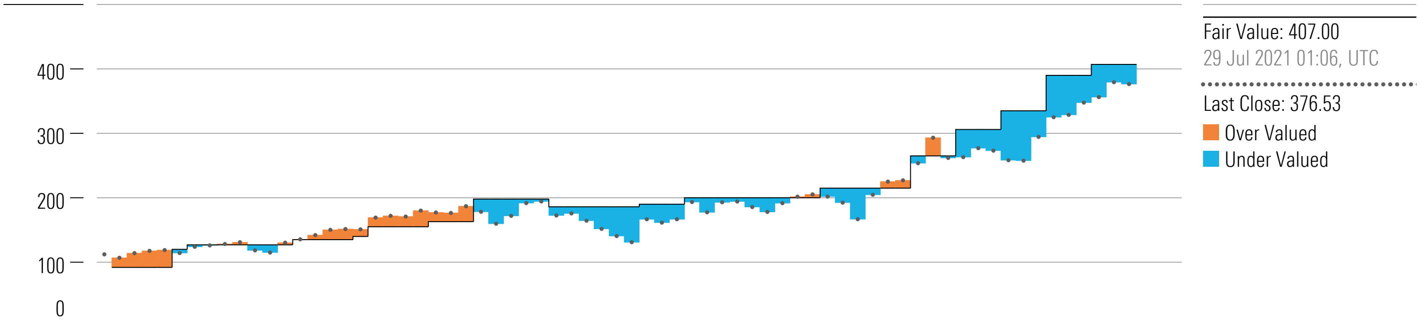
Morningstar Equity Analyst Report | Report as of 15 Sep 2021 02:11, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS Page 1 of 18

Facebook Inc Class A FB ★★★ 14 Sep 2021 21:23, UTC

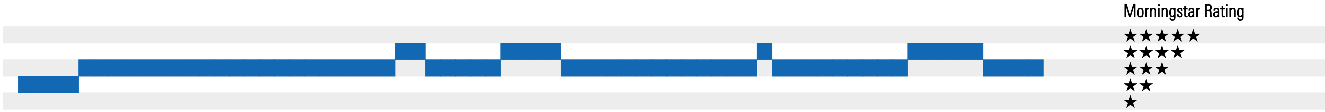
Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
376.53 USD 14 Sep 2021	407.00 USD 29 Jul 2021 01:06, UTC	0.93	1.06 USD Tril 14 Sep 2021	Wide	Stable	High	Standard	1 Sep 2021 05:00, UTC

Price vs. Fair Value



	2016	2017	2018	2019	2020	YTD	
	0.91	1.08	0.70	1.03	0.89	0.93	Price/Fair Value
	9.93	53.38	-25.71	56.57	33.09	37.84	Total Return %

Morningstar Rating



Total Return % as of 14 Sep 2021. Last Close as of 14 Sep 2021. Fair Value as of 29 Jul 2021 01:06, UTC.

Contents

[1]The ESG Risk Rating Assessment is a representation of Sustainalytics' ESG Risk Rating.

Facebook's Network Effect Moat Source Is Intact

Business Strategy & Outlook Ali Mogharabi, Senior Equity Analyst, 22 Oct 2020

Facebook is the largest social network in the world, with 2.5 billion monthly active users. The growth in users and user engagement, along with the valuable data that they generate, makes Facebook attractive to advertisers in the short and long term. The combination of these valuable assets and expected continuing growth in online advertising bodes well for Facebook, as the firm generates strong top-line growth and remains cash flow positive and profitable. Facebook has increased users and user engagement by providing additional features and apps to keep them engaged within the Facebook ecosystem. With more Facebook user interaction among friends and family members, sharing of videos and pictures, and the continuing expansion of the social graph, we believe the firm compiles more data, which Facebook and its advertising clients then use to launch online advertising campaigns targeting specific users. While utilization of the data is under scrutiny in different markets, we think Facebook's large audience size will still attract the ad dollars. Growth in Facebook's average ad revenue per user indicates advertisers' willingness to pay more for Facebook-placed ads, as they expect high return on investment from the targeted ads.

