Apple Inc AAPL (XNAS)

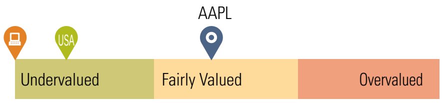
Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★	293.80 USD	240.00 USD	1.22	1.05	1.05	1,285.52	Consumer Electronics	Standard
30 Apr 2020 21:50, UTC	30 Apr 2020	29 Jan 2020 02:06, UTC		30 Apr 2020	30 Apr 2020	30 Apr 2020		

Morningstar Pillars

	Analyst	Quantitative
Economic Moat	Narrow	Wide
Valuation	★★	Fairly Valued
Uncertainty	High	High
Financial Health	—	Moderate

Source: Morningstar Equity Research

Quantitative Valuation



	Current	5-Yr Avg	Sector	Country
Price/Quant Fair Value	1.05	0.97	0.77	0.83
Price/Earnings	23.1	15.9	21.4	20.1
Forward P/E	24.7	—	15.9	13.9
Price/Cash Flow	18.3	11.7	15.6	13.1
Price/Free Cash Flow	21.0	14.2	23.0	19.5
Trailing Dividend Yield%	1.05	1.63	1.89	2.35

Source: Morningstar

Bulls Say

- Between greater smartphone penetration in emerging markets and repeat sales to current customers, Apple has plenty of opportunity to reap the rewards of its iPhone business.
- Apple's iPhone and iOS operating system have consistently been rated at the head of the pack in terms of customer loyalty, engagement, and security, which bodes well for long-term customer retention.
- We think Apple is still innovating with introductions of Apple Pay, Apple Watch, Apple TV, and AirPods; each of these could drive incremental revenue, but more crucially help to retain iPhone users over time.

Bears Say

- Apple's decisions to maintain a premium pricing strategy may help fend off gross margin compression but could limit unit sales growth, as devices may be unaffordable for many customers.
- If Apple were to ever launch a buggy software update or subpar services, it could diminish the firm's reputation for building products that "just work."
- Apple is believed to be behind firms like Google and Amazon in artificial intelligence, or AI, development (notably Siri voice recognition), which could be problematic as tech firms look to integrate AI in order to deliver premium services to customers.

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Following Mixed Q2, Apple Shares Look Expensive Amidst Near-Term Opacity; No Change to $240 FVE

Business Strategy and Outlook

Abhinav Davuluri, CFA, Analyst, 30 October 2019

Apple's competitive advantage stems from its ability to package hardware, software, services, and third-party applications into sleek, intuitive, and appealing devices. This expertise enables the firm to capture a premium on its hardware, unlike most of its peers. Despite its admirable reputation, loyal customer base, and unique products, the consumer hardware space can be unforgiving to firms unable to consistently satiate the customer's appetite for more features. Given the short product cycles of Apple's products and army of firms targeting its dominance, we do not believe Apple has a wide economic moat.

Switching costs and intangible assets support Apple's narrow moat. The firm enjoys stellar returns on its devices by offering a unique user experience with its iOS ecosystem. Contrary to its peers in PCs and smartphones that rely on relatively open operating systems, Windows and Android, respectively, Apple's walled garden approach for its popular iOS allows it to charge a premium for relatively commoditized hardware not too different from that sold by Samsung, Dell, and others. Customer switching costs are elevated for Apple users as a non-Apple iOS experience does not exist, unlike computing platforms for the Windows or Android ecosystems that boast PCs and smartphones from a multitude of firms.

We view the iPhone as a revolutionary product that created the smartphone ecosystem and transitioned computing habits away from the PC. The robust app store helped foster iPhone adoption and grow Apple's user base, with applications ranging from productivity, social media, gaming, music, and so on. We foresee Apple's ongoing business coming from existing customers versus new smartphone adopters. With hardware becoming increasingly commoditized and replacement cycles potentially elongating in the long term, we expect Apple to focus on newer software and services to augment the user experience and retain customers. The firm's additional products and services (Apple Watch, iCloud, Apple TV+, AirPods, Apple Pay) act as both supplemental revenue opportunities and, more importantly, critical enhancements to the iOS ecosystem that support Apple's crown jewel: the iPhone.

Analyst Note

Abhinav Davuluri, CFA, Analyst, 30 April 2020

Apple reported fiscal second-quarter results that came in below management's prior guidance. On Feb. 17, Apple issued a press release that stated it no longer expected to meet its revenue guidance provided on Jan. 28. Management did not provide guidance for the June quarter given the lack of visibility. CEO Tim Cook noted the first five weeks of the March quarter were strong while the next five weeks were weakened by China's response to coronavirus and the associated demand destruction and supply disruption in the country. The last few weeks of the quarter saw conditions in China improve while the rest of the world began facing shelter-in-place orders and closure of Apple's retail stores outside of Greater China. When Apple rescinded its guidance in February, we had estimated a new revenue range of $56 billion to $60 billion. The firm ended up achieving $58.3 billion in sales for the quarter, which was up 1% year over year. We are maintaining our fair value estimate of $240 per share for narrow-moat Apple and we recommend prospective investors wait for a wider margin of safety given the tenuous state of the global economy.

Second-quarter revenue was modestly up thanks to year-over-year growth in services (17%) and wearables, home, and accessories (23%). Product revenue was down 3% year over year due to weakness across iPhone, iPad, and Mac segments. Apple generated nearly $29 billion in iPhone revenue, which was down 7% year over year. Service revenue was a quarterly record $13.3 billion. Apple now has over 515 million paid subscribers, 125 million more than a year ago, and the firm expects 600 million subs by December 2020. Wearables growth remained stellar with sales up 23% year over year. In its three largest regions, Apple's sales had mixed results: down 1% in the Americas; up 10% in Europe; and down 8% in Greater China. Gross margin of 38.4% was flat sequentially as a mix shift toward services offset the seasonal loss of leverage.

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Close Competitors	Currency (Mil)	Market Cap	TTM Sales	Operating Margin	TTM/PE
Samsung Electronics Co Ltd 005930	KRW	332,560,751	0	16.55	15.80
Microsoft Corp MSFT	USD	1,359,028	134,249	36.74	29.85
Alphabet Inc GOOGL	USD	919,944	161,857	22.20	27.17
HP Inc HPQ	USD	22,176	58,664	7.42	7.68

Economic Moat

Abhinav Davuluri, Analyst, 28 January 2020

We assign a narrow economic moat rating for Apple that stems from the combination of switching costs and intangible assets. We think the firm's primary moat source is customer switching costs, as Apple bolsters the user experience with a cohort of auxiliary products such as iPad, Apple TV, Apple Watch, AirPods, and so on, and services (iMessage, FaceTime, Apple Pay) that augment Apple's sphere of influence on the consumer. As current iPhone users are familiar with the iOS environment (Apple-centric apps, services, and so on), it may take multiple subpar product releases to warrant an exodus to an Android OS, as these customers are likely loath to leave Apple's seemingly superior walled garden. Regarding intangible assets, Apple's differentiated user experience via iOS coupled with its expertise in both hardware and software design allows the firm to more seamlessly build integrated products. We see no other technology titan with comparable expertise in both hardware and software. In turn, we believe this integration allows Apple to build industry-leading devices that command industry-leading average selling prices, most notably the firm's crown jewel: the iPhone.

