Apple Inc AAPL (XNAS)

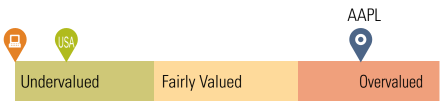
Morningstar Rating	Last Price	Fair Value Estimate	Price/Fair Value	Trailing Dividend Yield %	Forward Dividend Yield %	Market Cap (Bil)	Industry	Stewardship
★★	110.44 USD	85.00 USD	1.30	0.72	0.74	1,877.68	Consumer Electronics	Standard
03 Nov 2020 23:56, UTC	03 Nov 2020	30 Oct 2020 03:12, UTC		03 Nov 2020	03 Nov 2020	03 Nov 2020		

Morningstar Pillars

Morningstar Pillars	Analyst	Quantitative
Economic Moat	Narrow	Narrow
Valuation	★★	Overvalued
Uncertainty	High	Medium
Financial Health	—	Moderate

Source: Morningstar Equity Research

Quantitative Valuation



	Current	5-Yr Avg	Sector	Country
Price/Quant Fair Value	1.19	1.00	0.77	0.83
Price/Earnings	33.7	15.9	21.4	20.1
Forward P/E	27.9	—	15.9	13.9
Price/Cash Flow	24.0	11.7	15.6	13.1
Price/Free Cash Flow	26.4	14.2	23.0	19.5
Trailing Dividend Yield%	0.72	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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Apple's Mac/iPad Sales Bolstered by Work-From-Home Trend; 5G iPhones Well Positioned to Enjoy Growth

Business Strategy and Outlook

Abhinav Davuluri, CFA, Analyst, 29 October 2020

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 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, 29 October 2020

Apple reported fiscal fourth-quarter results ahead of our expectations led by Mac and iPad segments. The firm did not provide guidance the last two quarters and again refrained from offering specific guidance due to uncertainty regarding COVID-19. CEO Tim Cook expects iPhone revenue to grow in the December quarter despite the new iPhone 12 being launched a couple of weeks later in the quarter, though he did not specify the magnitude of growth. Meanwhile, all other products and services are expected to grow in the double digits.

We are raising our fair value estimate for narrow-moat Apple to $85 per share from $71 as we incorporate a stronger near-term outlook for the Mac and iPad segments due to ongoing work- and learning-from-home dynamics. Nonetheless, we think shares are currently overvalued, as we think recent growth trends could be unsustainable as we enter 2021.

Fourth-quarter revenue was up 1% year over year thanks to growth in iPad (46%), Mac (29%), services (16%), and wearables, home, and accessories (21%). Management noted the iPad and Mac segments remained supply constrained, which bodes well for these business lines in the December quarter. Apple's iPhone sales were understandably down 21% year over year due to the iPhone 12 delay. Apple now has over 585 million paid subscribers to its various services, up 135 million from a year ago, and the firm expects 600 million subs by Dec 2020. Although Greater China was the region most impacted by the absence of the new iPhones for the quarter (total revenue down 29% year over year), non-iPhone sales grew double digits. Gross margin of 38.2% was up 20 basis points sequentially due to a higher mix of services.

Management was optimistic revenue from Greater China would grow in the first quarter, particularly as 5G is more mature in the region. We anticipate iPhone revenue for

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Close Competitors	Currency (Mil)	Market Cap	TTM Sales	Operating Margin	TTM/PE
Samsung Electronics Co Ltd 005930	KRW	392,186,965	0	16.55	18.32
Microsoft Corp MSFT	USD	1,560,713	147,114	38.17	33.33
Alphabet Inc GOOGL	USD	1,114,669	171,704	20.29	31.85
HP Inc HPQ	USD	25,575	56,788	6.34	10.46

fiscal 2021 will be up in the low teens, though the late launch may shift some sales from the December quarter to the March quarter.