We believe Facebook will continue to benefit from an increased allocation of marketing and advertising dollars toward online advertising, more specifically social network and video ads where Facebook is especially well positioned. The firm's Facebook app, along with Instagram, Messenger, and WhatsApp, is among the world's most widely used apps on both Android and iPhone smartphones. Facebook is

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Sector	Industry
Communication Services	Internet Content & Information

Business Description

Facebook is the world's largest online social network, with 2.5 billion monthly active users. Users engage with each other in different ways, exchanging messages and sharing news events, photos, and videos. On the video side, the firm is in the process of building a library of premium content and monetizing it via ads or subscription revenue. Facebook refers to this as Facebook Watch. The firm's ecosystem consists mainly of the Facebook app, Instagram, Messenger, WhatsApp, and many features surrounding these products. Users can access Facebook on mobile devices and desktops. Advertising revenue represents more than 90% of the firm's total revenue, with 50% coming from the U.S. and Canada and 25% from Europe. With gross margins above 80%, Facebook operates at a 30%-plus margin.

taking steps to further monetize its various apps, such as providing interactive video ads. It is also applying artificial intelligence and virtual and augmented reality technologies to various products, which may increase Facebook user engagement even further, helping to further generate attractive revenue growth from advertisers in the future.

Bulls Say Ali Mogharabi, Senior Equity Analyst, 28 Jul 2021

- With more users and usage time than any other social network, Facebook provides the largest audience and the most valuable data for social network online advertising.
- Facebook's ad revenue per user is growing, demonstrating the value that advertisers see in working with the firm.
- The application of AI technology to Facebook's various offerings, along with the launch of VR products, will increase user engagement, driving further growth in advertising revenue.

Bears Say Ali Mogharabi, Senior Equity Analyst, 28 Jul 2021

- Facebook is currently a one-trick pony and will be affected severely if online advertising no longer grows or if more advertising dollars shift to others like Google or Snapchat.
- Despite rapid user growth, many of Facebook's customers may also belong to other social networks, such as Snapchat or TikTok, so the firm will continually have to fight to capture a user's time and engagement with its properties.
- Regulations could emerge that limit the application and collection of user and usage data, or restrict acquisitions, affecting data utilization and growth.

Economic Moat Ali Mogharabi, Senior Equity Analyst, 22 Oct 2020

We assign Facebook a wide moat rating based on network effects around its massive user base and intangible assets consisting of a vast collection of data that users have shared on its various sites and apps. Given its ability to profitably monetize its network via advertising, we think Facebook will more likely than not generate excess returns on capital over the next 20 years.

Now that Facebook has emerged as the clear-cut social media leader, we believe that its offerings, consisting mainly of Facebook, Instagram, Messenger, and WhatsApp, have strengthened network effects for the firm, where all of these platforms become more valuable to its users as people both join the networks and use these services. These network effects serve to both create barriers to success for new social network upstarts (as demonstrated by the firm's success against Snap), as well as barriers to exit for existing users who might leave behind friends, contacts, pictures, memories, and more by departing to alternative platforms.

Launched in February 2004, Facebook initially targeted college students and expanded via emails and word of mouth. With more requirements in order to register on the site, we think that most users felt

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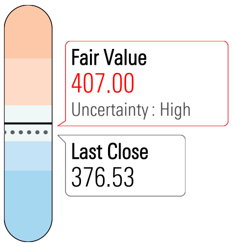
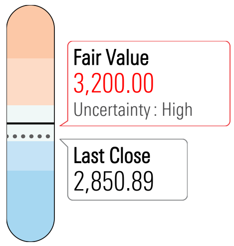
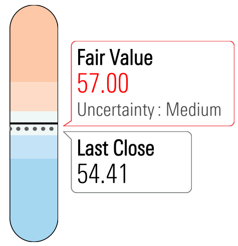
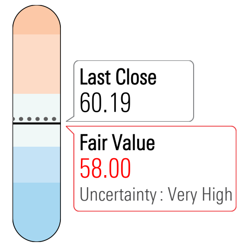
Competitors

	Facebook Inc Class A FB	Alphabet Inc Class A GOOGL	Verizon Communications Inc VZ	Twitter Inc TWTR
				