Recent survey data shows that iPhone customers are not even contemplating switching brands today. In a December 2018 survey by Kantar, 90% of U.S.-based iPhone users said they planned to remain loyal to future Apple devices. Also, users of ancillary products (especially the Watch and AirPods) lose significant functionality when paired with a smartphone other than the iPhone. Ultimately, we believe that existing iPhone users are relatively locked in to the iOS ecosystem and interface.

While the Android cohort has attempted to replicate a similar feel of apps, app stores, and integrated experience, the fragmentation of its key players will likely prevent many loyal iOS users from switching, at least over a few product cycles. Competitors such as Samsung (Galaxy smartphone) and Google (Android OS) specialize in hardware and software, respectively, with Samsung boasting leadership in mobile device units and Google's Android OS serving as the pervasive smartphone OS. Although Apple's low-double-digit market share in the smartphone space doesn't seem excessive, the firm does enjoy the lion's share of industry profits. Neither Samsung nor Google has been able to offer a comprehensive and integrated product like the iPhone, though both have attempted to develop software/operating systems (Samsung's Tizen OS) and hardware (Google's Pixel smartphone), with mixed results. We believe Apple's expertise in both hardware and software represents an intangible asset that even the strongest of tech firms have struggled to replicate.

Although Apple's brand tends to be associated with premium technology gadgets, we don't think it can support an economic moat in isolation. Specifically, Apple's brand strength is a consequence of its differentiated hardware and software design, not the cause. We don't think Apple can charge twice the price of a similar set of hardware solely by sticking an Apple logo on it. Similarly, we suspect that Apple's brand equity will wane if the firm's products were technologically inferior to competitors over an extended period of time. As evidence, Nokia was the eighth-most-valuable brand in the world as recently as 2010, according to Interbrand, before succumbing to the rise of the smartphone.

The active installed base of Apple devices reached 1.5 billion at the end of 2019, up from 1.4 billion a year prior, showing the strong stickiness Apple has created. However, these switching costs are not insurmountable, illustrated by the rise and fall of former mobile device titans such as Nokia, Motorola, and BlackBerry, all of which failed to keep up with smartphone innovation. The short product cycles for phones and the inability of these firms to sufficiently innovate left each one struggling after the debut of Apple's iPhone and its subsequent proliferation. Apple is not immune to these pitfalls, as consumer sentiment for technology gadgets can be unforgiving, with one buggy or subpar product potentially driving customers to other companies' offerings, which have been increasingly competitive. We have often seen innovative features arise in the Android ecosystem before Apple, such as OLED screens and 3D sense. These industry dynamics prevent us from assigning a wide moat rating for Apple.

At this point, we do not consider network effects to be a

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key source of Apple's moat. We acknowledge that Apple's iOS users gravitate to the App Store to purchase new applications, and the size of Apple's installed base attracts developers to build new apps for iOS. Apple's integration of hardware and software also supports its developer networks, as Apple knows that iOS will be loaded on to only a handful of screen sizes or iPhone models, versus the hundreds of devices and manufacturers that support Android. This leads to a more fragmented Android ecosystem, which we believe is relatively harder for developers to support. Apple consistently touts when the majority of its user base is on the latest operating system, which in turn allows developers to build for the latest version of iOS and know that their apps are optimized for most of Apple's user base. Nonetheless, the Google Play store that supports the Android user base also achieves a similar network effect. Ultimately, we view the hardware and software (device and iOS) as the key differentiators for Apple's moat sources (switching costs and intangible assets), since the lion's share of applications used by smartphone users are platform-agnostic, in our view. Even for apps built for iOS first before Android (with the popular video game Fortnite being one recent example), mobile apps are ultimately built for both platforms in short order.

Finally, Apple may boast some cost advantages associated with its supply chain, such as pressuring suppliers or making massive purchases of memory, flash storage, and other key components. However, these advantages are predicated on the immense forecast volume of Apple's products, and we surmise these advantages would evaporate if Apple's device production were to diminish. Apple likely could not build the lowest cost phone in the industry as it has to build iOS, rather than use Android for free. More important, this is likely a moot point as we think Apple will play at the high end of the market with best-of-breed components for the foreseeable future—it's been doing so with the Mac for 40 years and counting.

Fair Value & Profit Drivers

Abhinav Davuluri, Analyst, 28 January 2020

We are raising our fair value estimate to $240 per share from $220 per share. We note our updated fair value estimate implies a forward GAAP P/E ratio of 17 times. Following a year of stellar revenue growth of 16% in fiscal 2018 thanks to the iPhone X and iPhone 8 launches at higher average selling prices than previous iPhones, Apple sales fell 2% in fiscal 2019 due to lower iPhone sales, particularly in China. In contrast, both services and wearables, home, and accessories (AirPods and Apple Watch) grew 17% and 41% in fiscal 2019, respectively. In fiscal 2020, we now expect iPhone revenue to grow 13% as positive momentum with the iPhone 11 carries to the firm's first 5G iPhone model that we expect to be launched in September 2020. We expect services to cross the $50 billion threshold in fiscal 2020, thanks to broad-based strength, while wearables also maintains strong double-digit growth. Beyond fiscal 2020, we believe iPhone sales will record modest growth, with double-digit services growth driving total revenue growth in the mid-single digits.

We expect gross margins to remain in the high-30s, thanks to Apple's exceptional premium pricing strategy and stable iPhone margins. The firm recently began disclosing product and services gross margins, and we anticipate product gross margins tracking in the low-30s and services gross margins hovering around 60%. Although we think higher-margin services segment will grow nicely, we foresee lower-margin other products, such as the Apple Watch, serving as an offset. However, these other products remain vital to Apple being able to lock in iPhone customers with the likes of AirPods, Watches, and other accessories that sell at a notable premium to non-Apple counterparts. To remain king of the hill in the premium smartphone market, we also model higher research and spending as Apple drives innovation and potentially ventures into new frontiers. Consequently, operating margins track from 26.7% in fiscal 2018 to 24.6% in fiscal 2024.

