Financial Statement Modeling

Wall Street Prep

wallstreetprep.com

FINANCIAL STATEMENT MODELING

Financial Statement Modeling Overview

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Introduction

- Getting Started
- Excel Settings, Shortcuts
- The Boost Add-in
- Formatting
- Modeling Best Practices
- Gathering Relevant Reports
- Introducing the Case Study

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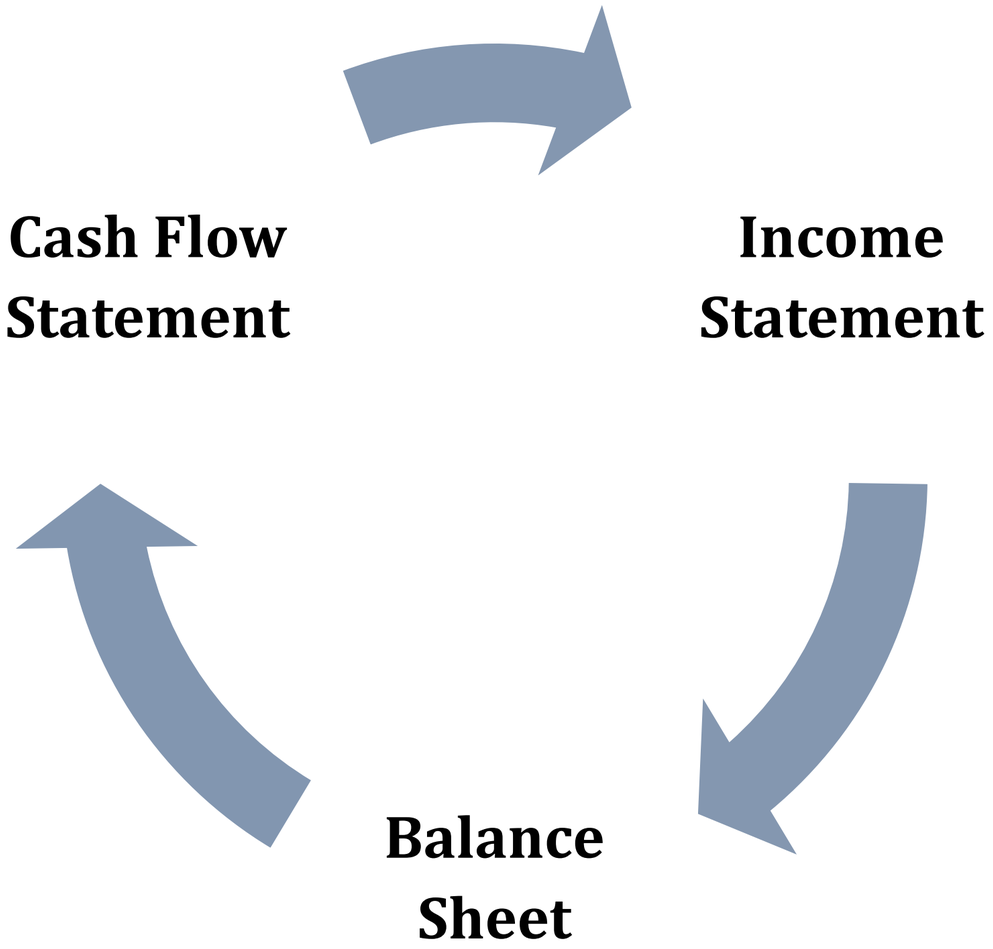
What is a Financial Statement Model (FSM)?

Historical Results and Forecasts

- Income Statement
- Balance Sheet
- Cash flow Statement



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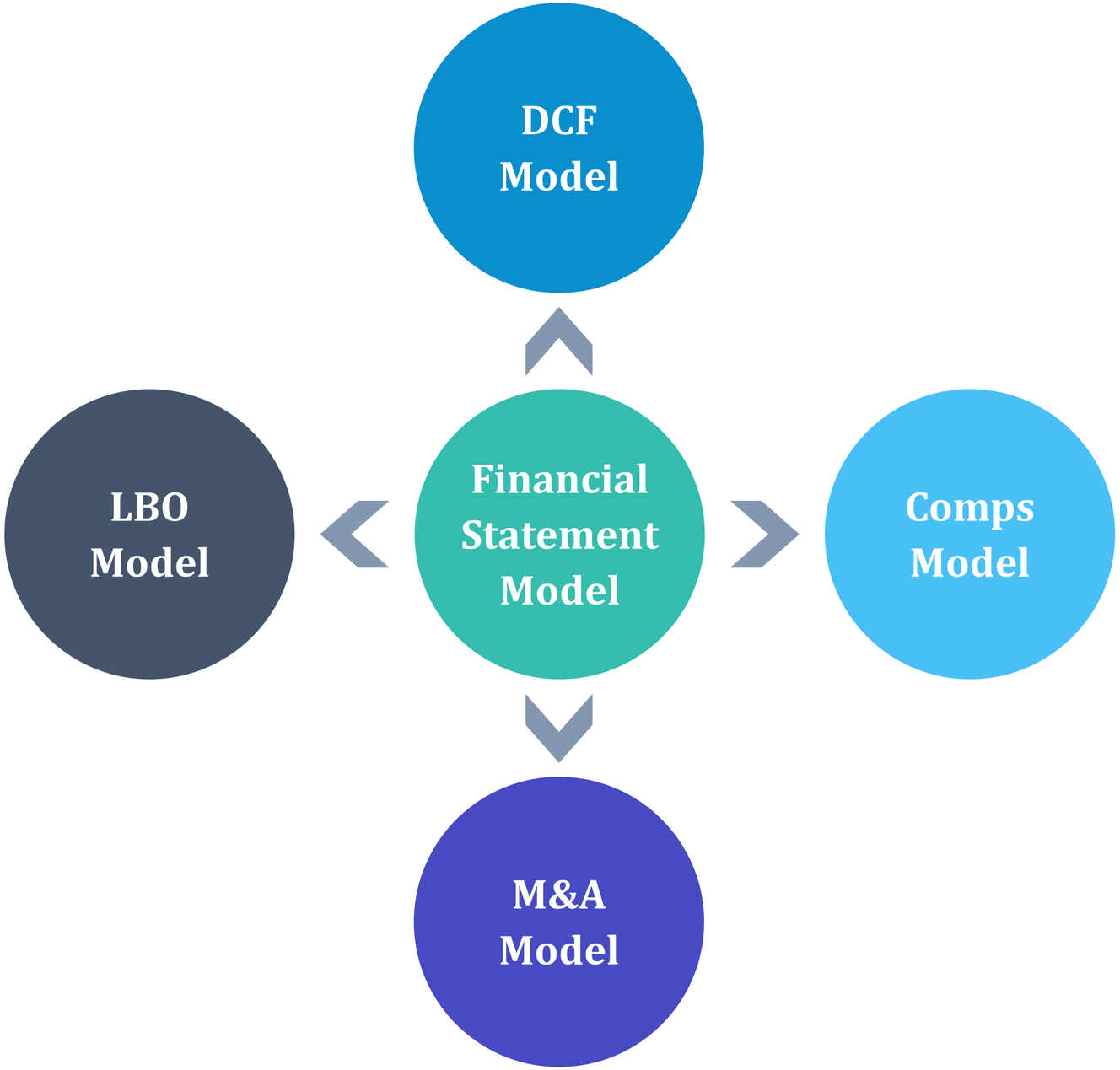
FSM is a Foundational Model for Common Models



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Effective Modeling Requires a Combination of Skills

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What We Expect You To Know...

Accounting

- Basic line items of the income statement
- Basic line items of the balance sheet and the cash flow statement
- How the 3 financial statements interact/how they're related

If you do not have a basic knowledge of the concepts above, enroll in the **Accounting Crash Course.**

If you do not have a basic knowledge of the concepts above, enroll in the **Excel Crash Course.**

Excel

- Basic navigational facility and understanding of functions

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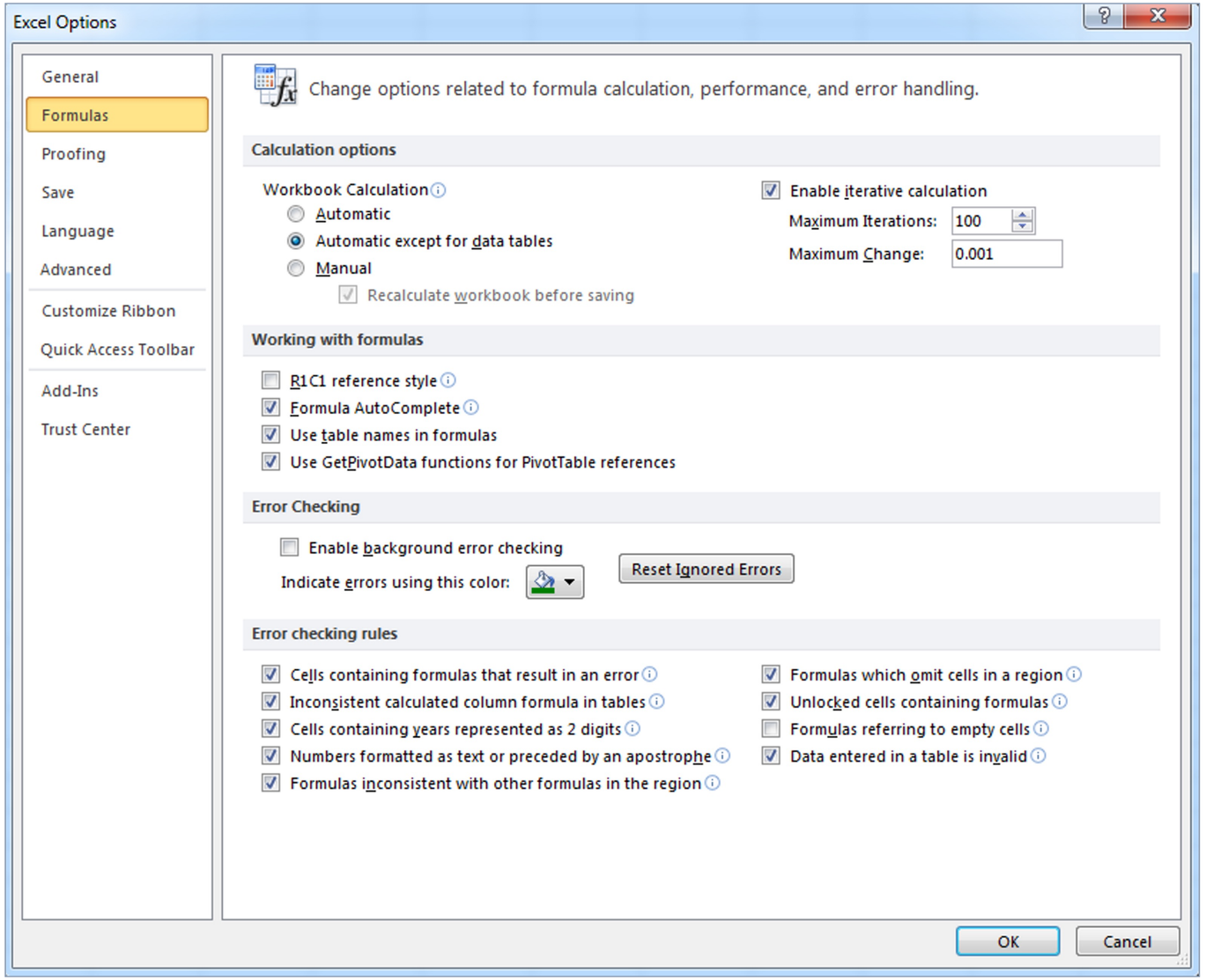
Excel Settings

- Excel 2003: Alt + T + O
- Excel 2007: Alt + F + I
- Excel 2010/13: Alt + F + T
- Mac Excel: Command (⌘) + Comma (,)



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Keyboard Shortcuts

- Take advantage of keyboard shortcuts
- Far more efficient than the mouse; worth the time to learn
- Use as many shortcut keys as possible

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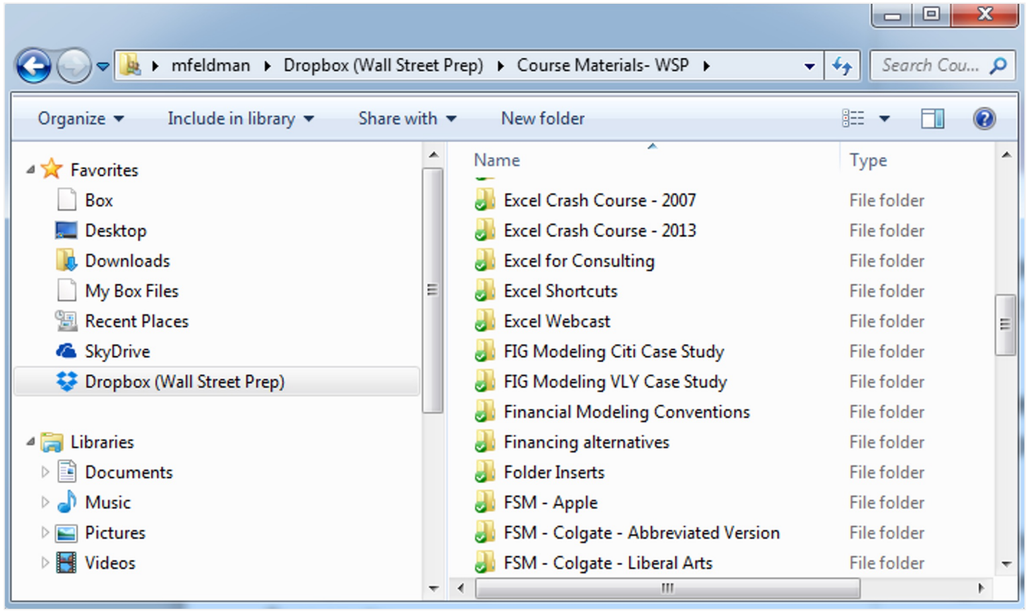
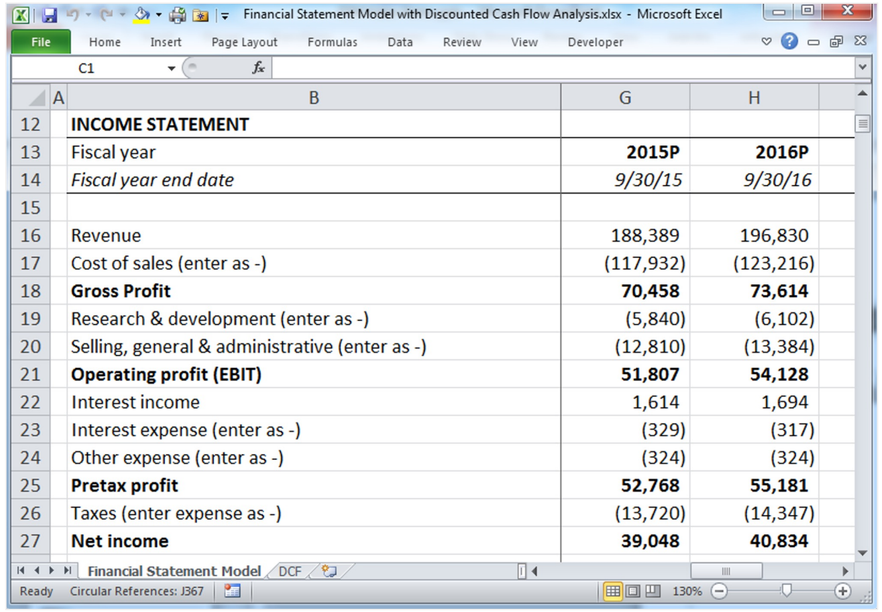
Keyboard Shortcuts



Universal Shortcuts



	A	B	G	H
12		**INCOME STATEMENT**		
13		Fiscal year	**2015P**	**2016P**
14		*Fiscal year end date*	*9/30/15*	*9/30/16*
15				
16		Revenue	188,389	196,830
17		Cost of sales (enter as -)	(117,932)	(123,216)
18		**Gross Profit**	**70,458**	**73,614**
19		Research & development (enter as -)	(5,840)	(6,102)
20		Selling, general & administrative (enter as -)	(12,810)	(13,384)
21		**Operating profit (EBIT)**	**51,807**	**54,128**
22		Interest income	1,614	1,694
23		Interest expense (enter as -)	(329)	(317)
24		Other expense (enter as -)	(324)	(324)
25		**Pretax profit**	**52,768**	**55,181**
26		Taxes (enter expense as -)	(13,720)	(14,347)
27		**Net income**	**39,048**	**40,834**

Excel Shortcuts

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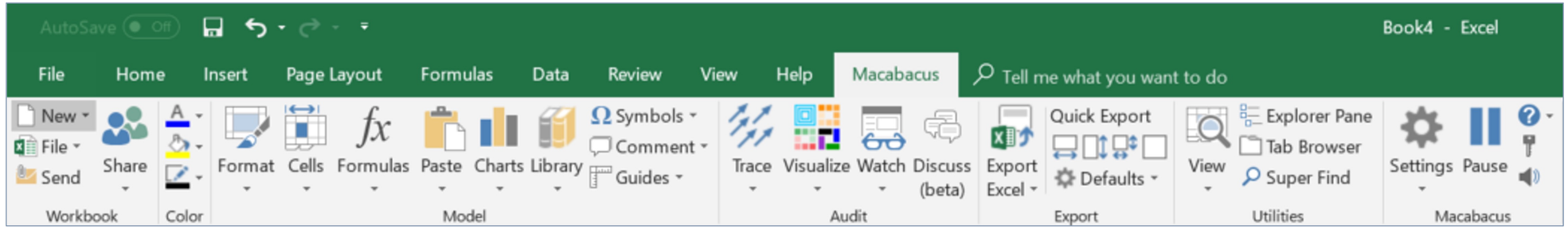
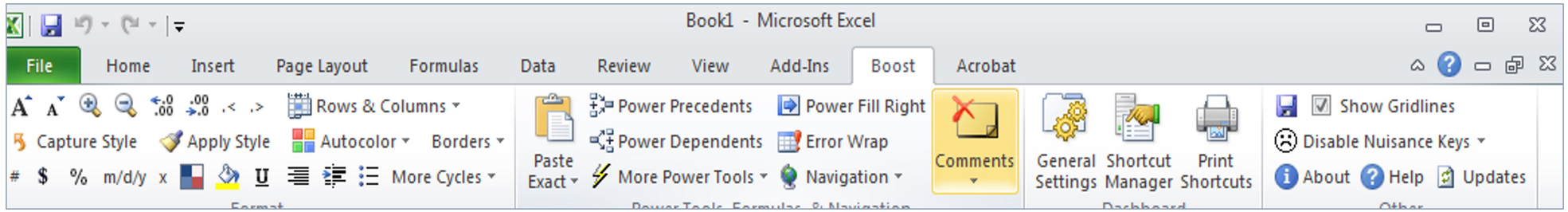
Excel Add-ins

Enables users to perform common financial modeling, formatting, and auditing tasks rapidly using hotkeys.

macabacus



Boost



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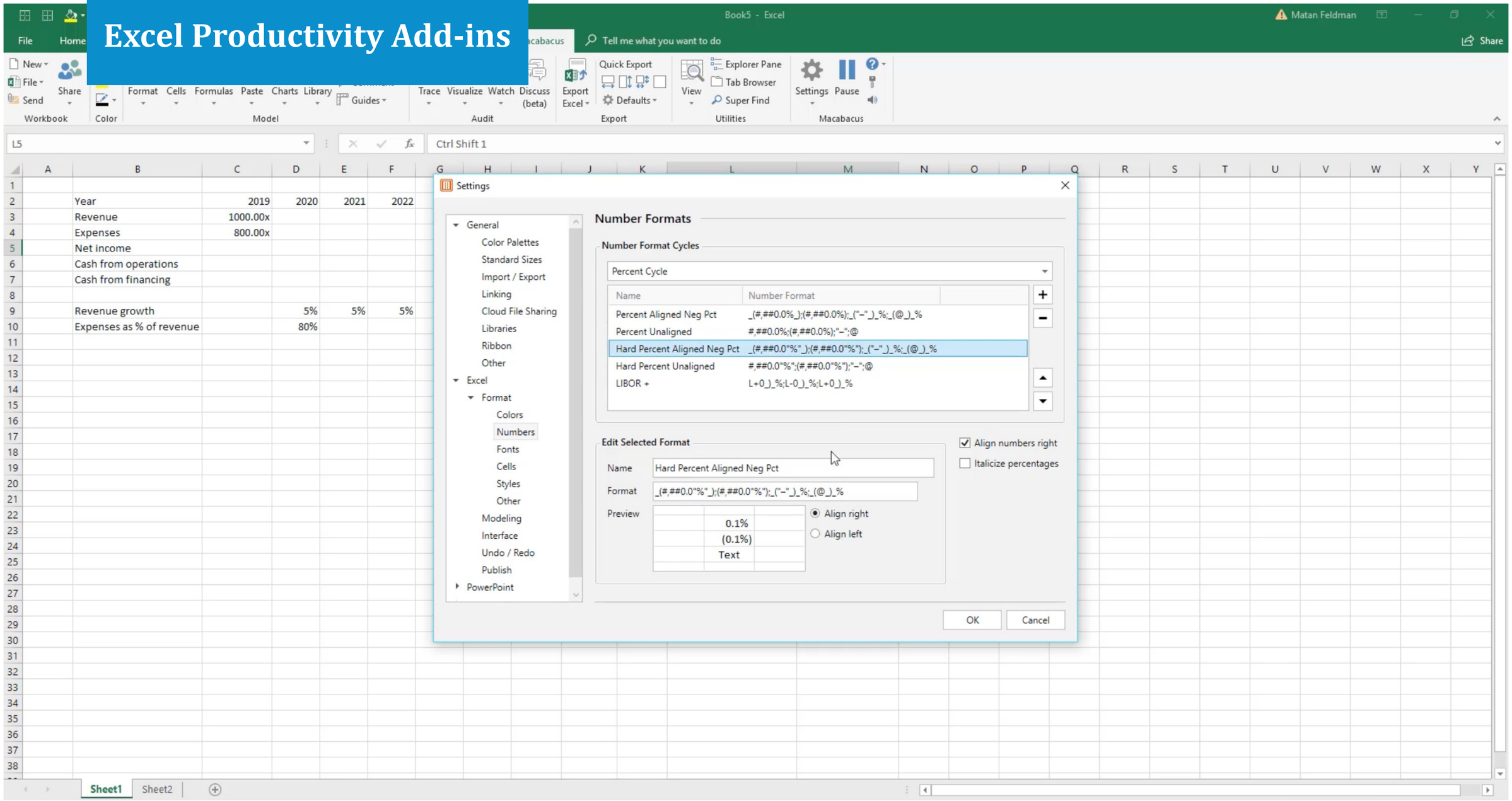
Excel Productivity Add-ins



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FINANCIAL STATEMENT MODELING

Financial Modeling Best Practices

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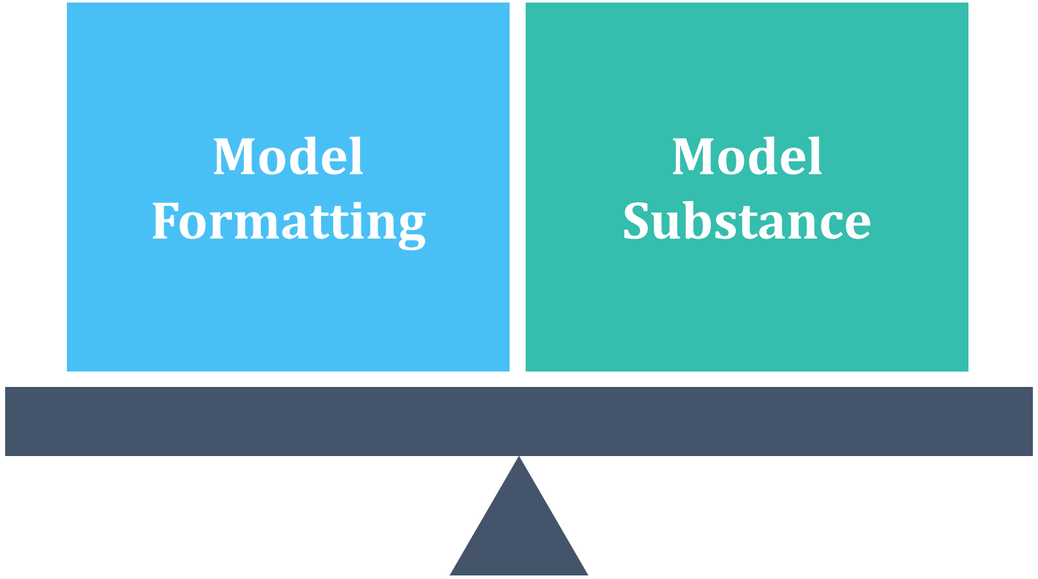
Formatting

- As important as the substance of your model.
- An unformatted model is difficult to understand.
- Always assume the model will be sent to a client.



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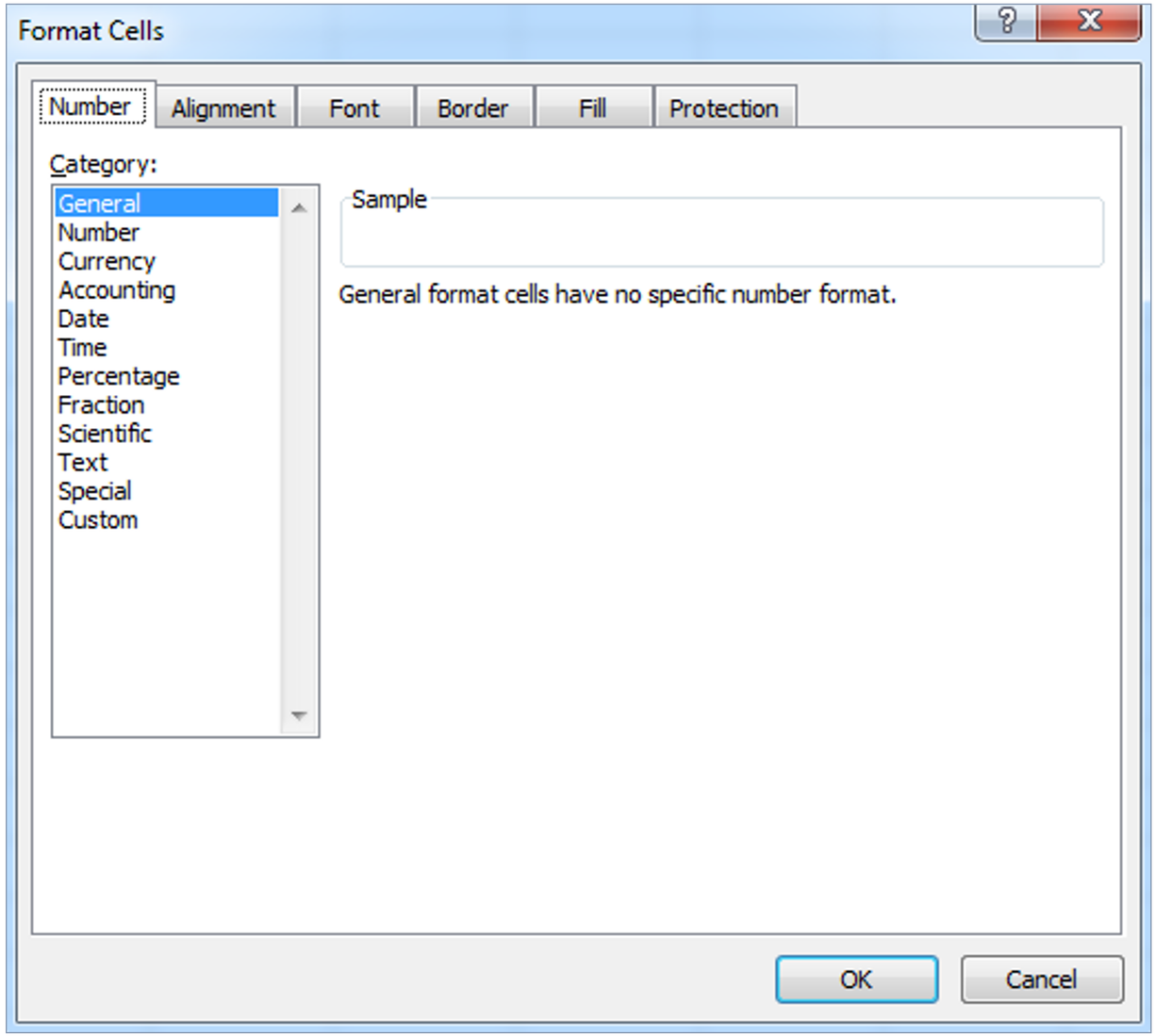
Format Cells (Ctrl + 1)

- All cell formatting can be applied via this form



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Color Coding

- Maintain consistent color conventions
- Macabacus/Boost helps: Auto-color (Ctrl + Alt + A)

Type of Cells	Excel Formula	Color
Hard-coded numbers (inputs)	=1234	Blue
Formulas (calculations)	=A1*A2	Black
Links to other worksheets	=Sheet2!A1	Green
Links to other files	=[Book2]Sheet1!A1	Red
Links to data providers (i.e. CIQ, Factset)	=CIQ(IQ_TOTAL_REV)	Dark Red

