

Apple

F2Q19 Guide Meets Low-Bar and Bookends Volume Downside; Should Drive Focus Back on Services Oppty; Remain Overweight

This quarter was clearly about investors putting bookends around downside risks to Apple's iPhone unit volume outlook and the F2Q19 revenue guidance of \$55-\$59 bn managed to reassure investors that volume risks are largely priced in the shares at current valuation. As we had previewed in our [Jan 28 report](#), buy-side expectations going into the announcement were low and below sell-side revenue consensus of \$59 bn, which in part should drive a positive reaction to the F2Q19 revenue guide today. Beyond the F2Q19 guidance, which we believe implies 20%+ y/y decline in iPhone shipments, investors will look for improvement in y/y volume trends (although still declining) in the remainder of the year, leading to low double-digit percentage volume declines for the year. Outside of the focus on iPhone volumes, there were other silver linings in the report relative to new disclosures on the Services segment, including gross margin of 62.8% in F1Q19, which we believe was at the high-end of investor estimates going into the announcement. Additionally, Services gross margin improvement of +450 bps y/y and +170 bps q/q in F1Q19 is likely to increase investor confidence in long-term expansion of gross-margins with increasing scale of various services opportunities. We believe the better than expected Services margin is likely to drive upside to investor expectations for intrinsic value of AAPL shares, led by: 1) higher portion of the company's profits coming from Services, which investors assign a higher multiple to relative to the hardware-centric businesses; and 2) increase investor confidence in assigning a premium valuation to the Services opportunity relative to hardware businesses. Although yesterday's announcement will do little in terms of addressing some of the medium-term concerns investors have relative to the drivers of revenue growth as the smartphone cycle matures, we believe book-ending the downside on volumes will help in driving investor focus back to the Services opportunity. We maintain our Overweight rating on a combination of medium-term earnings growth, multiple re-rating to more appropriately reflect the Services opportunity, and balance sheet optionality.

- F1Q19 (Dec-end) results in line with pre-announcement.** Total revenues tracked at \$84.3 bn (vs. JPMe and consensus of \$84.0 bn, and guidance of \$84 bn), including iPhone of \$52.0 bn (vs. JPMe of \$51.8 bn), iPad of \$6.7 bn (vs. JPMe of \$6.5 bn), Mac of \$7.4 bn (vs. JPMe of \$7.0 bn), Services of \$10.9 bn (vs. JPMe of \$10.8 bn), and Wearables, Home and Accessories of \$7.3 bn (vs. JPMe of \$8.0 bn). Gross margin tracked in-line (38.0% vs. JPMe of 38.1% and consensus of 38.0%, guidance of 38%) driving EPS of \$4.18 vs. JPMe of \$4.20 and consensus of \$4.17.

Apple Inc. (AAPL;AAPL US)

FYE Sep	2016A	2017A	2018A	2019E	2019E	2020E	2020E	2021E	2021E
				(Prev)	(Curr)	(Prev)	(Curr)	(Prev)	(Curr)
EPS (pro forma) (\$)									
Q1 (Dec)	3.18	3.36	3.89	4.20A	4.18A	4.87	4.73	5.71	5.49
Q2 (Mar)	1.90	2.10	2.73	2.44	2.32	2.88	2.85	3.71	3.46
Q3 (Jun)	1.42	1.67	2.34	2.12	2.03	2.59	2.54	3.12	3.03
Q4 (Sep)	1.67	2.07	2.91	2.89	2.81	3.31	3.33	3.71	3.72
FY	8.18	9.19	11.87	11.65	11.35	13.65	13.45	16.25	15.70
Bloomberg EPS FY (\$)	8.27	9.00	11.79	-	11.97	-	13.44	-	14.75

Source: Company data, Bloomberg, J.P. Morgan estimates.