Economic Moat

Abhinav Davuluri, Analyst, 04 November 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. A recent survey (as of October 2020) from 451 Research indicates iPhone customer satisfaction of 98% for iPhone 11, 11 Pro, and 11 Pro Max combined. 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

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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 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, 29 October 2020

We are raising our fair value estimate to $85 per share from $71 per share as we incorporate a stronger near-term outlook for the Mac and iPad segments due to the ongoing work- and learning-from-home dynamics. Our estimate implies a forward GAAP P/E ratio of 23 times. In fiscal 2021, we expect total revenue to be up 11% thanks to strength in Mac and iPad sales related to work- and learning-from-home trends and the 5G iPhone 12 launch. With the iPhone 12 coming out in October 2020 (fiscal first-quarter 2021) instead of September 2020 (fiscal fourth-quarter 2020), we think Apple is poised for strong iPhone sales in the first half of fiscal 2021. We expect services to grow at a 10% CAGR over the next five years, while wearables also maintains strong double-digit growth. Following a strong growth year in fiscal 2021, 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 65%. 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. The shift to internally designed ARM-based chips in lieu of chips from Intel for Apple's Mac PCs should help improve Mac margins. To remain king of the hill in the premium smartphone market, we model higher research and spending as Apple drives innovation and potentially ventures into new frontiers. We expect operating margins to remain in the mid-20s.

Risk & Uncertainty

Abhinav Davuluri, Analyst, 04 November 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

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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.

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, 04 November 2020

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 (A-series 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 1.5 billion active devices (as of December 2019), 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. As of September 2020, Apple was authorized to purchase up to $225 billion of stock through its share repurchase program, of which $168.6 billion had been utilized. Apple continues to strive to achieve a net cash neutral position over time.

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

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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, 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

Apple Announces Shift to Internal Chips for Mac Products in Lieu of Intel Chips at WWDC

Abhinav Davuluri, Analyst, 22 June 2020

On June 22, Apple held its annual Worldwide Developers Conference with its typical slew of operating system updates across its bevy of devices. Our overall takeaway was that Apple used the event to showcase the refined user experience for its existing devices, versus a single massive innovation or new product. Perhaps the most interesting announcement was the long-rumored decision for Apple to design its own ARM-based chips for its Mac and MacBook PC products, thus replacing current supplier Intel. Given that Apple designs its own chips for its iPhone and iPad devices, we believe this move was inevitable. The transition will occur over the next two years, with initial Macs powered by Apple chips to be released by the end of 2020. While this move could be construed as damning to Intel's PC chip business, we estimate PC chip sales to Apple account for a low-single-digit percentage of Intel's total revenue. For Apple, we expect the firm will enjoy some gross margin expansion in its Mac PC line in the coming years. We are maintaining our fair value estimates for both narrow-moat Apple ($240) and wide-moat Intel ($70).

Apple spent most of its keynote presentation highlighting software updates such as a language translation service to rival Google Translate, picture-in-picture mode for viewing video while accessing other iPhone apps (already available in Android devices), and iMessage updates that allow users to thread replies and mention people directly (similar to features in WhatsApp). To facilitate the transition to its ARM-based chips for its Macs, Apple announced a transition kit that includes a Mac Mini with an A12Z processor currently found in iPad Pros. All in, we think the shift to in-house chips will help Apple better enhance the user experience across its iPhone, iPad, and Mac franchises, while we don't see any other PC OEM having the silicon design expertise to replicate Apple's strategy.

We Reiterate our $240 Fair Value Estimate on Apple; Shares in 1-Star Territory

Abhinav Davuluri, Analyst, 09 July 2020

Shares of narrow-moat Apple are up over 70% since mid-March lows as we suspect the market is anticipating a 5G super-cycle for the firm's upcoming iPhone and continued momentum in the services segment. Apart from the Worldwide Developers Conference held on June 22, at which Apple made several announcements related to its operating system updates and the decision to replace Intel chips with its own internally designed ones in future Mac PCs, we do not see a compelling justification to warrant the share price appreciation (beyond the broader market recovery in recent months). Rumors that Apple's 5G iPhone may be delayed from a typical September launch have run rampant and the actual penetration of 5G devices during a global pandemic is at risk of falling short of expectations (200 million 5G units in 2020 per Qualcomm and mid-teens smartphone penetration per TSMC). Apple did not provide guidance for its June quarter at its last earnings call given the lack of visibility and we continue to believe there remains considerable risk to both the supply and demand prospects for Apple's devices for the rest of 2020. The recent slew of store closings by Apple in the U.S. also does not provide comfort (though we concede customers can still buy new products online). From a valuation perspective, the stock is trading north of 30 times our 2020 EPS estimate, which does not seem justified for a firm that we see growing at a 5% top-line CAGR on the whole over the next five years.