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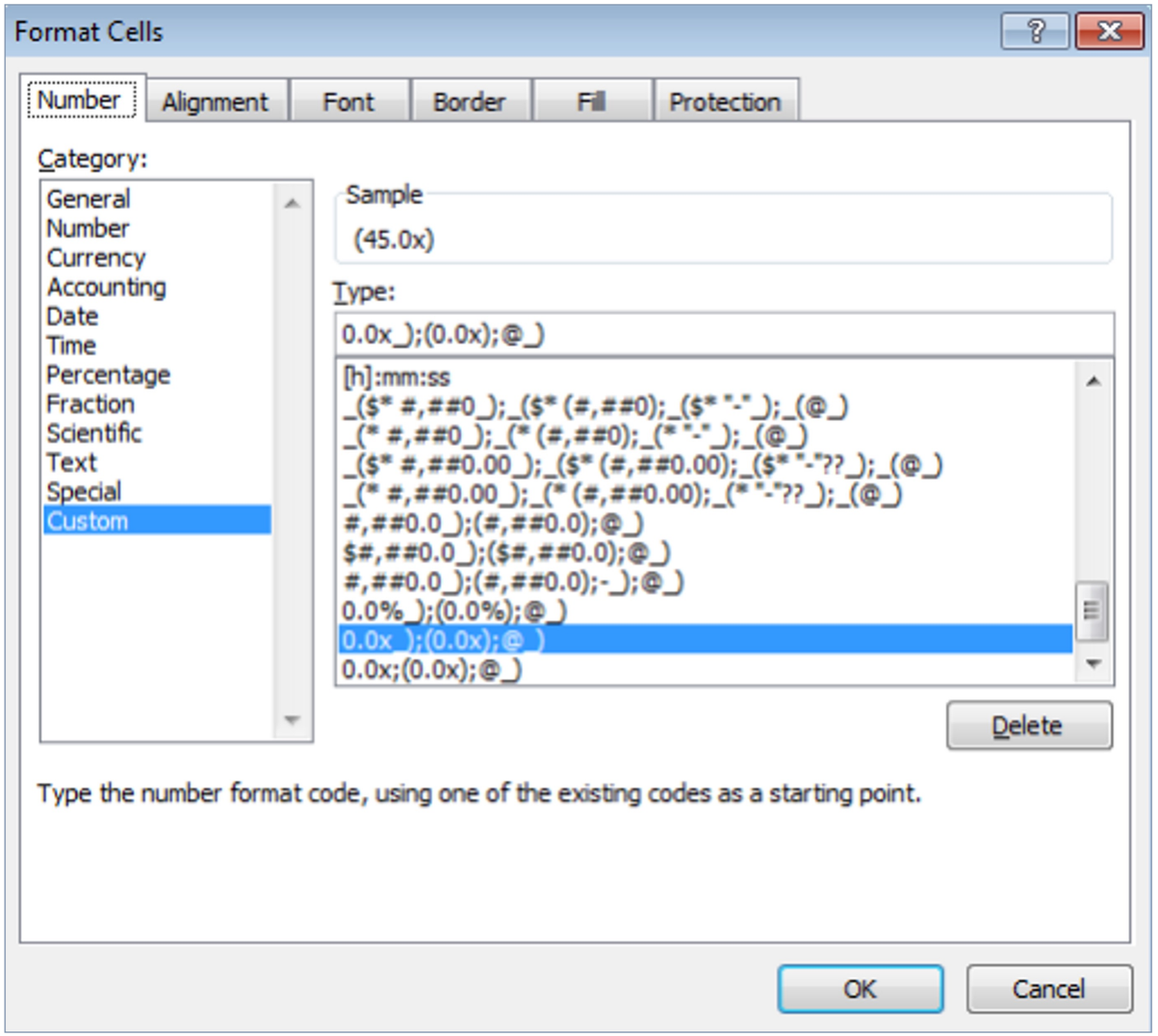
Custom Formatting

- Format Cells > Number > Custom
- Multiples (i.e. 8.5x)
- Row headers (use “=”)
- Switches
- Positive; Negative; Zero



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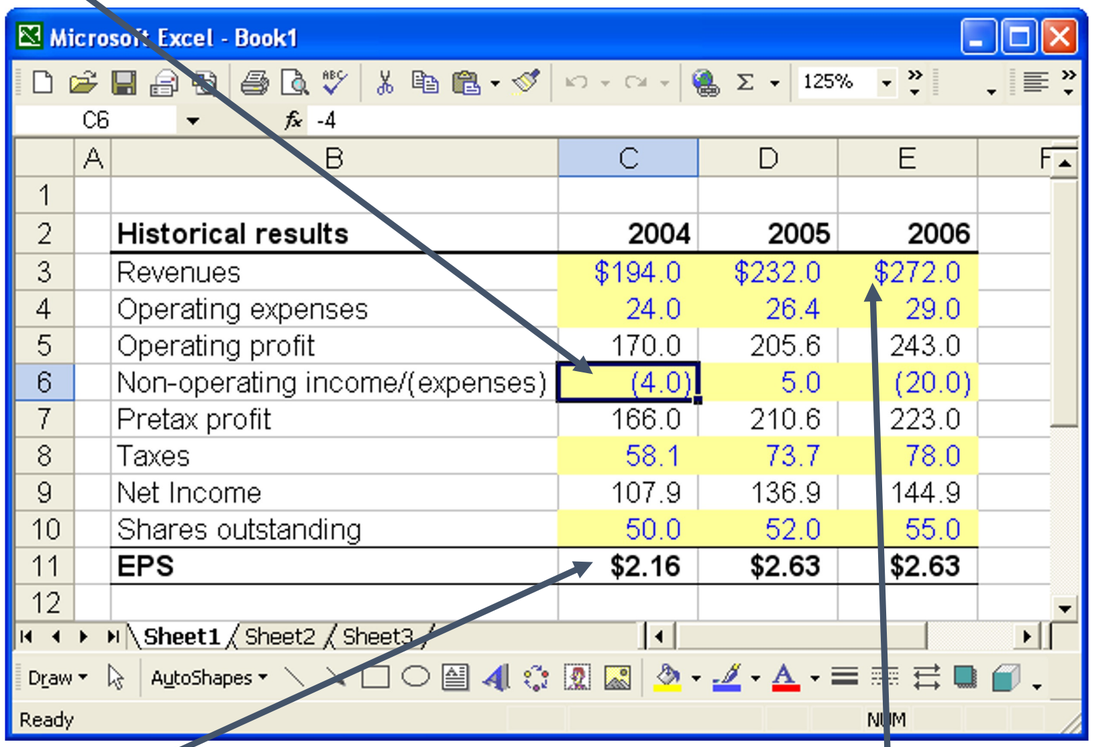
Formatting

Maintain standard formatting:

- Number formats
- Column/row headers & spacing

Negative numbers shown in parenthesis



	A	B	C	D	E
1					
2		**Historical results**	**2004**	**2005**	**2006**
3		Revenues	$194.0	$232.0	$272.0
4		Operating expenses	24.0	26.4	29.0
5		Operating profit	170.0	205.6	243.0
6		Non-operating income/(expenses)	(4.0)	5.0	(20.0)
7		Pretax profit	166.0	210.6	223.0
8		Taxes	58.1	73.7	78.0
9		Net Income	107.9	136.9	144.9
10		Shares outstanding	50.0	52.0	55.0
11		**EPS**	**$2.16**	**$2.63**	**$2.63**
12					

EPS and share price data: always carry to 2 decimals ($25.43)

$ sign only shown on first row of worksheet and highlighted financial results

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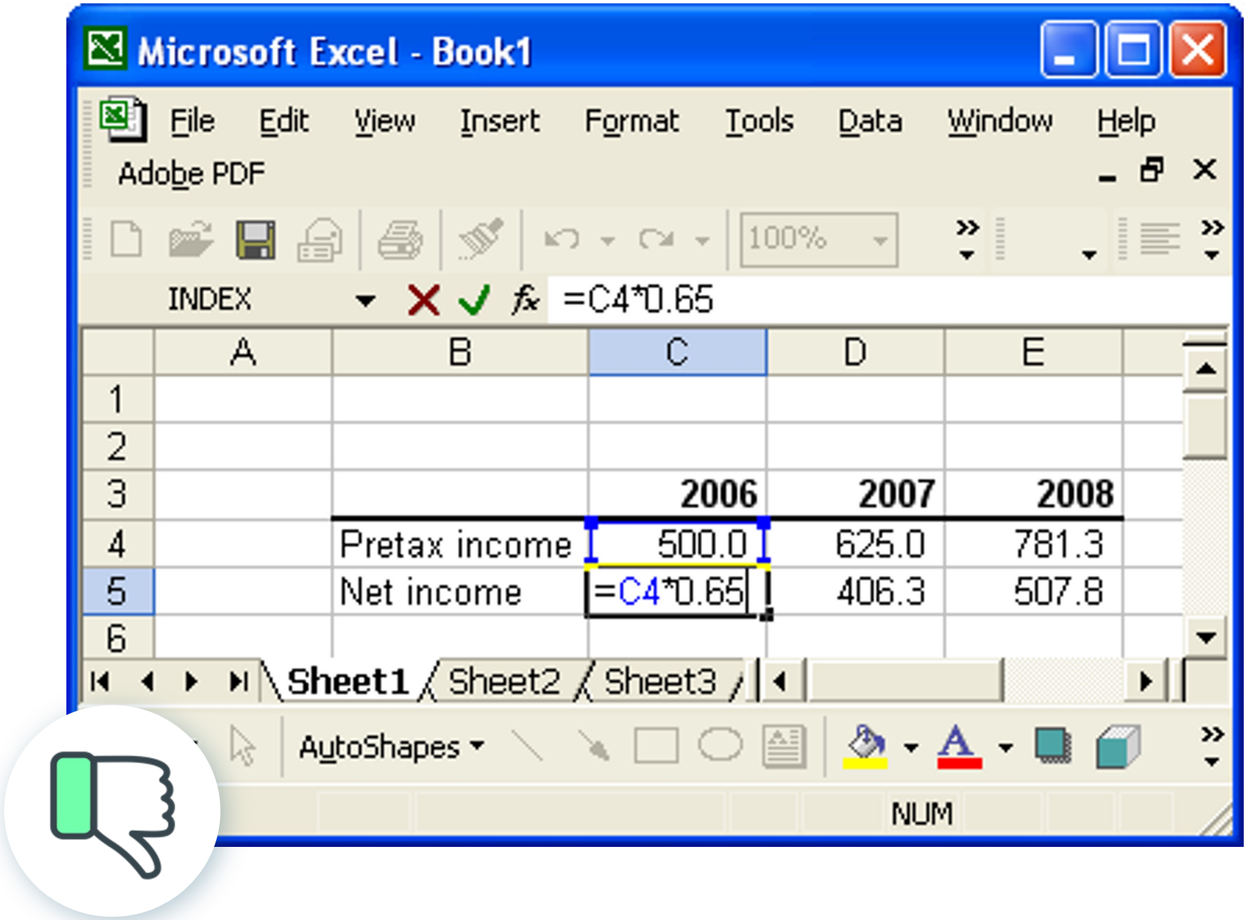
Rules of Thumb

- Never re-enter the same input in different places
- Do not calculate more than once (reference original calc.)
- Do not embed numbers within formulas unless number is fundamental to formula (i.e. 1+wacc)



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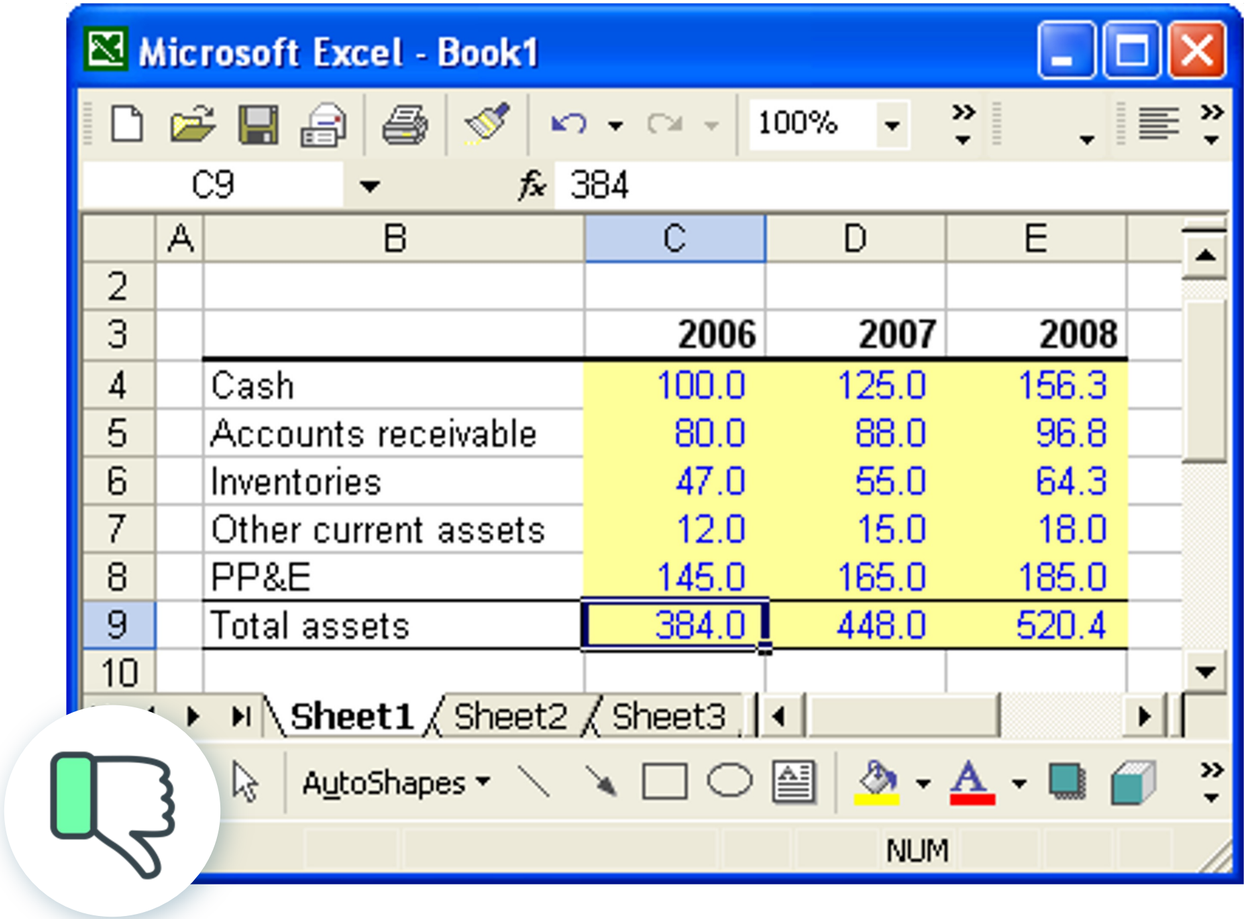
Rules of Thumb (cont'd)

- Clearly identify balance sheet items as balances ("Inventory, end of period" > "Inventory")
- Calculate when possible



	2006	2007	2008
Cash	100.0	125.0	156.3
Accounts receivable	80.0	88.0	96.8
Inventories	47.0	55.0	64.3
Other current assets	12.0	15.0	18.0
PP&E	145.0	165.0	185.0
Total assets	384.0	448.0	520.4

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Rules of Thumb (cont'd)

- Avoid unnecessarily long formulas.

Nobody Can Audit This

=((F369+IF(AND(J2=1,$N363=1),(F373-F369)/2,0))*F364+($E367F369IF(AND($J$2=1,$N363=1),(F373-F369)/2,0))*F365)

- Auditing complicated formulas:
  - Ctrl + [
  - F9
  - Ctrl + Shift + [(Boost)

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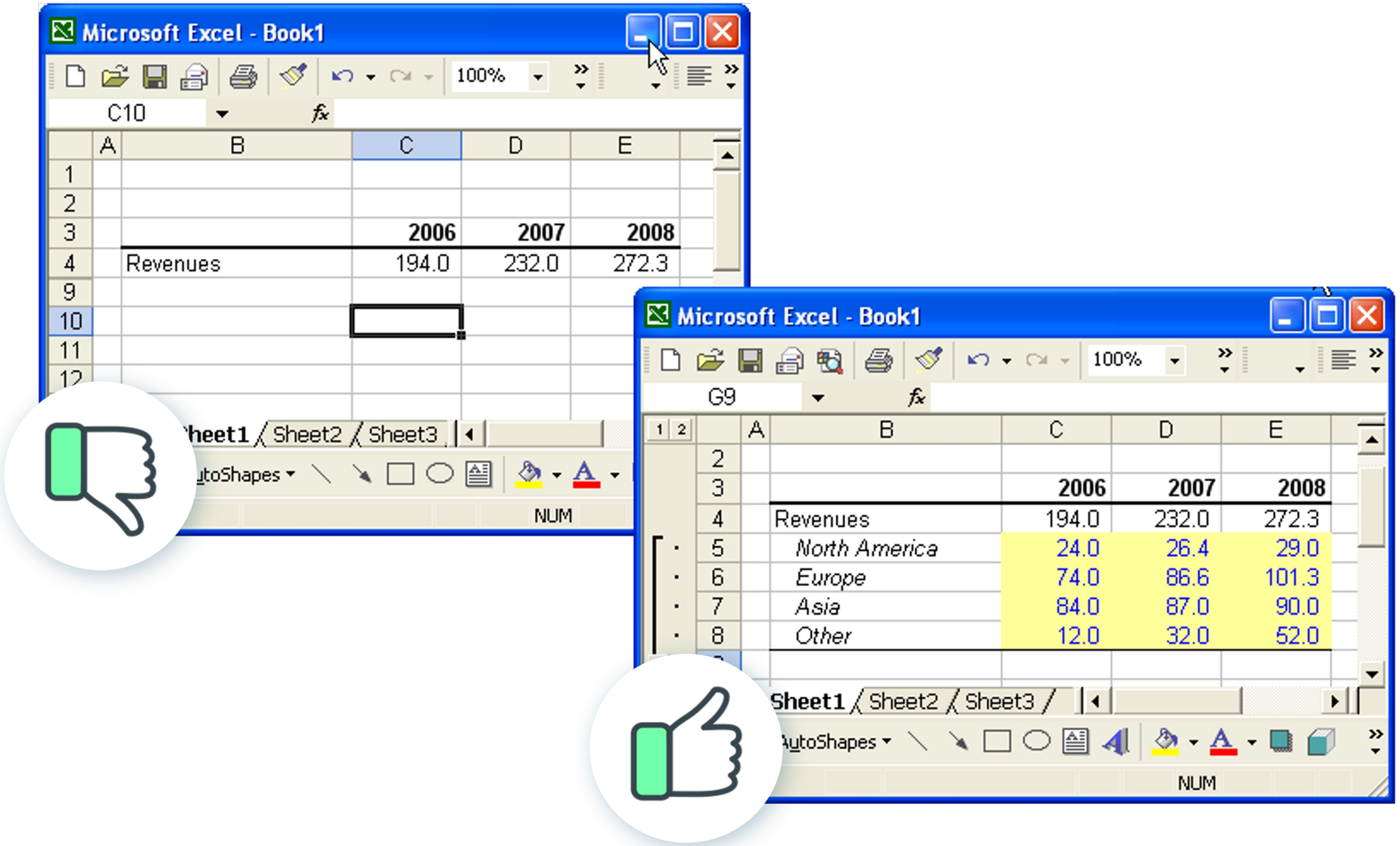
Grouping vs. Hiding Data

- Avoid hiding rows; Grouping is preferable (Shift + Alt + ⍰ / Shift + Alt + ⍰)



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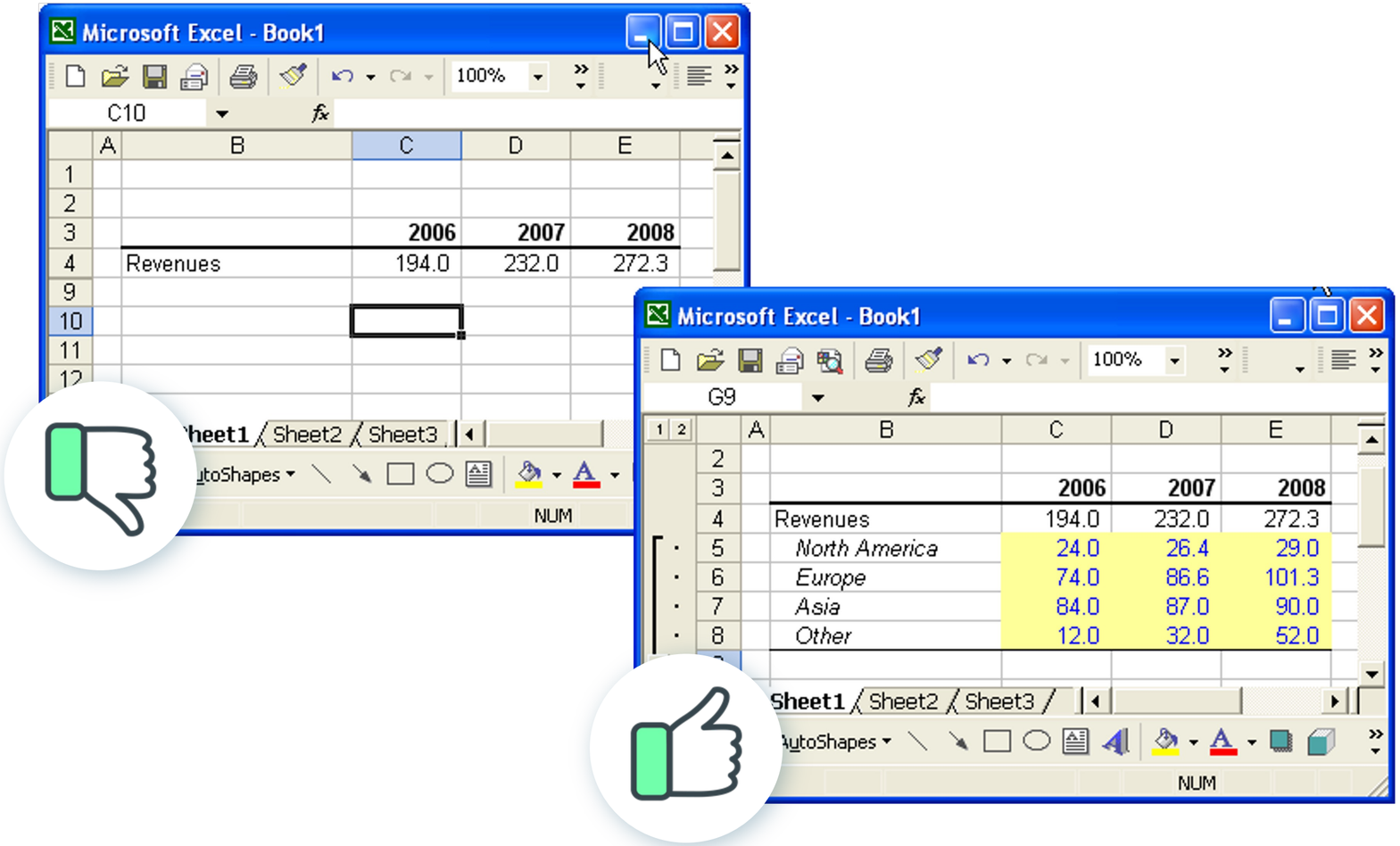

Inherited a model with hidden rows/columns?

Convert to grouped rows/columns by hitting **Ctrl + Alt + H** (Boost).

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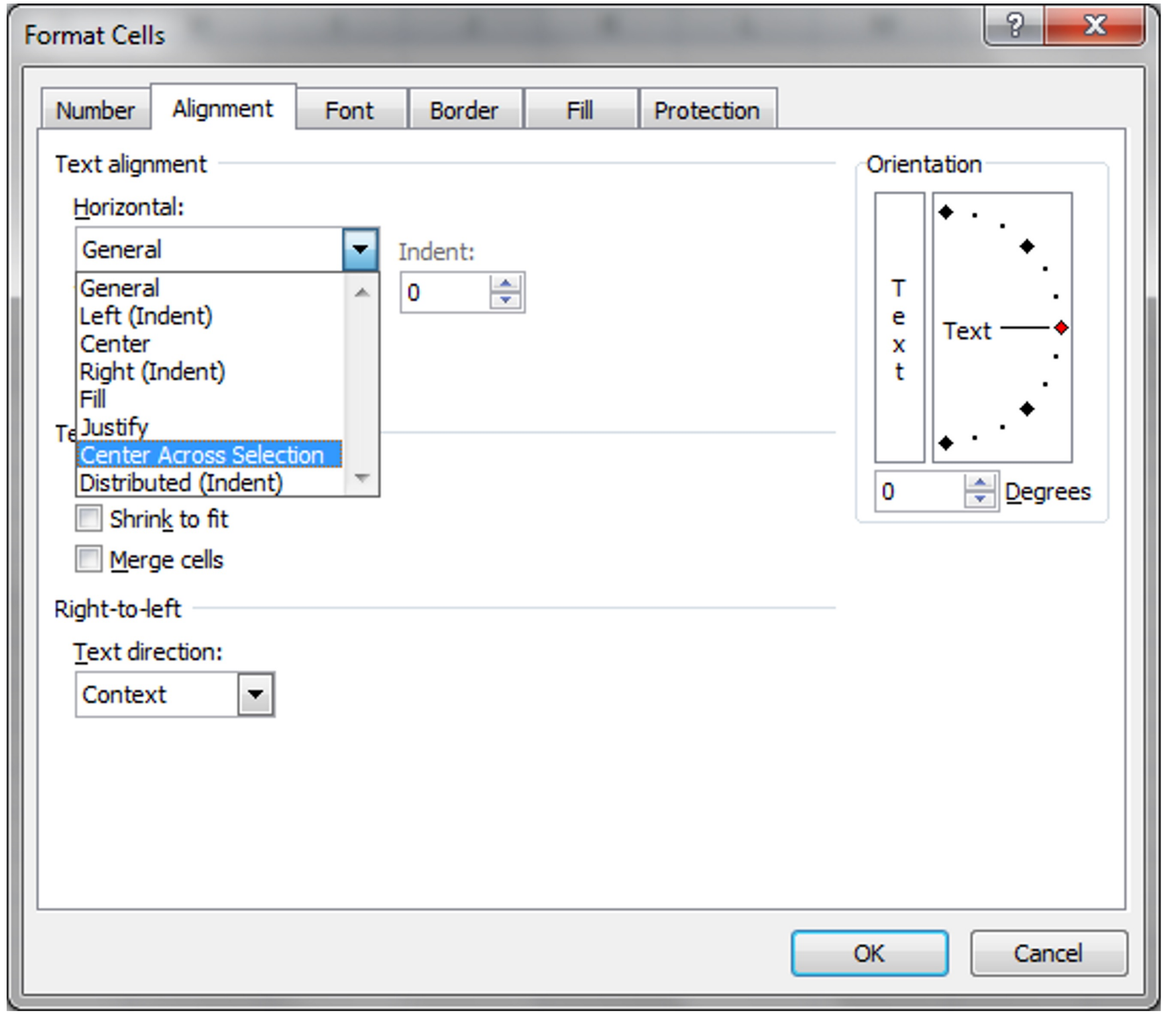
Center Across Selection vs. Merge Cells

- Center across selection is preferable
- Merging cells makes it harder to select rows and columns with the keyboard



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Don’t Daisy Chain (Links to Links…)

- More difficult to audit this and get to the end result
- Exceptions for straight lining data across forecast periods

Tax Rate	35.0%						
	2009	2010	2011	2012	2013	201	
Pretax Income	100.0	115.0	130.0	145.0	160.0	175.0	.0
Taxes	35.0	40.3	45.5	50.8	56.0	61.3	66.5
Net Income	65.0	74.8	84.5	94.3	104.0	113.8	123.5
Tax Rate	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%

Tax Rate	35.0%						
	2009	2010	2011	2012	2013	201	
Pretax Income	100.0	115.0	130.0	145.0	160.0	175.0	.0
Taxes	35.0	40.3	45.5	50.8	56.0	61.3	66.5
Net Income	65.0	74.8	84.5	94.3	104.0	113.8	123.5
Tax Rate	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%	35.0%

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Footnotes and Comments

- **Footnotes**
  - Written in the bottom of the model
  - Shows up when model is printed

Other equity account	(283.3)	(251.4)	(251.4)
Retained earnings	8,968.1	9,643.7	10,640.5
Total Shareholders' Equity	1,453.4	1,522.7	1,938.8
Total Liabilities + Shareholders' Equity	**8,507.1**	**9,138.0**	**9,362.5**
Balance check	0.0	0.0	0.0

(1) Excludes $49 million in restricted stock, per Colgate's fourth quarter press release, 1/15/2012

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Footnotes and Comments

- **Footnotes**
  - Written in the bottom of the model
  - Shows up when model is printed
- **Comments**
  - For internal purposes

Other equity account	(283.3)	(251.4)	(251.4)
Retained earnings	8,968.1	9,643.7	10,640.5
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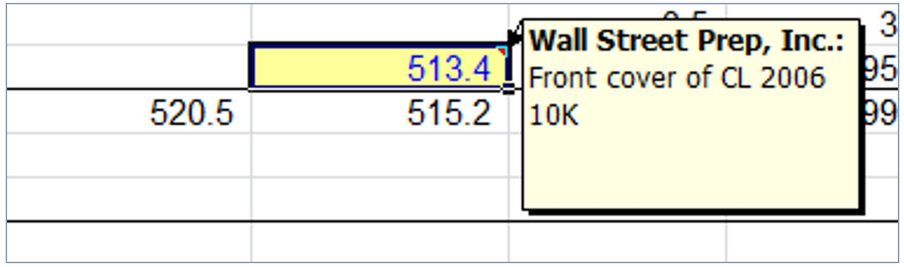

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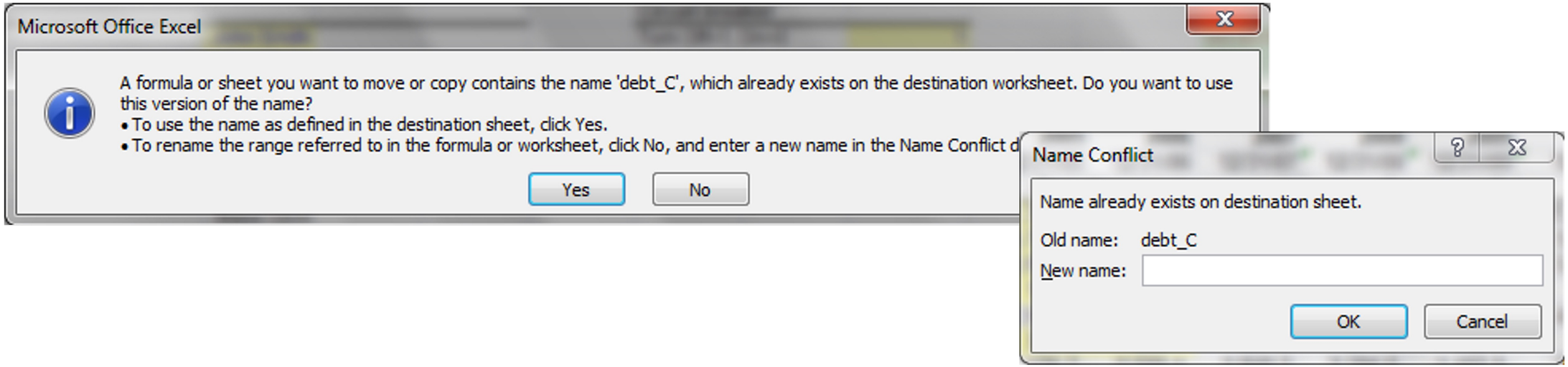
Naming Cells and Ranges