Overweight

AAPL, AAPL US

Price: \$154.68

Price Target: \$228.00

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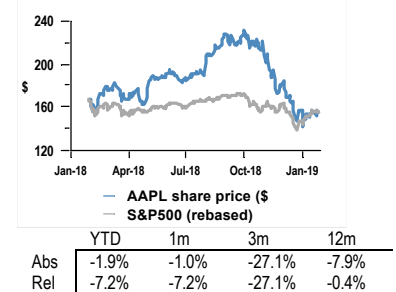
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Price Performance



See page 8 for analyst certification and important disclosures, including non-US analyst disclosures.

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- **F2Q19 (Mar) guidance was in line on revenue and met low-bar of investor expectations.** Apple guided to F2Q19 revenue in the range of \$55-\$59 bn for F2Q (vs. JPMe of \$56.7 bn and consensus of \$59.0 bn heading into the announcement), which includes \$1.3 bn negative FX impact. Despite the in-line revenue guidance, gross margin outlook was modestly disappointing (range of 37.0%-38.0% vs. JPMe and consensus of 38.0% heading into the announcement), although explained largely by loss of leverage on lower volumes as well as a headwind of -90 bps y/y and -60 bps q/q from unfavorable FX. As we look to the remainder of the year, we believe the combination of moderating FX headwinds (were currencies to hold at current levels) and increasing memory price tailwinds are likely to help drive a sequential improvement in gross margins from F2Q19 levels.
- **Services momentum continued, helped by growth in installed base of devices.** Services revenue was \$10,875 mn in F1Q19 (vs. JPMe of \$10,761 mn), implying growth of +19% y/y, led by strength from the App Store, Apple Pay, Cloud Services (+40% y/y), Apple Care, App Store Search Ad business and Apple Music (50 mn+ paid subscribers). The strong Services revenue growth included paid subscriptions of 360 mn in F1Q19 (vs. 330 mn in F4Q and 240 mn a year ago) and the company now expects paid subscriptions to exceed 500 mn during 2020, placing it well on track of reaching its target Services revenue by FY20 (\$50 bn adjusted for accounting changes). However, at the same time Apple highlighted certain factors driving a modest deceleration in Services growth trends, relative to the strength in recent quarters, including: 1) **FX impact:** 60% of services revenue is derived outside U.S, thereby negatively impacted by strengthening of US dollar; 2) **App Store in China:** the issue of approval of new gaming titles in China was a headwind in F1Q19; and 3) **Deceleration in Apple Care** as it laps a year of strong performance in 2018.
- **Services opportunity to be driven by installed base growth and broadening content portfolio.** Relative to the drivers of the Services opportunity for the company, management highlighted high-single digit growth in the installed base, which rose to 1.4 bn devices relative to 1.3 bn at end of FY17, and included 900 mn iPhones (which rose +75 mn y/y). The other primary driver of Services growth includes a broader services portfolio, as demonstrated with strong growth in recent service launches including Apple Pay and Apple Music. Additionally, Apple briefly spoke to its intent of providing original video content as well as acceleration in third-party video subscriptions to fully leverage its installed base of Apple TV devices as well as Airplay to fully leverage service opportunities on third-party hardware.
- **Lowering estimates largely on softer gross margin estimates and higher operating expenses.** We are modestly trimming our full-year estimates for FY19E, FY20E, and FY21E to account for lower gross margins (led by loss of volume leverage and higher promotions) and higher operating expenses relative to our expectations. Our December-19 price target of \$228 is unchanged, with a higher target multiple on account of greater contribution to earnings from the Services group valued at a higher multiple in the SOTP-based valuation, offsetting the impact of the lower earnings forecast.

Investment Thesis, Valuation and Risks

Apple (Overweight; Price Target: \$228.00)

Investment Thesis

We rate AAPL shares Overweight given our favorable outlook on iPhone and Services revenues relative to investor expectations, catalysts to accelerate revenue growth, and upside risk to our base forecast for +14% earnings CAGR. We see upside on several aspects of the business as well as financials that remain underappreciated by investors, namely the transformation of the company to Services, growth in the installed base, technology leadership, and optionality around capital deployment — all of which together leads us to expect double digit earnings growth and a modest re-rating for the shares.