Our fair value estimate of $240 per share does imply high-teens growth for Apple's services segment in fiscal 2020. For the near-term services outlook, strength in App store, video, music, and cloud services due to increased customer engagement with Apple's ecosystem and digital services is expected to be offset by weaker Apple care and advertising sales, per management during Apple's last earnings call.

Apple's Mac and iPad Sales Bolstered by Work-From-Home Trend in Q3; Raising FVE to $285

Abhinav Davuluri, Analyst, 30 July 2020

Apple reported fiscal third-quarter results ahead of our expectations led by Mac and iPad segments. The firm did not provide guidance last quarter and once more refrained from offering guidance due to uncertainty regarding the coronavirus. CEO Tim Cook noted weak sales in April were offset by better-than-expected demand in May and June led by the cheaper iPhone SE launch, continued economic stimulus in many regions, and the lifting of some shelter-in-place restrictions around the world. Management confirmed that supply of the upcoming iPhones will be available in October rather than September. We are raising

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our fair value estimate for narrow-moat Apple to $285 per share from $240 as we incorporate a stronger near-term outlook for the Mac and iPad segments due to the ongoing work- and learning-from-home dynamics as well as increased expectations for the upcoming 5G iPhone. Nonetheless, given the 70% appreciation of shares from mid-March lows, we recommend prospective investors wait for a wider margin of safety given the precarious state of the global economy.

Third-quarter revenue was up 11% year over year thanks to growth in iPad (31%), Mac (22%), services (15%), and wearables, home, and accessories (17%). Management noted the iPad and Mac segments remained supply constrained, which bodes well for these business lines in the coming quarters. Apple generated $26.4 billion in iPhone revenue, which was up 2% year over year thanks to solid adoption of the latest SE model. Service revenue was $13.2 billion. Apple now has over 550 million paid subscribers, 130 million more than a year ago, and the firm expects 600 million subs by December 2020. Wearables growth remained stellar with sales up 17% year over year. In its three largest regions, Apple's sales had strong results: up 8% in the Americas, up 19% in Europe, and up 2% in Greater China. Gross margin of 38.4% was down 40 basis points sequentially due to a slightly weaker mix.

4-for-1 Stock Split Doesn't Alter Our View That Shares of Apple Look Expensive; New $71 FVE

Abhinav Davuluri, Analyst, 31 August 2020

With the start of trading on Aug. 31, Apple will have initiated a 4-for-1 stock split that does not change our fundamental valuation of the company. The split had been announced during its most recent earnings call in late July. Based on our pre-split fair value estimate of $285 per share, our split adjusted fair value estimate starting Aug. 31 is now $71 per share. While the split will make shares seem more affordable for small investors, we note the market capitalization and our overall valuation of the firm remains unchanged. While narrow-moat Apple remains well positioned in the near term given the upcoming 5G iPhone and stronger outlook for Mac and iPad segments due to the ongoing work- and learning-from-home dynamics, we recommend prospective investors wait for a wider margin of safety given the precarious state of the global economy, particularly as shares have appreciated more than 125% from mid-March lows.

With New iPhone Delayed Until October, Apple Launches New Watch and iPad at Annual Event

Abhinav Davuluri, Analyst, 15 September 2020

On Sept. 15, Apple held its annual product showcase where it announced the launch of a new Apple Watch and iPad. The iPhone was notably absent from the event, as COVID-19-related delays have pushed back the launch of Apple's crown jewel to October. On the services front, the firm detailed its Apple One offering that bundles iCloud, Apple Music, TV+, Arcade, News+, and Fitness+ for $29.95 per month (and a skinnier version without Fitness and News at $14.95). We expect the firm to continue pushing the "as-a-service" model for both its products and software to solidify its recurring revenue streams. Our fair value estimate remains $71 per share for the firm. While narrow-moat Apple remains well positioned in the near term given the upcoming 5G iPhone and stronger outlook for Mac and iPad segments due to the ongoing work- and learning-from-home dynamics, we recommend prospective investors wait for a wider margin of safety before investing in Apple.

The Apple Watch Series 6 was the first product discussed, with the most noteworthy feature being its ability to measure blood oxygen levels using both red and infrared light. The new watch includes a new S6 processor with up to 20% faster performance relative to the prior generation. The price point is the same as the last variant: starting at $399 with the cellular model at $499. Similar to the cheaper iPhone SE, Apple also announced an Apple Watch SE starting at $279. We expect these new products to help Apple sustain its recent stretch of double-digit wearables growth.