- Avoid naming ranges or cells
- Harder to trace the calculations using F2
- Deleting names create errors in dependent cells
- Names “linger” in sheets and create confusion



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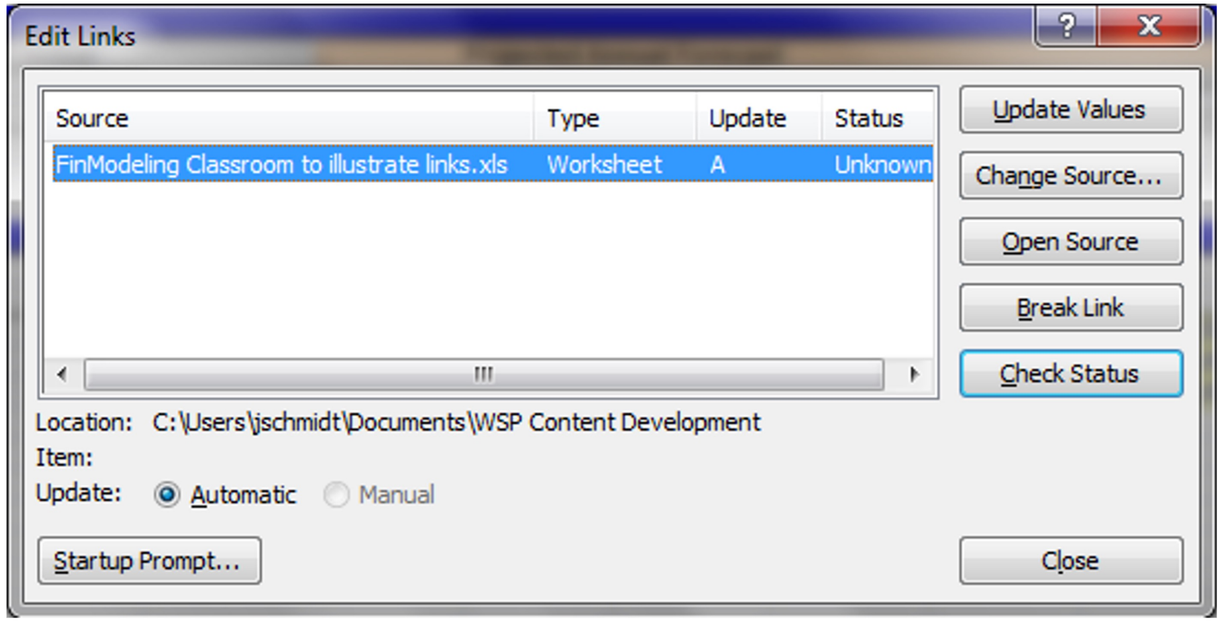
Avoid Linking Files

- Excel allows you to link to other Excel files, but others might not have access to the linked files, you may move the file inadvertently
- Manage links using 'Edit Links' (Alt + A + K)
- Links can be "broken" and replaced with values; cannot be undone
- Unfortunately, break links doesn't always work (appendix)



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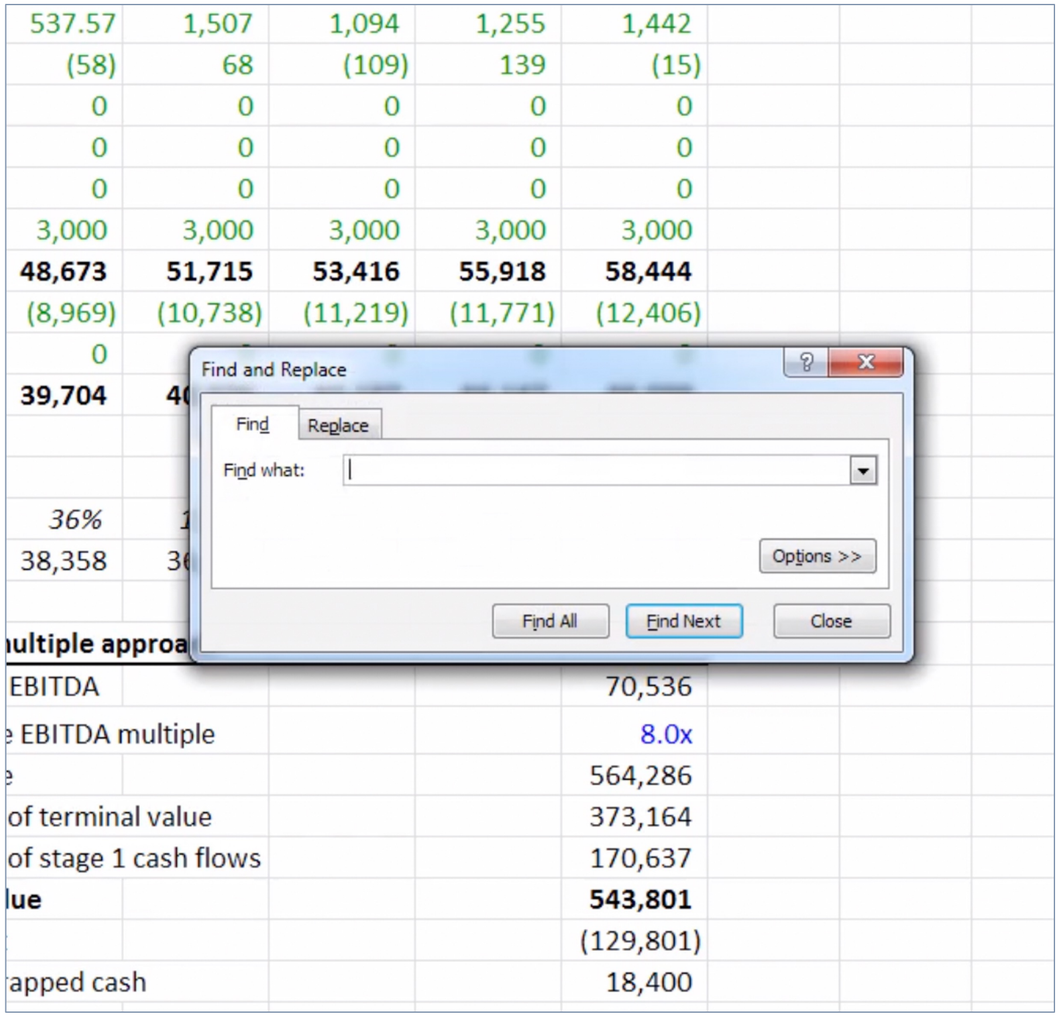
Deleting Significant Portions of a Model

- When deleting entire worksheets from a model, ensure that there are no references to that worksheet in other worksheets.
- No perfect way to do this:
  - Check potentially dependent worksheets by hitting Ctrl + F and typing in the worksheet name.
  - Use trace dependents (Boost).



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Modeling Best Practices

- Structure your model as clearly and simply as possible
- Usable in your absence
- Assumptions should be clustered together
- Save often (Ctrl + S) and keep saving new versions of your model; Excel does crash sometimes
- Take time to take a step back and think

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Financial Modeling Conventions on Wall Street

1	Cash & equivalents ST & LT market. securities	121,251	146,761
2	Accounts receivable	10,930	13,102
3	Inventory	791	1,764
4	Deferred tax assets	2,583	3,453
5	Other current assets (inc. non-trade receivables)	14,220	14,421
6	Property, plant & equipment	15,452	16,597
7	Acquired intangible assets (inc. Goodwill)	5,359	5,756
8	Other assets	5,478	5,146
9	**Total assets**	**176,064**	**207,000**

BS CF WC PPE Intangibles

Many shorter worksheets

	A
3	
4	**INCOME STATEMENT**
5	Fiscal year
6	*Fiscal year end date*
7	Revenue
8	Cost of sales (enter as -)
9	**Gross Profit**
10	Research & development (enter as -)
11	Selling, general & administrative (enter as -)
12	**Operating profit (EBIT)**
13	Interest income
14	Interest expense (enter as -)
15	Other expense (enter as -)
16	**Pretax profit**
17	Taxes (enter expense as -)
18	**Net income**
19	
20	**BALANCE SHEET**
21	Cash & equivalents ST & LT market. securities
22	Accounts receivable
23	Inventory
24	Deferred tax assets
25	Other current assets (inc. non-trade receivables)
26	Property, plant & equipment
27	Acquired intangible assets (inc. Goodwill)
28	Other assets
29	**Total assets**

Financial Statement Mod

Fewer longer worksheets

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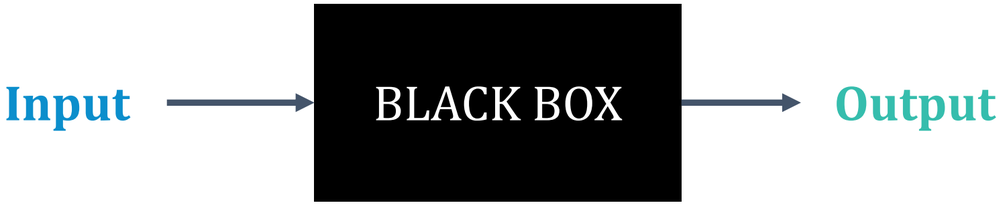
Financial Modeling Conventions on Wall Street (cont'd)

- **Turnkey (macro-heavy) models**
  - Handles many situations with no modifications needed
  - Integrated with data services (Capital IQ, IDD, FactSet)
- **Light "disposable" models**
  - Easier to audit, transparent
  - More time consuming, more adjustments necessary
  - More common model on Wall Street



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Annual vs. Quarterly vs. Monthly Models

Intervals depend on nature of analysis:

- Stable vs. distress
- Valuation vs. borrowing needs
- IB models are usually annual (sometimes quarterly)
- Equity research models are quarterly (focus on quarterly earnings)

11					
12	**INCOME STATEMENT**				
13	Fiscal year	**2011A**	**2012A**	**2013A**	
14	*Fiscal year end date*	*9/24/11*	*9/29/12*	*9/28/13*	
15					
16	Revenue	108,249	156,508	170,910	179,381
17	Cost of sales (enter as -)	(64,431)	(87,846)	(106,606)	(112,830)
18	**Gross Profit**	**43,818**	**68,662**	**64,304**	**66,550**

4	**Income Statement**					
5	*$mm*	**2012A**				
6		**Q1**	**Q2**	**Q3**	**Q4**	**Q1**
7		10/2/11	1/1/12	4/1/12	6/30/12	9/30/12
8	**Net revenues**					
9	Product	63.213	68.094	58.009	72.558	61.119
10	Services	15.681	14.718	15.359	15.091	15.008
11	**Total revenue**	**78.894**	**82.812**	**73.368**	**87.649**	**76.127**

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FINANCIAL STATEMENT MODELING

Preparing for Our Case Study

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Gathering the Appropriate Documents

1. Latest 10-K and corresponding 4th quarter press release and conference call transcript
2. Latest equity research & EPS consensus estimates
3. Last 6 months news run:
    - Stock splits, acquisitions and other material changes
4. For quarterly models and LTM calculations:
    - Also get 3 latest 10-Qs and corresponding press releases and conference call transcripts

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Press Release & Conference Call Transcripts

- Released several weeks prior to filing 10-Qs and 10-Ks
- Less general detail than the 10-Qs and 10-Ks but contain more non-GAAP disclosures critical for analysts
- May also contain more management guidance
- Available weeks before the relevant 10Q/10K
- If you ignore the PR, you may be ignoring an entire quarter of available results!

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Equity Research Reports

Used widely in IB and asset management; available via Thomson, FactSet, and CIQ.

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pple Inc.

(AAPL:NASDAQ)

Tavis C. McCourt, CFA, (615) 665-3644, Tavis.McCourt@RaymondJames.com
Daniel Toomey, CFA, Sr. Res. Assoc., (615) 665-3864, Daniel.Toomey@RaymondJames.com

October 29, 2C

Company Comme

mmunications Technology: Mobile Devices

gher Deferred Revenues Obscure Strong Guide, Steady Underlying Growth

commendation: We are maintaining our **Strong Buy** rating on shares of AAPL following the mpany's fiscal 4Q13 results, which came in ahead of our expectations on the top and bottom e. December guidance was slightly weaker than we had anticipated, but this appears to be tirely the result of an accounting change whereby Apple will defer $900 million more in venues than typical due to its decision to bundle software for free with its products. Adjusted this anomaly, Apple's guide would have been approximately in line with our expectations d above consensus.

F4Q13 results: Apple reported revenues of $37.5 billion, up 4.2% y/y and slightly above our $36.9 billion estimate. EPS of $8.26 was above our $8.05 estimate. The company

Rating	
	Strong Buy
Current and Target Price	
Current Price (Oct-28-13)	$529.
Target Price: Old: $675.00	New: $650.
52-Week Range	$603.00 - $385.
Suitability	Grow
Market Data	
Shares Out. (mil.)	908
Market Cap. (mil.)	$481,3
Avg. Daily Vol. (10 day)	12,979,2
Dividend/Yield	$12.20/2.3
Book Value (Sep-13)	$135.
ROE %	24
LT Debt (mil.)/% Cap.	$16,958/C

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Equity Research Reports (cont'd)

- Contain forecasts, explanation of company drivers
- Reports are almost always published within several days following a company's latest quarter press release
- Look for report with full models attached
- For getting up to speed on an industry (big picture) look for initiating coverage research reports

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Gathering the Appropriate Documents

The junior analyst gathers all the appropriate documents into a coil-bound manual (often called a 'PIB' – public information book) and gives copies to the team

Soft copy PIBs

- Use **Ctrl + G** to help you quickly navigate through documents.
- With PDFs use **Ctrl + Shift + N** to go directly to the desired page number.

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Introducing our case study…

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Apple (AAPL:NASDAQ)

Throughout the case study, assume the date of the analysis is February 5, 2019.

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Where do we begin?

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The Apple Public Information Book (PIB)

Apple Company Filings & Conference Calls

Apple 10K (Annual Report)

Year end 9/29/18, filed 11/5/18

Apple Q4 Press Release

Period end 9/29/18, filed 11/1/18

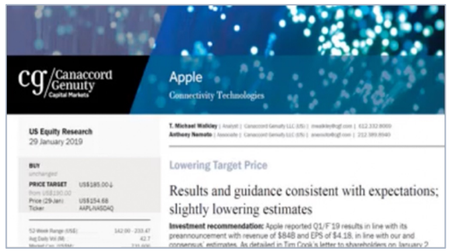
Apple Q4 Conference Call

11/1/19

Equity Research Reports and Consensus Estimates

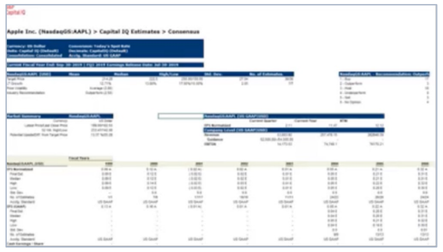
JP Morgan Q1 Report w/ Model

2/4/19



CG Q1 Report w/ Model

1/29/19



SAP/CIQ Consensus Estimates

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Our Modeling Roadmap

Part 1: Building an Integrated Financial Statement Model

Locate & input historical data → Forecast the income statement → Forecast the balance sheet → Derive the cash flow statement → Address circular reference issues → Scenarios & sensitivity analysis

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Modeling Roadmap, Part 1

Press esc to exit full screen

M46 | Grow in-line with revenue growth

	C	D	E	F	G	H	I	J	K	M
40	Tax rate	25.6%	24.6%	18.3%						JP Morgan estimates through 2021: straight-line margin thereafter
41										
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100						Reference from 'net change in cash' line on the cash flow statement
46	Accounts receivable		17,874	23,186						Grow in-line with revenue growth
47	Inventories		4,855	3,956						Grow in-line with cost of sales growth
48	Other current assets		31,735	37,896						Grow in-line with revenue growth
49	Property, plant & equipment		33,783	41,304						Reference from PP&E schedule
50	Other non current assets		18,177	22,283						Grow in-line with revenue growth
51	**Total assets**		**375,319**	**365,725**						
52										
53	Accounts payable		44,242	55,888						Grow in-line with cost of sales growth
54	Other current liabilities		30,551	32,687						Grow in-line with revenue growth
55	Deferred revenue (current and non current)		10,384	10,340						Grow in-line with revenue growth
56	Commercial paper / revolver		11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)		103,703	102,519						WSP assumption: straight-line
58	Other non current liabilities		40,415	45,180						Grow in-line with revenue growth
59	**Total liabilities**		**241,272**	**258,578**						
60										
61	Common stock		35,867	40,201						Increase by stock-based compensation forecasted in the I/S section
62	Retained earnings		98,330	70,400						Reference from Retained Earnings schedule
63	Other comprehensive income		(150)	(3,454)						WSP assumption: straight-line
64	**Total equity**		**134,047**	**107,147**						
65										
66	*Balance check*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	
67										
68	**CASH FLOW STATEMENT**									
69	*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	

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Our Modeling Roadmap (cont'd)

Part 1: Building an Integrated Financial Statement Model

Locate & input historical data → Forecast the income statement → Forecast the balance sheet → Derive the cash flow statement → Address circular reference issues → Scenarios & sensitivity analysis

Part 2: Error Proofing & Adding Complexity to the Model

Balancing a financial model → Adding a revenue build (PV analysis) → Working capital schedules → Adding a depreciation waterfall schedule → Updating an existing model

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Modeling Roadmap, Part 2

Press esc to exit full screen

1R x 3C =ROUND(G51-G59-G64,3)

			D	E	F	G	H	I	J	K	M
38		R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
39		SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
40		Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
41											
42		**BALANCE SHEET**									
43		*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44		Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	x	Cash & equivalents, ST and LT marketable securities		268,895	237,100	212,430	209,969	214,950	225,807	242,958	Reference from 'net change in cash' line on the cash flow statement
46	x	Accounts receivable		17,874	23,186	22,259	23,594	25,222	26,962	28,823	Grow in-line with revenue growth
47	x	Inventories		4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with cost of sales growth
48	x	Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
49	x	Property, plant & equipment		33,783	41,304	45,043	48,611	51,948	55,219	58,400	Reference from PP&E schedule
50	x	Other non current assets		18,177	22,283	21,392	22,675	24,240	25,912	27,700	Grow in-line with revenue growth
51		**Total assets**		**375,319**	**365,725**	**341,334**	**347,453**	**361,897**	**382,580**	**409,919**	
52											
53	x	Accounts payable		44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with cost of sales growth
54	x	Other current liabilities		30,551	32,687	31,380	33,262	35,557	38,011	40,634	Grow in-line with revenue growth
55	x	Deferred revenue (current and non current)		10,384	10,340	9,926	10,522	11,248	12,024	12,854	Grow in-line with revenue growth
56	x	Commercial paper / revolver		11,977	11,964	12,000	12,000	12,000	12,000	12,000	Reference EOP balance from CP/revolver schedule
57	x	Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
58	x	Other non current liabilities		40,415	45,180	43,373	45,975	49,147	52,539	56,164	Grow in-line with revenue growth
59		**Total liabilities**		**241,272**	**258,578**	**253,323**	**261,375**	**271,409**	**282,235**	**293,807**	
60											
61	x	Common stock		35,867	40,201	40,201	40,201	40,201	40,201	40,201	Increase by stock-based compensation forecasted in the I/S section
62	x	Retained earnings		98,330	70,400	(34,400)	(30,190)	(26,000)	(21,716)	(17,038)	Reference from Retained Earnings schedule
63	x	Other comprehensive income		(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	WSP assumption: straight-line
64		**Total equity**		**134,047**	**107,147**	**2,347**	**6,557**	**10,747**	**15,031**	**19,709**	
65											
66		*Balance check*		*0*	*0*	*85,664*	*79,521*	*79,741*	*8[illegible]314*	*96,403*	
67											
68		**CASH FLOW STATEMENT**									

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FINANCIAL STATEMENT MODELING

Inputting Historical Financial Data

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A 30,000ft View of Our Model

Financial Statement Model for Apple

$ in thousands except per share

Company name	Apple
Ticker	AAPL
Circ break 1=off, 0=on	1
Latest closing share price	$171.25
Latest closing share price date	2/4/2019
Latest fiscal year end date	9/29/18
Shares outstanding (millions)	4,745.398
Select an operating scenario:	Base case

INCOME STATEMENT

Fiscal year	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P	
Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	**WSP Comments**
Revenue	215,639	229,234	265,595	254,971	270,269	288,918	308,853	330,164	Previous year's revenues x (1+revenue growth rate)
Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(158,592)	(167,297)	(178,551)	(190,871)	(204,042)	Plug = Revenue - Gross Profit
Gross Profit	**84,263**	**88,186**	**101,839**	**96,379**	**102,973**	**110,367**	**117,982**	**126,123**	Revenue x Gross Profit Margin forecast
Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,808)	(17,027)	(18,202)	(19,458)	(20,800)	Revenue x R&D % of sales forecast
Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
Operating profit (EBIT)	**60,024**	**61,344**	**70,898**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
Interest income	3,999	5,201	5,686	4,744	4,090	3,592	3,201	2,913	Reference from interest on cash schedule
Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense schedule
Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
Pretax profit	**61,372**	**64,089**	**72,903**	**62,783**	**67,723**	**72,157**	**76,749**	**81,790**	**EBIT + interest income less interest expense less other expense**
Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,485)	(11,513)	(12,195)	(12,971)	(13,822)	Pre-tax Profit x Tax Rate forecast
Net income	**45,687**	**48,351**	**59,531**	**52,299**	**56,210**	**59,963**	**63,779**	**67,967**	**Pre-tax Profit less taxes**
Depreciation & amortization	10,505	10,157	10,903	11,085	11,712	12,226	13,365	14,604	Reference from D&A schedule

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Modeling Historical Data

E66 =ROUND(E51-E59-E64,3)

	C	D	E	F	G	H	I	J	K	L	M	N	O	P
40	Tax rate					Taxes / Pretax Profit								
41														
42	**BALANCE SHEET**													
43	*Fiscal year*		**2017A**	**2018A**										
44	Fiscal year end date		*9/30/17*	*9/29/18*										
45	Cash & equivalents, ST and LT marketable securities													
46	Accounts receivable													
47	Inventories													
48	Other current assets					Include vendor non-trade receivables								
49	Property, plant & equipment													
50	Other non current assets													
51	**Total assets**													
52														
53	Accounts payable													
54	Other current liabilities													
55	Deferred revenue (current and non current)													
56	Commercial paper / revolver													
57	Long term debt (includes current portion)													
58	Other non current liabilities													
59	**Total liabilities**													
60														
61	Common stock													
62	Retained earnings													
63	Other comprehensive income													
64	**Total equity**													
65														
66	*Balance check*		*0*	*0*										
67														

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Step 1 Inputting Historicals

AAPL 2018 10K.p

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AAPL 2018 Q4 Pre...

/ 96 125%

Share

prices in active markets for identical assets or liabilities. The valuation techniques used to measure the fair value ents and all other financial instruments, which generally have counterparties with high credit ratings, are based on quoted ma tions using significant inputs derived from or corroborated by observable market data.

Find

170,799

Previous Next

Note 2 – Financial Instruments

Cash, Cash Equivalents and Marketable Securities

The following tables show the Company's cash and available-for-sale securities by significant investment category as of September 29, 2018 and September 30, 2017 (in millions):

	2018						
	Adjusted Cost	Unrealized Gains	Unrealized Losses	Fair Value	Cash and Cash Equivalents	Short-Term Marketable Securities	Long-Term Marketable Securities
Cash	$ 11,575	$ —	$ —	$ 11,575	$ 11,575	$ —	$ —
Level 1 (1):							
Money market funds	8,083	—	—	8,083	8,083	—	—
Mutual funds	799	—	(116)	683	—	683	—
Subtotal	8,882	—	(116)	8,766	8,083	683	—
Level 2 (2):							
U.S. Treasury securities	47,296	—	(1,202)	46,094	1,613	7,606	36,875
U.S. agency securities	4,127	—	(48)	4,079	1,732	360	1,987
Non-U.S. government securities	21,601	49	(250)	21,400	—	3,355	18,045
Certificates of deposit and time deposits	3,074	—	—	3,074	1,247	1,330	497
Commercial paper	2,573	—	—	2,573	1,663	910	—
Corporate securities	123,001	152	(2,038)	121,115	—	25,162	95,953
Municipal securities	946	—	(12)	934	—	178	756
Mortgage- and asset-backed securities	18,105	8	(623)	17,490	—	804	16,686
Subtotal	220,723	209	(4,173)	216,759	6,255	39,705	170,799
Total (3)	$ 241,180	$ 209	$ (4,289)	$ 237,100	$ 25,913	$ 40,388	$ 170,799

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Step 1 Solution Income Statement

	C	D	E	F
2	**Financial Statement Model for Apple**			
3	*$ in thousands except per share*			
5	Company name	Apple		
6	Ticker	AAPL		
7	Circ break 1=off, 0=on	1		
8	Latest closing share price	$171.25		
9	Latest closing share price date	2/4/2019		
10	Latest fiscal year end date	9/29/18		
11	Shares outstanding (millions)			
13	**INCOME STATEMENT**			
14	Fiscal year	**2016A**	**2017A**	**2018A**
15	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*
17	Revenue			
18	Cost of sales (enter as -)			
19	**Gross Profit**			
20	Research & development (enter as -)			
21	Selling, general & administrative (enter as -)			
22	**Operating profit (EBIT)**			
23	Interest income			
24	Interest expense (enter as -)			
25	Other expense, net (enter as -)			
26	**Pretax profit**			
27	Taxes (enter expense as -)			
28	**Net income**			
30	Depreciation & amortization			
31	**EBITDA**			

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AAPL 2018 10K.pdf (SECURED) - Adobe Acrobat Reader DC

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended September 29, 2018

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number: **001-36743**

Apple Inc.

(Exact name of Registrant as specified in its charter)

California — (State or other jurisdiction of incorporation or organization)

94-2404110 — (I.R.S. Employer Identification No.)

One Apple Park Way
Cupertino, California
(Address of principal executive offices)

95014 (Zip Code)

(408) 996-1010
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Common Stock, $0.00001 par value per share — **The Nasdaq Stock Market LLC**

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Step 1 Solution Balance Sheet

Financial Staten

File Home

1R x 2C =97207+6496

	C	D	E	F	H
28	**Net income**	**45,687**	**48,351**	**59,531**	
29					
30	Depreciation & amortization	10,505	10,157	10,903	From cash flow statement
31	**EBITDA**	**70,529**	**71,501**	**81,801**	**EBIT + D&A**
32	Stock based compensation	4,210	4,840	5,340	From cash flow statement
33	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**EBITDA + Stock-based com**
34					
35	Growth rates & margins				
36	Revenue growth		6.3%	15.9%	Current year / Last year - 1
37	Gross profit margin	39.1%	38.5%	38.3%	Gross profit / revenue
38	R&D % of sales	4.7%	5.1%	5.4%	R&D / Revenue
39	SG&A % of sales	6.6%	6.7%	6.3%	SG&A / Revenue
40	Tax rate	25.6%	24.6%	18.3%	Taxes / Pretax Profit
41					
42	**BALANCE SHEET**				
43	*Fiscal year*		**2017A**	**2018A**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100	
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48	Other current assets		31,735	37,896	
49	Property, plant & equipment		33,783	41,304	
50	Other non current assets		18,177	22,283	
51	**Total assets**		**375,319**	**365,725**	
52					
53	Accounts payable		44,242	55,888	
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56	Commercial paper / revolver		11,977	11,964	
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58	Other non current liabilities		40,415	45,180	
59	**Total liabilities**		**241,272**	**258,578**	
60					
61	Common stock		35,867	40,201	
62	Retained earnings		98,330	70,400	

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | FSM ...