Valuation

We maintain our December 2019 price target of \$228, which is predicated on a 17.1x blended P/E multiple, which implies a re-rating from NTM trading multiple of 13.0x. Our blended P/E is arrived at based on a SOTP methodology using 11.0x P/E for iPhones, 10.0x for Mac and iPad devices, 25x for Services, and 22.5x for Apple Watch, and 10.0x for Other Products.

Key assumptions used in formulating the price target are:

- **iPhone:** We use an 11.0x P/E multiple for our iPhone earnings estimate in calendar 2020, modest discount to the 14.0x multiple that industry leader Nokia, traded at from 2005 to 2010 when the firm had a leadership position in feature phones.
- **Mac devices:** P/E multiple of 10.0x, modest premium to the 9.5x NTM P/E multiple for competitor HPQ, largely subject to similar industry dynamics, although with higher profitability.
- **iPad devices:** P/E multiple of 10.0x, in line with the multiple we assign for Mac devices as growth opportunities are limited for both notebooks as well as tablets. Additionally, we believe increasing consumption of content on smartphones is likely to substitute purchases of laptops/notebooks as well as tablets in the future.
- **Services:** P/E multiple of 25.0x on the Services segment, in line with the average trading multiple for a peer group of luxury/retail companies (Costco, Estée Lauder and Home Depot), which are leaders in their respective markets and derive a stickiness for product sales through customer loyalty in the form of either membership programs or brand value. We believe the subscription nature of Apple's Services segment, with high visibility of revenue and earnings, warrants it being valued in line with the leading luxury/retail companies.
- **Apple Watch:** P/E multiple of 22.5x, modest discount to 25.0x target multiple we use for the Services group, on account of lower margins and cyclical growth outlook tied to product cycle relative to Services.
- **Other Products:** P/E multiple of 10.0x, in line with legacy hardware devices like iPad, and Mac.

Table 1: AAPL P/E Based Price Target Analysis

\$ in millions, except per share amounts

	NTM Qtrs 1-4	CY20E
JPM Net Income	53,093	58,158
JPM EPS	\$11.89	\$14.22
P/E Multiple	13.0x	
JPM P/E Multiple		17.1x
Total Equity Value	738,327	991,601
Average Diluted Share Count	4,773.3	4,346.9
Implied Share Price	\$154.7	\$228.0
Current Value per Share	\$154.7	\$154.7
Upside vs. Current		47%
<u>Memo:</u>		
(-) Net Cash/(Debt)	96,888	77,504
Enterprise Value	641,438	914,097
JPM EBITDA	73,798	80,524
<i>Implied EV/EBITDA</i>	<i>8.7x</i>	<i>11.4x</i>

Source: J.P. Morgan estimates.

Risks to Rating and Price Target

Industry Downside Risks

Deceleration or contraction in the handset and smartphone market could be faster than expected

Economic conditions or shifting consumer demand could cause greater-than-expected deceleration or contraction in the handset and smartphone markets. This would negatively impact Apple's prospects for growth, and the shares may fail to achieve our target price as a result.

Increase in competitive pressures in international markets

Apple is increasingly participating in international markets, such as China and India, where local players, which are better situated, could leverage their position and pull on levers such as pricing to make the market more competitive. In addition, tariffs enacted by local governments may further hurt Apple's ability to effectively compete in international markets.

Company-Specific Downside Risks

Investment in new business strategies and acquisitions could be fruitless

Apple has historically invested in new business strategies and acquisitions. As such, success on these investments has low visibility at this time and could lead to greater-than-expected liabilities and expense. Additionally, new investments could have a negative impact on current operations by distracting management.

Key man risk around departure of chief executive officer

While risks related to departure of management executives appear considerably lower relative to in the past, we believe the execution on strategic priorities under

CEO Tim Cook's leadership does still present modest risk to the share price, although we see a strong group of executives to support business performance without disruptions.

Litigation with Qualcomm could drive unexpected liabilities

As part of risk mitigation from the ongoing litigation with Qualcomm, Apple has provisioned what management believes could be worst-case payments to Qualcomm in the event of an adverse judgement. However, less favorable outcomes with greater damages awarded to Qualcomm could be a liability for Apple beyond the provisions, and drive downside to our price target.

