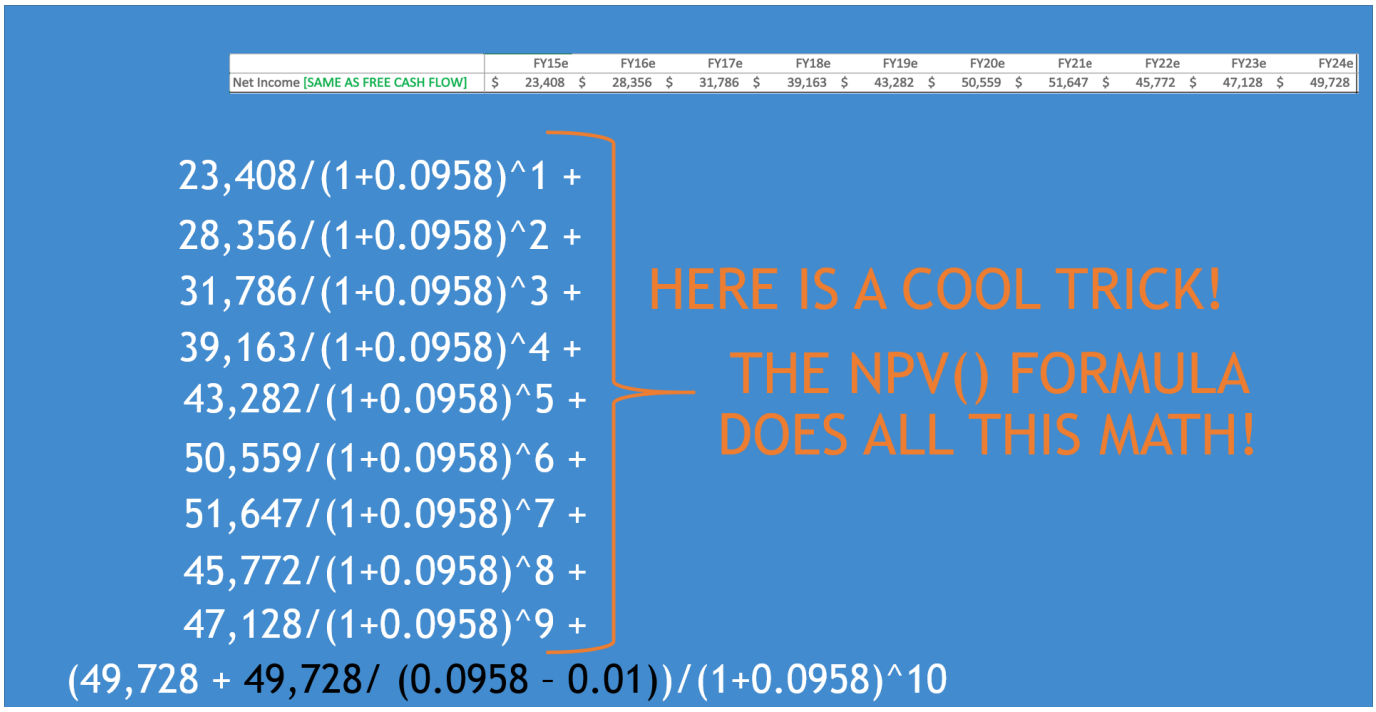
23,408/(1+0.0958)^1 +
28,356/(1+0.0958)^2 +
31,786/(1+0.0958)^3 +
39,163/(1+0.0958)^4 +
43,282/(1+0.0958)^5 +
50,559/(1+0.0958)^6 +
51,647/(1+0.0958)^7 +
45,772/(1+0.0958)^8 +
47,128/(1+0.0958)^9 +
(49,728 + 49,728/ (0.0958 - 0.01))/(1+0.0958)^10