	$	55,888	$ 44,242
		32,687	30,551
		7,543	7,548
		11,964	11,977
		8,784	6,496
		116,866	100,814
		2,797	2,836
		93,735	97,207
		45,180	40,415
		141,712	140,458
		258,578	241,272
shares authorized;			
		40,201	35,867
		70,400	98,330
		(3,454)	(150)
		107,147	134,047
	$	365,725	$ 375,319

dated Financial Statements.

m 10-K | 40

Share

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Step 1 Solution
Historical CF and Other

F73 | 2.18%

	C	D	E	F	H
46	Accounts receivable		17,874	23,186	
47	Inventories		4,855	3,956	
48	Other current assets		31,735	37,896	
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52					
53	Accounts payable		44,242	55,888	
54	Other current liabilities		30,551	32,687	
55	Deferred revenue (current and non current)		10,384	10,340	
56	Commercial paper / revolver		11,977	11,964	
57	Long term debt (includes current portion)		103,703	102,519	
58	Other non current liabilities		40,415	45,180	
59	**Total liabilities**		**241,272**	**258,578**	
60					
61	Common stock		35,867	40,201	
62	Retained earnings		98,330	70,400	
63	Other comprehensive income		(150)	(3,454)	
64	**Total equity**		**134,047**	**107,147**	
65					
66	*Balance check*		*0*	*0*	
67					
68	**Additional data**				
69	Capital expenditures (enter as +)	12,734	12,451	13,313	
70	D&A related only to PP&E (enter as -)	(8,300)	(8,200)	(9,300)	Property plant and equipment section - Apple 2018 10K p.45
71	Dividends	(12,188)	(12,803)	(13,735)	Statement of shareholders equity schedule - p.41 Apple 2018 10K
72	Repurchases	(29,000)	(33,001)	(73,056)	Statement of shareholders equity schedule - p.41 Apple 2018 10K
73	Weighted average interest rate on commercial paper		1.20%	2.18%	Note 5 - Debt. Apple 2018 10K p55
74	Weighted average interest rate on cash	1.73%	1.99%	2.16%	'Other Income/(Expense), Net' section - Apple 2018 10K p.27

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | FSM Forecasting | FSM Forecasting I | FSM ...

ghted average interest

revious | Next

expenses, was driven

Change	2016
	$ 3,999
	(1,456)
	(1,195)
104%	$ 1,348

n debt and the impact of foreign
t during 2017 was due primarily to
se on debt. The weighted-average
.73% in 2018 , 2017 and 2016 ,

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FINANCIAL STATEMENT MODELING

Forecasting the Income Statement

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Forecasting the Income Statement

10	Latest fiscal year end date	9/29/18							
11	Shares outstanding (millions)	4,745.398							
12									
13	**INCOME STATEMENT**								
14	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**
15	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*
16									
17	Revenue	215,639	229,234	265,595					
18	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)					
19	**Gross Profit**	**84,263**	**88,186**	**101,839**					
20	Research & development (enter as -)	(10,045)	(11,581)	(14,236)					
21	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)					
22	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**					
23	Interest income	3,999	5,201	5,686					
24	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)					
25	Other expense, net (enter as -)	(1,195)	(133)	(441)					
26	**Pretax profit**	**61,372**	**64,089**	**72,903**					
27	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)					
28	**Net income**	**45,687**	**48,351**	**59,531**					
29									
30	Depreciation & amortization	10,505	10,157	10,903					
31	**EBITDA**	**70,529**	**71,501**	**81,801**					
32	Stock based compensation	4,210	4,840	5,340					
33	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**					
34									
35	Growth rates & margins								
36	Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%
37	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%
38	R&D % of sales	4.7%	5.1%	5.4%					
39	SG&A % of sales	6.6%	6.7%	6.3%					
40	Tax rate	25.6%	24.6%	18.3%					
41									
42	**BALANCE SHEET**								
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**

	WSP Comments
17	Previous year's revenues x (1+revenue growth rate)
18	Plug = Revenue - Gross Profit
19	Revenue x Gross Profit Margin forecast
20	Revenue x R&D % of sales forecast
21	Revenue x SG&A % of sales forecast
22	**Gross Profit - R&D - SG&A**
23	Reference from interest on cash schedule
24	Reference from interest expense schedule
25	Straight-line
26	**EBIT + interest income less interest expense less other expense**
27	Pre-tax Profit x Tax Rate forecast
28	**Pre-tax Profit less taxes**
30	Reference from D&A schedule
31	**EBIT + D&A**
32	WSP assumption: grow SBC in-line with revenue growth
33	**EBITDA + Stock-based compensation**
36	JP Morgan estimates through 2021; straight-line growth rate thereafter
37	JP Morgan estimates through 2021; straight-line margin thereafter
38	JP Morgan estimates through 2021: straight-line margin thereafter
39	JP Morgan estimates through 2021: straight-line margin thereafter
40	JP Morgan estimates through 2021: straight-line margin thereafter

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Step 2 Forecasting the Income Statement

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	A	T	U	V	W	X	Y	Z	AA	AB	AC	AD
22												
23												
24	**Market Summary**											
25	Currency					102,884						
26	Latest Price/Last Close Price					0.380733164						
27	52 Wk. High/Low											
28	Potential Upside/Diff. from Target Price											
29												
30												
31												
32												
33												
34	**NasdaqGS:AAPL (USD)**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
88	Std. Dev.	1.49	1.81	0.4	1.88	-	-	-	-	-	-	-
89	No. of Estimates	6/7	4/5	3/4	3/4	1/2	-	-	-	-	-	-
90	Acctg. Standard	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	-	-	-	-	-	-
91												
92	**Company Level (USD)**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**
93	**Revenue**	229,234.00 A	265,595.00 A	257,476.15 E	269,211.01 E	283,067.56 E	289,625.67 E	302,661.50 E	315,083.50 E	326,605.50 E	337,412.00 E	348,245.00 E
94	Final Est.	227,288.43 E	264,241.19 E	-	-	-	-	-	-	-	-	-
95	Median	227,288.50 E	264,277.25 E	257,600.00 E	268,410.65 E	282,261.00 E	290,214.00 E	302,661.50 E	315,083.50 E	326,605.50 E	337,412.00 E	348,245.00 E
96	High	229,750.00 E	266,100.00 E	261,253.00 E	289,476.00 E	293,607.58 E	293,106.00 E	305,708.00 E	316,392.00 E	328,870.00 E	344,952.00 E	362,076.00 E
97	Low	224,962.83 E	262,224.00 E	251,100.00 E	256,400.00 E	270,874.00 E	285,557.00 E	299,615.00 E	313,775.00 E	324,341.00 E	329,872.00 E	334,414.00 E
98	Std. Dev.	945.94	866.83	2,138.38	6,228.69	6,899.9	3,109.82	3,046.5	1,308.5	2,264.5	7,540.0	13,831.0
99	No. of Estimates	32/35	38/39	37/40	40/40	13/13	3/3	2/2	2/2	2/2	2/2	2/2
100	Guidance Low	-	-	-	-	-	-	-	-	-	-	-
101	Guidance High	-	-	-	-	-	-	-	-	-	-	-
102	Acctg. Standard	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP
103	**EBITDA**	71,501.00 A	81,801.00 A	74,749.10 E	78,727.10 E	82,459.54 E	83,070.00 E	87,123.00 E	90,872.00 E	94,380.33 E	97,787.33 E	101,138.33 E
104	Final Est.	70,946.74 E	81,527.43 E	-	-	-	-	-	-	-	-	-
105	Median	70,974.15 E	81,379.56 E	75,026.02 E	78,848.46 E	84,146.58 E	82,289.00 E	81,548.00 E	87,018.00 E	93,567.00 E	100,617.00 E	108,207.00 E
106	High	71,353.99 E	83,597.00 E	76,375.00 E	86,820.00 E	87,916.46 E	91,817.00 E	98,885.00 E	104,784.00 E	109,487.00 E	113,379.00 E	116,556.00 E
107	Low	70,301.00 E	80,823.00 E	72,054.00 E	65,959.00 E	69,908.00 E	75,104.00 E	80,936.00 E	80,814.00 E	80,087.00 E	79,366.00 E	78,652.00 E
108	Std. Dev.	327.77	666.94	934.42	4,659.58	4,642.31	6,845.37	8,320.74	10,158.09	12,016.27	14,029.17	16,261.46
109	No. of Estimates	10/14	14/17	17/20	18/20	10/11	3/3	3/3	3/3	3/3	3/3	3/3
110	Acctg. Standard	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP
111	**EBIT**	61,344.00 A	70,898.00 A	62,609.22 E	65,836.69 E	69,912.08 E	74,485.00 E	-	-	-	-	-
112	Final Est.	60,708.97 E	70,326.06 E	-	-	-	-	-	-	-	-	-
113	Median	60,723.50 E	70,346.50 E	62,683.00 E	65,660.50 E	69,882.00 E	74,485.00 E	-	-	-	-	-
114	High	61,594.00 E	71,100.00 E	64,265.00 E	75,427.00 E	75,004.10 E	74,485.00 E	-	-	-	-	-
115	Low	60,188.00 E	69,397.00 E	59,000.00 E	59,775.00 E	65,406.00 E	74,485.00 E	-	-	-	-	-
116	Std. Dev.	324.94	361.23	931.14	3,169.55	2,675.24	-	-	-	-	-	-
117	No. of Estimates	32/34	34/36	33/36	34/36	11/12	1/2	-	-	-	-	-
118	Acctg. Standard	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	US GAAP	-	-	-	-	-
119	**Interest Expense**	(2,323.00 A)	(3,240.00 A)	(2,812.00 E)	(3,020.88 E)	-	-	-	-	-	-	-
120	Final Est.	(1,487.00 E)	(3,110.00 E)	-	-	-	-	-	-	-	-	-
121	Median	(1,487.00 E)	(3,110.00 E)	(2,812.00 E)	(3,020.88 E)	-	-	-	-	-	-	-
122	High	(1,487.00 E)	(3,110.00 E)	(2,812.00 E)	(3,534.76 E)	-	-	-	-	-	-	-
123	Low	(1,487.00 E)	(3,110.00 E)	(2,812.00 E)	(2,507.00 E)	-	-	-	-	-	-	-
124	Std. Dev.	-	-	-	513.88	-	-	-	-	-	-	-
125	No. of Estimates	1/1	1/1	1/2	2/2	-	-	-	-	-	-	-
126	Acctg. Standard	US GAAP	US GAAP	US GAAP	US GAAP	-	-	-	-	-	-	-
127	EBT (Excl. Except)	64,089.00 A	72,903.00 A	63,868.76 E	66,852.22 E	70,666.07 E	73,570.50 E	77,246.00 E	83,174.00 E	89,564.00 E	96,451.00 E	103,872.00 E

Consensus

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FINANCIAL STATEMENT MODELING

Forecasting the Balance Sheet

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Forecast the Balance Sheet Items

		2017A	2018A	2019P	2020P	2021P	2022P	2023P	
42	**BALANCE SHEET**								
43	*Fiscal year*	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date	*9/30/17*	*9/30/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	Cash & equivalents, ST and LT marketable securities	268,895	237,100						Reference from 'net change in cash' line on the cash flow statemer
46	Accounts receivable	17,874	23,186						Grow in-line with revenue growth
47	Inventories	4,855	3,956						Grow in-line with cost of sales growth
48	Other current assets	31,735	37,896						Grow in-line with revenue growth
49	Property, plant & equipment	33,783	41,304						Reference from PP&E schedule
50	Other non current assets	18,177	22,283						Grow in-line with revenue growth
51	**Total assets**	**375,319**	**365,725**						
52									
53	Accounts payable	44,242	55,888						Grow in-line with cost of sales growth
54	Other current liabilities	30,551	32,687						Grow in-line with revenue growth
55	Deferred revenue (current and non current)	10,384	10,340						Grow in-line with revenue growth
56	Commercial paper / revolver	11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)	103,703	102,519						WSP assumption: straight-line
58	Other non current liabilities	40,415	45,180						WSP assumption: straight-line
59	**Total liabilities**	**241,272**	**258,578**						
60									
61	Common stock	35,867	40,201						Increase by stock-based compensation forecasted in the I/S sectio
62	Retained earnings	98,330	70,400						Reference from Retained Earnings schedule
63	Other comprehensive income	(150)	(3,454)						WSP assumption: straight-line
64	**Total equity**	**134,047**	**107,147**						
65									
66	*Balance check*					*0*	*0*	*0*	

The balance sheet will not balance for a while – don't worry about that (yet)

PDF Guide: Guide to Balance Sheet Projections – Wall Street Prep

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Forecasting the Balance Sheet (B/S)

- We're going to start by forecasting the B/S in the simplest way and then add levels of complexity as needed.
- Let's start with working capital:
  - Conceptually, these items are linked to operating performance and should be forecast in line with operating forecasts.
  - For example, assuming **no change in a company's days sales outstanding (DSO)**, as revenue grows, accounts receivable should commensurately grow.

What if we do want to forecast A/R to reflect changes in DSO? We'll get to that later…

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Forecasting Working Capital

Exercise

- Fill in the blanks based on your understanding of the relationship between I/S forecasts and the impact on B/S items.
- **Note:** There isn't always just one right answer.

	2020	2021
Rev:	$100	$120
A/R	$10	$12

Assets

Item	Driver
Accounts receivable	Revenue growth rate
Inventory	
Prepaid expenses	

Liabilities

Item	Driver
Accounts payable	
Deferred revenue	
Accrued expenses	
Tax payable	

Prepayments for utilities, rents, insurance, wages. Since these expenses aren't recognized until they are used, the expense is treated as an asset until it eventually will hit the I/S

Wages and other expenses already recognized but not yet paid out by the company

Tax due but still unpaid

Revenue received that hasn't yet been earned by the company and thus can't be recognized as revenue yet (i.e., unearned gift card revenue).

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Forecasting Working Capital

☑ Answer

- Fill in the blanks based on your understanding of the relationship between I/S forecasts and the impact on B/S items.
- **Note:** There isn't always just one right answer.

	2020	2021
Rev:	$100	$120
A/R	$10	$12

Assets

Item	Driver
Accounts receivable	Revenue growth rate
Inventory	COGs
Prepaid expenses	SGA/Rev

Liabilities

Item	Driver
Accounts payable	Rev/COGS
Deferred revenue	Rev growth
Accrued expenses	SGA/Rev
Tax payable	Tax growth/Rev

Prepayments for utilities, rents, insurance, wages. Since these expenses aren't recognized until they are used, the expense is treated as an asset until it eventually will hit the I/S

Wages and other expenses already recognized but not yet paid out by the company

Tax due but still unpaid

Revenue received that hasn't yet been earned by the company and thus can't be recognized as revenue yet (i.e., unearned gift card revenue).

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Forecasting 'Other' Balance Sheet Items

- Sometimes companies will aggregate certain items into "catch-all" items labeled "Other assets" and "Other liabilities".
- Check footnotes to see if a breakout of these items exist.
- These are less straight forward to forecast because the often commingle a variety of items.
- Some items could grow as the business grows, while others may be financial assets or liabilities that don't correlate to operating activities:
    1. If likely tied to operations, **grow with revenue grow rate.**
    2. If nature of item is unrelated to operations, unclear or amount is immaterial, **straight-line prior period results.**

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Other Assets and Liabilities

AAPL 2018

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Other Non-Current Liabilities

Previous Next

Other Non-Current Liabilities

	2018	2017
Long-term taxes payable	$ 33,589	$ 257
Deferred tax liabilities	426	31,504
Other non-current liabilities	11,165	8,654
Total other non-current liabilities	$ 45,180	$ 40,415

Other Income/(Expense), Net

The following table shows the detail of other income/(expense), net for 2018 , 2017 and 2016 (in millions):

	2018	2017	2016
Interest and dividend income	$ 5,686	$ 5,201	$ 3,999
Interest expense	(3,240)	(2,323)	(1,456)
Other expense, net	(441)	(133)	(1,195)
Total other income/(expense), net	$ 2,005	$ 2,745	$ 1,348

Note 4 – Income Taxes

U.S. Tax Cuts and Jobs Act

On December 22, 2017, the U.S. enacted the Tax Cuts and Jobs Act (the "Act"), which significantly changed U.S. tax law. The Act lowered the Company's U.S. statutory federal income tax rate from 35% to 21% effective January 1, 2018, while also imposing a deemed repatriation tax on previously deferred foreign income. The Act also created a new minimum tax on certain future foreign earnings. The impact of the Act increased the Company's provision for income taxes by $1.5 billion during 2018. This increase was composed of $2.0 billion related to the remeasurement of net deferred tax assets and liabilities and $1.2 billion associated with the deemed repatriation tax, partially offset by a $1.7 billion impact the deemed repatriation tax had on the Company's unrecognized tax benefits.

Deferred Tax Balances

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Forecasting Balance Sheet Intro

	C	D	E	F	G	H	I	J	K	M
35	Growth rates & margins									
36	Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021; straight-line growth rate thereafter
37	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	JP Morgan estimates through 2021; straight-line margin thereafter
38	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
39	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
40	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
41										
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100						Reference from 'net change in cash' line on the cash flow statement
46	Accounts receivable		17,874	23,186						Grow in-line with revenue growth
47	Inventories		4,855	3,956						Grow in-line with cost of sales growth
48	Other current assets		31,735	37,896						Grow in-line with revenue growth
49	Property, plant & equipment		33,783	41,304						Reference from PP&E schedule
50	Other non current assets		18,177	22,283						Grow in-line with revenue growth
51	**Total assets**		**375,319**	**365,725**						
52										
53	Accounts payable		44,242	55,888						Grow in-line with cost of sales growth
54	Other current liabilities		30,551	32,687						Grow in-line with revenue growth
55	Deferred revenue (current and non current)		10,384	10,340						Grow in-line with revenue growth
56	Commercial paper / revolver		11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)		103,703	102,519						WSP assumption: straight-line
58	Other non current liabilities		40,415	45,180						WSP assumption: straight-line
59	**Total liabilities**		**241,272**	**258,578**						
60										
61	Common stock		35,867	40,201						Increase by stock-based compensation forecasted in the I/S section
62	Retained earnings		98,330	70,400						Reference from Retained Earnings schedule
63	Other comprehensive income		(150)	(3,454)						WSP assumption: straight-line
64	**Total equity**		**134,047**	**107,147**						
65										
66	*Balance check*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	
67										
68	**CASH FLOW STATEMENT**									

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B/S Forecasting – Current Assets

G51 =SUM(G45:G50)

	C	D	E	F	G	H	I	J	K	M
25	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
26	**Pretax profit**	**61,372**	**64,089**	**72,903**	**61,262**	**66,856**	**71,789**	**76,772**	**82,100**	**EBIT + interest income less interest expense less other expense**
27	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,231)	(11,366)	(12,132)	(12,975)	(13,875)	Pre-tax Profit x Tax Rate forecast
28	**Net income**	**45,687**	**48,351**	**59,531**	**51,031**	**55,491**	**59,656**	**63,798**	**68,225**	**Pre-tax Profit less taxes**
29										
30	Depreciation & amortization	10,505	10,157	10,903						Reference from D&A schedule
31	**EBITDA**	**70,529**	**71,501**	**81,801**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**EBIT + D&A**
32	Stock based compensation	4,210	4,840	5,340	5,126	5,434	5,809	6,210	6,638	WSP assumption: grow SBC in-line with revenue growth
33	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**66,829**	**72,731**	**78,038**	**83,423**	**89,179**	**EBITDA + Stock-based compensation**
34										
35	Growth rates & margins									
36	Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021; straight-line growth rate thereafter
37	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	JP Morgan estimates through 2021; straight-line margin thereafter
38	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
39	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100						Reference from 'net change in cash' line on the cash flow statement
46	Accounts receivable		17,874	23,186	22,259	23,594	25,222	26,962	28,823	Grow in-line with revenue growth
47	Inventories		4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with cost of sales growth
48	Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
49	Property, plant & equipment		33,783	41,304						Reference from PP&E schedule
50	Other non current assets		18,177	22,283	21,392	22,675	24,240	25,912	27,700	Grow in-line with revenue growth
51	**Total assets**		**375,319**	**365,725**	83861.651	88973.762	94999.072	101554.01	108561.23	
52										
53	Accounts payable		44,242	55,888						Grow in-line with cost of sales growth
54	Other current liabilities		30,551	32,687						Grow in-line with revenue growth
55	Deferred revenue (current and non current)		10,384	10,340						Grow in-line with revenue growth
56	Commercial paper / revolver		11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)		103,703	102,519						WSP assumption: straight-line
58	Other non current liabilities		40,415	45,180						WSP assumption: straight-line
59	**Total liabilities**		**241,272**	**258,578**						
60										

FSM Data Input | FSM Forecasting | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | FSM + Rev Scearios | Re...

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B/S Forecasting – CL and LT Debt

33	A	74,739	76,341	87,141	66,829	72,731	78,038	83,423	89,179	EBITDA + Stock-b
34										
35	G									
36	Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	JP Morgan estima
37	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	JP Morgan estima
38	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estima
39	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estima
40	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estima
41										
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100						Reference from 'r
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47	Inventories		4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with
48	Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with
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52										
53	Accounts payable		44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with
54	Other current liabilities		30,551	32,687	31,380	33,262	35,557	38,011	40,634	Grow in-line with
55	Deferred revenue (current and non current)		10,384	10,340	9,926	10,522	11,248	12,024	12,854	Grow in-line with
56	Commercial paper / revolver		11,977	11,964						Reference from r
57	Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption:
58	Other non current liabilities		40,415	45,180						WSP assumption:
59	**Total liabilities**		**241,272**	**258,578**						
60										

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Calculate

Average: 102,519 Count: 2 Min:

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B/S Forecasting – Other Non-Current Liabilities

	D	E	F	G	H	I	J	K	M
Depreciation & amortization	10,505	10,157	10,903						Reference from D&A schedule
EBITDA	**70,529**	**71,501**	**81,801**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**EBIT + D&A**
Stock based compensation	4,210	4,840	5,340	5,126	5,434	5,809	6,210	6,638	WSP assumption: grow SBC in-line with revenue growth
Adjusted EBITDA	**74,739**	**76,341**	**87,141**	**66,829**	**72,731**	**78,038**	**83,423**	**89,179**	**EBITDA + Stock-based compensation**
Growth rates & margins									
Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021; straight-line growth rate thereafter
Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	JP Morgan estimates through 2021; straight-line margin thereafter
R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
BALANCE SHEET									
Fiscal year		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
Cash & equivalents, ST and LT marketable securities		268,895	237,100						Reference from 'net change in cash' line on the cash flow statement
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Inventories		4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with cost of sales growth
Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
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Other non current assets		18,177	22,283	21,392	22,675	24,240	25,912	27,700	Grow in-line with revenue growth
Total assets		**375,319**	**365,725**	**83,862**	**88,874**	**94,999**	**101,554**	**108,561**	
Accounts payable		44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with cost of sales growth
Other current liabilities		30,551	32,687	31,380	33,262	35,557	38,011	40,634	Grow in-line with revenue growth
Deferred revenue (current and non current)		10,384	10,340	9,926	10,522	11,248	12,024	12,854	Grow in-line with revenue growth
Commercial paper / revolver		11,977	11,964						Reference from revolver schedule
Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
Other non current liabilities		40,415	45,180	43,373	45,975	49,147	52,539	56,164	Grow in-line with revenue growth
Total liabilities		**241,272**	**258,578**						

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B/S Forecasting – Equity

G66 =ROUND(G51-G59-G64,3)

	C	D	E	F	G	H	I	J	K	M
23	Interest income	3,999	5,201	5,686						Reference from interest on cash schedule
24	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)						Reference from interest expense schedule
25	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
26	**Pretax profit**	**61,372**	**64,089**	**72,903**	**61,262**	**66,856**	**71,789**	**76,772**	**82,100**	**EBIT + interest income less interest expense less other expense**
27	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,231)	(11,366)	(12,132)	(12,975)	(13,875)	Pre-tax Profit x Tax Rate forecast
28	**Net income**	**45,687**	**48,351**	**59,531**	**51,031**	**55,491**	**59,656**	**63,798**	**68,225**	**Pre-tax Profit less taxes**
29										
30	Depreciation & amortization	10,505	10,157	10,903						Reference from D&A schedule
31	**EBITDA**	**70,529**	**71,501**	**81,801**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**EBIT + D&A**
32	Stock based compensation	4,210	4,840	5,340	5,126	5,434	5,809	6,210	6,638	WSP assumption: grow SBC in-line with revenue growth
33	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**66,829**	**72,731**	**78,038**	**83,423**	**89,179**	**EBITDA + Stock-based compensation**
34										
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52										
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56	Commercial paper / revolver		11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
58	Other non current liabilities		40,415	45,180	43,373	45,975	49,147	52,539	56,164	WSP assumption: grow with revenue
59	**Total liabilities**		**241,272**	**258,578**	**241,323**	**249,375**	**259,409**	**270,235**	**281,807**	
60										
61	Common stock		35,867	40,201	45,327	50,761	56,570	62,780	69,418	Increase by stock-based compensation forecasted in the I/S section
62	Retained earnings		98,330	70,400						Reference from Retained Earnings schedule
63	Other comprehensive income		(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	WSP assumption: straight-line
64	**Total equity**		**134,047**	**107,147**	**41,873**	**47,307**	**53,116**	**59,326**	**65,964**	
65										
66	*Balance check*		*0*	*0*	*(199,335)*	*(207,808)*	*(217,527)*	*(228,007)*	*(239,210)*	
67										

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FINANCIAL STATEMENT MODELING

Cash Flow Statement

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The Cash Flow Statement (CFS)

- Simply a reconciliation of year over year changes in the balance sheet
- Models not balancing often due to silly mistakes in the cash flow statement
- Construction requires an understanding of how the 3 financial statements inter-relate
- Review the select lessons from the accounting crash course following this video or immediately jump into the modeling

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The Cash Flow Statement (CFS) (cont'd)

- While the I/S is very useful because it attempts to provide insight to a company's "true" profitability using accrual accounting which matches revenues with their corresponding expenses, it also requires management judgment (i.e. useful life, inventory cost , revenue recognition assumptions can have material impacts on profitability) and is thus not only potentially misleading about the company's liquidity, it is also prone to manipulation.
  - A company may show high profitability but running out of cash because significant revenues recognized were noncash.
  - A company may show low or negative profitability but generating a ton of cash during the period because the major expense was noncash D&A.

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The Cash Flow Statement (CFS) (cont'd)

- Along with the B/S and I/S, the cash flow statement (CFS) is a required financial statement that provides insight that the I/S cannot – namely, exactly how much cash a company generates and from what activities.
- The CFS reconciles net income to a company's actual change in cash balance over a period in time (quarter or year).
- That's why the CFS and I/S must both be used and fully understood by analysts.

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Structure of the Cash Flow Statement

Under both U.S. GAAP and IFRS, companies have two options for reporting cash flows:

1. Direct Method

2. Indirect method

(Virtually all choose indirect)

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Structure of the Cash Flow Statement (cont'd)

Both approaches require cash flows to be classified into 3 components:

1. **Cash from operations (CFO)**
   - How much cash did the company generate from operations during the period?
   - Uses net income as a starting point and converts accrual-based net income into cash flow from operations via a series of adjustments (i.e., non-cash and accrual).
2. **Cash from investing activities (CFI)**
   - Capital expenditures/asset sales and purchases
3. **Cash from financing activities (CFF)**
   - New borrowing/pay-down of debt/new issuance of stock/share repurchases
   - Issuance of dividends

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Cash From Operations

- While the I/S recognizes non-cash income (i.e. credit sales, write-ups) and expenses (i.e. D&A, credit purchases), on the CFS, these items are ignored.
- The starting point on the CFS is thus to start with net income and back all the noncash expenses and income out of net income, to get at "cash income" or "cash from operations."

The remaining line items are adjustments to remove noncash income/expense to get at "cash income" or "cash from operations."

P&G

Consolidated Statements of Earnings

Amounts in millions except per share amounts; Years ended June 30	2013	2012	2011
NET SALES	**$ 84,167**	$ 83,680	$ 81,104
Cost of products sold	**42,428**	42,391	39,859
Selling, general and administrative expense	**26,950**	26,421	25,750
Goodwill and indefinite-lived intangible asset impairment charges	**308**	1,576	—
OPERATING INCOME	**14,481**	13,292	15,495
Interest expense	**667**	769	831
Interest income	**87**	77	62
Other non-operating income, net	**942**	185	271
EARNINGS FROM CONTINUING OPERATIONS BEFORE INCOME TAXES	**14,843**	12,785	14,997
Income taxes on continuing operations	**3,441**	3,468	3,299
NET EARNINGS FROM CONTINUING OPERATIONS	**11,402**	9,317	11,698
NET EARNINGS FROM DISCONTINUED OPERATIONS	**—**	1,587	229
NET EARNINGS	**11,402**	10,904	11,927

Consolidated Statements of Cash Flows

Amounts in millions; Years ended June 30	2013	2012	2011
CASH AND CASH EQUIVALENTS, BEGINNING OF YEAR	**$ 4,436**	$ 2,768	$ 2,879
OPERATING ACTIVITIES			
Net earnings	**11,402**	10,904	11,927
Depreciation and amortization	**2,982**	3,204	2,838
Share-based compensation expense	**346**	377	414
Deferred income taxes	**(307)**	(65)	128
Gain on sale and purchase of businesses	**(916)**	(2,106)	(203)
Goodwill and indefinite-lived intangible asset impairment charges	**308**	1,576	—
Change in accounts receivable	**(415)**	(427)	(426)
Change in inventories	**(225)**	77	(501)
Change in accounts payable, accrued and other liabilities	**1,253**	(22)	358
Change in other operating assets and liabilities	**68**	(444)	(1,221)
Other	**377**	210	16
TOTAL OPERATING ACTIVITIES	**14,873**	13,284	13,330

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CFO: Depreciation

- Often the biggest adjustments to get from net income to CFO is depreciation expense, because it is usually the largest noncash expense included within net income.
- As you can see from P&G's CFS, depreciation is the largest adjustment for them.
- In addition to depreciation, there are several common adjustments, which we will now address…

P&G

Consolidated Statements of Earnings

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TOTAL OPERATING ACTIVITIES	14,873	13,284	13,330

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CFO: Working Capital

- The other major adjustment from net income to CFO is for a specific grouping of B/S line item: working capital.
  - Current assets like A/R, inventories, prepaid expenses are called “working capital” assets.
  - Current liabilities like A/P, accrued expenses, deferred revenue are called “working capital” liabilities.
- Both represent assets and liabilities that are tied up in the ordinary course of operations, which is why we classify their cash impact under CFOs.

Consolidated Statements of Cash Flows P&G

Amounts in millions; Years ended June 30	2013	2012	2011
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TOTAL OPERATING ACTIVITIES	14,873	13,284	13,330

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CFO: Working Capital (cont'd)

The impact on the CFS of changes in working capital assets and liabilities is an example of a broader accounting concept we have been discussing:

- **Increase in assets represent a usage of funds (cash outflow)**
  - Example: A company buys inventory with cash.
- **Increases in liabilities and equity represents a source of funds (cash inflow)**
  - Example: A company issues stock or debt and gets cash in return.

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CFO: Other Items

- **Asset write downs/impairments:** Since write downs or asset impairments are recognized as an expense on the I/S, they represent a noncash expense that must be added back on the CFS within CFO.

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Cash From Operations (CFO)

Exercise

The easiest way to understand CFO is to remember that it answers the question "how much cash went into the company's pocket as a result of operations?"

Simple Income Statement	
Cash revenue	100
Cash expenses	80
Net income	20
How much cash goes in my pocket?	
Simple CFS	
Net income	
Cash from operations	

Net income would equal CFO if net income was only comprised of cash income and expenses

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Cash From Operations (CFO) (cont'd)

Answer

The easiest way to understand CFO is to remember that it answers the question "how much cash went into the company's pocket as a result of operations?"