Table 2: AAPL Summary Table

\$ mns

	1Q - December			2Q - March			3Q - June			4Q- September			Annual				
	2017	2018	2019	2017	2018	2019E	2017	2018	2019E	2017	2018	2019E	2017	2018	2019E	2020E	2021E
Revenue	78,351	88,293	84,310	52,896	61,137	56,677	45,408	53,265	51,720	52,579	62,900	62,287	229,234	265,595	254,993	270,226	288,963
% chg y/y	4.0%	12.7%	-4.5%	4.6%	15.6%	-7.3%	7.2%	17.3%	-2.9%	12.2%	19.6%	-1.0%	6.6%	15.9%	-4.0%	6.0%	6.9%
Cost of Sales	48,175	54,381	52,279	32,305	37,715	35,402	27,920	32,844	32,242	32,648	38,816	38,792	141,048	163,756	158,716	167,342	178,489
SG&A	3,946	4,231	4,783	3,718	4,150	4,704	3,783	4,108	4,603	3,814	4,216	4,672	15,261	16,705	18,762	18,587	19,998
as % of sales	5.0%	4.8%	5.7%	7.0%	6.8%	8.3%	8.3%	7.7%	8.9%	7.3%	6.7%	7.5%	6.7%	6.3%	7.4%	6.9%	6.9%
R&D	2,871	3,407	3,902	2,776	3,378	3,826	2,937	3,701	4,034	2,997	3,750	4,139	11,581	14,236	15,901	16,966	18,250
as % of sales	3.7%	3.9%	4.6%	5.2%	5.5%	6.8%	6.5%	6.9%	7.8%	5.7%	6.0%	6.6%	5.1%	5.4%	6.2%	6.3%	6.3%
Operating Income (COI)	23,359	26,274	23,346	14,097	15,894	12,744	10,768	12,612	10,840	13,120	16,118	14,684	61,344	70,898	61,615	67,330	72,226
operating margin	29.8%	29.8%	27.7%	26.7%	26.0%	22.5%	23.7%	23.7%	21.0%	25.0%	25.6%	23.6%	26.8%	26.7%	24.2%	24.9%	25.0%
bp chg y/y	-155 bp	-6 bp	-207 bp	-102 bp	-65 bp	-351 bp	-14 bp	-4 bp	-272 bp	-15 bp	67 bp	-205 bp	-89 bp	-7 bp	-253 bp	75 bp	8 bp
Other income/(expense)	821	756	560	587	274	300	540	672	300	797	303	300	2,745	2,005	1,460	1,100	1,100
Pre-tax Income	24,180	27,030	23,906	14,684	16,168	13,044	11,308	13,284	11,140	13,917	16,421	14,984	64,089	72,903	63,075	68,430	73,326
Income Tax	6,289	6,965	3,941	3,655	2,346	2,205	2,591	1,765	1,883	3,203	2,296	2,532	15,738	13,372	10,561	11,633	12,355
tax rate %	26.0%	25.8%	16.5%	24.9%	14.5%	16.9%	22.9%	13.3%	16.9%	23.0%	14.0%	16.9%	24.6%	18.3%	16.7%	17.0%	16.9%
Net Income	17,891	20,065	19,965	11,029	13,822	10,840	8,717	11,519	9,257	10,714	14,125	12,452	48,351	59,531	52,514	56,797	60,971
Diluted EPS	\$3.36	\$3.89	\$4.18	\$2.10	\$2.73	\$2.32	\$1.67	\$2.34	\$2.03	\$2.07	\$2.91	\$2.81	\$9.19	\$11.87	\$11.35	\$13.45	\$15.70
Diluted Shares (avg.)	5,328	5,158	4,773	5,262	5,068	4,673	5,233	4,927	4,550	5,184	4,848	4,432	5,263	5,016	4,628	4,224	3,883
EBITDA ex-equity income	26,346	29,019	26,741	16,429	18,633	15,352	13,122	15,277	13,581	15,604	18,872	17,612	71,501	81,801	73,286	78,752	84,448
% chg y/y	-0.9%	10.1%	-7.9%	-0.2%	13.4%	-17.6%	3.9%	16.4%	-11.1%	9.1%	20.9%	-6.7%	2.2%	14.4%	-10.4%	7.5%	7.2%
EBITDA margin	33.6%	32.9%	31.7%	31.1%	30.5%	27.1%	28.9%	28.7%	26.3%	29.7%	30.0%	28.3%	31.2%	30.8%	28.7%	29.1%	29.2%
bp chg y/y	-166 bp	-76 bp	-115 bp	-151 bp	-58 bp	-339 bp	-92 bp	-22 bp	-242 bp	-86 bp	33 bp	-173 bp	-134 bp	-39 bp	-206 bp	40 bp	8 bp
Cash	246,090	285,097	245,035	256,841	267,226	225,166	261,516	243,743	211,618	268,895	237,100	210,290	268,895	237,100	210,290	191,156	172,551
Debt	87,549	122,400	114,730	98,522	121,840	114,730	108,339	114,600	114,730	115,680	114,483	114,730	115,680	114,483	114,730	114,730	114,730
Gross Leverage (ttm)	1.3x	1.7x	1.4x	1.4x	1.6x	1.5x	1.5x	1.5x	1.5x	1.6x	0.9x	1.6x	1.6x	1.4x	1.6x	1.5x	1.4x
Net Debt	(158,541)	(162,697)	(130,305)	(158,319)	(145,386)	(110,436)	(153,177)	(129,143)	(96,888)	(153,215)	(122,617)	(95,560)	(153,215)	(122,617)	(95,560)	(76,426)	(57,821)
Net Leverage (ttm)	-2.3x	-2.2x	-1.6x	-2.3x	-1.9x	-1.4x	-2.2x	-1.6x	-1.3x	-2.1x	-1.0x	-1.3x	-2.1x	-1.5x	-1.3x	-1.0x	-0.7x
Operating Cash Flow	27,056	28,293	26,690	12,523	15,130	6,916	8,363	14,488	13,075	15,656	19,523	25,526	63,598	77,434	72,207	77,935	78,309
Capital Expenditures	(3,334)	(2,810)	(3,355)	(2,975)	(4,195)	(3,401)	(2,277)	(3,267)	(3,103)	(3,865)	(3,041)	(3,426)	(12,451)	(13,313)	(13,285)	(13,649)	(13,819)
Free Cash Flow	23,722	25,483	23,335	9,548	10,935	3,515	6,086	11,221	9,972	11,791	16,482	22,100	51,147	64,121	58,922	64,286	64,490
Share repurchases	(10,851)	(10,095)	(8,796)	(7,161)	(22,756)	(20,000)	(7,093)	(20,783)	(20,000)	(7,795)	(19,104)	(20,000)	(32,900)	(72,738)	(68,796)	(70,000)	(70,000)