Risk & Uncertainty

Abhinav Davuluri, Analyst, 28 January 2020

As one of the largest firms in the world, Apple is susceptible to competitive threats from capable behemoths with significant resources. Over the course of its iPhone-fueled decade of dominance, Samsung, Microsoft, Google, and others have taken their best shots at Apple, with fleeting success. Consumer hardware is inherently prone to cutthroat competition as short-product cycles and customers hungry for greater features make market leadership difficult to sustain. Although Apple has done well with its walled garden approach with iOS, the firm competes with Chinese OEMs at the low and midtier as well as tech titans such as Samsung across the entire spectrum of smartphones.

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Furthermore, we suspect that many customers are holding on to their phones longer as premium devices are more than good enough for today's needs (web browsing, media streaming, social media) and potentially tomorrow's (virtual/augmented reality). Analogous to the decline of PCs (with current PCs more than adequate for most applications), Apple faces the possibility of smartphone unit stagnation or even declines once emerging markets saturate or consumers gravitate to mid-tier devices. Should it be unable to innovate, the firm may lose its ability to charge premium prices for hardware that is no longer indistinguishable from many comparable devices.

Some competitors are willing to sell hardware at essentially cost to drive revenue or stickiness in other business segments. A notable example is Amazon with its multitude of products including its Echo smart speaker, Fire TV, Prime Music, Kindle Fire, and Prime Video to attract and retain Prime customers. Should these devices supersede their iOS counterparts, Apple's devices may be at risk. A recent focus on AI assistants such as Google Now and Amazon Alexa has also put pressure on Apple's Siri that has fallen behind its peers in efficacy. Herein lies another area Apple may face headwinds if consumers further prioritize voice-recognition capabilities.

Stewardship

Abhinav Davuluri, Analyst, 30 July 2019

We view Apple's stewardship rating as Standard. Tim Cook became CEO in August 2011 after cofounder, longtime CEO, and visionary Steve Jobs stepped down from the CEO role before passing away in October 2011. Cook was considered Jobs' right-hand man and served in various operations roles with Apple before becoming COO in 2005. Although Jobs' death was a blow to the firm, as he was a one-of-a-kind leader and creative mind, Apple is not lacking in capable leaders. Arthur Levinson, former chairman and CEO of Genentech, is chairman of Apple's board of directors. Jeff Williams serves as COO of Apple and would be our best bet to replace Cook as CEO.

We think Apple's recent level of technological innovation has been adequate, though it has likely faced an unreasonably high bar for expectations after the debut of the iPhone. Many of the firm's recent innovations have been in software and services within iOS such as Apple Pay, as well as under-the-hood improvements in semiconductors, rather than revolutionary, ubiquitous devices like the iPod or iPhone. We like how the firm designs its own chips for the CPU and artificial intelligence (bionic neural engine), as this can create a better user experience since Apple also designs the operating system and can appropriately tailor the CPU or neural engine to its needs. Going forward, we expect the firm to also design its own GPU, which should enable performance differentiation.

Products like the Apple Watch, AppleTV, AirPods and HomePod don't move the needle in isolation, but should drive incremental earnings growth to Apple. More importantly, these products will make it more challenging for iPhone users to leave the iOS ecosystem, in our view. Although the Apple Watch has had mixed results at the outset, we don't view it as a miss just yet, given similar slow starts for the iPad and iPhone.

Although Apple maintains sterling brand recognition and has 1.4 billion active devices (as of December 2018), it has made a few missteps under Cook that skeptics would argue wouldn't have happened under Jobs. Apple made a poor decision to part ways with Google Maps in iOS 6 and launch Apple Maps with a bevy of bugs and errors, leading to a formal apology. More recently, Apple is being investigated by the U.S. government as the firm purposefully slowed down iOS on older devices. While the firm claims that it was to protect the user from sudden phone shutdowns, many fear that Apple was implementing planned obsolescence of their devices, in order to get customers to upgrade.

In terms of capital allocation, we applaud Cook's decision to initiate dividend and stock buyback programs, as well as take on debt in order to fund such programs when most of its cash was trapped overseas. We think Apple's recent plan of $300 billion in capital distributions (to be completed in the June 2018 quarter) was more than sufficient to appease investors. We like the firm's expansion of this program by another $100 billion in buybacks, along with the company's healthy dividend raises in recent years.

Perhaps more important, we think Apple's frugality in terms of acquisitions is quite admirable. Apple's strategy of focusing on smaller, tuck-in deals and developing products in house, rather than splashy but questionable deals like Microsoft's purchase of Skype or Google's foray into hardware by acquiring Motorola Mobility and Nest,

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appears to have served investors quite well in recent years. Even Apple's $3.0 billion acquisition of Beats Music and Beats Electronics represented only a tiny portion of the firm's total cash balance.

Apple has also done a good job of attracting topnotch talent to the company, such as former Burberry CEO Angela Ahrendts to run Apple’s retail and online stores. However, we note Ahrendts recently stepped down with head of HR Deirdre O'Brien taking over the role. We are comfortable that these hires have strengthened Apple’s bench in the unlikely event of Cook departing the company, and each hire likely has aided in Apple’s efforts to build and deliver the Apple Watch and perhaps future products as well. All the while, Apple’s ongoing operations continue to generate operating margins and cash flow well above its peers in various hardware industries, which bodes well for future free cash flow for investors.

In July 2019, Intel announced it agreed to sell its 5G smartphone modem business to Apple for $1 billion. This is the second largest acquisition by Apple (after Beats for $3 billion in 2014) We had been expecting such a deal since Intel announced its plans to exit the 5G modem business following the resolution of the dispute between Apple and Qualcomm earlier in 2019. We believe this deal validates Apple’s strategy of trying to bring as much chip development in-house as feasible, though we don’t expect the firm to replace Qualcomm’s 5G modems in future iPhones for at least a few years.

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Analyst Notes Archive

Noncore Means No More: Broadcom Looks to Jettison RF Business Per WSJ; Shares Overvalued

Abhinav Davuluri, Analyst, 18 December 2019

On Dec. 18, "The Wall Street Journal" reported that Broadcom is trying to sell its radio frequency, or RF, business in a deal that could be worth $10 billion. We are not surprised by this news, given that CEO Hock Tan delineated the firm's semiconductor business between core and noncore assets last week during Broadcom's fiscal fourth-quarter earnings call, with the wireless business identified as a noncore area. Broadcom's wireless business generated $5.5 billion in revenue for fiscal 2019, with RF representing $2.2 billion, Wi-Fi/Bluetooth combo chips also at $2.2 billion, and the mixed signal custom product line at $1.1 billion. We note the wireless business, including RF, is margin dilutive, relative to both the firm's software businesses (CA Technologies and Symantec) as well as other core semiconductor businesses such as networking, broadband, and storage connectivity. Given the firm's fiscal 2022 operating margin target of 55%, the increasing proclivity of the firm toward software, elevated R&D spending required for RF in 5G, and Broadcom's current debt level (north of $40 billion), we think this move makes sense. That said, the list of potential suitors appears opaque. We are maintaining our $310 fair value estimate for narrow-moat Broadcom, and shares appear overvalued at current levels.