Simple Income Statement	
Cash revenue	100
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Net income	20
How much cash goes in my pocket?	20

Simple CFS	
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Cash from operations	20

Net income would equal CFO if net income was only comprised of cash income and expenses

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Cash From Operations (CFO) (cont'd)

Exercise

The easiest way to understand CFO is to remember that it answers the question "how much cash went into the company's pocket as a result of operations?"

D&A must be added back to NI to arrive at cash

Simple Income Statement	
Cash revenue	100
Cash expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	

Simple CFS	
Net income	
D&A	
Cash from operations	

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Cash From Operations (CFO) (cont'd)

Answer

The easiest way to understand CFO is to remember that it answers the question "how much cash went into the company's pocket as a result of operations?"

D&A must be added back to NI to arrive at cash

Simple Income Statement	
Cash revenue	100
Cash expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	20

Simple CFS	
Net income	10
D&A	+10
Cash from operations	20

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Cash From Operations (CFO) (cont'd)

Exercise

The easiest way to understand CFO is to remember that it answers the question "how much cash went into the company's pocket as a result of operations?"

Simple Income Statement	
Revenues	100
Cash expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	

Simple CFS	
Net income	
D&A	
- Increase in A/R	
Cash from operations	

$92 in cash / $8 credit sales

Accounts Receivable on B/S	
Accounts receivable - BOP	7
Change in A/R during period	
Accounts receivable - EOP	

Let's Generalize

- Increase in A/R, inventory, prepaid expenses, taxes payable, other current assets should be subtracted from net income to get to CFO.
- Conversely, increases in A/P, accrued expenses, other current liabilities should be added to net income to get to CFO.

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Cash From Operations (CFO) (cont'd)

Answer

The easiest way to understand CFO is to remember that it answers the question "how much cash went into the company's pocket as a result of operations?"

Simple Income Statement	
Revenues	100
Cash expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	12

Simple CFS	
Net income	10
D&A	+10
- Increase in A/R	-8
Cash from operations	12

$92 in cash / $8 credit sales

Accounts Receivable on B/S	
Accounts receivable - BOP	7
Change in A/R during period	+8
Accounts receivable - EOP	15

Let's Generalize

- Increase in A/R, inventory, prepaid expenses, taxes payable, other current assets should be subtracted from net income to get to CFO.
- Conversely, increases in A/P, accrued expenses, other current liabilities should be added to net income to get to CFO.

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Cash From Operations (CFO) (cont'd)

Exercise

Simple Income Statement	
Revenues	100
Expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	

CFS	
Net income	
D&A	
- Increase in A/R	
- Increase in inventory	
+ Increase in A/P	
+ Increase in Deferred revenue	
+ increase in Accrued expenses	
Cash from operations	

$92 cash sales/$8 credit sales. Separately, company sold (for cash) $20 in gift cards (still unused)

- $77 worth of inventory purchased during year:
- $61 in cash, $16 on credit; $72 were used in COGS
- $8 in wages earned but not yet paid to employees

Deferred Revenue on B/S	
Def. revenue – BOP	0
Change during period	
Def. revenue – EOP	

Inventory on B/S	
Inventory – BOP	0
Change during period	
Inventory – EOP	

Accounts Receivable on B/S	
Accounts receivable – BOP	7
Change during period	
Accounts receivable – EOP	

Accounts Payable on B/S	
Accounts payable – BOP	9
Change during period	
Accounts payable – EOP	

Accrued Expenses on B/S	
Accrued expenses – BOP	0
Change during period	
Accrued expenses – EOP	

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Cash From Operations (CFO) (cont'd)

Answer

Simple Income Statement	
Revenues	100
Expenses	80
D&A	10
Net income	10
How much cash goes in my pocket?	51

CFS	
Net income	10
D&A	+10
- Increase in A/R	-8
- Increase in inventory	-5
+ Increase in A/P	+16
+ Increase in Deferred revenue	+20
+ increase in Accrued expenses	+8
Cash from operations	51

$92 cash sales/$8 credit sales. Separately, company sold (for cash) $20 in gift cards (still unused)

- $77 worth of inventory purchased during year:
- $61 in cash, $16 on credit; $72 were used in COGS
- $8 in wages earned but not yet paid to employees

Deferred Revenue on B/S	
Def. revenue – BOP	0
Change during period	20
Def. revenue – EOP	20

Inventory on B/S	
Inventory – BOP	0
Change during period	5
Inventory – EOP	5

Accounts Receivable on B/S	
Accounts receivable – BOP	7
Change during period	8
Accounts receivable – EOP	15

Accounts Payable on B/S	
Accounts payable – BOP	9
Change during period	16
Accounts payable – EOP	25

Accrued Expenses on B/S	
Accrued expenses – BOP	0
Change during period	8
Accrued expenses – EOP	8

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Cash from Operations (CFO) (cont'd)

Below is a summary of the typical line items in the CFO:

Net income
Starting point of cash flow statement when using indirect method.

+ D&A
Usually the second line in a CFS is the add back of noncash D&A expense, which is embedded in COGS and operating expenses on the I/S thus reducing net income.

- Increases in A/R, inventory, prepaid expenses, other current assets

- Increases in working capital asset balances during the period should be reflected as cash outflows.
- Decreases in working capital asset balances during the period should be reflected as cash inflows.

+ Increases in A/P, accrued expenses, taxes payable, and other current liabilities

- Increases in working capital liability balances during the period should be reflected as cash inflows.
- Decreases in working capital liability balances during the period should be reflected as cash outflows.

+/- Other changes

+ Impairments
- Gains on sale of assets
+ Stock based compensation
- Increases in deferred tax assets
+ Increases in deferred tax liabilities

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Cash from Investing Activities (CFI)

The CFI section is much more straight forward than CFO – it simply tracks additions and reductions to fixed assets and investments during the year (corresponding primarily to the long-term asset side of the balance sheet). The most common investing inflows/outflows are:

- Capital expenditures (cash outflow)
- Purchases of intangible assets (cash outflow)
- Asset sales (cash inflow)
- Purchases and sales of debt & equity securities (cash outflow/inflow)

P&G

Amounts in millions; Years ended June 30	2013	2012	2011
INVESTING ACTIVITIES			
Capital expenditures	**(4,008)**	(3,964)	(3,306)
Proceeds from asset sales	**584**	2,893	225
Acquisitions, net of cash acquired	**(1,145)**	(134)	(474)
Purchases of available-for-sale investment securities	**(1,605)**	—	—
Change in other investments	**(121)**	112	73
TOTAL INVESTING ACTIVITIES	**(6,295)**	(1,093)	(3,482)

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Cash from Financing Activities (CFF)

The CFF section of the cash flow statement tracks changes in the company's sources of debt and equity financing (corresponding primarily to the liabilities and shareholders' equity side of the balance sheet). The most common financing inflows/outflows are:

- Issuance/repayment of debt (cash inflow/outflow)
- Common stock issued/ repurchased (cash inflow/outflow)
- Payment of common & preferred dividends (cash outflow)

P&G

Amounts in millions; Years ended June 30	2013	2012	2011
FINANCING ACTIVITIES			
Dividends to shareholders	**(6,519)**	(6,139)	(5,767)
Change in short-term debt	**3,406**	(3,412)	151
Additions to long-term debt	**2,331**	3,985	1,536
Reductions of long-term debt	**(3,752)**	(2,549)	(206)
Treasury stock purchases	**(5,986)**	(4,024)	(7,039)
Impact of stock options and other	**3,449**	1,729	1,203
TOTAL FINANCING ACTIVITIES	**(7,071)**	(10,410)	(10,122)
EFFECT OF EXCHANGE RATE CHANGES ON CASH AND CASH EQUIVALENTS	**4**	(113)	163
CHANGE IN CASH AND CASH EQUIVALENTS	**1,511**	1,668	(111)
CASH AND CASH EQUIVALENTS, END OF YEAR	**$ 5,947**	$ 4,436	$ 2,768

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The CFS is a Magnifying Glass on the Cash Line on the B/S

Similarly to how the I/S identifies the year-over-year change for every B/S line item that affects retained earnings, the CFS identifies the year-over-year change of every B/S line item that affects cash.

- CFO captures the impact of retained earnings, current assets, and current liabilities (and the D&A part of fixed assets and intangibles.
- CFI captures the impact of long-term assets.
- CFF captures the impact of long-term liabilities and equity.

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Cash Flow Statement Forecasting

	C	E	F	G	H	I	J	K	M
46	Accounts receivable	17,874	23,186	22,259	23,594	25,222	26,962	28,823	Grow in-line with revenue growth
47	Inventories	4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with cost of sales growth
48	Other current assets	31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
49	Property, plant & equipment	33,783	41,304						Reference from PP&E schedule
50	Other non current assets	18,177	22,283	21,392	22,675	24,240	25,912	27,700	Grow in-line with revenue growth
51	**Total assets**	**375,319**	**365,725**	**83,862**	**88,874**	**94,999**	**101,554**	**108,561**	
52									
53	Accounts payable	44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with cost of sales growth
54	Other current liabilities	30,551	32,687	31,380	33,262	35,557	38,011	40,634	Grow in-line with revenue growth
55	Deferred revenue (current and non current)	10,384	10,340	9,926	10,522	11,248	12,024	12,854	Grow in-line with revenue growth
56	Commercial paper / revolver	11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)	103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
58	Other non current liabilities	40,415	45,180	43,373	45,975	49,147	52,539	56,164	WSP assumption: grow with revenue
59	**Total liabilities**	**241,272**	**258,578**	**241,323**	**249,375**	**259,409**	**270,235**	**281,807**	
68	**CASH FLOW STATEMENT**								
69	*Fiscal year*			**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date			*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71									
72	Net income			51,031	55,491	59,656	63,798	68,225	
73	Depreciation and amortization								
74	Stock based compensation			5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets			2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities			(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets								Reference additions to 'other non-current assets' from schedule
78	Other non current liabilities			(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**			**53,435**	**65,247**	**70,939**	**75,951**	**81,216**	
80									
81	Capital expenditures								
82	**Cash from investing activities**								
83									
84	Long term debt								

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Forecasting CFI and CFF

gress in worksheet: 'FSM Forecasting_ProgressCheck1'

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	C	D	E	F	G	H	I	J	K	M
40	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
41										
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100	290,535	355,783	426,721	502,672	583,889	Reference from 'net change in cash' line on the cash flow statement
46	Accounts receivable		17,874	23,186	22,259	23,594	25,222	26,962	28,823	Grow in-line with revenue growth
47	Inventories		4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with cost of sales growth
48	Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
49	Property, plant & equipment		33,783	41,304						Reference from PP&E schedule
50	Other non current assets		18,177	22,283	21,392	22,675	24,240	25,912	27,700	Grow in-line with revenue growth
51	**Total assets**		**375,319**	**365,725**	**374,397**	**444,656**	**521,721**	**604,226**	**692,450**	
52										
53	Accounts payable		44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with cost of sales growth
75	Decreases / (Increases) in working capital assets				2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities				(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets									Reference additions to 'other non-current assets' from schedule
78	Other non current liabilities				(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**				**53,435**	**65,247**	**70,939**	**75,951**	**81,216**	
80										
81	Capital expenditures									
82	**Cash from investing activities**				**0**	**0**	**0**	**0**	**0**	
83										
84	Long term debt				0	0	0	0	0	
85	Revolver									
86	Share repurchases									
87	Common dividends									
88	**Cash from financing activities**				**0**	**0**	**0**	**0**	**0**	
89										
90	**Net change in cash during period**				**53,435**	**65,247**	**70,939**	**75,951**	**81,216**	
91										

FSM Data Input | FSM Forecasting | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | FSM + Rev Scearios | Re ...

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Review of What We've Done to This Point

ogress in worksheet: 'FSM Forecasting_ProgressCheck1'

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	C	E	F	G	H	I	J	K	M
52									
53	Accounts payable	44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with cost of sales growth
54	Other current liabilities	30,551	32,687	31,380	33,262	35,557	38,011	40,634	Grow in-line with revenue growth
55	Deferred revenue (current and non current)	10,384	10,340	9,926	10,522	11,248	12,024	12,854	Grow in-line with revenue growth
56	Commercial paper / revolver	11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)	103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
58	Other non current liabilities	40,415	45,180	43,373	45,975	49,147	52,539	56,164	Grow in-line with revenue growth
59	**Total liabilities**	**241,272**	**258,578**	**241,323**	**249,375**	**259,409**	**270,235**	**281,807**	
60									
61	Common stock	35,867	40,201	45,327	50,761	56,570	62,780	69,418	Increase by stock-based compensation forecasted in the I/S section
62	Retained earnings	98,330	70,400						Reference from Retained Earnings schedule
63	Other comprehensive income	(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	WSP assumption: straight-line
64	**Total equity**	**134,047**	**107,147**	**41,873**	**47,307**	**53,116**	**59,326**	**65,964**	
65									
66	*Balance check*	*0*	*0*	*91,200*	*147,974*	*209,195*	*274,665*	*344,678*	
67									
68	**CASH FLOW STATEMENT**								
69	*Fiscal year*			**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date			*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71									
72	Net income			51,031	55,491	59,656	63,798	68,225	
73	Depreciation and amortization								
74	Stock based compensation			5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets			2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities			(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets								Reference additions to 'other non-current assets' from schedule
78	Other non current liabilities			(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**			**53,435**	**65,247**	**70,939**	**75,951**	**81,216**	
80									
81	Capital expenditures								
82	**Cash from investing activities**			**0**	**0**	**0**	**0**	**0**	
83									
84	Long term debt			0	0	0	0	0	
85	Revolver								
86	Share repurchases								
87	Common dividends								
88	**Cash from financing activities**			**0**	**0**	**0**	**0**	**0**	
89									
90	**Net change in cash during period**			**53,435**	**65,247**	**70,939**	**75,951**	**81,216**	

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | **FSM Forecasting** | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Bui ...

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FINANCIAL STATEMENT MODELING

Balance Sheet Schedules

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Forecasting More Complex B/S Line Items

- So far, we have forecast line items directly in the B/S.
- For more complex line items, a separate schedule is sometimes warranted.
- The “roll-forward” is the most common way to organize schedules.

Increases
Current year

Decreases
Current year

Beginning of period (BOP)
Really previous period’s EOP

End of Period (EOP)

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Property, Plant & Equipment (PP&E)

PP&E (BOP)

Capital Expenditures
Current year

D&A
Current year

IS
Noncash operating expense

CFS
Noncash add-back (CFO)

PP&E (EOP)

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Relationship Between Capex and Depreciation

The more capex a company has made in the past, the more depreciation the company will see in the future.

- For high growth companies, capex/depreciation > 1, as new capex outpaces depreciation.
- For mature or declining businesses, this ratio converges to 1 (or lower) as businesses invest simply to replace old equipment.

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Retained Earnings Roll Forward

Net Income
Current year

Common & Preferred Dividends
Current year

Most companies break this out into a separate treasury stock equity account, but Apple includes it within retained earnings

Share Repurchases
Current year

Retaine Earning (BOP)

Retained Earnings (EOP)

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Balance Sheet Schedules

37	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	JP Morgan estimates through 2021; straight-line margin thereafter
38	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
39	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
40	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
41										
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
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48	Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
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57	Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
58	Other non current liabilities		40,415	45,180	43,373	45,975	49,147	52,539	56,164	Grow in-line with revenue growth
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60										
61	Common stock		35,867	40,201	45,327	50,761	56,570	62,780	69,418	Increase by stock-based compensation forecasted in the I/S section
62	Retained earnings		98,330	70,400						Reference from Retained Earnings schedule
63	Other comprehensive income		(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	WSP assumption: straight-line
64	**Total equity**		**134,047**	**107,147**	**41,873**	**47,307**	**53,116**	**59,326**	**65,964**	
65										
66	*Balance check*		*0*	*0*	*91,200*	*147,974*	*209,195*	*274,665*	*344,678*	
67										
68	**CASH FLOW STATEMENT**									
69	*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71										
72	Net income				51,031	55,491	59,656	63,798	68,225	
73	Depreciation and amortization									
74	Stock based compensation				5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets				2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities				(3,483)	5,449	6,863	7,434	7,947	

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Modeling PP&E

Through - Excel

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SUM =G97

	C	D	E	F	G	H	I	J	K	M
65										
66	*Balance check*		*0*	*0*	*149,528*	*223,519*	*301,895*	*385,409*	*474,395*	
67										
68	**CASH FLOW STATEMENT**									
69	*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71										
72	Net income				51,031	55,491	59,656	63,798	68,225	
73	Depreciation and amortization									
74	Stock based compensation				5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets				2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities				(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets									Reference additions to 'other non-current assets' from schedule
78	Other non current liabilities				(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**				**53,435**	**65,247**	**70,939**	**75,951**	**81,216**	
80										
81	Capital expenditures				=G97	13,649	13,819	14,773	15,792	
82	**Cash from investing activities**				**13,285**	**13,649**	**13,819**	**14,773**	**15,792**	
83										
84	Long term debt				0	0	0	0	0	
85	Revolver									
86	Share repurchases									
87	Common dividends									
88	**Cash from financing activities**				**0**	**0**	**0**	**0**	**0**	
89										
90	**Net change in cash during period**				**66,720**	**78,896**	**84,758**	**90,723**	**97,008**	
91										
92	**PROPERTY, PLANT & EQUIPMENT**									
93	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
94	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
95							**Forecast**			
96	Beginning of period				41,304	45,043	48,611	51,948	55,219	BOP = Previous year EOP
97	Plus: Capital expenditures	12,734	12,451	13,313	13,285	13,649	13,819	14,773	15,792	JP Morgan through 2021; WSP assumption thereafter
98	Less: Depreciation	(8,300)	(8,200)	(9,300)	(9,546)	(10,081)	(10,483)	(11,501)	(12,611)	Capex x 'D&A related to PP&E as a % of capex' ratio (below)
99	**End of period**		**33,783**	**41,304**	**45,043**	**48,611**	**51,948**	**55,219**	**58,400**	BOP + Capex - Depreciation
100										Step
101	D&A related to PP&E as a % of capex	65.2%	65.9%	69.9%	71.9%	73.9%	75.9%	77.9%	79.9%	2.0%
102										
103	**IMPUTING TOTAL DEPRECIATION & AMORTIZATION**									
104	D&A not related to PP&E	2,205	1,957	1,603						Revenue x 'as % of revenue' assumption

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | **FSM Forecasting** | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Bui ...

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Inputing Total D and A

G79 =G58-F58

	C	D	E	F	G	H	I	J	K	M
21	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
22	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
23	Interest income	3,999	5,201	5,686						Reference from interest on cash schedule
24	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)						Reference from interest expense schedule
25	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
26	**Pretax profit**	**61,372**	**64,089**	**72,903**	**61,262**	**66,856**	**71,789**	**76,772**	**82,100**	**EBIT + interest income less interest expense less other expense**
27	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,231)	(11,366)	(12,132)	(12,975)	(13,875)	Pre-tax Profit x Tax Rate forecast
28	**Net income**	**45,687**	**48,351**	**59,531**	**51,031**	**55,491**	**59,656**	**63,798**	**68,225**	**Pre-tax Profit less taxes**
29										
30	Depreciation & amortization	10,505	10,157	10,903	11,085	11,712	12,226	13,365	14,604	Reference from D&A schedule
31	**EBITDA**	**70,529**	**71,501**	**81,801**	**72,788**	**79,009**	**84,456**	**90,579**	**97,145**	**EBIT + D&A**
32	Stock based compensation	4,210	4,840	5,340	5,126	5,434	5,809	6,210	6,638	WSP assumption: grow SBC in-line with revenue growth
33	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**77,914**	**84,443**	**90,265**	**96,789**	**103,783**	**EBITDA + Stock-based compensation**
34										
35	Growth rates & margins									
36	Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021; straight-line growth rate thereafter
37	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	JP Morgan estimates through 2021; straight-line margin thereafter
38	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
39	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
40	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
68	**CASH FLOW STATEMENT**									
69	*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71										
72	Net income				51,031	55,491	59,656	63,798	68,225	
73	Depreciation and amortization				11,085	11,712	12,226	13,365	14,604	
74	Stock based compensation				5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets				2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities				(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets									Reference additions to 'other non-current assets' from schedule
78	Other non current liabilities				(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**				**64,520**	**76,959**	**83,165**	**89,316**	**95,820**	
80										
81	Capital expenditures				(13,285)	(13,649)	(13,819)	(14,773)	(15,792)	

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | **FSM Forecasting** | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Bui ...

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Sanity Checking Model vs. Consensus

	C	D	E	F	G	H	I	J	K	M
39	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
40	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
41										
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100	288,335	351,645	420,992	495,535	575,563	Reference from 'net change in cash' line on the cash flow statement
46	Accounts receivable		17,874	23,186	22,259	23,594	25,222	26,962	28,823	Grow in-line with revenue growth
47	Inventories		4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with cost of sales growth
48	Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
49	Property, plant & equipment		33,783	41,304	45,043	48,611	51,948	55,219	58,400	Reference from PP&E schedule
50	Other non current assets		18,177	22,283	21,392	22,675	24,240	25,912	27,700	Grow in-line with revenue growth
51	**Total assets**		**375,319**	**365,725**	**417,240**	**489,130**	**567,938**	**652,308**	**742,524**	
52										
53	Accounts payable		44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with cost of sales growth
54	Other current liabilities		30,551	32,687	31,380	33,262	35,557	38,011	40,634	Grow in-line with revenue growth
55	Deferred revenue (current and non current)		10,384	10,340	9,926	10,522	11,248	12,024	12,854	Grow in-line with revenue growth
56	Commercial paper / revolver		11,977	11,964						Reference from revolver schedule
57	Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
58	Other non current liabilities		40,415	45,180	43,373	45,975	49,147	52,539	56,164	Grow in-line with revenue growth
59	**Total liabilities**		**241,272**	**258,578**	**241,323**	**249,375**	**259,409**	**270,235**	**281,807**	
60										
61	Common stock		35,867	40,201	45,327	50,761	56,570	62,780	69,418	Increase by stock-based compensation forecasted in the I/S section
62	Retained earnings		98,330	70,400						Reference from Retained Earnings schedule
63	Other comprehensive income		(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	WSP assumption: straight-line
64	**Total equity**		**134,047**	**107,147**	**41,873**	**47,307**	**53,116**	**59,326**	**65,964**	
65										
66	*Balance check*		*0*	*0*	*134,043*	*192,448*	*255,413*	*322,747*	*394,753*	
67										
68	**CASH FLOW STATEMENT**									
69	*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71										
72	Net income				51,031	55,491	59,656	63,798	68,225	

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Other Non-Current Assets

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G77 =-G111

	C	D	E	F	G	H	I	J	K	M
66	*Balance check*		*0*	*0*	*133,395*	*188,886*	*248,542*	*312,340*	*380,565*	
67										
68	**CASH FLOW STATEMENT**									
69	*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71										
72	Net income				51,031	55,491	59,656	63,798	68,225	
73	Depreciation and amortization				11,085	11,712	12,226	13,365	14,604	
74	Stock based compensation				5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets				2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities				(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets				(648)	(2,915)	(3,308)	(3,537)	(3,781)	Reference additions to 'other non-current assets' from schedule
78	Other non current liabilities				(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**				**63,872**	**74,045**	**79,857**	**85,779**	**92,039**	
80										
81	Capital expenditures				(13,285)	(13,649)	(13,819)	(14,773)	(15,792)	
82	**Cash from investing activities**				**(13,285)**	**(13,649)**	**(13,819)**	**(14,773)**	**(15,792)**	
83										
84	Long term debt				0	0	0	0	0	
85	Revolver									
86	Share repurchases									
87	Common dividends									
88	**Cash from financing activities**				**0**	**0**	**0**	**0**	**0**	
89										
90	**Net change in cash during period**				**50,587**	**60,396**	**66,038**	**71,007**	**76,248**	
91										
92	**PROPERTY, PLANT & EQUIPMENT**									
93	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
94	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
95							**Forecast**			
96	Beginning of period				41,304	45,043	48,611	51,948	55,219	BOP = Previous year EOP
97	Plus: Capital expenditures	12,734	12,451	13,313	13,285	13,649	13,819	14,773	15,792	JP Morgan through 2021; WSP assumption thereafter
98	Less: Depreciation	(8,300)	(8,200)	(9,300)	(9,546)	(10,081)	(10,483)	(11,501)	(12,611)	Capex x 'D&A related to PP&E as a % of capex' ratio (below)
99	**End of period**		**33,783**	**41,304**	**45,043**	**48,611**	**51,948**	**55,219**	**58,400**	BOP + Capex - Depreciation

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | **FSM Forecasting** | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Bui ...

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An Alternative Approach

	C	D	E	F	G	H	I	J	K	M
81	Capital expenditures				(13,285)	(13,649)	(13,819)	(14,773)	(15,792)	
82	**Cash from investing activities**				**(13,285)**	**(13,649)**	**(13,819)**	**(14,773)**	**(15,792)**	
83										
84	Long term debt				0	0	0	0	0	
85	Revolver									
86	Share repurchases									
87	Common dividends									
88	**Cash from financing activities**				**0**	**0**	**0**	**0**	**0**	
89										
90	**Net change in cash during period**				**50,587**	**60,396**	**66,038**	**71,007**	**76,248**	
91										
92	**PROPERTY, PLANT & EQUIPMENT**									
93	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
94	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
95							**Forecast**			
96	Beginning of period				41,304	45,043	48,611	51,948	55,219	BOP = Previous year EOP
97	Plus: Capital expenditures	12,734	12,451	13,313	13,285	13,649	13,819	14,773	15,792	JP Morgan through 2021; WSP assumption thereafter
98	Less: Depreciation	(8,300)	(8,200)	(9,300)	(9,546)	(10,081)	(10,483)	(11,501)	(12,611)	Capex x 'D&A related to PP&E as a % of capex' ratio (below)
99	**End of period**		**33,783**	**41,304**	**45,043**	**48,611**	**51,948**	**55,219**	**58,400**	BOP + Capex - Depreciation
100										Step
101	D&A related to PP&E as a % of capex	65.2%	65.9%	69.9%	71.9%	73.9%	75.9%	77.9%	79.9%	2.0%
102										
103	**IMPUTING TOTAL DEPRECIATION & AMORTIZATION**									
104	D&A not related to PP&E	2,205	1,957	1,603	1,539	1,631	1,744	1,864	1,993	Revenue x 'as % of revenue' assumption
105	as % of revenue	1.0%	0.9%	0.6%	0.6%	0.6%	0.6%	0.6%	0.6%	Straight line last historical % of revenue - WSP assumption
106	**Depreciation & Amortization - Total**	**10,505**	**10,157**	**10,903**	**11,085**	**11,712**	**12,226**	**13,365**	**14,604**	D&A from PP&E + D&A not from PP&E
107										
108	**OTHER NON-CURRENT ASSETS**									
109	Beginning of period				22,283	21,392	22,675	24,240	25,912	BOP = Previous year EOP
110	Less: D&A not related to PP&E				(1,539)	(1,631)	(1,744)	(1,864)	(1,993)	Assume all D&A not from PP&E is in non-current assets
111	Plus: Additions				648	2,915	3,308	3,537	3,781	Because we already know the EOP balance, this is a plug: EOP - D&A not from PP&E - BOP
112	**End of period**		**18,177**	**22,283**	**21,392**	**22,675**	**24,240**	**25,912**	**27,700**	Referenced from balance sheet
113										
114	**RETAINED EARNINGS**									

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Modeling Retained Earnings

J119 =SUM(J115:J118)

	C	D	E	F	G	H	I	J	K	M
13	**INCOME STATEMENT**									
14	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
15	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	**WSP Comments**
16										
17	Revenue	215,639	229,234	265,595	254,971	270,269	288,918	308,853	330,164	Previous year's revenues x (1+revenue growth rate)
18	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(158,592)	(167,297)	(178,551)	(190,871)	(204,042)	Plug = Revenue - Gross Profit
19	**Gross Profit**	**84,263**	**88,186**	**101,839**	**96,379**	**102,973**	**110,367**	**117,982**	**126,123**	Revenue x Gross Profit Margin forecast
20	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,808)	(17,027)	(18,202)	(19,458)	(20,800)	Revenue x R&D % of sales forecast
21	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
22	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
23	Interest income	3,999	5,201	5,686						Reference from interest on cash schedule
24	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)						Reference from interest expense schedule
25	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
26	**Pretax profit**	**61,372**	**64,089**	**72,903**	**61,262**	**66,856**	**71,789**	**76,772**	**82,100**	**EBIT + interest income less interest expense less other expense**
27	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,231)	(11,366)	(12,132)	(12,975)	(13,875)	Pre-tax Profit x Tax Rate forecast
28	**Net income**	**45,687**	**48,351**	**59,531**	**51,031**	**55,491**	**59,656**	**63,798**	**68,225**	**Pre-tax Profit less taxes**
29										
113										
114	**RETAINED EARNINGS**									
115	Beginning of period				70,400	34,640	3,340	(23,795)	(46,788)	BOP = Previous year EOP
116	Plus: Net income	45,687	48,351	59,531	51,031	55,491	59,656	63,798	68,225	Reference from income statement
117	Less: Dividends	(12,188)	(12,803)	(13,735)	(13,735)	(13,735)	(13,735)	(13,735)	(13,735)	WSP assumption: Straight-line last historical year dividends
118	Less: Repurchases	(29,000)	(33,001)	(73,056)	(73,056)	(73,056)	(73,056)	(73,056)	(73,056)	WSP assumption: Straight-line last historical year repurchases
119	**End of period**	**0**	**98,330**	**70,400**	34,640	3,340	(23,795)	(46,788)	(65,354)	BOP + net income - dividends - repurchases

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | **FSM Forecasting** | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Bui ...