Economic Moat	Wide	Wide	Narrow	None
Moat Trend	Stable	Stable	Stable	Negative
Currency	USD	USD	USD	USD
Fair Value	407.00 29 Jul 2021 01:06, UTC	3,200.00 28 Jul 2021 03:31, UTC	57.00 24 Dec 2020 02:07, UTC	58.00 23 Jul 2021 05:38, UTC
1-Star Price	630.85	4,960.00	76.95	101.50
5-Star Price	244.20	1,920.00	39.90	29.00
Assessment	Fairly Valued 14 Sep 2021	Fairly Valued 14 Sep 2021	Fairly Valued 14 Sep 2021	Fairly Valued 14 Sep 2021
Morningstar Rating	★★★14 Sep 2021 21:23, UTC	★★★14 Sep 2021 21:23, UTC	★★★14 Sep 2021 21:23, UTC	★★★14 Sep 2021 21:23, UTC
Analyst	Ali Mogharabi, Senior Equity Analyst	Ali Mogharabi, Senior Equity Analyst	Michael Hodel, Director	Ali Mogharabi, Senior Equity Analyst
Capital Allocation	Standard	Standard	Standard	Standard
Price/Fair Value	0.93	0.89	0.95	1.04
Price/Sales	10.39	8.84	1.70	11.24
Price/Book	7.68	8.00	3.06	6.22
Price/Earning	27.93	30.94	11.27	122.84
Dividend Yield	—	—	4.61%	—
Market Cap	1,061.55 Bil	1,905.27 Bil	226.13 Bil	47.61 Bil
52-Week Range	244.13—384.33	1,402.15—2,925.08	53.83—61.95	38.23—80.75
Investment Style	Large Growth	Large Growth	Large Value	Large Growth

safer to engage with other users from their schools and from other schools, than they did on other early social network websites like MySpace. In addition, the flexibility of choosing which other users would have access to one's profile attracted more users and increased user engagement, which resulted in users spending more time on Facebook and, in turn, an early establishment of a network effect. At the end of 2019, Facebook had nearly 2.5 billion monthly active users.

Today, we see that Facebook, Instagram, Messenger, and the different features and apps surrounding them have increased user engagement on various devices. Facebook also is slowly becoming an entertainment hub, which helps increase engagement and user time spent on Facebook. The users are posting more videos and providing a live video feed from where they are at a certain point in time. Additional apps created by developers on the Facebook platform also help maintain users within the Facebook ecosystem. According to eMarketer, on average, users are on Facebook and Instagram a combined 65 minutes per day per day (compared with a daily 64-minute average during 2016-18) posting videos and photos, exchanging messages, making comments, uploading content, liking or disliking other content, and more. This demonstrates the value of the platform to users and its network effect for the firm. It is very likely that the daily average times spent on those platforms have increased during the COVID-19 pandemic, possibly further strengthening Facebook's network effect moat source.

Outside of network effects, Facebook has developed additional intangible assets. Unlike any other online platform in the world, Facebook has accumulated data about everyone with a Facebook and/or an Instagram account. Facebook has its users' demographic information. It knows what and who they like and dislike. It knows what topics and/or news events are of interest to them. In addition, without the need for cookies enabled on desktop or mobile browsers, and based on the Facebook Login, the firm knows its users' browsing history on many non-Facebook sites or apps. With access to such data and to billions of photos and videos uploaded by its users, Facebook continues to enhance the social network by offering even more relevant content to its users. This virtuous cycle further increases the value of its data asset, which only Facebook and its advertising partners can monetize.

We think Facebook is well positioned to come out of the coronavirus pandemic with a stronger network effect moat source. In our view, as more individuals remain at home due to lockdowns and quarantines, they will spend more time on Facebook and Instagram not only engaging with other users, but also seeking additional information regarding many COVID-19-relevant topics. Over time, users are likely to become further dependent on and spend more time using Facebook and Instagram, which will continue to attract advertisers, resulting in a stronger network effect.

In our opinion, with this type of information about each one of its 2.5 billion monthly active users, Facebook provides unique and attractive advertising opportunities for advertisers and businesses, which will allow the firm to generate excess returns on capital over time. Facebook monetizes such information only by using it to increase the effectiveness of its advertisers' ads. The company does not sell the data to ad-tech companies or other third parties. The value of such data and advertisers' willingness to use it is demonstrated by the 26% average annual growth of Facebook's average ad revenue per user during the past five years, which we view as indicative of the price that advertisers pay Facebook for ad placement. During the same period, Facebook's monthly average users have grown 12% annually.

Facebook's large and growing user base and the rich data that it generates help advertisers post more effective target ads, in terms of brand awareness, resulting in high return on investment. With higher ROI, more advertisers jump on board, allowing Facebook to further monetize the network.

Antitrust enforcement and further regulations pose a threat to Facebook's intangible assets, data. However, increased restrictions on data access and usage would apply to all firms, not just Facebook. The firm's large audiences and the continuous consumer engagement are likely to continue to drive demand for Facebook ad inventories, although possibly at lower prices.