On the iPad front, the firm updated its entry-level variant starting at $329 as well as the iPad Air with its latest A14 Bionic processor (made on TSMC's 5-nanometer process) and starting at $599. In addition to the normal performance hike (40% from prior generation), Apple is also embracing USB-C for its charge port (similar to the iPad Pro).

Apple Launches 5G iPhone As Expected; Other Enhancements Relatively Lackluster; No Change to FVE

Abhinav Davuluri, Analyst, 13 October 2020

On Oct. 13, Apple held its annual product showcase, where the firm announced the launch of four new iPhone models: the iPhone 12, iPhone 12 mini, iPhone 12 Pro, and iPhone 12 Pro Max. All devices in the "12" family are

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★★ 03 Nov 2020 23:56, UTC	110.44 USD 03 Nov 2020	85.00 USD 30 Oct 2020 03:12, UTC	1.30	0.72 03 Nov 2020	0.74 03 Nov 2020	1,877.68 03 Nov 2020	Consumer Electronics	Standard

5G-compatible. The base iPhone 12 model was priced at $799, which is $100 more expensive than the equivalent iPhone 11 launched in 2019, which we attribute to the costly 5G modem and RF content. Taking the $699 slot is the smaller iPhone 12 mini with a 5.4" screen. While we suspect the 5G capability and updated cameras (the Pro variant boasts a LIDAR scanner to autofocus in low-light) will be major draws for many customers, we think market expectations for iPhone sales in the coming quarters may be too aggressive. We are maintaining our $71 fair value estimate for narrow-moat Apple, and we view shares as overvalued at current levels.

Battery life continued to expand, thanks to the new A14 Bionic chip, which is manufactured on TSMC's 5-nanometer process technology that leverages EUV lithography. For the A14, Apple claims a 50% performance advantage over any other competing mobile chip, though we were surprised by a lack of color on power efficiency. For 5G, the firm claimed up to 4Gbps download and 200Mbps upload speeds in ideal conditions. We doubt most users will experience these speeds anytime soon, as the 5G ramp is still in the early innings.

The iPhone 12 Pro and 12 Pro Max will start at $999 and $1,099, respectively, in line with the starting prices of their equivalents from 2019. The Pro models both feature larger screens than their predecessors, with the Pro and Pro Max going from 5.8" and 6.1" to 6.5" and 6.7", respectively. The Pro has three cameras (ultra-wide, wide, and telephoto), with the Pro Max having even better cameras. The emphasis on camera features is consistent with other Android-based smartphone vendors that have been also adding additional cameras and claiming superiority to Apple devices in the picture quality department.

Apple's Mac and iPad Sales Remain Bolstered by Work-From-Home Trend in Q4; Raising FVE to $85

Abhinav Davuluri, Analyst, 29 October 2020

Apple reported fiscal fourth-quarter results ahead of our expectations led by Mac and iPad segments. The firm did not provide guidance the last two quarters and again refrained from offering specific guidance due to uncertainty regarding COVID-19. CEO Tim Cook expects iPhone revenue to grow in the December quarter despite the new iPhone 12 being launched a couple of weeks later in the quarter, though he did not specify the magnitude of growth. Meanwhile, all other products and services are expected to grow in the double digits.

We are raising our fair value estimate for narrow-moat Apple to $85 per share from $71 as we incorporate a stronger near-term outlook for the Mac and iPad segments due to ongoing work- and learning-from-home dynamics. Nonetheless, we think shares are currently overvalued, as we think recent growth trends could be unsustainable as we enter 2021.

Fourth-quarter revenue was up 1% year over year thanks to growth in iPad (46%), Mac (29%), services (16%), and wearables, home, and accessories (21%). Management noted the iPad and Mac segments remained supply constrained, which bodes well for these business lines in the December quarter. Apple's iPhone sales were understandably down 21% year over year due to the iPhone 12 delay. Apple now has over 585 million paid subscribers to its various services, up 135 million from a year ago, and the firm expects 600 million subs by Dec 2020. Although Greater China was the region most impacted by the absence of the new iPhones for the quarter (total revenue down 29% year over year), non-iPhone sales grew double digits. Gross margin of 38.2% was up 20 basis points sequentially due to a higher mix of services.