As we approach the dawn of the 5G era, the timing of this report is quite conspicuous. We note Broadcom had lost some RF share to Qorvo in recent 4G iPhones, but its standing response has been that with the introduction of 5G devices the firm will regain this share and more. Based on the timing of this move, we surmise Broadcom's position in 5G RF may not be as strong as the firm has been leading on. Additionally, the ongoing investment to remain competitive in 5G RF combined with the cyclicality for smartphone components and customer concentration (Apple accounted for 25% of sales in fiscal 2018 for Broadcom) could all be contributing factors to this divestiture.

Apple Set to Drive Double-Digit Growth in 2020 Led by Services and Wearables; Raising FVE to $240

Abhinav Davuluri, Analyst, 28 January 2020

Apple reported strong fiscal first-quarter results, thanks to healthy sales of iPhones, wearables, and services during the holiday period, while providing investors with a second-quarter forecast that was ahead of CapIQ consensus estimates and our prior expectations. Overall, we see no signs of Apple adoption slowing down, as the firm has 1.5 billion active devices within its ecosystem, up over 100 million in the past year. We are raising our fair value estimate to $240 per share from $220 for narrow-moat Apple, as we incorporate superior near-term prospects. That said, current levels appear lofty, as we don't believe the strong near-term results mean that a 5G super cycle is on the horizon. We've witnessed cycles before where strong iPhone adoption has been met by a predictable lull thereafter as customers pause from buying the latest devices, and we also surmise the torrid double-digit growth in services and wearables will be difficult to sustain.

First-quarter sales were $91.8 billion, up 9% year over year despite $1 billion of currency headwinds (per management) and well ahead of the company's guidance of $85.5 billion-$89.5 billion. IPhone revenue was the bright spot, as Apple earned $56.0 billion, up 8% year over year. Wearables growth remained stellar with sales up 37% year over year (44% excluding home/accessories products). Meanwhile, service revenue grew 17% year over year. Apple now has 480 million paid subscribers, 120 million more than a year ago, and the firm expects 600 million subs by December 2020. Apple's total sales rose (year over year) in its three largest regions--12% in the Americas, 14% in Europe and 3% in Greater China. Gross margin of 38.4% rose 40 basis points sequentially and came in at the high end of guidance.

For the March quarter, Apple expects revenue in the range of $63.0 billion-$67.0 billion which would be up 12% year over year at the midpoint. The range is wider than usual due to additional uncertainty about the coronavirus.

Coronavirus Stifles Apple's Revenue Guidance for Its March Quarter; Shares Remain Overvalued

Abhinav Davuluri, Analyst, 18 February 2020

On Feb. 17, Apple issued a press release that stated it no longer expects to meet its revenue guidance provided on Jan. 28 as the coronavirus (COVID-19) continues to threaten iPhone supply and demand. The firm's two primary reasons for the expected sales shortfall included worldwide iPhone supply being temporarily constrained

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and lower demand in China. Although the firm's contract manufacturing sites outside of the Hubei province (currently in full lockdown) have reopened, they are taking longer to ramp than Apple had anticipated. Meanwhile, Apple stores in China have been closed and partner stores that have been open had reduced operating hours with minimal foot traffic. Positively, customer demand for Apple's products outside of China has been consistent with the firm's prior expectations.

For the March quarter, Apple had previously expected sales in the range of $63 billion-$67 billion. We note that revenue from Greater China has averaged $11.4 billion over the past eight quarters. All in, we think revenue could be anywhere from $56 billion to $60 billion in the quarter, but the situation remains fluid, as evidenced by Apple's own reticence in providing a revised guidance range. However, we still think it is likely any near-term shortfall will be made up in subsequent quarters (particularly with a 5G iPhone 12 set to launch in September). Consequently, we are maintaining our $240 fair value estimate for narrow-moat Apple. We continue to see shares as overvalued, as we believe the implied growth for the iPhone and services segments are too high.

Following Mixed Q2, Apple Shares Look Expensive Amidst Near-Term Opacity; No Change to $240 FVE

Abhinav Davuluri, Analyst, 30 April 2020

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Second-quarter revenue was modestly up thanks to year-over-year growth in services (17%) and wearables, home, and accessories (23%). Product revenue was down 3% year over year due to weakness across iPhone, iPad, and Mac segments. Apple generated nearly $29 billion in iPhone revenue, which was down 7% year over year. Service revenue was a quarterly record $13.3 billion. Apple now has over 515 million paid subscribers, 125 million more than a year ago, and the firm expects 600 million subs by December 2020. Wearables growth remained stellar with sales up 23% year over year. In its three largest regions, Apple's sales had mixed results: down 1% in the Americas; up 10% in Europe; and down 8% in Greater China. Gross margin of 38.4% was flat sequentially as a mix shift toward services offset the seasonal loss of leverage.

Quantitative Equity Report | Release: 30 Apr 2020, 22:34 UTC | Reporting Currency: USD | Trading Currency: USD | Exchange:XNAS Page 8 of 15

Apple Inc AAPL ★★★Q 30 Apr 2020 02:00 UTC

Last Close	Fair Value Q	Market Cap	Sector	Industry	Country of Domicile
30 Apr 2020	30 Apr 2020 02:00 UTC	30 Apr 2020			
293.80	279.83	1,285.5 Bil	Technology	Consumer Electronics	USA United States

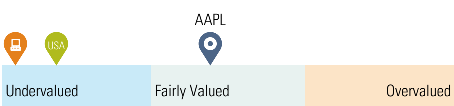
There is no one analyst in which a Quantitative Fair Value Estimate and Quantitative Star Rating are attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative fair value. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities. For information regarding Conflicts of Interests, visit http://global.morningstar.com/equitydisclosures

Company Profile

Apple designs a wide variety of consumer electronic devices, including smartphones (iPhone), tablets (iPad), PCs (Mac), smartwatches (Apple Watch), and TV boxes (Apple TV), among others. The iPhone makes up the majority of Apple's total revenue. In addition, Apple offers its customers a variety of services such as Apple Music, iCloud, Apple Care, Apple TV+, Apple Arcade, Apple Card, and Apple Pay, among others. Apple's products run internally developed software and semiconductors, and the firm is well known for its integration

Quantitative Scores

		Scores		
		All	Rel Sector	Rel Country
Quantitative Moat	Wide	100	100	99
Valuation	Fairly Valued	3	5	5
Quantitative Uncertainty	High	99	99	97
Financial Health	Moderate	88	61	88