Source: Company reports and J.P. Morgan estimates

Apple: Summary of Financials

Income Statement - Annual						Income Statement - Quarterly					
	FY17A	FY18A	FY19E	FY20E	FY21E		1Q19A	2Q19E	3Q19E	4Q19E	
Revenue	229,234	265,595	254,993	270,226	288,963	Revenue	84,310A	56,677	51,720	62,287	
COGS	(141,048)	(163,756)	(158,716)	(167,342)	(178,489)	COGS	(52,279)A	(35,402)	(32,242)	(38,792)	
Gross profit	88,186	101,839	96,278	102,884	110,474	Gross profit	32,031A	21,274	19,477	23,495	
SG&A	(15,261)	(16,705)	(18,762)	(18,587)	(19,998)	SG&A	(4,783)A	(4,704)	(4,603)	(4,672)	
Adj. EBITDA	71,501	81,801	73,286	78,752	84,448	Adj. EBITDA	26,741A	15,352	13,581	17,612	
D&A	(10,157)	(10,903)	(11,671)	(11,422)	(12,222)	D&A	(3,395)A	(2,607)	(2,741)	(2,927)	
Adj. EBIT	61,344	70,898	61,615	67,330	72,226	Adj. EBIT	23,346A	12,744	10,840	14,684	
Net Interest	-	-	-	-	-	Net Interest	-	-	-	-	
Adj. PBT	64,089	72,903	63,075	68,430	73,326	Adj. PBT	23,906A	13,044	11,140	14,984	
Tax	(15,738)	(13,372)	(10,561)	(11,633)	(12,355)	Tax	(3,941)A	(2,205)	(1,883)	(2,532)	
Minority Interest	-	-	-	-	-	Minority Interest	-	-	-	-	
Adj. Net Income	48,351	59,531	52,514	56,797	60,971	Adj. Net Income	19,965A	10,840	9,257	12,452	
Reported EPS	9.19	11.87	11.35	13.45	15.70	Reported EPS	4.18A	2.32	2.03	2.81	
Adj. EPS	9.19	11.87	11.35	13.45	15.70	Adj. EPS	4.18A	2.32	2.03	2.81	
DPS	-	-	-	-	-	DPS	-	-	-	-	
Payout ratio	-	-	-	-	-	Payout ratio	-	-	-	-	
Shares outstanding	5,263	5,016	4,628	4,224	3,883	Shares outstanding	4,773A	4,673	4,550	4,432	
Balance Sheet & Cash Flow Statement						Ratio Analysis					
	FY17A	FY18A	FY19E	FY20E	FY21E		FY17A	FY18A	FY19E	FY20E	FY21E
Cash and cash equivalents	20,289	25,913	20,000	20,000	20,000	Gross margin	38.5%	38.3%	37.8%	38.1%	38.2%
Accounts receivable	17,874	23,186	24,223	23,828	22,989	EBITDA margin	31.2%	30.8%	28.7%	29.1%	29.2%
Inventories	4,855	3,956	6,896	7,996	8,646	EBIT margin	26.8%	26.7%	24.2%	24.9%	25.0%
Other current assets	85,627	78,284	72,992	72,992	72,992	Net profit margin	21.1%	22.4%	20.6%	21.0%	21.1%
Current assets	128,645	131,339	124,111	124,817	124,627	ROE	36.9%	49.4%	56.1%	85.0%	143.7%
PP&E	33,783	41,304	41,251	43,478	45,075	ROA	13.9%	16.1%	14.7%	16.7%	18.8%
LT investments	194,714	170,799	148,634	129,500	110,895	ROCE	19.9%	24.6%	24.6%	30.8%	38.2%