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A More Robust Dividends Forecast

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G55 =F55*(1+G36)

	C	D	E	F	G	H	I	J	K	M
13	**INCOME STATEMENT**									
14	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
15	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	**WSP Comments**
16										
17	Revenue	215,639	229,234	265,595	254,971	270,269	288,918	308,853	330,164	Previous year's revenues x (1+revenue growth rate)
18	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(158,592)	(167,297)	(178,551)	(190,871)	(204,042)	Plug = Revenue - Gross Profit
19	**Gross Profit**	**84,263**	**88,186**	**101,839**	**96,379**	**102,973**	**110,367**	**117,982**	**126,123**	Revenue x Gross Profit Margin forecast
20	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,808)	(17,027)	(18,202)	(19,458)	(20,800)	Revenue x R&D % of sales forecast
21	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
22	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
23	Interest income	3,999	5,201	5,686						Reference from interest on cash schedule
24	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)						Reference from interest expense schedule
25	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
26	**Pretax profit**	**61,372**	**64,089**	**72,903**	**61,262**	**66,856**	**71,789**	**76,772**	**82,100**	**EBIT + interest income less interest expense less other expense**
27	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,231)	(11,366)	(12,132)	(12,975)	(13,875)	Pre-tax Profit x Tax Rate forecast
28	**Net income**	**45,687**	**48,351**	**59,531**	**51,031**	**55,491**	**59,656**	**63,798**	**68,225**	**Pre-tax Profit less taxes**
29										
30	Depreciation & amortization	10,505	10,157	10,903	11,085	11,712	12,226	13,365	14,604	Reference from D&A schedule
31	**EBITDA**	**70,529**	**71,501**	**81,801**	**72,788**	**79,009**	**84,456**	**90,579**	**97,145**	**EBIT + D&A**
32	Stock based compensation	4,210	4,840	5,340	5,126	5,434	5,809	6,210	6,638	WSP assumption: grow SBC in-line with revenue growth
33	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**77,914**	**84,443**	**90,265**	**96,789**	**103,783**	**EBITDA + Stock-based compensation**
34										
35	Growth rates & margins									
36	Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021; straight-line growth rate thereafter
37	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	JP Morgan estimates through 2021; straight-line margin thereafter
38	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
39	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
40	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
41										
42	**BALANCE SHEET**									
43	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
44	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
45	Cash & equivalents, ST and LT marketable securities		268,895	237,100	200,896	174,501	153,748	137,964	127,421	Reference from 'net change in cash' line on the cash flow statement
46	Accounts receivable		17,874	23,186	22,259	23,594	25,222	26,962	28,823	Grow in-line with revenue growth

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | **FSM Forecasting** | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Bui ...

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FINANCIAL STATEMENT MODELING

Revolver; Cash and Circularity

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The Revolving Credit Facility (Revolver)

- Flexible borrowing to support short term needs
- Usually secured by AR/inventories so costs relatively low (LIBOR + spread)
- **Revolver in modeling serves an important function:**
  - If cash shortfall, revolver balances rise
  - If cash surplus, cash balances rise (after pre-existing revolver balances are paid down)
  - Even if no revolver currently exists, build into model to handle any possible future cash shortfalls

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The Revolving Credit Facility (Revolver) (cont'd)

Net New Borrowing

Current year

Revolver (BOP)

Determined using a revolver needs analysis

Revolver (EOP)

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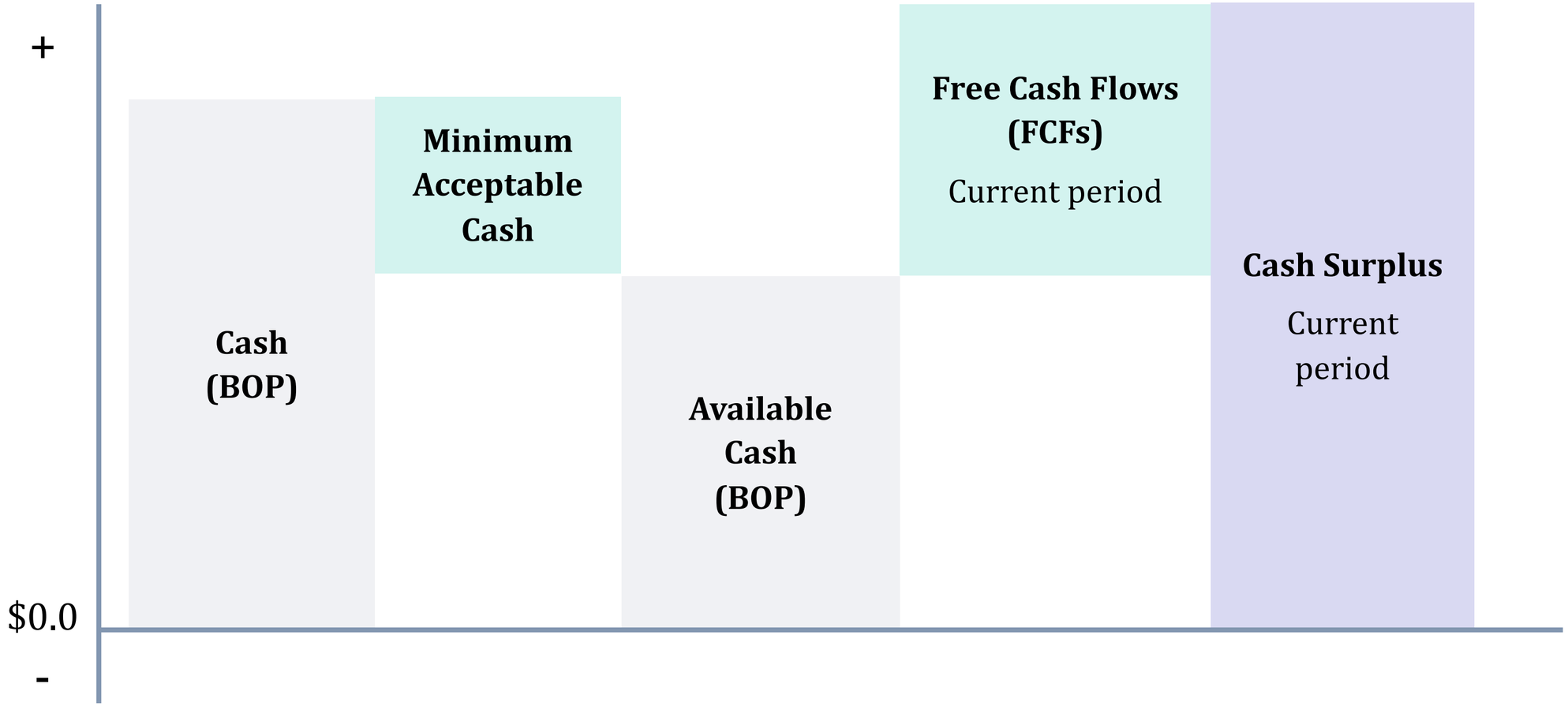
The Revolving Credit Facility (Revolver) (cont'd)

When there is a surplus, revolver can be paid down…



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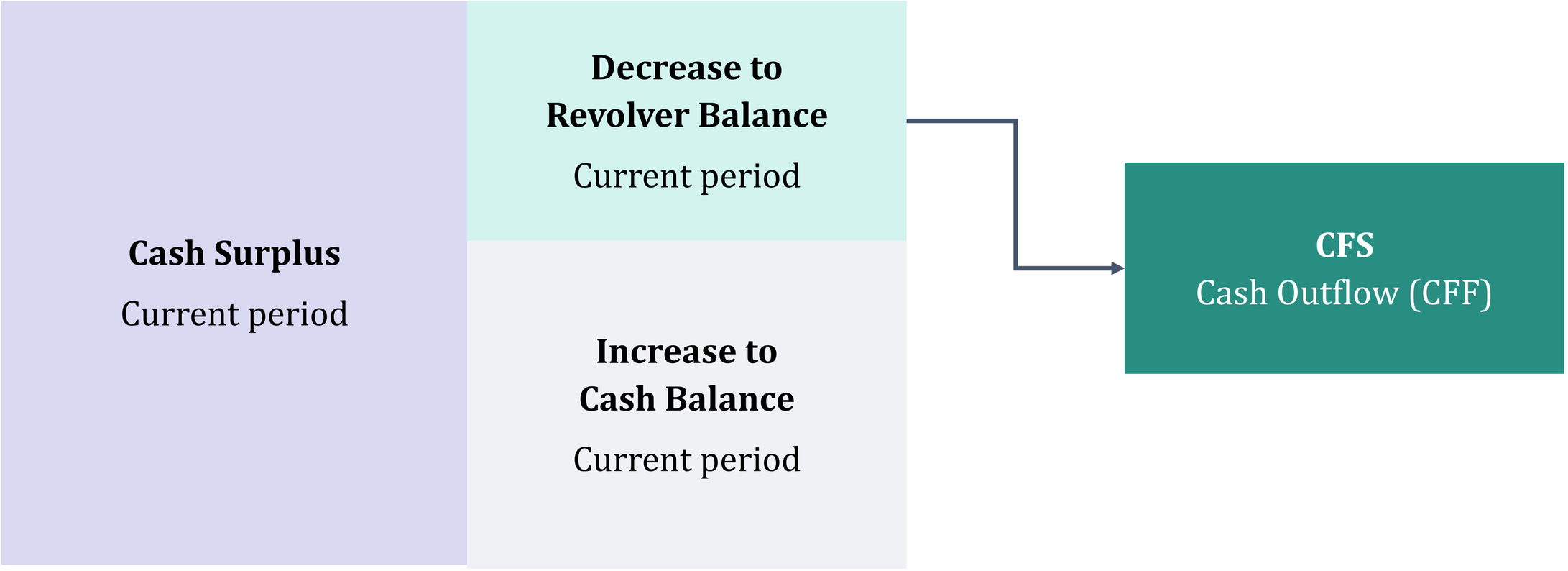
The Revolving Credit Facility (Revolver) (cont'd)

If revolver is fully paid down and there remains excess surplus, additional surplus grows the cash balance:



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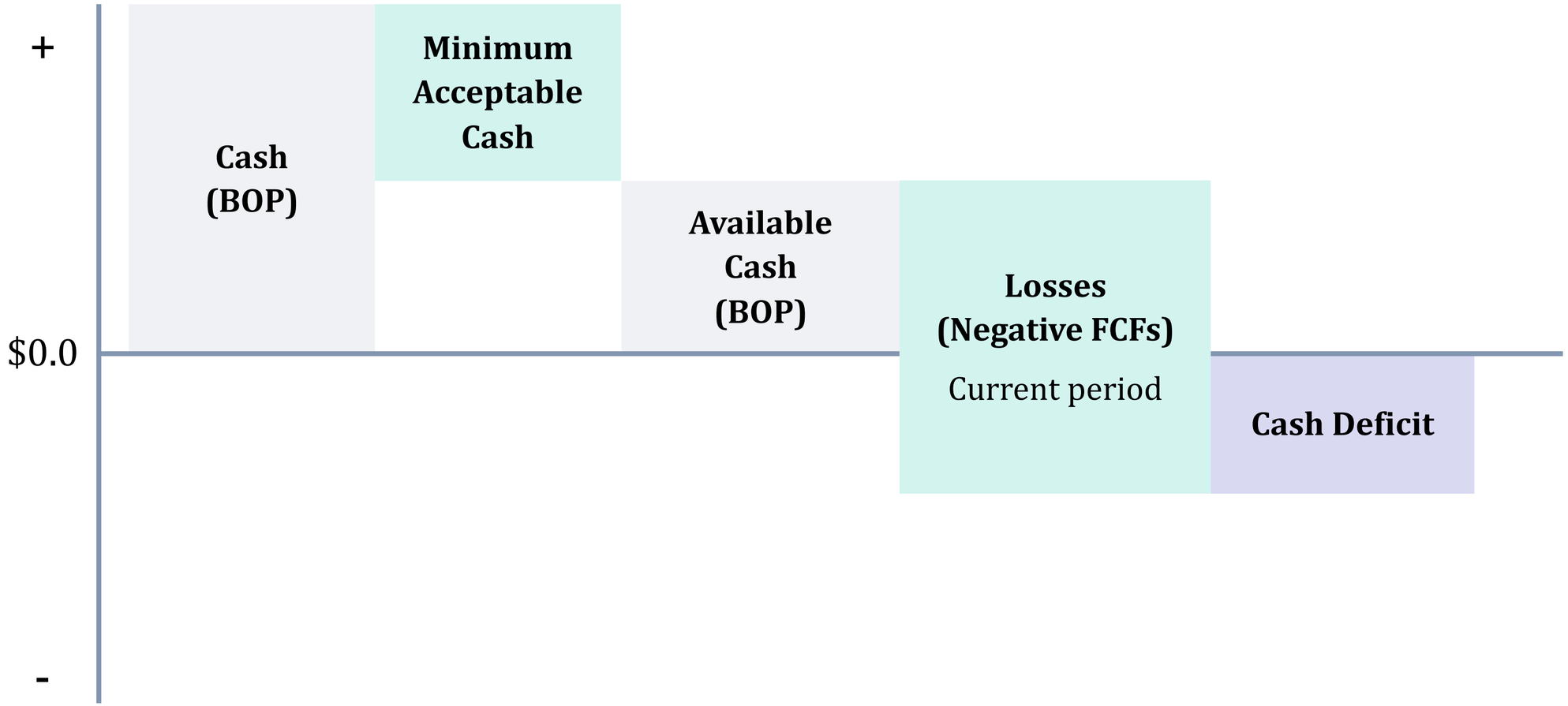
The Revolving Credit Facility (Revolver) (cont'd)

When there is a deficit, must borrow from revolver:



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The Revolving Credit Facility (Revolver) (cont'd)

The cash inflow from the additional borrowing grows the revolver balance:

Cash Deficit

Current period

Increase to Revolver Balance

Current period

→

CFS

Cash Inflow (CFF)

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The Revolver as a Model Plug

	C	E	F	G	H	I	J	K	M
47	Inventories	4,855	3,956	3,831	4,042	4,313	4,611	4,929	Grow in-line with cost of sales growth
48	Other current assets	31,735	37,896	36,380	38,563	41,224	44,068	47,109	Grow in-line with revenue growth
49	Property, plant & equipment	33,783	41,304	45,043	48,611	51,948	55,219	58,400	Reference from PP&E schedule
50	Other non current assets	18,177	22,283	21,392	22,675	24,240	25,912	27,700	Grow in-line with revenue growth
51	**Total assets**	**375,319**	**365,725**	**329,801**	**311,986**	**300,695**	**294,737**	**294,382**	
52									
53	Accounts payable	44,242	55,888	54,126	57,096	60,937	65,142	69,637	Grow in-line with cost of sales growth
54	Other current liabilities	30,551	32,687	31,380	33,262	35,557	38,011	40,634	Grow in-line with revenue growth
55	Deferred revenue (current and non current)	10,384	10,340	9,926	10,522	11,248	12,024	12,854	Grow in-line with revenue growth
56	Commercial paper / revolver	11,977	11,964	11,964	11,964	11,964	11,964	11,964	Reference EOP balance from CP/revolver schedule
57	Long term debt (includes current portion)	103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
58	Other non current liabilities	40,415	45,180	43,373	45,975	49,147	52,539	56,164	Grow in-line with revenue growth
59	**Total liabilities**	**241,272**	**258,578**	**253,287**	**261,339**	**271,373**	**282,199**	**293,771**	
60									
61	Common stock	35,867	40,201	45,327	50,761	56,570	62,780	69,418	Increase by stock-based compensation forecasted in the I/S section
62	Retained earnings	98,330	70,400	34,640	3,340	(23,795)	(46,788)	(65,354)	Reference from Retained Earnings schedule
63	Other comprehensive income	(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	WSP assumption: straight-line
64	**Total equity**	**134,047**	**107,147**	**76,514**	**50,647**	**29,321**	**12,538**	**610**	
65									
66	*Balance check*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	
67									
68	**CASH FLOW STATEMENT**								
69	*Fiscal year*			**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date			*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71									
72	Net income			51,031	55,491	59,656	63,798	68,225	
73	Depreciation and amortization			11,085	11,712	12,226	13,365	14,604	Reference from the I/S
74	Stock based compensation			5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets			2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities			(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets			(648)	(2,915)	(3,308)	(3,537)	(3,781)	Reference from schedule NOT the B/S: Only include 'Additions' (as outflow)
78	Other non current liabilities			(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**			**63,872**	**74,045**	**79,857**	**85,779**	**92,039**	
80									
81	Capital expenditures			(13,285)	(13,649)	(13,819)	(14,773)	(15,792)	Reference from PP&E schedule
82	**Cash from investing activities**			**(13,285)**	**(13,649)**	**(13,819)**	**(14,773)**	**(15,792)**	
83									
84	Long term debt			0	0	0	0	0	
85	Revolver			0	0	0	0	0	Reference from B/S
86	Share repurchases			(73,056)	(73,056)	(73,056)	(73,056)	(73,056)	Reference from Retained Earnings schedule

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Modeling the Revolver

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SUM =G79+G82+G84+G86+G87

	C	D	E	F	G	H	I	J	K	M
79	**Cash from operating activities**				**63,872**	**74,045**	**79,857**	**85,779**	**92,039**	
80										
81	Capital expenditures				(13,285)	(13,649)	(13,819)	(14,773)	(15,792)	Reference from PP&E schedule
82	**Cash from investing activities**				**(13,285)**	**(13,649)**	**(13,819)**	**(14,773)**	**(15,792)**	
83										
84	Long term debt				0	0	0	0	0	
85	Revolver									Reference from B/S
86	Share repurchases				(73,056)	(73,056)	(73,056)	(73,056)	(73,056)	Reference from Retained Earnings schedule
87	Common dividends				(13,735)	(13,735)	(13,735)	(13,735)	(13,735)	Reference from Retained Earnings schedule
88	**Cash from financing activities**				**(86,791)**	**(86,791)**	**(86,791)**	**(86,791)**	**(86,791)**	
89										
90	**Net change in cash during period**				**(36,204)**	**(26,395)**	**(20,753)**	**(15,784)**	**(10,543)**	
91										
121	**REVOLVER (MODEL PLUG)**									
122	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
123	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
124										
125	Revolver needs analysis									
126	Cash at beginning of period (BOP)				237,100	200,896	174,501	153,748	137,964	Reference prior period EOP from B/S
127	Less: Minimum cash balance				(50,000)	(50,000)	(50,000)	(50,000)	(50,000)	WSP assumption
128	Plus: Current period cash flows except revolver				=G79+G82+G84+G86+G87			(15,784)	(10,543)	CFO + CFI + CFF except revolver
129	**Equals: Cash available (needed) to pay down (draw from) revolver**				**150,896**	**124,501**	**103,748**	**87,964**	**77,421**	
130										
131	**Commercial paper / Revolver**									
132	Beginning of period				11,964	12,000	12,000	12,000	12,000	BOP = Previous year EOP
133	Draw / (paydown)				(11,964)	(12,000)	(12,000)	(12,000)	(12,000)	Cash (paydown) / additional borrowing from revolver/CP. Paydown not to e
134	Additional discretionary draw / (paydown)				12,000	12,000	12,000	12,000	12,000	WSP assumption
135	**End of period**	**0**	**11,977**	**11,964**	**12,000**	**12,000**	**12,000**	**12,000**	**12,000**	
136	Debt balance:				OK	OK	OK	OK	OK	
137										

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | FSM Forecasting_Done | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras

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Forecasting Interest Expense

	C	D	E	F	G	H	I	J	K	M
20	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,808)	(17,027)	(18,202)	(19,458)	(20,800)	Revenue x R&D % of sales forecast
21	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
22	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
23	Interest income	3,999	5,201	5,686						Reference from interest on cash schedule
24	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense schedule
25	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
26	**Pretax profit**	**61,372**	**64,089**	**72,903**	**58,039**	**63,633**	**68,565**	**73,549**	**78,877**	**EBIT + interest income less interest expense less other expense**
27	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(9,692)	(10,818)	(11,587)	(12,430)	(13,330)	Pre-tax Profit x Tax Rate forecast
28	**Net income**	**45,687**	**48,351**	**59,531**	48,346	52,815	56,977	61,119	65,546	**Pre-tax Profit less taxes**
29										
30	Depreciation & amortization	10,505	10,157	10,903	11,085	11,712	12,226	13,365	14,604	Reference from D&A schedule
138	**INTEREST EXPENSE AND INTEREST INCOME**									
139	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
140	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
141										
142	Total interest expense	1,456	2,323	3,240	3,223	3,224	3,224	3,224	3,224	Interest expense from revolver/CP + interest expense from long term debt
143										
144	**Commercial Paper / Revolver**									
145	Weighted average interest rate		1.20%	2.18%	2.18%	2.18%	2.18%	2.18%	2.18%	WSP assumption: Straight-line
146	End of period balance (from B/S)		11,977	11,964	12,000	12,000	12,000	12,000	12,000	Reference from revolver / CP schedule above
147	**Interest expense**		**144**	**261**	**261**	**262**	**262**	**262**	**262**	Interest rate x average of BOP & EOP revolver balances (circularity)
148										
149	**Long term debt**									
150	End of period balance (from B/S)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	Reference from B/S
151	Weighted average interest rate		2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	2.9%	WSP assumption: Straight-line
152	**Interest expense**		**2,179**	**2,979**	**2,962**	**2,962**	**2,962**	**2,962**	**2,962**	Interest rate x average of BOP & EOP LTD balances
153										
154	Interest rate on cash									
155	Weighted average interest rate on cash	1.73%	1.99%	2.16%						WSP assumption: Straight-line
156	Interest income	3,999	5,201	5,686						Interest rate x average of BOP & EOP B/S cash (circularity)

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Forecasting Interest Income

r progress in worksheet: 'FSM Complete'

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H118 =G118

	C	D	E	F	G	H	I	J	K	M
64	**Total equity**		**134,047**	**107,147**	**77,781**	**52,634**	**31,614**	**14,812**	**2,626**	
65										
66	*Balance check*		*0*	*0*	*0*	*0*	*0*	*0*	*0*	
67										
68	**CASH FLOW STATEMENT**									
69	*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
70	Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
71										
72	Net income				52,299	56,210	59,963	63,779	67,967	
73	Depreciation and amortization				11,085	11,712	12,226	13,365	14,604	Reference from the I/S
74	Stock based compensation				5,126	5,434	5,809	6,210	6,638	
75	Decreases / (Increases) in working capital assets				2,568	(3,729)	(4,561)	(4,882)	(5,219)	
76	Increases / (Decreases) in working capital liabilities				(3,483)	5,449	6,862	7,434	7,947	
77	Other non current assets				(648)	(2,915)	(3,308)	(3,537)	(3,781)	Reference from schedule NOT the B/S: Only include 'Additions' (as outflow)
78	Other non current liabilities				(1,807)	2,602	3,172	3,391	3,625	
79	**Cash from operating activities**				**65,140**	**74,764**	**80,163**	**85,760**	**91,781**	
80										
81	Capital expenditures				(13,285)	(13,649)	(13,819)	(14,773)	(15,792)	Reference from PP&E schedule
82	**Cash from investing activities**				**(13,285)**	**(13,649)**	**(13,819)**	**(14,773)**	**(15,792)**	
83										
84	Long term debt				0	0	0	0	0	
85	Revolver				36	0	0	0	0	Reference from B/S
86	Share repurchases				(73,056)	(73,056)	(73,056)	(73,056)	(73,056)	Reference from Retained Earnings schedule
87	Common dividends				(13,735)	(13,735)	(13,735)	(13,735)	(13,735)	Reference from Retained Earnings schedule
88	**Cash from financing activities**				**(86,755)**	**(86,791)**	**(86,791)**	**(86,791)**	**(86,791)**	
89										
90	**Net change in cash during period**				**(34,900)**	**(25,676)**	**(20,447)**	**(15,803)**	**(10,801)**	
91										
92	**PROPERTY, PLANT & EQUIPMENT**									
93	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	

FSM Data Input_Empty | FSM Data Input_Done | FSM Forecasting_Empty | FSM Forecasting_Done | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras

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Circularity in Financial Models

G23 =G156

Financial Statement Model for Apple

$ in thousands except per share

Company name	Apple
Ticker	AAPL
Use Average balances = 1, Use BOP balances = 0	–
Latest closing share price	$171.25
Latest closing share price date	2/4/2019
Latest fiscal year end date	9/29/18
Shares outstanding (millions)	4,745.398

INCOME STATEMENT

Fiscal year	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P	WSP Comments
Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
Revenue	215,639	229,234	265,595	254,971	270,269	288,918	308,853	330,164	Previous year's revenues x (1+revenue growth rate)
Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(158,592)	(167,297)	(178,551)	(190,871)	(204,042)	Plug = Revenue - Gross Profit
Gross Profit	**84,263**	**88,186**	**101,839**	**96,379**	**102,973**	**110,367**	**117,982**	**126,123**	Revenue x Gross Profit Margin forecast
Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,808)	(17,027)	(18,202)	(19,458)	(20,800)	Revenue x R&D % of sales forecast
Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
Operating profit (EBIT)	**60,024**	**61,344**	**70,898**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
Interest income	3,999	5,201	5,686	5,121	4,374	3,825	3,387	3,049	Reference from interest on cash schedule
Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense schedule
Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
Pretax profit	**61,372**	**64,089**	**72,903**	**63,161**	**68,007**	**72,390**	**76,936**	**81,926**	**EBIT + interest income less interest expense less other expense**
Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,548)	(11,561)	(12,234)	(13,002)	(13,845)	Pre-tax Profit x Tax Rate forecast
Net income	**45,687**	**48,351**	**59,531**	**52,613**	**56,446**	**60,156**	**63,934**	**68,080**	**Pre-tax Profit less taxes**
Depreciation & amortization	10,505	10,157	10,903	11,085	11,712	12,226	13,365	14,604	Reference from D&A schedule
EBITDA	**70,529**	**71,501**	**81,801**	**72,788**	**79,009**	**84,456**	**90,579**	**97,145**	**EBIT + D&A**

FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | FSM + Rev Scearios | Rev Build | FSM + Schedules Empty | FSM + Schedules

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FINANCIAL STATEMENT MODELING

Sensitivity Tables and Scenario Analysis

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Sensitivity Analysis with Data Tables

E167 {=TABLE(G37,G38)}

		D	E	F	G	H	I	J	K	M
25	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense schedule
26	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
27	**Pretax profit**	**61,372**	**64,089**	**72,903**	**62,783**	**67,723**	**72,157**	**76,749**	**81,790**	**EBIT + interest income less interest expense less other expense**
28	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,485)	(11,513)	(12,195)	(12,971)	(13,822)	Pre-tax Profit x Tax Rate forecast
29	**Net income**	**45,687**	**48,351**	**59,531**	**52,299**	**56,210**	**59,963**	**63,779**	**67,967**	**Pre-tax Profit less taxes**
30										
31	Depreciation & amortization	10,505	10,157	10,903	11,085	11,712	12,226	13,365	14,604	Reference from D&A schedule
32	**EBITDA**	**70,529**	**71,501**	**81,801**	**72,788**	**79,009**	**84,456**	**90,579**	**97,145**	**EBIT + D&A**
33	Stock based compensation	4,210	4,840	5,340	5,126	5,434	5,809	6,210	6,638	WSP assumption: grow SBC in-line with revenue growth
34	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**77,914**	**84,443**	**90,265**	**96,789**	**103,783**	**EBITDA + Stock-based compensation**
35										
36	Growth rates & margins									
37	Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	From scenario analysis below
38	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	From scenario analysis below
39	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	From scenario analysis below
40	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	From scenario analysis below
41	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
42										
43	**BALANCE SHEET**									
158										
159	**SENSITIVITY ANALYSIS**									
160										
161	**First forecast year net income sensitivity**									
162				**Revenue growth rate**						
163		52,299	(8.0%)	(6.0%)	(4.0%)	(2.0%)	4.0%			
164		40.0%	54,618	55,808	56,997	58,187	61,756			
165	**Gross**	39.0%	52,571	53,716	54,862	56,007	59,443			
166	**Profit**	37.8%	50,115	51,207	52,299	53,390	56,666			
167	**Margin:**	35.0%	44,384	45,351	46,318	47,285	50,187			
168										
169										
170										
171	**SCENARIO ANALYSIS**									
172										
173	Active case:	**Base case**		**Variance from**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	

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Scenario Analysis Exercise

G178 =G193

	C	D	E	F	G	H	I	J	K	M
12	Select an operating scenario:	Best case								
13										
14	**INCOME STATEMENT**									
15	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
16	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	**WSP Comments**
17										
18	Revenue	215,639	229,234	265,595	254,971	270,269	288,918	308,853	330,164	Previous year's revenues x (1+revenue growth rate)
19	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(158,592)	(167,297)	(178,551)	(190,871)	(204,042)	Plug = Revenue - Gross Profit
171	**SCENARIO ANALYSIS**									
172										
173	Active case:	Best case		Variance from	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
174				base case	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
175	Revenue growth				(1.5%)	6.0%	6.9%	6.9%	6.9%	
176	Gross profit margin				38.8%	38.0%	38.2%	38.2%	38.2%	
177	R&D % of sales				5.2%	6.3%	6.3%	6.3%	6.3%	
178	SG&A % of sales				6.4%	6.9%	6.9%	6.9%	6.9%	
179										
180	**Revenue growth**									
181	Best case			2.5%	(1.5%)	8.5%	9.4%	9.4%	9.4%	
182	Base case			NM	(4.0%)	6.0%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021; straight-line growth rate thereafter
183	Weak case			(2.5%)	(6.5%)	3.5%	4.4%	4.4%	4.4%	
184	**Gross profit margin**									
185	Best case			1.0%	38.8%	39.0%	39.2%	39.2%	39.2%	
186	Base case			NM	37.8%	38.0%	38.2%	38.2%	38.2%	JP Morgan estimates through 2021; straight-line margin thereafter
187	Weak case			(1.0%)	36.8%	37.0%	37.2%	37.2%	37.2%	
188	**R&D % of sales**									
189	Best case			(1.0%)	5.2%	5.3%	5.3%	5.3%	5.3%	
190	Base case			NM	6.2%	6.3%	6.3%	6.3%	6.3%	JP Morgan estimates through 2021: straight-line margin thereafter
191	Weak case			1.0%	7.2%	7.3%	7.3%	7.3%	7.3%	
192	**SG&A % of sales**									
193	Best case			(1.0%)	6.4%	5.9%	5.9%	5.9%	5.9%	
194	Base case			NM	7.4%	6.9%	6.9%	6.9%	6.9%	JP Morgan estimates through 2021: straight-line margin thereafter
195	Weak case			1.0%	8.4%	7.9%	7.9%	7.9%	7.9%	
196										
197	**EARNINGS PER SHARE**									
198	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
199	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
200										
201	Net income									Reference from I/S
202	Basic shares									Last period basic shares + ($ shares issued - $ shares repurchased)/Current period average share price
203	**Basic EPS**									Net income / Basic shares