Source: Morningstar Equity Research

Valuation

	Current	5-Yr Avg	Sector Median	Country Median
Price/Quant Fair Value	1.05	0.97	0.77	0.83
Price/Earnings	23.1	15.9	21.4	20.1
Forward P/E	24.7	—	15.9	13.9
Price/Cash Flow	18.3	11.7	15.6	13.1
Price/Free Cash Flow	21.0	14.2	23.0	19.5
Trailing Dividend Yield %	1.05	1.63	1.89	2.35
Price/Book	14.4	6.5	2.3	2.4
Price/Sales	5.0	3.5	1.7	2.4

Profitability

	Current	5-Yr Avg	Sector Median	Country Median
Return on Equity %	55.5	45.1	12.5	12.9
Return on Assets %	16.1	16.2	6.4	5.2
Revenue/Employee (Mil)	2.0	2.0	0.4	0.3

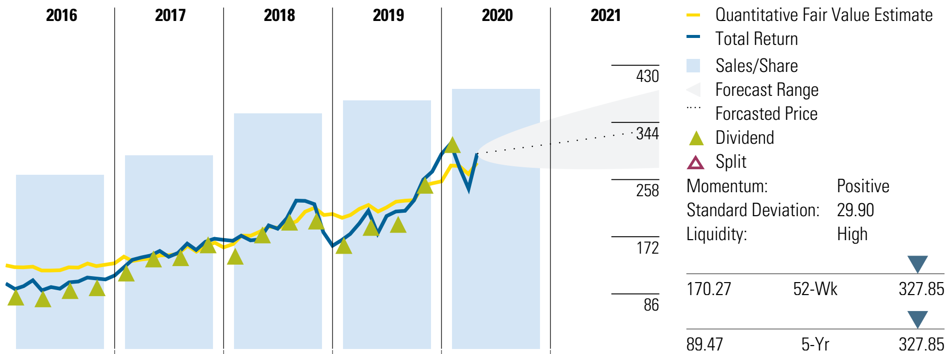
Financial Health

	Current	5-Yr Avg	Sector Median	Country Median
Distance to Default	0.7	0.7	0.6	0.5
Solvency Score	318.1	—	449.9	552.4
Assets/Equity	3.7	3.0	1.6	1.7
Long-Term Debt/Equity	1.0	0.7	0.1	0.4

Growth Per Share

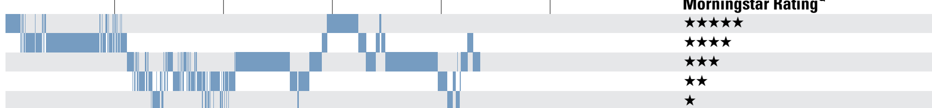
	1-Year	3-Year	5-Year	10-Year
Revenue %	-2.0	6.5	7.3	19.8
Operating Income %	-9.8	2.1	4.0	18.5
Earnings %	-0.2	12.7	13.0	24.8
Dividends %	10.3	11.2	10.6	—
Book Value %	-9.6	-5.4	1.4	15.0
Stock Total Return %	47.9	28.2	19.6	23.6

Price vs. Quantitative Fair Value



2016	2017	2018	2019	2020	2021	
12.2	48.2	-5.1	88.1	0.3		Total Return %
-0.3	26.8	-0.1	56.9	10.4		+/– Market (Morningstar US Index)
1.93	1.45	1.79	1.04	1.05		Trailing Dividend Yield %
1.97	1.49	1.85	1.05	1.05		Forward Dividend Yield %
13.9	18.4	13.2	24.7	23.1		Price/Earnings
3.0	3.9	3.0	5.2	5.0		Price/Revenue

Morningstar Rating Q

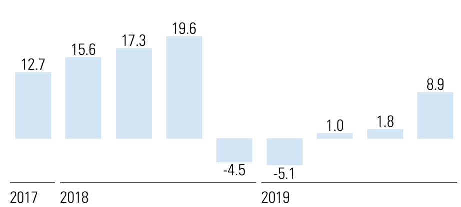


2015	2016	2017	2018	2019	TTM	Financials (Fiscal Year in Mil)
233,715	215,639	229,234	265,595	260,174	267,683	Revenue
27.9	-7.7	6.3	15.9	-2.0	2.9	% Change
71,230	60,024	61,344	70,898	63,930	66,153	Operating Income
35.7	-15.7	2.2	15.6	-9.8	3.5	% Change
53,394	45,687	48,351	59,531	55,256	57,527	Net Income
81,266	65,824	63,598	77,434	69,391	73,217	Operating Cash Flow
-11,488	-13,548	-12,795	-13,313	-10,495	-9,247	Capital Spending
69,778	52,276	50,803	64,121	58,896	63,970	Free Cash Flow
29.9	24.2	22.2	24.1	22.6	23.9	% Sales
9.22	8.31	9.21	11.91	11.89	12.70	EPS
42.9	-9.9	10.8	29.3	-0.2	6.8	% Change
11.83	8.97	9.66	11.52	12.31	14.00	Free Cash Flow/Share
1.98	2.18	2.40	2.72	3.00	3.04	Dividends/Share
22.53	23.71	25.83	24.17	21.71	20.46	Book Value/Share
5,544	5,255	5,082	4,730	4,385	4,375	Shares Outstanding (Mil)
						Profitability
46.3	36.9	36.9	49.4	55.9	55.5	Return on Equity %
20.5	14.9	13.9	16.1	15.7	16.1	Return on Assets %
22.9	21.2	21.1	22.4	21.2	21.5	Net Margin %
0.89	0.70	0.66	0.72	0.74	0.75	Asset Turnover
2.4	2.5	2.8	3.4	3.7	3.8	Financial Leverage
40.1	39.1	38.5	38.3	37.8	38.0	Gross Margin %
30.5	27.8	26.8	26.7	24.6	24.7	Operating Margin %
53,463	75,427	97,207	93,735	91,807	93,078	Long-Term Debt
119,355	128,249	134,047	107,147	90,488	89,531	Total Equity
10.8	8.7	7.5	7.1	6.6	7.0	Fixed Asset Turns

Quarterly Revenue & EPS

Revenue (Bil)	Dec	Mar	Jun	Sep	Total
2019	84.3	58.0	53.8	64.0	260.2
2018	88.3	61.1	53.3	62.9	265.6
2017	78.4	52.9	45.4	52.6	229.2
2016	75.9	50.6	42.4	46.9	215.6
Earnings Per Share ()					
2019	4.18	2.46	2.18	3.03	11.89
2018	3.89	2.73	2.34	2.91	11.91
2017	3.36	2.10	1.67	2.07	9.21
2016	3.28	1.90	1.42	1.67	8.31

Revenue Growth Year On Year %



Research Methodology for Valuing Companies

Qualitative Equity Research Overview
At the heart of our valuation system is a detailed projection of a company's future cash flows, resulting from our analysts' research. Analysts create custom industry and company assumptions to feed income statement, balance sheet, and capital investment assumptions into our globally standardized, proprietary discounted cash flow, or DCF, modeling templates. We use scenario analysis, in-depth competitive advantage analysis, and a variety of other analytical tools to augment this process. We believe this bottom-up, long-term, fundamentally based approach allows our analysts to focus on long-term business drivers, which have the greatest valuation impact, rather than short-term market noise.