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Facebook has also expanded its user base in the growing mobile market, which positively affected the network effect as it became more valuable to advertisers, and resulted in more ad revenue growth. The main driver behind growth in online advertising has been growth in the mobile ad market and the video ad format. Most Facebook users are now accessing Facebook and its apps via mobile devices.

While smartphone users in the U.S. spend more time on social networking applications, and more time on Facebook than any other social networking application, users around the world spend more time on messaging apps such as Facebook's WhatsApp. The firm has not monetized WhatsApp, as its attempt with bots was not welcomed by WhatsApp users. Facebook is now offering WhatsApp to businesses (WhatsApp Business), which can use the platform to not only highlight various products and services but also as a customer support platform.

Other features, such as sending money and receiving money, have already been added to Facebook's Messenger. By working with advertisers, Facebook is also adding a similar click-and-buy feature to photo and video ads, especially on Instagram, where viewers can click on a product they like within the video and get more information about it or purchase it. In the long run, we believe these strategies can further strengthen Facebook's network effect, driven by growth in user base (although at a slower rate) and user time spent on the platform, and businesses having more options on how to market their brands and products.

While not a primary source of moat, we also think that Facebook benefits from modest customer switching costs. Although it is easy for customers to sign up and use alternative platforms like Snapchat, departing Facebook and its owned platforms may cause some friction for users. Facebook users today would lose data, such as posts, pictures, video clips, and contact information, their nearly one hour per day interaction with other users, and much more. Even though many users access more than one social network per day, it does not appear to be at the cost of declining users or user engagements within the Facebook ecosystem.

Fair Value and Profit Drivers Ali Mogharabi, Senior Equity Analyst, 28 Jul 2021

Our fair value estimate is $407 per share, representing a 2021 enterprise value/adjusted EBITDA multiple of 14 times. We have modeled 22% average annual growth over the next five years. As the firm plans to further invest in research and development and content creation and virtual reality and augmented reality offerings, in addition to data security, we see average operating margin remaining around 39%, comparable with the previous three years.

Facebook's revenue growth will be driven primarily by growth in online advertising and increasing allocation of online ad dollars toward mobile, video, and social network ads. We expect a 40% increase in 2021 followed by 17% growth in 2022, assuming a global economic rebound. We expect a 7% five-

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year CAGR in Facebook's monthly active users, mainly due to strong growth in Asia and other regions. We also assume deceleration in overall advertising ARPU growth to 15% per year over the next five years, from the average annual 22% growth the firm displayed over the past five years.

We look for higher growth in operating expenses in 2021 as the economic recovery will allow the firm to more aggressively increase its R&D. We have assumed a 40% operating margin for 2021, higher than 38% in 2020. A portion of those investments is in content and data monitoring, which requires a higher headcount. In addition, given the pressure the firm faces from users and lawmakers, legal fees could continue to affect margins. The operating margin is likely to expand in 2024 and 2025 to nearly 40%, as lower growth in operating expenses (driven by more automation of content, data, and user monitoring), coupled with revenue growth, will create operating leverage. Our five-year average operating margin of 39.5% will be above the 39% the firm averaged the last three years. Our fair value uncertainty rating for Facebook is high, based on uncertainty over future advertising growth rates and additional regulations restricting Facebook's access to and use of data, both of which drive growth in the firm's source of revenue.

Risk and Uncertainty Ali Mogharabi, Senior Equity Analyst, 22 Oct 2020

We believe that while barriers to exit for the 2.5 billion users may be increasing, the risk of another disruptive and innovative technology, more recently TikTok, coming onto the scene and luring users away from Facebook and its apps remains. We do not expect competition in the form of a substitute for Facebook, as most consumers are users of more than one social network. However, given the fixed number of hours per day, an increase usage and engagement on one social network could come at a cost to other social networks, reducing user engagement and the potential return on investment for advertisers. Decline in ads would hurt Facebook’s top and bottom line, reducing return on invested capital and the firm’s fair value. Furthermore, even with Facebook’s dominant position in the social network market, its high dependence on continuing growth of online advertising could heighten the negative impact of a lengthy downturn in online ad spending on the company, resulting in a much lower fair value estimate.