Other non current assets	18,177	22,283	34,686	34,686	34,686	SG&A/Sales	6.7%	6.3%	7.4%	6.9%	6.9%
Total assets	375,319	365,725	348,682	332,481	315,283	Net debt/equity	71.2%	82.7%	118.3%	177.1%	302.1%
Short term borrowings	18,473	20,748	21,741	21,741	21,741	P/E (x)	16.8	13.0	13.6	11.5	9.9
Payables	49,049	55,888	53,878	59,973	63,705	P/BV (x)	6.1	7.2	8.9	12.2	19.2
Other short term liabilities	33,292	40,230	45,410	49,737	50,931	EV/EBITDA (x)	9.0	7.8	8.8	8.1	7.6
Current liabilities	100,814	116,866	121,029	131,451	136,377	Dividend Yield	-	-	-	-	-
Long-term debt	97,207	93,735	92,989	92,989	92,989	Sales/Assets (x)	0.7	0.7	0.7	0.8	0.9
Other long term liabilities	43,251	47,977	54,555	54,555	54,555	Interest cover (x)	-	-	-	-	-
Total liabilities	241,272	258,578	268,573	278,995	283,921	Operating leverage	47.8%	98.2%	328.0%	155.3%	104.9%
Shareholders' equity	134,047	107,147	80,109	53,486	31,362	Revenue y/y Growth	6.6%	15.9%	(4.0%)	6.0%	6.9%
Minority interests	-	-	-	-	-	EBITDA y/y Growth	2.2%	14.4%	(10.4%)	7.5%	7.2%
Total liabilities & equity	375,319	365,725	348,682	332,481	315,283	Tax rate	24.6%	18.3%	16.7%	17.0%	16.9%
BVPS	25.47	21.36	17.31	12.66	8.08	Adj. Net Income y/y Growth	7.1%	23.1%	(11.8%)	8.2%	7.3%
y/y Growth	9.6%	(16.1%)	(19.0%)	(26.8%)	(36.2%)	EPS y/y Growth	12.3%	29.2%	(4.4%)	18.5%	16.8%
Net debt/(cash)	95,391	88,570	94,730	94,730	94,730	DPS y/y Growth	-	-	-	-	-
Cash flow from operating activities	63,598	77,434	72,207	77,935	78,309						
o/w Depreciation & amortization	10,157	10,903	11,671	11,422	12,222						
o/w Changes in working capital	(5,550)	34,694	6,464	9,717	5,116						
Cash flow from investing activities	(46,446)	16,066	(4,086)	(13,649)	(13,819)						
o/w Capital expenditure	(12,451)	(13,313)	(13,285)	(13,649)	(13,819)						
as % of sales	5.4%	5.0%	5.2%	5.1%	4.8%						
Cash flow from financing activities	(17,347)	(87,876)	(84,008)	(83,421)	(83,094)						
o/w Dividends paid	(12,769)	(13,712)	(13,900)	(13,421)	(13,094)						
o/w Net debt issued/(repaid)	29,014	432	6	0	0						
Net change in cash	(195)	5,624	(15,887)	(19,135)	(18,604)						
Adj. Free cash flow to firm	51,147	64,121	58,922	64,286	64,490						
y/y Growth	(3.7%)	25.4%	(8.1%)	9.1%	0.3%						