Morningstar's equity research group ("we," "our") believes that a company's intrinsic worth results from the future cash flows it can generate. The Morningstar Rating for stocks identifies stocks trading at an uncertainty-adjusted discount or premium to their intrinsic worth—or fair value estimate, in Morningstar terminology. Five-star stocks sell for the biggest risk-adjusted discount to their fair values whereas 1-star stocks trade at premiums to their intrinsic worth.

Four key components drive the Morningstar rating: (1) our assessment of the firm's economic moat, (2) our estimate of the stock's fair value, (3) our uncertainty around that fair value estimate and (4) the current market price. This process ultimately culminates in our single-point star rating.

1. Economic Moat
The concept of an economic moat plays a vital role not only in our qualitative assessment of a firm's long-term investment potential, but also in the actual calculation of our fair value estimates. An economic moat is a structural feature that allows a firm to sustain excess profits over a long period of time. We define excess economic profits as returns on invested capital (or ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (or WACC). Without a moat, profits are more susceptible to competition. We have identified five sources of economic moats: intangible assets, switching costs, network effect, cost advantage, and efficient scale.

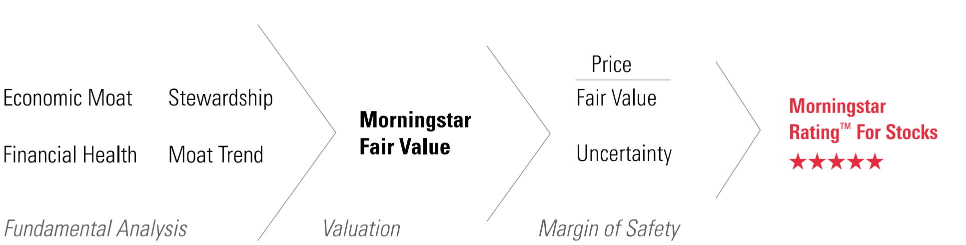
Companies with a narrow moat are those we believe are more likely than not to achieve normalized excess returns for at least the next 10 years. Wide-moat companies are those in which we have very high confidence that excess returns will remain for 10 years, with excess returns more likely than not to remain for at least 20 years. The longer a firm generates economic profits, the higher its intrinsic value. We believe low-quality no-moat companies will see their normalized returns gravitate toward the firm's cost of capital more quickly than companies with moats.

To assess the direction of the underlying competitive advantages, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages over the next several years; or negative when we see signs of deterioration.

All the moat and moat trend ratings undergo periodic review and any changes must be approved by the Morningstar Economic Moat Committee, comprised of senior members of Morningstar's equity research department.

2. Estimated Fair Value
Combining our analysts' financial forecasts with the firm's economic moat helps us assess how long returns on invested capital are likely to exceed the firm's cost of capital. Returns of firms with a wide economic moat rating are assumed to fade to the perpetuity period over a longer period of time than the returns of narrow-moat firms, and both will fade slower than no-moat firms, increasing our estimate of their intrinsic value.

Morningstar Research Methodology for Valuing Companies



Our model is divided into three distinct stages:

Stage I: Explicit Forecast
In this stage, which can last five to 10 years, analysts make full financial statement forecasts, including items such as revenue, profit margins, tax rates, changes in working-capital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes, or EBI, and the net new investment, or NNI, to derive our annual free cash flow forecast.

Stage II: Fade
The second stage of our model is the period it will take the company's return on new invested capital—the return on capital of the next dollar invested ("RONIC")—to decline (or rise) to its cost of capital. During the Stage II period, we use a formula to approximate cash flows in lieu of explicitly modeling the income statement, balance sheet, and cash flow statement as we do in Stage I. The length of the second stage depends on the strength of the company's economic moat. We forecast this period to last anywhere from one year (for companies with no economic moat) to 10–15 years or more (for wide-moat companies). During this period, cash flows are forecast using four assumptions: an average growth rate for EBI over the period, a normalized investment rate, average return on new invested capital, or RONIC, and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until the perpetuity stage is reached. In the case of firms that do not earn their cost of capital, we assume marginal ROICs rise to the firm's cost of capital (usually attributable to less reinvestment), and we may truncate the second stage.

Stage III: Perpetuity
Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with estimated WACC.

Because a dollar earned today is worth more than a dollar earned tomorrow, we discount our projections of cash flows in stages I, II, and III to arrive at a total present value of expected future cash flows. Because we are modeling free cash flow to the firm—representing cash available to provide a return to all capital providers—we discount future cash flows using the WACC, which is a weighted average of the costs of equity, debt, and preferred stock (and any other funding sources), using expected future proportionate long-term market-value weights.

Research Methodology for Valuing Companies

3. Uncertainty Around That Fair Value Estimate

Morningstar's Uncertainty Rating captures a range of likely potential intrinsic values for a company and uses it to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating represents the analysts' ability to bound the estimated value of the shares in a company around the fair value estimate, based on the characteristics of the business underlying the stock, including operating and financial leverage, sales sensitivity to the overall economy, product concentration, pricing power, and other company-specific factors.

Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case, and a 25% probability that the company will perform worse than the bear case. The distance between the bull and bear cases is an important indicator of the uncertainty underlying the fair value estimate.

Our recommended margin of safety widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the estimated value of the equity, the greater the discount we require relative to our estimate of the value of the firm before we would recommend the purchase of the shares. In addition, the uncertainty rating provides guidance in portfolio construction based on risk tolerance.

Our uncertainty ratings for our qualitative analysis are low, medium, high, very high, and extreme.