The risk remains that limitations could be imposed by regulatory agencies around the world on what user and usage data Facebook can compile and how the data can be utilized. In addition, some governments may simply forbid access to Facebook, which could result in lower user growth and user interaction. Similar to Alphabet, Facebook also faces limitations on the M&A front as the U.S. and other countries attempt to lessen the firm’s dominance in advertising and the overall Internet market.

Capital Allocation Ali Mogharabi, Senior Equity Analyst, 28 Apr 2021

We assign a Standard stewardship rating to Facebook’s management, although the firm initially had some difficulties addressing data privacy and security issues, such as the Cambridge Analytica scandal in early 2018. Our assessment was conducted using our prior Stewardship methodology. We will be transitioning our assessment mechanism for the company, and the balance of our stock coverage, to the Capital Allocation methodology by the end of September 2021. Through different acquisitions, such as WhatsApp and Instagram, the management team--more specifically, founder and current CEO Mark Zuckerberg--has demonstrated its focus on long-term return on investments, which we view as positive. With its large amount of cash and cash equivalents, along with no debt, Facebook is well positioned to make additional investments in the form of acquisitions or more research and development. We expect the firm to continue to make decisions regarding capital allocation that are beneficial for its social network users and its shareholders. We also applaud management's walled garden strategy as it continues to protect the firm's most valuable asset, its user and usage data. However, the U.S. and other governments around the world may also impose restrictions on Facebook's acquisitions and/or data utilization. Management has responded well as it continues to increase its influence in Washington, D.C.

COO Sheryl Sandberg joined Facebook in 2008. Before that, she was Google's vice president of global online sales and operations for nearly seven years.

Our main knock on Facebook's management is its use of multiple class structures that may limit the voice of minority shareholders. This has become more of an issue given how Facebook is addressing data privacy and security, which has led to some shareholders wanting to reduce Zuckerberg's control of the company. Some continue to believe that Zuckerberg's control of Facebook may result in significant conflict of interest depending on his future strategies and whether they generate exceptional returns for shareholders, as they have in the past.

Analyst Notes Archive

Facebook Posted Impressive Q2 results; 2H2021 Represents Tougher Comps; Increasing FVE to $407

Ali Mogharabi, Senior Equity Analyst, 29 Jul 2021

We are increasing our fair value estimate of Facebook to $407 from $390. The firm reported better than expected second quarter top- and bottom-line results driven by user growth and growing monetization. Economic recovery continues to drive higher ad spending, a big chunk of which is allocated to Facebook and its properties. We are pleased with Facebook's continuing enhancement of its platforms as it improves e-commerce functionality, increases video content, and introduces more audio content, which support the firm's network effect moat source on the user and advertiser sides, increasing overall ad inventory. Facebook is also investing in innovation for the long-run, including Metaverse, which we view as the next stage of growth and development in virtual reality. While Metaverse is likely to require more interoperability between many platforms and may slowly erode Facebook's walled garden, the firm's current network effect moat source should maintain more users on the Facebook side of the Metaverse.

Management guided for significant deceleration in revenue growth during the second half of this year, which we had already modeled in. We have still slightly increased our projections given the strong second-quarter results. While the stock is down in after-hours trading, it remains in 3-star territory and fairly valued, in our view.

Total revenue of $29.1 billion was up 55.6% year over year due to higher ad prices and an increase in users. Facebook benefited from ongoing strong demand for direct response and the resurgence of brand advertising. Monthly active users increased 7% and 2% year over year and from last quarter, respectively, to nearly 2.9 billion. Engagement remained at around 66% as daily active users increased to 1.9 billion (also up 7% from last year and 2% sequentially). Given last year's tougher comp, ad inventory inched up only 6%, but strong demand from advertisers drove prices 47% higher from last year.

Facebook Wins First Round Against FTC and State Attorneys General; Maintaining $390 FVE Ali Mogharabi, Senior Equity Analyst, 29 Jun 2021

While we consider the antitrust risks facing Facebook to be in their early stages, an early positive indication for the firm emerged on June 28 as federal judge James E. Boasberg dismissed not only the lawsuit brought by the Federal Trade Commission but also the one filed by 46 states and the District of Columbia. This is an early victory for Facebook, but we think antitrust risks remain for the firm, including an amended complaint in the FTC case that may be filed again within 30 days and changes to the antitrust laws that could bring about heavy review of the firm and possibly give more power to agencies like the FTC and the Department of Justice. The House Judiciary Committee has already begun this process, recently approving six bills with similar goals. However, we continue to believe that antitrust and other regulatory risks are manageable and that Facebook's share price already reflects these risks. We are maintaining our $390 fair value estimate, which still represents 10% upside from where the stock closed at after jumping 4% in reaction to the antitrust cases news.