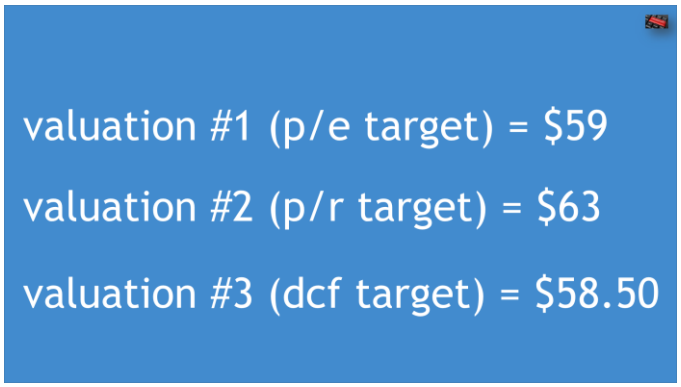
=

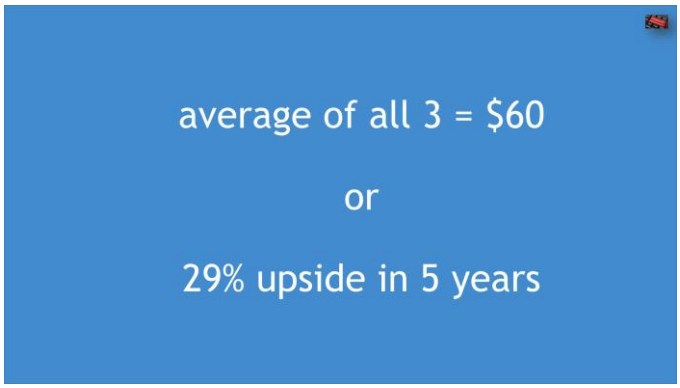
$475bn valuation

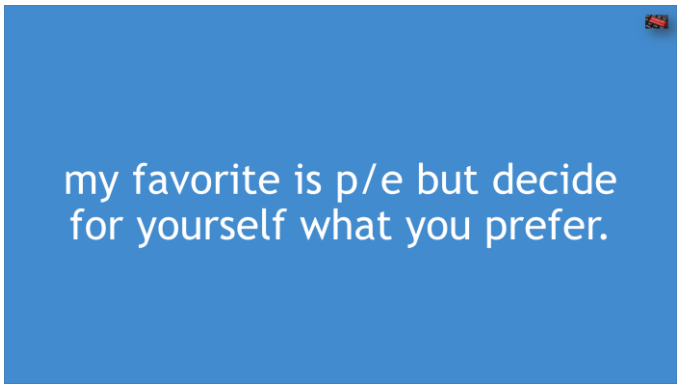
so our 3rd valuation methodology (dcf) implies a value of $475bn
or
25% upside to a target price of
$58.50

What's awesome is that we can do all of the DCF calculations using a very cool quick formula called Excel's NPV formula (Net Present Value). This NPV formula needs 2 inputs: all of the future net income or cash flow values and the interest rate we use to discount them, which was 9.5%:



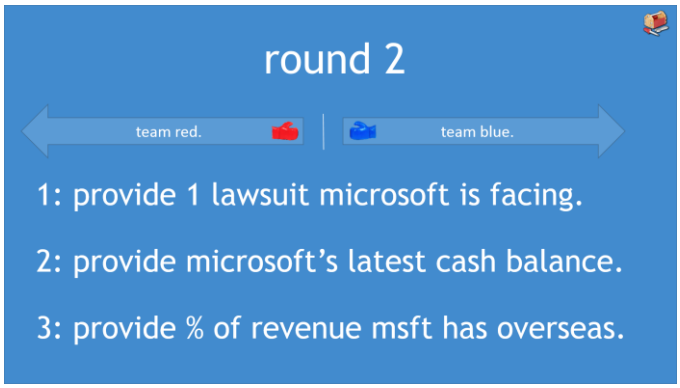






If you are in a class room or large corporate group, divide yourselves into two groups. Team Blue and team Red and see who answers the following questions first using only www.sec.gov

Come on blue! www.tiny.cc/chris84



Don't give up blue! www.tiny.cc/chris85

You're my boy blue! www.tiny.cc/chris86

Questions Based on Chapter 11:

1: The best sources for building a model are:

a) Morningstar.com and sec.com
b) Sec.gov and I.R.
c) I.R and CNBC
d) CNBC and Bloomberg

2: All individual investors have the same access to public market investment information in the US as the big mutual funds and hedge funds have.

True or False

3: You should talk to a company's management team first before doing due diligence on that company.

True or False

CHAPTER SUMMARY