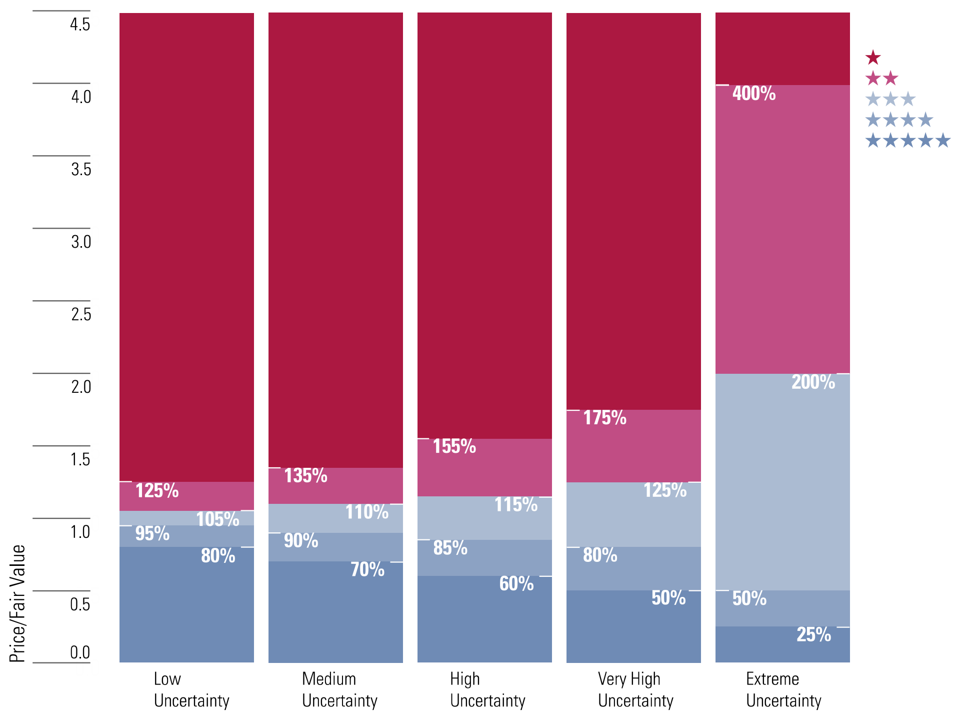
- Low–margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- Medium–margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- High–margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- Very High–margin of safety for 5-star rating is a 50% discount and for 1-star rating is 75% premium.
- Extreme–margin of safety for 5-star rating is a 75% discount and for 1-star rating is 300% premium.

4. Market Price

The market prices used in this analysis and noted in the report come from exchange on which the stock is listed, which we believe is a reliable source.

For more details about our methodology, please go to https://shareholders.morningstar.com.

Morningstar Equity Research Star Rating Methodology



Morningstar Star Rating for Stocks

Once we determine the fair value estimate of a stock, we compare it with the stock's current market price on a daily basis, and the star rating is automatically re-calculated at the market close on every day the market on which the stock is listed is open.

Please note, there is no predefined distribution of stars. That is, the percentage of stocks that earn 5 stars can fluctuate daily, so the star ratings, in the aggregate, can serve as a gauge of the broader market's valuation. When there are many 5-star stocks, the stock market as a whole is more undervalued, in our opinion, than when very few companies garner our highest rating.

We expect that if our base-case assumptions are true the market price will converge on our fair value estimate over time, generally within three years (although it is impossible to predict the exact time frame in which market prices may adjust).

Our star ratings are guideposts to a broad audience and individuals must consider their own specific investment goals, risk tolerance, tax situation, time horizon, income needs, and complete investment portfolio, among other factors.

The Morningstar Star Ratings for stocks are defined below:

★★★★★ We believe appreciation beyond a fair risk-adjusted return is highly likely over a multiyear time frame. The current market price represents an excessively pessimistic outlook, limiting downside risk and maximizing upside potential.

★★★★ We believe appreciation beyond a fair risk-adjusted return is likely.

★★★ Indicates our belief that investors are likely to receive a fair risk-adjusted return (approximately cost of equity).

★★ We believe investors are likely to receive a less than fair risk-adjusted return.

★ Indicates a high probability of undesirable risk-adjusted returns from the current market price over a multiyear time frame, based on our analysis. The market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

Research Methodology for Valuing Companies

Other Definitions

Last Price: Price of the stock as of the close of the market of the last trading day before date of the report.

Stewardship Rating: Represents our assessment of management's stewardship of shareholder capital, with particular emphasis on capital allocation decisions. Analysts consider companies' investment strategy and valuation, financial leverage, dividend and share buyback policies, execution, compensation, related party transactions, and accounting practices. Corporate governance practices are only considered if they've had a demonstrated impact on shareholder value. Analysts assign one of three ratings: "Exemplary," "Standard," and "Poor." Analysts judge stewardship from an equity holder's perspective. Ratings are determined on an absolute basis. Most companies will receive a Standard rating, and this is the default rating in the absence of evidence that managers have made exceptionally strong or poor capital allocation decisions.

Quantitative Valuation: Using the below terms, intended to denote the relationship between the security's Last Price and Morningstar's quantitative fair value estimate for that security.

- ► Undervalued: Last Price is below Morningstar's quantitative fair value estimate.
- ► Fairly Valued: Last Price is in line with Morningstar's quantitative fair value estimate.
- ► Overvalued: Last Price is above Morningstar's quantitative fair value estimate.

Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. Morningstar's Uncertainty Rating serves as a useful data point with respect to sensitivity analysis of the assumptions used in our determining a fair value price.

Quantitative Equity Reports Overview

The quantitative report on equities consists of data, statistics and quantitative equity ratings on equity securities. Morningstar, Inc.'s quantitative equity ratings are forward looking and are generated by a statistical model that is based on Morningstar Inc.'s analyst-driven equity ratings and quantitative statistics. Given the nature of the quantitative report and the quantitative ratings, there is no one analyst in which a given report is attributed to; however, Mr. Lee Davidson, Head of Quantitative Research for Morningstar, Inc., is responsible for overseeing the methodology that supports the quantitative equity ratings used in this report. As an employee of Morningstar, Inc., Mr. Davidson is guided by Morningstar, Inc.'s Code of Ethics and Personal Securities Trading Policy in carrying out his responsibilities.

Quantitative Equity Ratings

Morningstar's quantitative equity ratings consist of:
(i) Quantitative Fair Value Estimate
(ii) Quantitative Star Rating
(iii) Quantitative Uncertainty
(iv) Quantitative Economic Moat
(v) Quantitative Financial Health
(collectively the "Quantitative Ratings").

The Quantitative Ratings are calculated daily and derived from the analyst-driven ratings of a company's peers as determined by statistical algorithms. Morningstar, Inc. (""Morningstar," "we," "our") calculates Quantitative Ratings for companies whether it already provides analyst ratings and qualitative coverage. In some cases, the Quantitative Ratings may differ from the analyst ratings because a company's analyst-driven ratings can significantly differ from other companies in its peer group.

Quantitative Fair Value Estimate: Intended to represent Morningstar's estimate of the per share dollar amount that a company's equity is worth today. Morningstar calculates the quantitative fair value estimate using a statistical model derived from the fair value estimate Morningstar's equity analysts assign to companies. Please go to https://shareholders.morningstar.com for information about fair value estimates Morningstar's equity analysts assign to companies.