Management was optimistic revenue from Greater China would grow in the first quarter, particularly as 5G is more mature in the region. We anticipate iPhone revenue for fiscal 2021 will be up in the low teens, though the late launch may shift some sales from the December quarter to the March quarter.

Quantitative Equity Report | Release: 04 Nov 2020, 16:19, GMT-06:00 | Reporting Currency: USD | Trading Currency: USD | Exchange:XNAS

Apple Inc AAPL ★Q

04 Nov 2020 02:00 UTC

Last Close	Fair Value Q	Market Cap	Sector	Industry	Country of Domicile
04 Nov 2020 114.95	04 Nov 2020 02:00 UTC 93.12	04 Nov 2020 1,877.7 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	Narrow	98	98	96
Valuation	Overvalued	2	5	4
Quantitative Uncertainty	Medium	100	100	99
Financial Health	Moderate	85	55	85

AAPL

Undervalued | Fairly Valued | Overvalued

Source: Morningstar Equity Research

Valuation

	Current	5-Yr Avg	Sector Median	Country Median
Price/Quant Fair Value	1.19	1.00	0.77	0.83
Price/Earnings	33.7	15.9	21.4	20.1
Forward P/E	27.9	—	15.9	13.9
Price/Cash Flow	24.0	11.7	15.6	13.1
Price/Free Cash Flow	26.4	14.2	23.0	19.5
Trailing Dividend Yield %	0.72	1.63	1.89	2.35
Price/Book	28.7	6.5	2.3	2.4
Price/Sales	7.1	3.5	1.7	2.4

Profitability

	Current	5-Yr Avg	Sector Median	Country Median
Return on Equity %	73.7	50.5	12.5	12.9
Return on Assets %	17.3	15.6	6.4	5.2
Revenue/Employee (Mil)	1.9	1.9	0.4	0.3

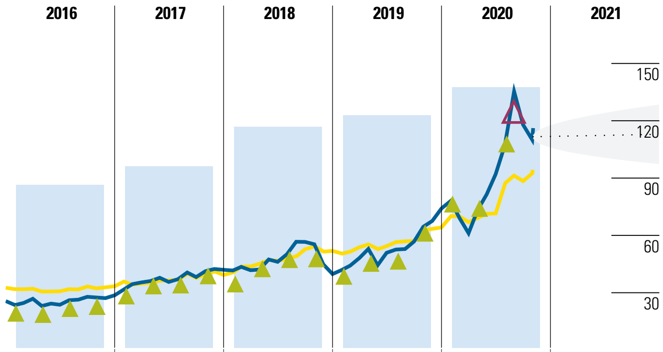
Financial Health

	Current	5-Yr Avg	Sector Median	Country Median
Distance to Default	0.6	0.7	0.6	0.5
Solvency Score	326.8	—	449.9	552.4
Assets/Equity	5.0	3.3	1.6	1.7
Long-Term Debt/Equity	1.5	0.9	0.1	0.4

Growth Per Share

	1-Year	3-Year	5-Year	10-Year
Revenue %	5.5	6.2	3.3	15.5
Operating Income %	3.7	2.6	-1.4	13.7
Earnings %	10.4	12.5	7.3	19.8
Dividends %	6.0	9.8	9.9	—
Book Value %	-24.4	-16.2	-6.4	7.5
Stock Total Return %	79.8	39.5	31.1	26.6

Price vs. Quantitative Fair Value



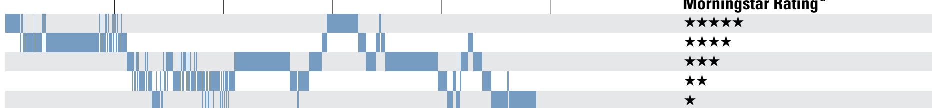
Momentum:	Positive
Standard Deviation:	33.60
Liquidity:	High

53.15 52-Wk 137.98

22.37 5-Yr 137.98

2016	2017	2018	2019	2020	
12.2	48.2	-5.1	88.1	57.4	Total Return %
-0.3	26.8	-0.1	56.9	50.7	+/– Market (Morningstar US Index)
1.93	1.45	1.79	1.04	0.72	Trailing Dividend Yield %
1.97	1.49	1.85	1.05	0.74	Forward Dividend Yield %
13.9	18.4	13.2	24.7	33.7	Price/Earnings
3.0	3.9	3.0	5.2	7.1	Price/Revenue