FSM Forecasting_Empty | FSM Forecasting | FSM Forecasting I | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | FSM + Rev Scenario:

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Scenario Analysis Solution

G38 =G176

7	Circ break 1=off, 0=on	1							
8	Latest closing share price	$171.25							
9	Latest closing share price date	2/4/2019							
10	Latest fiscal year end date	9/29/18							
11	Shares outstanding (millions)	4,745.398							
12	Select an operating scenario:	Best case							
13									
14	**INCOME STATEMENT**								
15	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**
16	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*
17									
18	Revenue	215,639	229,234	265,595	261,611	283,848	310,530	339,720	371,653
19	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(160,106)	(173,147)	(188,802)	(206,549)	(225,965)
20	**Gross Profit**	**84,263**	**88,186**	**101,839**	**101,505**	**110,701**	**121,728**	**133,170**	**145,688**
21	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(13,604)	(15,044)	(16,458)	(18,005)	(19,698)
22	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(16,743)	(16,747)	(18,321)	(20,043)	(21,928)
23	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**71,158**	**78,910**	**86,948**	**95,121**	**104,063**
24	Interest income	3,999	5,201	5,686	4,838	4,404	4,191	4,154	4,298
25	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)
26	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)
27	**Pretax profit**	**61,372**	**64,089**	**72,903**	**72,332**	**79,649**	**87,475**	**95,611**	**104,697**
28	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(12,080)	(13,540)	(14,783)	(16,158)	(17,694)
29	**Net income**	**45,687**	**48,351**	**59,531**	**60,253**	**66,109**	**72,691**	**79,452**	**87,003**
30									
31	Depreciation & amortization	10,505	10,157	10,903	11,125	11,794	12,357	13,821	15,451
32	**EBITDA**	**70,529**	**71,501**	**81,801**	**82,283**	**90,704**	**99,305**	**108,942**	**119,514**
33	Stock based compensation	4,210	4,840	5,340	5,260	5,707	6,243	6,830	7,472
34	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**87,543**	**96,411**	**105,549**	**115,773**	**126,986**
35									
36	Growth rates & margins								
37	Revenue growth		6.3%	15.9%	(1.5%)	8.5%	9.4%	9.4%	9.4%
38	Gross profit margin	39.1%	38.5%	38.3%	38.8%	39.0%	39.2%	39.2%	39.2%
39	R&D % of sales	4.7%	5.1%	5.4%	5.2%	5.3%	5.3%	5.3%	5.3%
40	SG&A % of sales	6.6%	6.7%	6.3%	6.4%	5.9%	5.9%	5.9%	5.9%
41	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%
42									
43	**BALANCE SHEET**								
44	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**
45	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*

	WSP Comments
18	Previous year's revenues x (1+revenue growth rate)
19	Plug = Revenue - Gross Profit
20	Revenue x Gross Profit Margin forecast
21	Revenue x R&D % of sales forecast
22	Revenue x SG&A % of sales forecast
23	**Gross Profit - R&D - SG&A**
24	Reference from interest on cash schedule
25	Reference from interest expense schedule
26	Straight-line
27	**EBIT + interest income less interest expense less other expense**
28	Pre-tax Profit x Tax Rate forecast
29	**Pre-tax Profit less taxes**
31	Reference from D&A schedule
32	**EBIT + D&A**
33	WSP assumption: grow SBC in-line with revenue growth
34	**EBITDA + Stock-based compensation**
37	From scenario analysis below
38	From scenario analysis below
39	From scenario analysis below
40	From scenario analysis below
41	JP Morgan estimates through 2021: straight-line margin thereafter

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FINANCIAL STATEMENT MODELING

Modeling Earnings Per Share

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Basic Shares Outstanding

- Share issuances increase basic shares
- Share buybacks decrease basic shares
- Model forecasts $ amounts of share issuances & buybacks, so a future share price forecast must be made to arrive at share count
- Use consensus EPS annual growth as a proxy for share price growth

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Basic Shares Outstanding Example

Exercise

- On January 1, 2014, Capital Co. had 900m basic shares out.
- During 2014, Capital Co. plans to buy back $25b worth of its own stock (assume buybacks made midyear).
- Actual 2013 Basic EPS was $40 per share, and consensus 2014 EPS is $44.
- During 2013, Capital Co. average share price was $600.
- Forecast 2014 **weighted average** basic shares outstanding.

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Basic Shares Outstanding Example (cont'd)

Answer

1. 2014 average share price forecast:
   - $600 (2013 average share price) x (1 + 10%) = $660
2. Number of shares repurchased:
   - $25b ÷ $660 = $38m
3. 2014 weighted average shares:
   - Average of 900m (BOP) and 862m (EOP) = 881m

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Diluted Shares Outstanding for EPS Calculation

- The difference between basic and diluted shares accounts for potentially dilutive securities like options, warrants, convertible debt and stock
- Straight line the historical difference between basic and diluted weighted average shares

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Forecasting EPS

Walk Through - Excel

File Hom Data Review View Developer Help S&P Capital IQ FactSet Macabacus

G220

10	Latest fiscal year end date	9/29/18								
11	Shares outstanding (millions)	4,745.398								
12	Select an operating scenario:	Base case								
13										
14	**INCOME STATEMENT**									
15	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
16	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	**WSP Comments**
17										
18	Revenue	215,639	229,234	265,595	254,971	270,269	288,918	308,853	330,164	Previous year's revenues x (1+revenue growth rate)
19	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(158,592)	(167,567)	(178,551)	(190,871)	(204,042)	Plug = Revenue - Gross Profit
20	**Gross Profit**	**84,263**	**88,186**	**101,839**	**96,379**	**102,702**	**110,367**	**117,982**	**126,123**	Revenue x Gross Profit Margin forecast
21	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,808)	(17,027)	(18,202)	(19,458)	(20,800)	Revenue x R&D % of sales forecast
22	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
23	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,703**	**67,027**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
24	Interest income	3,999	5,201	5,686	4,744	4,089	3,588	3,196	2,908	Reference from interest on cash schedule
25	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense schedule
26	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
27	**Pretax profit**	**61,372**	**64,089**	**72,903**	**62,783**	**67,451**	**72,153**	**76,744**	**81,785**	**EBIT + interest income less interest expense less other expense**
28	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,485)	(11,467)	(12,194)	(12,970)	(13,822)	Pre-tax Profit x Tax Rate forecast
29	**Net income**	**45,687**	**48,351**	**59,531**	**52,299**	**55,984**	**59,959**	**63,775**	**67,963**	**Pre-tax Profit less taxes**
30										
205	Diluted Shares	5,500	5,252	5,000	4,623	4,296	4,014	3,769	3,558	Basic shares + Dilutive securities
206	**Diluted EPS**	**$8.31**	**$9.21**	**$11.91**	**$11.31**	**$13.03**	**$14.94**	**$16.92**	**$19.10**	Net income/Diluted Shares
207										
208	$ amount of shares repurchased				73,056	73,056	73,056	73,056	73,056	Reference from RE schedule - treasury repurchases (flip sign)
209	$ amount of new shares issued				5,126	5,434	5,809	6,210	6,638	Reference SBC from I/S
210	Average share price				$180.00	$207.00	$238.05	$273.76	$314.82	Last period share price x (1+growth rate)
211	Share price increase					15%	15%	15%	15%	WSP assumption
212										
213	**Basic Shares - BOP**				**4,745**	**4,368**	**4,041**	**3,759**	**3,515**	
214	Net change in basic shares				(377)	(327)	(282)	(244)	(211)	
215	Basic shares - EOP				4,368	4,041	3,759	3,515	3,304	
216	**Basic shares - average**				**4,557**	**4,205**	**3,900**	**3,637**	**3,409**	
217										
218	Net income	45,687	48,351	59,531	52,299	55,984	59,959	63,775	67,963	
219	yoy % growth in net income		5.8%	23.1%	(12.1%)	7.0%	7.1%	6.4%	6.6%	

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FINANCIAL STATEMENT MODELING

Balancing a Model

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Balancing the Model Exercise

E45 =20289+53892+194714

40		Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter				
41															
42		**BALANCE SHEET**													
43		*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**					
44		Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	B/S				
45		Cash & equivalents, ST and LT marketable securities		268,895	237,100	212,430	209,969	214,950	225,807	242,958					Reference from 'ne
46	x	Accounts receivable		17,874	23,186	22,259	23,594	25,222	26,962	28,823	927				Grow in-line with re
47		Inventories		4,855	3,956	3,831	4,042	4,313	4,611	4,929					Grow in-line with c
48		Other current assets		31,735	37,896	36,380	38,563	41,224	44,068	47,109					Grow in-line with re
49		Property, plant & equipment		33,783	41,304	45,043	48,611	51,948	55,219	58,400					Reference from PP&
50		Other non current assets		18,177	22,283	21,392	22,675	24,240	25,912	27,700					Grow in-line with re
51		**Total assets**		**375,319**	**365,725**	**341,334**	**347,453**	**361,897**	**382,580**	**409,919**					
52															
53		Accounts payable		44,242	55,888	54,126	57,096	60,937	65,142	69,637					Grow in-line with c
54		Other current liabilities		30,551	32,687	31,380	33,262	35,557	38,011	40,634					Grow in-line with re
55		Deferred revenue (current and non current)		10,384	10,340	9,926	10,522	11,248	12,024	12,854					Grow in-line with re
56		Commercial paper / revolver		11,977	11,964	12,000	12,000	12,000	12,000	12,000					Reference EOP bala
57		Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519					WSP assumption: s
58		Other non current liabilities		40,415	45,180	43,373	45,975	49,147	52,539	56,164					Grow in-line with re
59		**Total liabilities**		**241,272**	**258,578**	**253,323**	**261,375**	**271,409**	**282,235**	**293,807**					
60															
61		Common stock		35,867	40,201	40,201	40,201	40,201	40,201	40,201					Increase by stock-b
62		Retained earnings		98,330	70,400	(34,400)	(30,190)	(26,000)	(21,716)	(17,038)					Reference from Ret
63		Other comprehensive income		(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)					WSP assumption: s
64		**Total equity**		**134,047**	**107,147**	**2,347**	**6,557**	**10,747**	**15,031**	**19,709**					
65															
66		*Balance check*		*0*	*0*	*85,664*	*79,521*	*79,741*	*85,314*	*96,403*					
67															
68		**CASH FLOW STATEMENT**													
69		*Fiscal year*				**2019P**	**2020P**	**2021P**	**2022P**	**2023P**					
70		Fiscal year end date				*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*					

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Balancing the Model Solutions

ess in worksheet: 'Find the errors Complete'

G66 =ROUND(G51-G59-G64,3)

			E	F		H	I	J	K	M	N	Q
41												
42		**BALANCE SHEET**										
43		*Fiscal year*	**2017A**	**2018**	**19P**	**2020P**	**2021P**	**2022P**	**2023P**			
44		Fiscal year end date	*9/30/17*	*9/29/1*	*0/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	B/S		
45	x	Cash & equivalents, ST and LT marketable securities	268,895	237,100	202,200	176,524	156,077	140,274	129,472	(34,900)		Reference from 'ne
46	x	Accounts receivable	17,874	23,186	22,259	23,594	25,222	26,962	28,823			Grow in-line with re
47	x	Inventories	4,855	3,956	3,831	4,042	4,313	4,611	4,929			Grow in-line with c
48	x	Other current assets	31,735	37,896	36,380	38,563	41,224	44,068	47,109			Grow in-line with re
49	x	Property, plant & equipment	33,783	41,304	45,043	48,611	51,948	55,219	58,400	(3,739)		Reference from PP&
50	x	Other non current assets	18,177	22,283	21,392	22,675	24,240	25,912	27,700	891		Grow in-line with re
51		**Total assets**	**375,319**	**365,725**	**331,104**	**314,009**	**303,024**	**297,046**	**296,433**			
52												
53	x	Accounts payable	44,242	55,888	54,126	57,096	60,937	65,142	69,637	(1,762)		Grow in-line with c
54	x	Other current liabilities	30,551	32,687	31,380	33,262	35,557	38,011	40,634	(1,307)		Grow in-line with r
55	x	Deferred revenue (current and non current)	10,384	10,340	9,926	10,522	11,248	12,024	12,854	(414)	(3,483)	Grow in-line with re
56	x	Commercial paper / revolver	11,977	11,964	12,000	12,000	12,000	12,000	12,000	36		Reference EOP bala
57	x	Long term debt (includes current portion)	103,703	102,519	102,519	102,519	102,519	102,519	102,519	0		WSP assumption: s
58	x	Other non current liabilities	40,415	45,180	43,373	45,975	49,147	52,539	56,164	(1,807)		Grow in-line with re
59		**Total liabilities**	**241,272**	**258,578**	**253,323**	**261,375**	**271,409**	**282,235**	**293,807**			
60												
61	x	Common stock	35,867	40,201	45,327	50,761	56,570	62,780	69,418	5,126		Increase by stock-b
62	x	Retained earnings	98,330	70,400	35,908	5,326	(21,502)	(44,514)	(63,338)	(34,492)		Reference from Ret
63	x	Other comprehensive income	(150)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	(3,454)	0		WSP assumption: s
64		**Total equity**	**134,047**	**107,147**	**77,781**	**52,634**	**31,614**	**14,812**	**2,626**			
65												
66		*Balance check*	*0*	*0*	*0*	*0*	*0*	*0*	*0*			
67												
68		**CASH FLOW STATEMENT**										
69		*Fiscal year*			**2019P**	**2020P**	**2021P**	**2022P**	**2023P**			
70		Fiscal year end date			*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*			
71												

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FINANCIAL STATEMENT MODELING

Segment Level Revenue Build (PV Analysis)

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Revenue Build

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26 / 96 125% Share

Sales Data

The following table shows net sales by reportable segment and net sales and unit sales by product for 2018 , 2017 and 2016 (dollars in millions and units in thousands):

	2018	Change	2017	Change	2016
Net Sales by Reportable Segment:					
Americas	$ 112,093	16 %	$ 96,600	12 %	$ 86,613
Europe	62,420	14 %	54,938	10 %	49,952
Greater China	51,942	16 %	44,764	(8)%	48,492
Japan	21,733	23 %	17,733	5 %	16,928
Rest of Asia Pacific	17,407	15 %	15,199	11 %	13,654
Total net sales	$ 265,595	16 %	$ 229,234	6 %	$ 215,639
Net Sales by Product:					
iPhone (1)	$ 166,699	18 %	$ 141,319	3 %	$ 136,700
iPad (1)	18,805	(2)%	19,222	(7)%	20,628
Mac (1)	25,484	(1)%	25,850	13 %	22,831
Services (2)	37,190	24 %	29,980	23 %	24,348
Other Products (1)(3)	17,417	35 %	12,863	16 %	11,132
Total net sales	$ 265,595	16 %	$ 229,234	6 %	$ 215,639
Unit Sales by Product:					
iPhone	217,722	— %	216,756	2 %	211,884
iPad	43,535	— %	43,753	(4)%	45,590
Mac	18,209	(5)%	19,251	4 %	18,484

(1) Includes deferrals and amortization of related software upgrade rights and non-software services.

(2) Includes revenue from Digital Content and Services, AppleCare, Apple Pay, licensing and other services. Services net sales in 2018 included a favorable one-time item of $236 million in connection with the final resolution of various lawsuits. Services net sales in 2017 included a favorable one-time adjustment of $640 million due to a change in estimate based on the availability of additional supporting information.

(3) Includes sales of AirPods, Apple TV, Apple Watch, Beats products, HomePod, iPod touch and other Apple-branded and third-party accessories.

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Price x Volume Exercise 1

	C	D	E	F	G	H	I	J	K	M	N	O	P
4	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*				
5	**Revenue by product**												
6	Core products												
7	iPhone												
8	iPad												
9	Mac												
10													
11	Services									CG estimates through 2020; WSP thereafter			
12	Other products									CG estimates through 2020; WSP thereafter			
13	**Total revenue**												
14	% growth												
15													
16	**Units**												
17	iPhone									CG estimates through 2020; Straight line therafter			
18	iPad									CG estimates through 2020; Straight line therafter			
19	Mac									CG estimates through 2020; Straight line therafter			
20													
21	**Average selling price**												
22	iPhone									CG estimates through 2020; Straight line therafter			
23	iPad									CG estimates through 2020; Straight line therafter			
24	Mac									CG estimates through 2020; Straight line therafter			
25													
26	**Units % growth**												
27	iPhone												
28	iPad												
29	Mac												
30													0
31	**Average selling price % growth**												
32	iPhone												
33	iPad												
34	Mac												
35													
36	**Revenue growth rate by product**												
37	iPhone												
38	iPad												
39	Mac												

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Price x Volume Exercise 1 Solution

in worksheet: 'Rev Build Complete'

I24

	C	D	E	F	M	N	P	Q	R
9	Mac	22,831	25,850	25,484			22,831	25,850	25,484
10							24,348	29,980	37,190
11	Services	24,348	29,980	37,190	CG estimates through 2020; WSP thereafter		11,132	12,863	17,417
12	Other products	11,132	12,863	17,417	CG estimates through 2020; WSP thereafter				
13	**Total revenue**	**215,639**	**229,234**	**265,595**					
14	% growth		6.3%	15.9%			211,884	216,756	217,722
15							45,590	43,753	43,535
16	**Units**						18,484	19,251	18,209
17	iPhone	211,884	216,756	217,722	CG estimates through 2020; Straight line therafter				
18	iPad	45,590	43,753	43,535	CG estimates through 2020; Straight line therafter				
19	Mac	18,484	19,251	18,209	CG estimates through 2020; Straight line therafter				
20									
21	**Average selling price**								
22	iPhone	645.2	652.0	765.7	CG estimates through 2020; Straight line therafter				
23	iPad	452.5	439.3	432.0	CG estimates through 2020; Straight line therafter				
24	Mac	1,235.2	1,342.8	1,399.5	CG estimates through 2020; Straight line therafter				
25									
26	**Units % growth**								
27	iPhone		2.3%	0.4%					
28	iPad		(4.0%)	(0.5%)					
29	Mac		4.1%	(5.4%)					
30							0		
31	**Average selling price % growth**								
32	iPhone		1.1%	17.4%					
33	iPad		(2.9%)	(1.7%)					
34	Mac		8.7%	4.2%					
35									
36	**Revenue growth rate by product**								
37	iPhone		3.4%	18.0%					
38	iPad		(6.8%)	(2.2%)					
39	Mac		13.2%	(1.4%)					
40	Services		23.1%	24.0%	CG estimates through 2020; Straight line growth rate thereafter				
41	Other products		15.5%	35.4%	CG estimates through 2020; Straight line growth rate thereafter				
42									
43									
44									

... | FSM Forecasting II | FSM Complete | Extras Complete | Extras | **Rev Build Fill** | Rev Build Complete | Rev Build | FSM + Rev Scearios | FSM + Schedules Empty | FSM + Schedules

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Price x Volume Exercise 2

APPL Equity Res

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166 / 177 150%

Share

Figure 4: Apple sales by product category

Apple Quarterly Sales by Product Category
(in million USD)

	FY2018 A				FY2019 E				FY2020 E				FY2021E
	12/31/2017	3/31/2018	6/30/2018	9/30/2018	12/31/2018	3/31/2019	6/30/2019	9/30/2019	12/31/2019	3/31/2020	6/30/2020	9/30/2020	12/31/2020
	Q1-18 A	Q2-18 A	Q3-18 A	Q4-18 A	Q1-19 A	Q2-19 E	Q3-19 E	Q4-19 E	Q1-20 E	Q2-20 E	Q3-20 E	Q4-20 E	Q1-21 E
iPhone Units	77.32	52.22	41.30	46.89	63.00	37.00	33.50	40.20	67.13	43.64	37.96	42.14	66.58
iPhone ASP (adjusting for deferral)	$796	$719	$707	$781	$828	$786	$763	$748	$763	$724	$703	$687	$771
iPhone ASP reported	$790	$719	$714	$784	$825	$795	$773	$752	$757	$726	$707	$691	$765
Current Quarter iPhone Revenue	$60,032	$36,481	$28,389	$35,672	$50,895	$28,359	$24,886	$29,250	$49,852	$30,740	$25,919	$28,177	$50,022
Prior Period iPhone Deferred Revenu	$1,072	$1,078	$1,081	$1,083	$1,086	$1,048	$1,014	$995	$979	$953	$932	$923	$911
Total iPhone Reported Revenue	$61,104	$37,559	$29,470	$36,755	$51,982	$29,407	$25,900	$30,245	$50,830	$31,693	$26,850	$29,101	$50,934
Q/Q Growth	112%	-39%	-22%	25%	41%	-43%	-12%	17%	68%	-38%	-15%	8%	75%
Y/Y Growth	12%	13%	19%	27%	-15%	-22%	-12%	-18%	-2%	8%	4%	-4%	0%
%age of Apple Revenue	69%	61%	55%	58%	62%	52%	49%	51%	59%	51%	48%	48%	57%
iPad Units	13.17	9.11	11.55	9.70	15.00	10.05	10.35	10.77	16.15	10.82	11.14	11.14	16.72
iPad ASP	$437	$440	$401	$411	$454	$431	$431	$431	$431	$410	$410	$410	$410
Current Quarter iPad Revenue	$5,492	$3,826	$4,403	$3,789	$6,511	$4,134	$4,258	$4,428	$6,643	$4,217	$4,344	$4,344	$6,516
Prior Period iPad Deferred Revenue	$223	$216	$213	$217	$218	$223	$226	$223	$224	$232	$236	$235	$239
Total iPad Reported Revenue	$5,755	$4,008	$4,634	$3,983	$6,729	$4,357	$4,484	$4,652	$6,867	$4,449	$4,580	$4,579	$6,754
Q/Q Growth	19%	-30%	16%	-14%	69%	-35%	3%	4%	48%	-35%	3%	0%	48%
Y/Y Growth	4%	3%	-7%	-18%	17%	9%	-3%	17%	2%	2%	2%	-2%	-2%
%age of Apple Revenue	7%	7%	9%	6%	8%	8%	9%	8%	8%	7%	8%	7%	8%
Mac Units	5.11	4.08	3.72	5.30	5.38	4.62	4.39	5.27	5.32	4.47	4.25	5.10	5.15
Mac ASP	$1,335	$1,416	$1,413	$1,385	$1,344	$1,344	$1,303	$1,395	$1,353	$1,400	$1,358	$1,453	$1,409
Current Quarter Mac Revenue	$6,619.52	$5,613	$5,109	$7,340	$7,224	$6,213	$5,725	$7,351	$7,202	$6,261	$5,770	$7,408	$7,258
Prior Period Mac Deferred Revenue	$158	$194	$194	$192	$191	$191	$191	$190	$189	$189	$190	$190	$191
Total Mac Reported Revenue	$6,824	$5,776	$5,258	$7,340	$7,416	$6,404	$5,916	$7,541	$7,391	$6,450	$5,960	$7,599	$7,449
Q/Q Growth	-5%	-15%	-9%	40%	1%	-14%	-8%	27%	-2%	-13%	-8%	27%	-2%
Y/Y Growth	-6%	-1%	-6%	2%	9%	11%	13%	3%	0%	1%	1%	1%	1%
%age of Apple Revenue	8%	9%	10%	12%	9%	11%	11%	13%	9%	10%	11%	12%	8%
iPod Revenue	$42	$5	$5	$4	$3	$2	$0	$0	$0	$0	$0	$0	$0
Apple watch units	8.00	5.50	5.64	5.70	11.40	8.55	8.81	9.16	15.57	10.90	11.23	11.67	19.85
Apple watch ASPs	$444	$435	$427	$450	$460	$437	$405	$405	$415	$394	$364	$364	$373
Current Quarter Watch Revenue	$3,391	$2,282	$2,293	$2,451	$5,020	$3,568	$3,386	$3,522	$6,145	$4,075	$3,866	$4,020	$7,016
Prior Period Watch Deferred Revenu	$61	$69	$79	$89	$99	$117	$130	$144	$157	$176	$189	$203	$218
Total Watch Reported Revenue	$3,452	$2,351	$2,371	$2,540	$5,119	$3,685	$3,517	$3,666	$6,301	$4,251	$4,055	$4,224	$7,234
Q/Q Growth	111%	-32%	1%	7%	102%	-28%	-5%	4%	72%	-33%	-5%	4%	71%
Y/Y Growth	77%	76%	86%	55%	48%	57%	48%	44%	23%	15%	15%	15%	15%
%age of Apple Revenue	4%	4%	4%	4%	6%	6%	7%	6%	7%	7%	7%	7%	8%

Annual Sales By Product
(in million USD)

	FY18A	FY19E	FY20E		CY18E	CY19E	CY20E
	9/30/2018	9/30/2019	9/30/2020		12/31/2018	12/31/2019	12/31/2020
	FY18A	FY19E	FY20E		CY18E	CY19E	CY20E
iPhone Units	217.72	173.70	190.88		203.41	177.83	190.32
iPhone ASP (adjusting for deferral)	$738	$768	$706		$745	$744	$709
iPhone ASP reported	$757	$792	$725	#	$766	$767	$728
Current Quarter iPhone Revenue	$160,575	$133,391	$134,687		$151,438	$132,348	$134,858
Prior Period iPhone Deferred Revenu	$4,313	$4,142	$3,787		$4,327	$4,035	$3,720
Total iPhone Reported Revenue	$164,888	$137,534	$138,474		$155,766	$136,382	$138,577
Q/Q Growth							
Y/Y Growth	17%	-17%	1%		5%	-12%	2%
%age of Apple Revenue	62%	54%	52%		60%	53%	52%
iPad Units	43.54	46.17	49.26		45.37	47.32	49.82
iPad ASP	$422.19	$438.01	$415.67		$426.63	$430.29	$408.67
Current Quarter iPad Revenue	$17,509	$19,331	$19,547		$18,528	$19,463	$19,420
Prior Period iPad Deferred Revenue	$870	$890	$927		$864	$896	$941
Total iPad Reported Revenue	$18,380	$20,221	$20,474		$19,354	$20,359	$20,361
Q/Q Growth							
Y/Y Growth	-4%	10%	1%		0%	5%	0%
%age of Apple Revenue	7%	8%	8%		7%	8%	8%
Mac Units	18.21	19.67	19.14		18.47	19.61	18.97
Mac ASP	$1,355	$1,348	$1,392		$1,390	$1,349	$1,405
Current Quarter Mac Revenue	$24,682	$26,514	$26,642		$25,287	$26,492	$26,697
Prior Period Mac Deferred Revenue	$738	$764	$758		$771	$761	$760
Total Mac Reported Revenue	$25,198	$27,278	$27,400		$25,790	$27,253	$27,457
Q/Q Growth							
Y/Y Growth	-3%	8%	0%		1%	6%	1%
%age of Apple Revenue	9%	11%	10%		10%	11%	10%
iPod Revenue	$56	$5	$0		$17	$2	$0
Apple watch units	24.84	37.92	49.37		28.24	42.09	53.65
Apple watch ASPs	$419	$409	$367		$427	$395	$354
Current Quarter Watch Revenue	$10,416	$15,496	$18,106		$12,046	$16,621	$18,977
Prior Period Watch Deferred Revenu	$298	$490	$725		$335	$548	$607
Total Watch Reported Revenue	$10,714	$15,986	$18,831		$12,381	$17,169	$19,764
Q/Q Growth							
Y/Y Growth	73%	49%	18%		61%	39%	15%
%age of Apple Revenue	4%	6%	7%		5%	7%	7%

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Price x Volume Exercise 2 Solution

G32 =G22/F22-1

	C	D	E	F	G	H	I	J	K	M	N	O	P	Q	R	S
4	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*							
5	**Revenue by product**															
6	Core products															
7	iPhone	136,700	141,319	166,699	137,570	138,388	138,388	138,388	138,388				$136,700	141,319	166,699	
8	iPad	20,628	19,222	18,805	20,223	20,476	20,476	20,476	20,476				20,628	19,222	18,805	
9	Mac	22,831	25,850	25,484	26,515	26,643	26,643	26,643	26,643				22,831	25,850	25,484	
10													24,348	29,980	37,190	
11	Services	24,348	29,980	37,190	45,603	53,592	62,981	74,014	86,980	CG estimates through 2020; WSP thereafter			11,132	12,863	17,417	
12	Other products	11,132	12,863	17,417	23,079	26,278	29,920	34,068	38,790	CG estimates through 2020; WSP thereafter						
13	**Total revenue**	**215,639**	**229,234**	**265,595**	**252,990**	**265,377**	**278,408**	**293,588**	**311,277**							
14	% growth		6.3%	15.9%	(4.7%)	4.9%	4.9%	5.5%	6.0%				211,884	216,756	217,722	
15													45,590	43,753	43,535	
16	**Units**												18,484	19,251	18,209	
17	iPhone	211,884	216,756	217,722	173,700	190,880	190,880	190,880	190,880	CG estimates through 2020; Straight line therafter						
18	iPad	45,590	43,753	43,535	46,170	49,260	49,260	49,260	49,260	CG estimates through 2020; Straight line therafter						
19	Mac	18,484	19,251	18,209	19,670	19,140	19,140	19,140	19,140	CG estimates through 2020; Straight line therafter						
20																
21	**Average selling price**															
22	iPhone	645.2	652.0	765.7	792.0	725.0	725.0	725.0	725.0	CG estimates through 2020; Straight line therafter				At sale	1	2
23	iPad	452.5	439.3	432.0	438.0	415.7	415.7	415.7	415.7	CG estimates through 2020; Straight line therafter			Cash	$780	0	0
24	Mac	1,235.2	1,342.8	1,399.5	1,348.0	1,392.0	1,392.0	1,392.0	1,392.0	CG estimates through 2020; Straight line therafter						
25																
26	**Units % growth**															
27	iPhone		2.3%	0.4%	(20.2%)	9.9%	0.0%	0.0%	0.0%				Liability - Deferred revenue	15	-7.5	-7.5
28	iPad		(4.0%)	(0.5%)	6.1%	6.7%	0.0%	0.0%	0.0%				Retained Earnings - Revenue	765	7.5	7.5
29	Mac		4.1%	(5.4%)	8.0%	(2.7%)	0.0%	0.0%	0.0%							
30																
31	**Average selling price % growth**															
32	iPhone		1.1%	17.4%	3.4%	(8.5%)	0.0%	0.0%	0.0%							
33	iPad		(2.9%)	(1.7%)	1.4%	(5.1%)	0.0%	0.0%	0.0%							
34	Mac		8.7%	4.2%	(3.7%)	3.3%	0.0%	0.0%	0.0%							
35																
36	**Revenue growth rate by product**															
37	iPhone		3.4%	18.0%	(17.5%)	0.6%	–	–	–							
38	iPad		(6.8%)	(2.2%)	7.5%	1.3%	–	–	–							
39	Mac		13.2%	(1.4%)	4.0%	0.5%	–	–	–							

FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | Rev Build | FSM + Rev Scearios | FSM + Schedules Empty | FSM + Schedules

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PV Build Exercise 3

G37 =G175

Financial Statement Model for Apple

$ in thousands except per share

Company name	Apple
Ticker	AAPL
Circ break 1=off, 0=on	1
Latest closing share price	$171.25
Latest closing share price date	2/4/2019
Latest fiscal year end date	9/29/18
Shares outstanding (millions)	4,745.398
Select an operating scenario:	Base case

INCOME STATEMENT

Fiscal year	2016A	2017A	2018A	2019P	2020P	2021P	2022P	2023P	
Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	**WSP Comments**
Revenue	215,639	229,234	265,595	254,971	270,269	288,918	308,853	330,164	Previous year's revenues x (1+revenue growth rate)
Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(158,592)	(167,297)	(178,551)	(190,871)	(204,042)	Plug = Revenue - Gross Profit
Gross Profit	**84,263**	**88,186**	**101,839**	**96,379**	**102,973**	**110,367**	**117,982**	**126,123**	Revenue x Gross Profit Margin forecast
Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,808)	(17,027)	(18,202)	(19,458)	(20,800)	Revenue x R&D % of sales forecast
Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,868)	(18,649)	(19,935)	(21,311)	(22,781)	Revenue x SG&A % of sales forecast
Operating profit (EBIT)	**60,024**	**61,344**	**70,898**	**61,703**	**67,297**	**72,230**	**77,213**	**82,541**	**Gross Profit - R&D - SG&A**
Interest income	3,999	5,201	5,686	4,744	4,090	3,592	3,201	2,913	Reference from interest on cash schedule
Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense schedule
Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
Pretax profit	**61,372**	**64,089**	**72,903**	**62,783**	**67,723**	**72,157**	**76,749**	**81,790**	**EBIT + interest income less interest expense less other expense**
Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,485)	(11,513)	(12,195)	(12,971)	(13,822)	Pre-tax Profit x Tax Rate forecast
Net income	**45,687**	**48,351**	**59,531**	**52,299**	**56,210**	**59,963**	**63,779**	**67,967**	**Pre-tax Profit less taxes**
Depreciation & amortization	10,505	10,157	10,903	11,085	11,712	12,226	13,365	14,604	Reference from D&A schedule
EBITDA	**70,529**	**71,501**	**81,801**	**72,788**	**79,009**	**84,456**	**90,579**	**97,145**	**EBIT + D&A**
Stock based compensation	4,210	4,840	5,340	5,126	5,434	5,809	6,210	6,638	WSP assumption: grow SBC in-line with revenue growth
Adjusted EBITDA	**74,739**	**76,341**	**87,141**	**77,914**	**84,443**	**90,265**	**96,789**	**103,783**	**EBITDA + Stock-based compensation**
Growth rates & margins									
Revenue growth		6.3%	15.9%	(4.0%)	6.0%	6.9%	6.9%	6.9%	From scenario analysis below
Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	From scenario analysis below
R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	From scenario analysis below
SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	From scenario analysis below
Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter

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PV Build Exercise 3 Solution

s in worksheet: 'Rev Build' + 'FSM + Rev Scenarios'

G37 ='Rev Build'!G14

	C	D	E	F	G	H	I	J	K	M
5	Company name	Apple								
6	Ticker	AAPL								
7	Circ break 1=off, 0=on	1								
8	Latest closing share price	$171.25								
9	Latest closing share price date	2/4/2019								
10	Latest fiscal year end date	9/29/18								
11	Shares outstanding (millions)	4,745.398								
12	Select an operating scenario:	Base case								
13										
14	**INCOME STATEMENT**									
15	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
16	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	**WSP Comments**
17										
18	Revenue	215,639	229,234	265,595	252,990	265,377	278,408	293,588	311,277	Previous year's revenues x (1+revenue growth rate)
19	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(157,360)	(164,268)	(172,056)	(181,438)	(192,369)	Plug = Revenue - Gross Profit
20	**Gross Profit**	**84,263**	**88,186**	**101,839**	**95,630**	**101,109**	**106,352**	**112,151**	**118,908**	Revenue x Gross Profit Margin forecast
21	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,685)	(16,719)	(17,540)	(18,496)	(19,610)	Revenue x R&D % of sales forecast
22	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,721)	(18,311)	(19,210)	(20,258)	(21,478)	Revenue x SG&A % of sales forecast
23	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,224**	**66,079**	**69,602**	**73,397**	**77,819**	**Gross Profit - R&D - SG&A**
24	Interest income	3,999	5,201	5,686	5,121	4,356	3,768	3,252	2,816	Reference from interest on cash schedule
25	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense schedule
26	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
27	**Pretax profit**	**61,372**	**64,089**	**72,903**	**62,681**	**66,770**	**69,706**	**72,985**	**76,970**	**EBIT + interest income less interest expense less other expense**
28	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,468)	(11,351)	(11,780)	(12,334)	(13,008)	Pre-tax Profit x Tax Rate forecast
29	**Net income**	**45,687**	**48,351**	**59,531**	**52,214**	**55,419**	**57,925**	**60,650**	**63,962**	**Pre-tax Profit less taxes**
30										
31	Depreciation & amortization	10,505	10,157	10,903	11,073	11,682	12,163	13,118	14,217	Reference from D&A schedule
32	**EBITDA**	**70,529**	**71,501**	**81,801**	**72,297**	**77,761**	**81,765**	**86,515**	**92,036**	**EBIT + D&A**
33	Stock based compensation	4,210	4,840	5,340	5,087	5,336	5,598	5,903	6,258	WSP assumption: grow SBC in-line with revenue growth
34	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**77,383**	**83,097**	**87,362**	**92,418**	**98,295**	**EBITDA + Stock-based compensation**
35										
36	Growth rates & margins									
37	Revenue growth		6.3%	15.9%	(4.7%)	4.9%	4.9%	5.5%	6.0%	From revenue build
38	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	From scenario analysis below
39	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	From scenario analysis below
40	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	From scenario analysis below
41	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straight-line margin thereafter
42										
43	**BALANCE SHEET**									
44	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	

... | FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | Rev Build | FSM + Rev Scenarios | FSM + Schedules Empty | FSM + Schedules

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FINANCIAL STATEMENT MODELING

CAGR

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CAGR (Compound Annual Growth Rate)

M18 =(K18/F18)^(1/COUNT(G18:K18))-1

10	Latest fiscal year end date	9/29/18									
11	Shares outstanding (millions)	4,745.398									
12	Select an operating scenario:	Base case									
13											
14	**INCOME STATEMENT**										
15	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	**5 Year**	
16	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	*CAGR*	**WSP Comments**
17											
18	Revenue	215,639	229,234	265,595	252,990	265,377	278,408	293,588	311,277	3.2%	Previous year's revenues x (1+revenue gr
19	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(157,360)	(164,268)	(172,056)	(181,438)	(192,369)		Plug = Revenue - Gross Profit
20	**Gross Profit**	**84,263**	**88,186**	**101,839**	**95,630**	**101,109**	**106,352**	**112,151**	**118,908**		Revenue x Gross Profit Margin forecast
21	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,685)	(16,719)	(17,540)	(18,496)	(19,610)		Revenue x R&D % of sales forecast
22	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,721)	(18,311)	(19,210)	(20,258)	(21,478)		Revenue x SG&A % of sales forecast
23	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,224**	**66,079**	**69,602**	**73,397**	**77,819**	1.9%	**Gross Profit - R&D - SG&A**
24	Interest income	3,999	5,201	5,686	5,121	4,315	3,693	3,154	2,658		Reference from interest on cash schedule
25	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)		Reference from interest expense schedul
26	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)		Straight-line
27	**Pretax profit**	**61,372**	**64,089**	**72,903**	**62,681**	**66,729**	**69,631**	**72,886**	**76,812**		**EBIT + interest income less interest exp**
28	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,468)	(11,344)	(11,768)	(12,318)	(12,981)		Pre-tax Profit x Tax Rate forecast
29	**Net income**	**45,687**	**48,351**	**59,531**	**52,214**	**55,385**	**57,863**	**60,569**	**63,831**	1.4%	**Pre-tax Profit less taxes**
30											
31	Depreciation & amortization	10,505	10,157	10,903	9,460	9,672	10,302	11,334	12,710		Reference from D&A schedule
32	**EBITDA**	**70,529**	**71,501**	**81,801**	**70,683**	**75,751**	**79,904**	**84,731**	**90,529**	2.0%	**EBIT + D&A**
33	Stock based compensation	4,210	4,840	5,340	5,087	5,336	5,598	5,903	6,258		WSP assumption: grow SBC in-line with r
34	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**75,770**	**81,087**	**85,502**	**90,634**	**96,788**		**EBITDA + Stock-based compensation**
35											
36	Growth rates & margins										
37	Revenue growth		6.3%	15.9%	(4.7%)	4.9%	4.9%	5.5%	6.0%		From scenario analysis below
38	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%		From scenario analysis below
39	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%		From scenario analysis below
40	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%		From scenario analysis below

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FINANCIAL STATEMENT MODELING

Digging Deeper on Working Capital

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Working Capital Schedules

Press esc to exit full screen

O47 | Reference from A/R schedule

	C	D	E	F	G	H	I	J	K	O
75	Depreciation and amortization				1,527	1,602	1,680	1,772	1,879	Reference from the I/S
76	Stock based compensation				5,087	5,336	5,598	5,903	6,258	
77	Decreases / (Increases) in working capital assets				28,940	(1,767)	(1,859)	(2,166)	(2,524)	
78	Increases / (Decreases) in working capital liabilities				(4,225)	4,364	4,769	5,661	6,596	
79	Other non current assets				(469)	(2,641)	(2,774)	(3,046)	(3,363)	Reference from schedule NOT the B/S: Only include 'Additions' (as out
80	Other non current liabilities				(2,144)	2,107	2,217	2,582	3,009	
81	**Cash from operating activities**				**80,929**	**64,959**	**68,194**	**72,088**	**76,633**	
82										
83	Capital expenditures				(13,285)	(13,649)	(13,819)	(14,573)	(15,450)	Reference from PP&E schedule
84	**Cash from investing activities**				**(13,285)**	**(13,649)**	**(13,819)**	**(14,573)**	**(15,450)**	
85										
86	Long term debt				0	0	0	0	0	
87	Revolver				36	0	0	0	0	Reference from B/S
88	Share repurchases				(73,056)	(73,056)	(73,056)	(73,056)	(73,056)	Reference from Retained Earnings schedule
89	Common dividends				0	0	0	0	0	Reference from Retained Earnings schedule
90	**Cash from financing activities**				**(73,020)**	**(73,056)**	**(73,056)**	**(73,056)**	**(73,056)**	
91										
92	**Net change in cash during period**				**(5,376)**	**(21,746)**	**(18,681)**	**(15,540)**	**(11,873)**	
93										
94	**WORKING CAPITAL**									
95	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019A**	**2020A**	**2021A**	**2022A**	**2023A**	
96	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
97										
98	**ACCOUNTS RECEIVABLE**		Historical				Forecast			
99	Beginning of period									
100	Increases / (decreases)									
101	End of period		17,874	23,186						A formula that grows prior period AR with revenue growth or, alterna
102										
103	Average AR as % of sales			7.7%						
104										
105	Select an A/R forecasting approach (1=grow w rev, 2=explicit DSO)				2					
106										
107	Approach 1: Grow A/R with revenue growth rate									
108	Approach 2: DSO Assumption			28 days	34 days	34 days	34 days	34 days	34 days	
109										
110	**INVENTORIES**		Historical				Forecast			

FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | Rev Build | FSM + Rev Scenarios | FSM + Schedules Empty | FSM + Schedules

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Accounts Receivable Roll Forward

Press esc to exit full screen

	C	D	E	F	G	H	I	J	K	M	O	P	Q
15	Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	**5 Year**			
16	*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	*CAGR*	**WSP Comments**		
17													
18	Revenue	215,639	229,234	265,595	252,990	265,377	278,408	293,588	311,277		Previous year's revenues x (1+revenue gr		
19	Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(157,360)	(164,268)	(172,056)	(181,438)	(192,369)		Plug = Revenue - Gross Profit		
20	**Gross Profit**	**84,263**	**88,186**	**101,839**	**95,630**	**101,109**	**106,352**	**112,151**	**118,908**		Revenue x Gross Profit Margin forecast		
21	Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,685)	(16,719)	(17,540)	(18,496)	(19,610)		Revenue x R&D % of sales forecast		
22	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,721)	(18,311)	(19,210)	(20,258)	(21,478)		Revenue x SG&A % of sales forecast		
23	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,224**	**66,079**	**69,602**	**73,397**	**77,819**		**Gross Profit - R&D - SG&A**		
24	Interest income	3,999	5,201	5,686	5,121	5,005	4,536	4,132	3,796		Reference from interest on cash schedule		
25	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)		Reference from interest expense schedule		
26	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)		Straight-line		
27	**Pretax profit**	**61,372**	**64,089**	**72,903**	**62,681**	**67,420**	**70,473**	**73,865**	**77,951**		**EBIT + interest income less interest exp**		
28	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,468)	(11,461)	(11,910)	(12,483)	(13,174)		Pre-tax Profit x Tax Rate forecast		
29	**Net income**	**45,687**	**48,351**	**59,531**	**52,214**	**55,958**	**58,563**	**61,381**	**64,777**		**Pre-tax Profit less taxes**		
30													
96	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*				
97													
98	**ACCOUNTS RECEIVABLE**		Historical				Forecast						
99	Beginning of period				23,186	23,946	25,494	26,374	28,322				
100	Increases / (decreases)				760	1,547	881	1,948	1,348				
101	End of period		17,874	23,186	23,946	25,494	26,374	28,322	29,670		A formula that grows prior period AR with		
102													
103	Average AR as % of sales			7.7%	9.3%	9.3%	9.3%	9.3%	9.3%				
104													
105	Select an A/R forecasting approach (1=grow w rev, 2=explicit DSO)				**2**								
106													
107	Approach 1: Grow A/R with revenue growth rate				(4.7%)	4.9%	4.9%	5.5%	6.0%		avg A/R	BOP AR	EOP
108	Approach 2: Days sales outstanding (DSO) Assumption			28 days	34 days	34 days	34 days	34 days	34 days		23,566	23,186	x
109													23,946
110	**INVENTORIES**		Historical				Forecast						

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Inventory Roll Forward

G101 =IF(G105=1,F101*(1+G107),2*G18*G108/365-G99)

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
15		Fiscal year	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**		**5 Year**				
16		*Fiscal year end date*	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*		*CAGR*		**WSP Comments**		
17																
18		Revenue	215,639	229,234	265,595	252,990	265,377	278,408	293,588	311,277				Previous year's revenues x (1+revenue gr		
19		Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)	(157,360)	(164,268)	(172,056)	(181,438)	(192,369)				Plug = Revenue - Gross Profit		
20		**Gross Profit**	**84,263**	**88,186**	**101,839**	**95,630**	**101,109**	**106,352**	**112,151**	**118,908**				Revenue x Gross Profit Margin forecast		
21		Research & development (enter as -)	(10,045)	(11,581)	(14,236)	(15,685)	(16,719)	(17,540)	(18,496)	(19,610)				Revenue x R&D % of sales forecast		
22		Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,721)	(18,311)	(19,210)	(20,258)	(21,478)				Revenue x SG&A % of sales forecast		
23		**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,224**	**66,079**	**69,602**	**73,397**	**77,819**				**Gross Profit - R&D - SG&A**		
24		Interest income	3,999	5,201	5,686	5,121	5,005	4,536	4,132	3,796				Reference from interest on cash schedule		
25		Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)				Reference from interest expense schedule		
26		Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)				Straight-line		
27		**Pretax profit**	**61,372**	**64,089**	**72,903**	**62,681**	**67,420**	**70,473**	**73,865**	**77,951**				**EBIT + interest income less interest exp**		
28		Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,468)	(11,461)	(11,910)	(12,483)	(13,174)				Pre-tax Profit x Tax Rate forecast		
29		**Net income**	**45,687**	**48,351**	**59,531**	**52,214**	**55,958**	**58,563**	**61,381**	**64,777**				**Pre-tax Profit less taxes**		
30																
96		Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*						
97																
98		**ACCOUNTS RECEIVABLE**		Historical				Forecast								
99		Beginning of period				23,186	22,086	23,167	24,305	25,630						
100		Increases / (decreases)				(1,100)	1,081	1,138	1,325	1,544						
101		End of period		17,874	23,186	22,086	23,167	24,305	25,630	27,174				A formula that grows prior period AR with		
102																
103		Average AR as % of sales			7.7%	8.9%	8.5%	8.5%	8.5%	8.5%						
104																
105		Select an A/R forecasting approach (1=grow w rev, 2=explicit DSO)				1										
106																
107		Approach 1: Grow A/R with revenue growth rate				(4.7%)	4.9%	4.9%	5.5%	6.0%						
108		Approach 2: Days sales outstanding (DSO) Assumption			28 days	34 days	34 days	34 days	34 days	34 days						
109																
110		**INVENTORIES**		Historical				Forecast								

FSM Forecasting II | FSM Complete | Extras Complete | Extras | Rev Build Fill | Rev Build Complete | Rev Build | FSM + Rev Scenarios | FSM + Schedules Empty | FSM + Schedules

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Working Capital and Liquidity Analysis

41	Tax rate	25.6%	24.6%	18.3%	16.7%	17.0%	16.9%	16.9%	16.9%	JP Morgan estimates through 2021: straig
42									
43	**BALANCE SHEET**								
44	*Fiscal year*		**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
45	Fiscal year end date		*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
46	Cash & equivalents, ST and LT marketable securities		268,895	237,100	204,415	179,891	160,349	141,504	128,172	Reference from 'net change in cash' line o
47	Accounts receivable		17,874	23,186	23,946	25,494	26,374	28,322	29,670	Reference from A/R schedule
48	Inventories		4,855	3,956	3,363	4,104	3,543	4,345	3,841	Reference from Inventories schedule
49	Vendor non trade receivable		17,799	25,809	24,584	25,788	27,054	28,529	30,248	Grow in-line with revenue growth
108	Approach 2: Days sales outstanding (DSO) Assumption			28 days	34 days	34 days	34 days	34 days	34 days	
109										
110	**INVENTORIES**		Historical				Forecast			
111	Beginning of period				3,956	3,363	4,104	3,543	4,345	
112	Increases / (decreases)				(593)	741	(560)	802	(505)	
113	End of period		4,855	3,956	3,363	4,104	3,543	4,345	3,841	
114										
115	Select an inventory forecasting approach:				2					
116										
117	Approach 1: Keep avg. inventory / COGS ratio constant			2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	
118	Approach 2: Inventory turnover (using 365 day year)			37.2x	43.0x	44.0x	45.0x	46.0x	47.0x	
119										
120	**Working capital ratios / Liquidity**									
121	Trade A/R Days sales outstanding (average)									
122	Trade A/R + Non-Trade A/R Days sales outstanding (average)									
123	Days inventory outstanding									
124	**Operating cycle (inc vendor non-trade A/R)**									
125										
126	Days payable outstanding									
127	**Net operating cycle (Cash conversion cycle)**									
128										
129	Current ratio (CA/CL)			1.12	1.15	1.14	1.12	1.11	1.08	

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FINANCIAL STATEMENT MODELING

Depreciation Waterfall

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Depreciation Waterfall Introduction

F137 =F55+F56+F57+F58+F59-F134-F135

	C	D	E	F	G	H	I	J	K	O
51	Property, plant & equipment		33,783	41,304	54,589	68,238	82,057	96,630	112,080	Reference from PP&E schedule
52	Other non current assets		18,177	22,283	21,226	22,265	23,358	24,632	26,116	Grow in-line with revenue growth
53	**Total assets**		**375,319**	**365,725**	**343,636**	**337,856**	**335,406**	**337,322**	**344,292**	
54										
55	Accounts payable		44,242	55,888	53,705	56,063	58,721	61,923	65,653	Grow in-line with cost of sales growth
56	Other current liabilities		30,551	32,687	31,136	32,660	34,264	36,132	38,309	Grow in-line with revenue growth
57	Deferred revenue (current and non current)		10,384	10,340	9,849	10,332	10,839	11,430	12,118	Grow in-line with revenue growth
58	Commercial paper / revolver		11,977	11,964	12,000	12,000	12,000	12,000	12,000	Reference EOP balance from CP/revolve
59	Long term debt (includes current portion)		103,703	102,519	102,519	102,519	102,519	102,519	102,519	WSP assumption: straight-line
60	Other non current liabilities		40,415	45,180	43,036	45,143	47,360	49,942	52,951	Grow in-line with revenue growth
120	**Working capital ratios / Liquidity**									
121	Trade A/R Days sales outstanding (average)			28 days	34 days	34 days	34 days	34 days	34 days	
122	Trade A/R + Non-Trade A/R Days sales outstanding (average)			58 days	70 days	69 days	69 days	69 days	68 days	
123	Days inventory outstanding			10 days	8 days	8 days	8 days	8 days	8 days	
124	**Operating cycle (inc vendor non-trade A/R)**			**68 days**	**79 days**	**77 days**	**77 days**	**76 days**	**76 days**	
125										
126	Days payable outstanding			112 days	127 days	122 days	122 days	121 days	121 days	
127	**Net operating cycle (Cash conversion cycle)**			**-44 days**	**-48 days**	**-45 days**	**-45 days**	**-45 days**	**-45 days**	
128										
129	Current ratio (CA/CL)			1.12	1.15	1.14	1.12	1.11	1.08	
130	Quick ratio (Cash + A/R / CL)			0.77	0.80	0.78	0.76	0.74	0.72	
131										
132	Memo									
133	LT marketable securities		194,714	170,799	138,114	113,590	94,048	75,203	61,871	Assume all cash changes impact LT inve
134	LT deferred revenue		2,836	2,797	2,664	2,795	2,932	3,092	3,278	
135	LT term debt		97,207	93,735	93,735	93,735	93,735	93,735	93,735	
136	Current assets		128,645	131,339	129,708	133,763	135,943	140,858	144,225	
137	Current liabilities		100,814	116,866	112,810	117,044	121,675	127,177	133,587	
138										
139	**PROPERTY, PLANT & EQUIPMENT**									
140	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	

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Forecasting Depreciation Using a Waterfall

G148 =-(G145/G144)

	C	D	E	F	G	H	I	J	K	O
22	Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)	(18,721)	(18,311)	(19,210)	(20,258)	(21,478)	Revenue x SG&A % of sales forecast
23	**Operating profit (EBIT)**	**60,024**	**61,344**	**70,898**	**61,224**	**66,079**	**69,602**	**73,397**	**77,819**	**Gross Profit - R&D - SG&A**
24	Interest income	3,999	5,201	5,686	5,121	4,415	3,886	3,464	3,056	Reference from interest on cash schedu
25	Interest expense (enter as -)	(1,456)	(2,323)	(3,240)	(3,223)	(3,224)	(3,224)	(3,224)	(3,224)	Reference from interest expense sched
26	Other expense, net (enter as -)	(1,195)	(133)	(441)	(441)	(441)	(441)	(441)	(441)	Straight-line
27	**Pretax profit**	**61,372**	**64,089**	**72,903**	**62,681**	**66,830**	**69,823**	**73,196**	**77,211**	**EBIT + interest income less interest ex**
28	Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)	(10,468)	(11,361)	(11,800)	(12,370)	(13,049)	Pre-tax Profit x Tax Rate forecast
29	**Net income**	**45,687**	**48,351**	**59,531**	**52,214**	**55,469**	**58,023**	**60,826**	**64,162**	**Pre-tax Profit less taxes**
30										
31	Depreciation & amortization	10,505	10,157	10,903	1,527	1,602	1,680	1,772	1,879	Reference from D&A schedule
32	**EBITDA**	**70,529**	**71,501**	**81,801**	**62,751**	**67,681**	**71,282**	**75,169**	**79,698**	**EBIT + D&A**
33	Stock based compensation	4,210	4,840	5,340	5,087	5,336	5,598	5,903	6,258	WSP assumption: grow SBC in-line with
34	**Adjusted EBITDA**	**74,739**	**76,341**	**87,141**	**67,837**	**73,016**	**76,880**	**81,072**	**85,956**	**EBITDA + Stock-based compensation**
35										
36	Growth rates & margins									
37	Revenue growth		6.3%	15.9%	(4.7%)	4.9%	4.9%	5.5%	6.0%	From revenue build
38	Gross profit margin	39.1%	38.5%	38.3%	37.8%	38.1%	38.2%	38.2%	38.2%	From scenario analysis below
39	R&D % of sales	4.7%	5.1%	5.4%	6.2%	6.3%	6.3%	6.3%	6.3%	From scenario analysis below
40	SG&A % of sales	6.6%	6.7%	6.3%	7.4%	6.9%	6.9%	6.9%	6.9%	From scenario analysis below
139	**PROPERTY, PLANT & EQUIPMENT**									
140	*Fiscal year*	**2016A**	**2017A**	**2018A**	**2019P**	**2020P**	**2021P**	**2022P**	**2023P**	
141	Fiscal year end date	*9/30/16*	*9/30/17*	*9/29/18*	*9/30/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	
142							**Forecast**			
143	Beginning of period				41,304	54,589	68,238	82,057	96,630	BOP = Previous year EOP
144	Plus: Capital expenditures	12,734	12,451	13,313	13,285	13,649	13,819	14,573	15,450	JP Morgan through 2021; WSP assump
145	Less: Depreciation	(8,300)	(8,200)	(9,300)						From depreciation waterfall
146	**End of period**		**33,783**	**41,304**	**54,589**	**68,238**	**82,057**	**96,630**	**112,080**	BOP + Capex - Depreciation
147										
148	D&A related to PP&E as a % of capex	65.2%	65.9%	69.9%	0.0%	0.0%	0.0%	0.0%	0.0%	
149										
150	**Depreciation waterfall**									

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FINANCIAL STATEMENT MODELING

Updating an Existing Model for More Recent Results

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Updating an Existing Model

Financial Statement Model for Apple

$ in thousands except per share

Company name	Apple
Ticker	AAPL
Circ break 1=off, 0=on	–
Latest closing share price	$293.65
Latest closing share price date	12/31/2019
Latest fiscal year end date	9/29/19
Shares outstanding (millions)	4,745.398

INCOME STATEMENT

Fiscal year	2016A	2017A	2018A	2019A	2020P	2021P	2022P	2023P	2024P	
Fiscal year end date	*9/30/17*	*9/30/18*	*9/29/19*	*9/29/19*	*9/30/20*	*9/30/21*	*9/30/22*	*9/30/23*	*9/30/24*	**WSP Comments**
Revenue	215,639	229,234	265,595	260,174	275,784	294,814	315,156	336,901	360,148	Previous year's revenues x (1+revenue growth rate)
Cost of sales (enter as -)	(131,376)	(141,048)	(163,756)		0	0	0	0	0	Plug = Revenue - Gross Profit
Gross Profit	**84,263**	**88,186**	**101,839**	**260,174**	**275,784**	**294,814**	**315,156**	**336,901**	**360,148**	Revenue x Gross Profit Margin forecast
Research & development (enter as -)	(10,045)	(11,581)	(14,236)		0	0	0	0	0	Revenue x R&D % of sales forecast
Selling, general & administrative (enter as -)	(14,194)	(15,261)	(16,705)		0	0	0	0	0	Revenue x SG&A % of sales forecast
Operating profit (EBIT)	**60,024**	**61,344**	**70,898**	**260,174**	**275,784**	**294,814**	**315,156**	**336,901**	**360,148**	**Gross Profit - R&D - SG&A**
Interest income	3,999	5,201	5,686		0	0	0	0	0	Reference from interest on cash schedule
Interest expense (enter as -)	(1,456)	(2,323)	(3,240)		0	0	0	0	0	Reference from interest expense schedule
Other expense, net (enter as -)	(1,195)	(133)	(441)		0	0	0	0	0	Straight-line
Pretax profit	**61,372**	**64,089**	**72,903**	**260,174**	**275,784**	**294,814**	**315,156**	**336,901**	**360,148**	**EBIT + interest income less interest expense less other exp**
Taxes (enter expense as -)	(15,685)	(15,738)	(13,372)		0	0	0	0	0	Pre-tax Profit x Tax Rate forecast
Net income	**45,687**	**48,351**	**59,531**	**260,174**	**275,784**	**294,814**	**315,156**	**336,901**	**360,148**	**Pre-tax Profit less taxes**
Depreciation & amortization	10,505	10,157	10,903		(312)	(458)	(783)	(541)	(263)	Reference from D&A schedule
EBITDA	**70,529**	**71,501**	**81,801**	**260,174**	**275,473**	**294,356**	**314,373**	**336,360**	**359,885**	**EBIT + D&A**

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Thank you!

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