Source: Company reports and J.P. Morgan estimates.

Note: \$ in millions (except per-share data). Fiscal year ends Sep. o/w - out of which

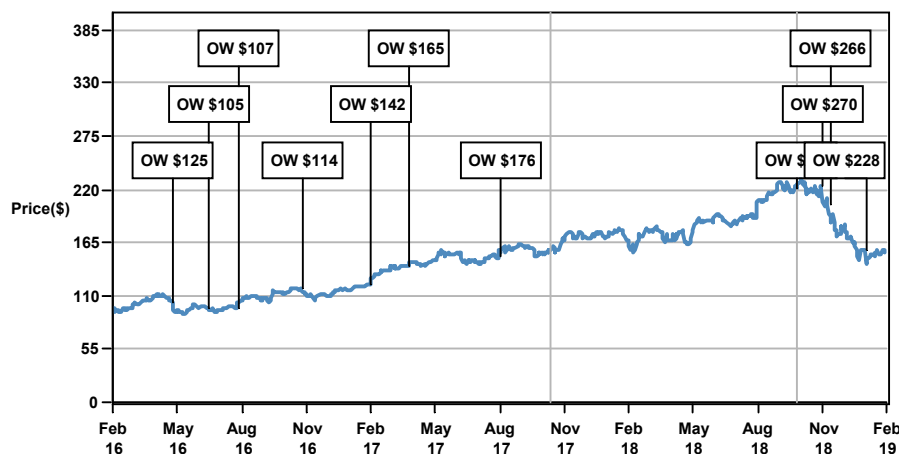
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Apple (AAPL, AAPL US) Price Chart



Date	Rating	Share Price (\$)	Price Target (\$)
27-Apr-16	OW	104.35	125.00
16-Jun-16	OW	97.14	105.00
27-Jul-16	OW	96.67	107.00
26-Oct-16	OW	118.25	114.00
01-Feb-17	OW	121.35	142.00
26-Mar-17	OW	140.64	165.00
02-Aug-17	OW	150.05	176.00
27-Sep-18	OW	220.42	272.00
02-Nov-18	OW	222.22	270.00
12-Nov-18	OW	204.47	266.00
03-Jan-19	OW	157.92	228.00

Source: Bloomberg and J.P. Morgan; price data adjusted for stock splits and dividends.
Initiated coverage May 01, 1999. All share prices are as of market close on the previous business day. Break in coverage Oct 13, 2017 - Se

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