Morningstar Rating Q

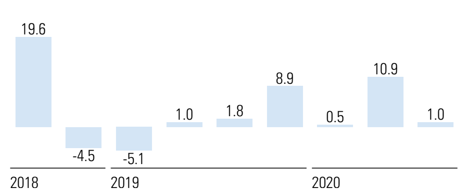


2016	2017	2018	2019	2020	TTM	**Financials** (Fiscal Year in Mil)
215,639	229,234	265,595	260,174	274,515	274,515	Revenue
-7.7	6.3	15.9	-2.0	5.5	0.0	% Change
60,024	61,344	70,898	63,930	66,288	66,288	Operating Income
-15.7	2.2	15.6	-9.8	3.7	0.0	% Change
45,687	48,351	59,531	55,256	57,411	57,411	Net Income
65,824	63,598	77,434	69,391	80,674	80,674	Operating Cash Flow
-13,548	-12,795	-13,313	-10,495	-7,309	-7,309	Capital Spending
52,276	50,803	64,121	58,896	73,365	73,365	Free Cash Flow
24.2	22.2	24.1	22.6	26.7	26.7	% Sales
2.08	2.30	2.98	2.97	3.28	3.28	EPS
-9.9	10.8	29.3	-0.2	10.3	0.0	% Change
2.24	2.41	2.88	3.08	4.04	4.04	Free Cash Flow/Share
0.55	0.60	0.68	0.75	0.80	0.80	Dividends/Share
5.93	6.46	6.04	5.43	4.26	4.23	Book Value/Share
22,178	21,022	20,327	18,919	17,540	17,002	Shares Outstanding (Mil)
						Profitability
36.9	36.9	49.4	55.9	73.7	73.7	Return on Equity %
14.9	13.9	16.1	15.7	17.3	17.3	Return on Assets %
21.2	21.1	22.4	21.2	20.9	20.9	Net Margin %
0.70	0.66	0.72	0.74	0.83	0.83	Asset Turnover
2.5	2.8	3.4	3.7	5.0	5.0	Financial Leverage
39.1	38.5	38.3	37.8	38.2	38.2	Gross Margin %
27.8	26.8	26.7	24.6	24.2	24.2	Operating Margin %
75,427	97,207	93,735	91,807	98,667	98,667	Long-Term Debt
128,249	134,047	107,147	90,488	65,339	65,339	Total Equity
8.7	7.5	7.1	6.6	7.4	7.4	Fixed Asset Turns

Quarterly Revenue & EPS

Revenue (Bil)	Dec	Mar	Jun	Sep	Total
2020	91.8	58.3	59.7	64.7	274.5
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
Earnings Per Share ()					
2020	1.25	0.64	0.65	0.73	3.28
2019	1.05	0.62	0.55	0.76	2.97
2018	0.97	0.68	0.59	0.73	2.98
2017	0.84	0.53	0.42	0.52	2.30

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.

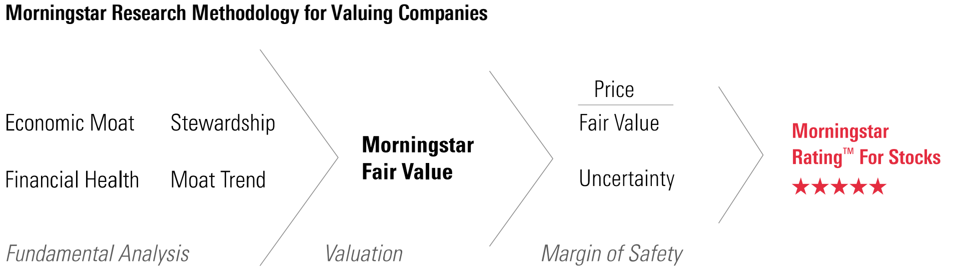
To assess the direction of the underlying competitive advantages, analysts perform ongoing assessments of the moat trend. A firm's moat trend is positive in cases where we think its sources of competitive advantage are growing stronger; stable where we don't anticipate changes to competitive advantages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