Quantitative Economic Moat: Intended to describe the strength of a firm's competitive position. It is calculated using an algorithm designed to predict the Economic Moat rating a Morningstar analyst would assign to the stock. The rating is expressed as Narrow, Wide, or None.

- ► Narrow: assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 70% but less than 99%.
- ► Wide: assigned when the probability of a stock receiving a "Wide Moat" rating by an analyst is greater than 99%.
- ► None: assigned when the probability of an analyst receiving a "Wide Moat" rating by an analyst is less than 70%.

Quantitative Star Rating: Intended to be the summary rating based on the combination of our Quantitative Fair Value Estimate, current market price, and the Quantitative Uncertainty Rating. The rating is expressed as 1-Star, 2-Star, 3-Star, 4-Star, and 5-Star.

★: the stock is overvalued with a reasonable margin of safety.
Log (Quant FVE/Price)<–1*Quantitative Uncertainty

★★: the stock is somewhat overvalued.
Log (Quant FVE/Price) between (–1*Quantitative Uncertainty, –0.5*Quantitative Uncertainty)

★★★: the stock is approximately fairly valued.
Log (Quant FVE/Price) between (–0.5*Quantitative Uncertainty, 0.5*Quantitative Uncertainty)

★★★★: the stock is somewhat undervalued.
Log (Quant FVE/Price) between (0.5*Quantitative Uncertainty, 1*Quantitative Uncertainty)

★★★★★: the stock is undervalued with a reasonable margin of safety. Log (Quant FVE/Price) >1*Quantitative Uncertainty

Quantitative Uncertainty: Intended to represent Morningstar's level of uncertainty about the accuracy of the quantitative fair value estimate. Generally, the lower the quantitative Uncertainty, the narrower the potential range of outcomes for that particular company. The rating is expressed as Low, Medium, High, Very High, and Extreme.

- ► Low: the interquartile range for possible fair values is less than 10%.
- ► Medium: the interquartile range for possible fair values is less than 15% but greater than 10%.
- ► High: the interquartile range for possible fair values is less than 35% but greater than 15%.
- ► Very High: the interquartile range for possible fair values is less than 80% but greater than 35%.
- ► Extreme: the interquartile range for possible fair values is greater than 80%.

Quantitative Financial Health: Intended to reflect the probability that a firm will face financial distress in the near future. The calculation uses a predictive model designed to anticipate when a company may default on its financial obligations. The rating is expressed as Weak, Moderate, and Strong.

- ► Weak: assigned when Quantitative Financial Health <0.2
- ► Moderate: assigned when Quantitative Financial Health is between 0.2 and 0.7
- ► Strong: assigned when Quantitative Financial Health >0.7

Research Methodology for Valuing Companies

Other Definitions

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This Report has not been made available to the issuer of the security prior to publication.

Risk Warning

Please note that investments in securities are subject to market and other risks and there is no assurance or guarantee that the intended investment objectives will be achieved. Past performance of a security may or may not be sustained in future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report.

The quantitative equity ratings are not statements of fact. Morningstar does not guarantee the completeness or accuracy of the assumptions or models used in determining the quantitative equity ratings. In addition, there is the risk that the price target will not be met due to such things as unforeseen changes in demand for the company's products, changes in management, technology, economic development, interest rate development, operating and/or material costs, competitive pressure, supervisory law, exchange rate, and tax rate. For investments in foreign markets there are further risks, generally based on exchange rate changes or changes in political and social conditions.

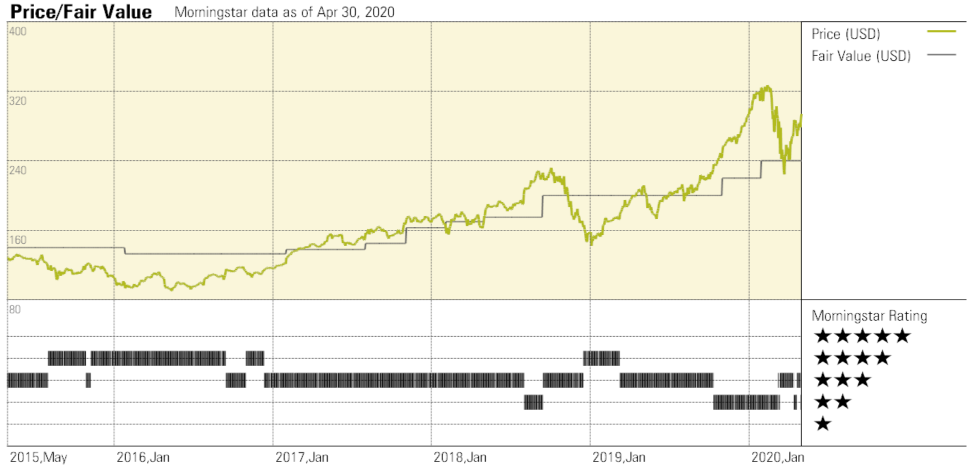
A change in the fundamental factors underlying the quantitative equity ratings can mean that the valuation is subsequently no longer accurate.

For more information about Morningstar's quantitative methodology, please visit http://global.morningstar.com/equitydisclosures.

Apple Inc AAPL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★ 30 Apr 2020 21:50, UTC	293.80 USD 30 Apr 2020	240.00 USD 29 Jan 2020 02:06, UTC	1.22	1.05 30 Apr 2020	1.05 30 Apr 2020	1,285.52 30 Apr 2020	Consumer Electronics	Standard

Price/Fair Value Morningstar data as of Apr 30, 2020



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The quantitative equity ratings are not a market call, and do not replace the User or User's clients from conducting their own due-diligence on the security. The quantitative equity rating is not a suitability assessment; such assessments take into account may factors including a person's investment objective, personal and financial situation, and risk tolerance all of which are factors the quantitative equity rating statistical model does not and did not consider.

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Apple Inc AAPL (XNAS)

Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★ 30 Apr 2020 21:50, UTC	293.80 USD 30 Apr 2020	240.00 USD 29 Jan 2020 02:06, UTC	1.22	1.05 30 Apr 2020	1.05 30 Apr 2020	1,285.52 30 Apr 2020	Consumer Electronics	Standard

investment decision and when deemed necessary, to seek the advice of a legal, tax, and/or accounting professional.

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★★	293.80 USD	240.00 USD	1.22	1.05	1.05	1,285.52	Consumer Electronics	Standard
30 Apr 2020 21:50, UTC	30 Apr 2020	29 Jan 2020 02:06, UTC		30 Apr 2020	30 Apr 2020	30 Apr 2020		

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