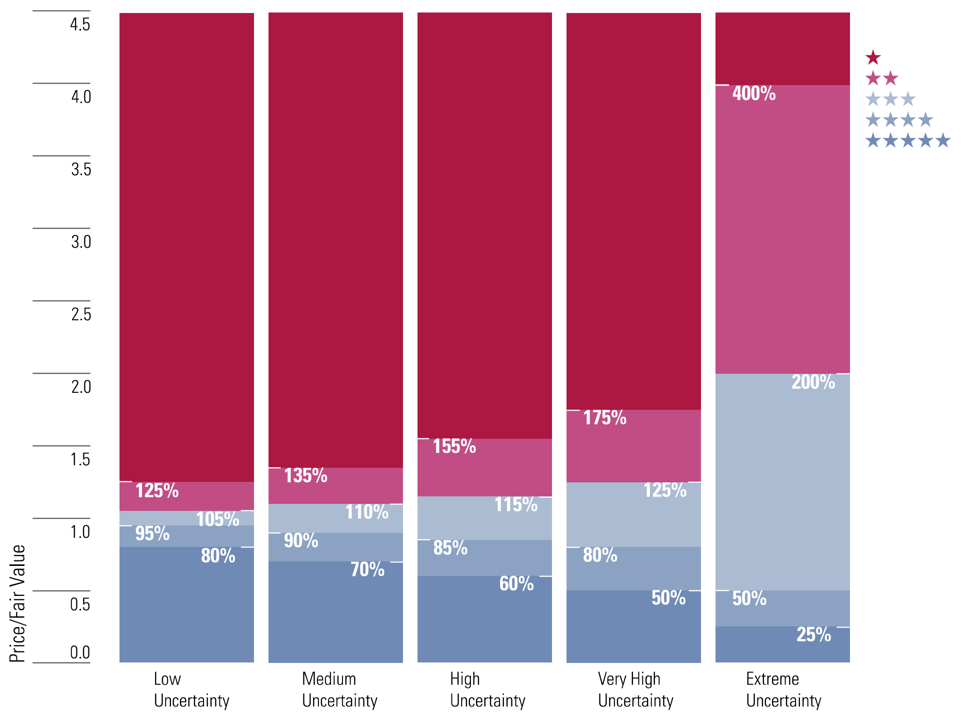
- Low–margin of safety for 5-star rating is a 20% discount and for 1-star rating is 25% premium.
- Medium–margin of safety for 5-star rating is a 30% discount and for 1-star rating is 35% premium.
- High–margin of safety for 5-star rating is a 40% discount and for 1-star rating is 55% premium.
- Very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

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

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.

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.

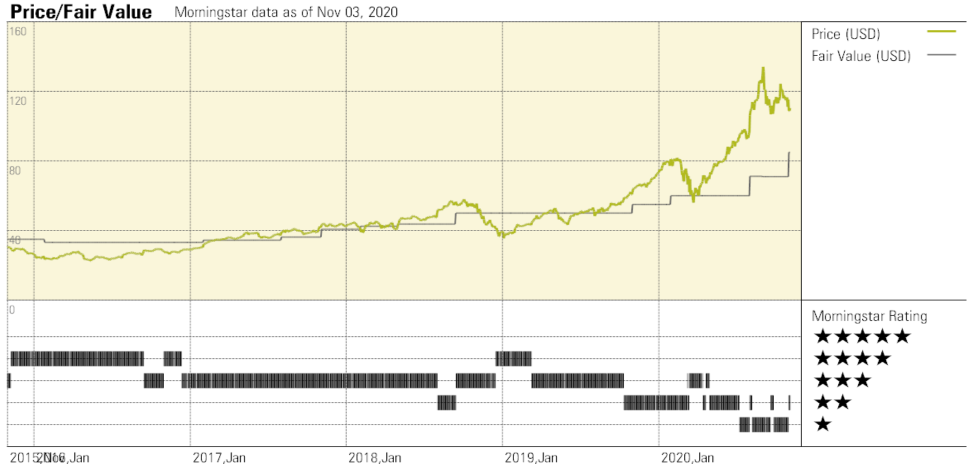
A change in the fundamental factors underlying the quantitative equity ratings can mean that the valuation is subsequently no longer accurate.

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
★★	110.44 USD	85.00 USD	1.30	0.72	0.74	1,877.68	Consumer Electronics	Standard
03 Nov 2020 23:56, UTC	03 Nov 2020	30 Oct 2020 03:12, UTC		03 Nov 2020	03 Nov 2020	03 Nov 2020		

Price/Fair Value Morningstar data as of Nov 03, 2020



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