While the FTC claimed that Facebook violated Section 2 of the Sherman Act, which makes it illegal for a firm to monopolize or attempt to monopolize a market, Boasberg ruled that the FTC failed to prove that Facebook dominates or has monopolized social networking (or as stated in the case and in the judge's opinion, personal social networking services) market.

The FTC also alleged that Facebook policies against interoperability with some competitive apps also violated Section 2 of the Sherman Act. However, based on precedents set by other cases, Boasberg decided that because Facebook's interoperability policies were implemented a long time ago, the FTC lacks statutory authority to seek an injunction.

Alphabet and Facebook Remain Attractive; We Reiterate Our 4-Star Ratings and $2,925 and $390

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FVEs Ali Mogharabi, Senior Equity Analyst, 11 May 2021

Wide-moat Alphabet and Facebook, both trading in 4-star territory, became more attractive after declining 2% and 4%, respectively, on fears of rising rates, deceleration in digital ad spending growth in the second half of this year, and possibly rotation into cyclical names. Our fair value estimates for Alphabet and Facebook remain at $2,925 and $390, respectively, representing a 27% upside for both from May 10 closing prices.

In our view, the fears referenced above are disputable. While rising rates should pressure multiples, Alphabet and Facebook have already been trading at what we view as unwarranted discounts compared with their peers. In terms of a slowdown in ad revenue growth during the second half of 2021, that would be a short-term artifact of tougher comparisons resulting from the pandemic, and we have already accounted for that in our valuation model. We expect digital ad revenue growth will remain at strong double-digit rates for both firms for several years.

While the two firms also face fierce pressure from all sides of the political spectrum to limit data usage and further prioritize data privacy, we believe advertisers will continue to allocate a higher percentage of their ad budgets toward Google and Facebook due to both platforms' very large user bases. We remain confident that both firms will benefit significantly from the economic recovery as ad spending picks up. For this reason, while indirectly, the two still can be viewed as recovery plays.

Both stocks face additional risks such as impact from a possible increase in the federal statutory tax rate, along with higher rates on global intangible low-taxed income and possibly the elimination of the foreign-derived intangible income deduction. We think these items could pressure our fair value estimates for Alphabet and Facebook by 8%-11% and 6%-10%, respectively. Assuming such an impact, the upsides based on current trading levels are still above 15% for both.

Facebook Reports Impressive Q1 Results; Digital Ads Demand Remains Strong; Increasing FVE to $390 Ali Mogharabi, Senior Equity Analyst, 29 Apr 2021

Facebook posted impressive first quarter results with the top and bottom line beating our expectations and the FactSet consensus estimates. Economic recovery is driving higher ad spending, mostly digital, with behemoths Facebook and Google continuing to benefit. Ad prices again increased even as inventory continues to grow, indicating stronger advertising demand for Facebook and Instagram. Revenue growth, along with a lower bad debt allowance versus last year, expanded margins during the quarter. We expect an economic recovery will benefit small and medium-size businesses, the majority of which will likely prioritize digitization, sending ad dollars to Facebook and Google, which should fuel strong growth throughout 2021. Management guided second quarter revenue above expectations and provided guidance on operating expenses that implies slight margin expansion this year based on our revenue growth assumptions.

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Given strong demand from advertisers, which we think will be sustainable as the economy recovers, we have increased our projections, increasing our fair value estimate to $390 from $335. This wide-moat name remains attractive as it trades roughly 20% below our fair value estimate. The stock does face risks such as changes to Apple's identifier for advertisers, data privacy and antitrust issues, along with possibly a 6%-10% negative impact from a possible increase in the federal statutory tax rate, along with higher rates on global intangible low-taxed income, and possibly the elimination of the foreign-derived intangible income deduction. Despite these risks we remain confident in the firm's ability to maintain its wide moat and strong growth.

Facebook Reports Impressive Q4 and Management Remains Cautious About 2021, Raising FVE to $335 Ali Mogharabi, Senior Equity Analyst, 28 Jan 2021

Facebook's fourth quarter results came in above our projections and the FactSet consensus estimates. Ongoing growth in e-commerce and direct response advertising, in addition to some signs of recovery in brand advertising drove strong revenue growth during the quarter, which also helped further expand margins. Management was again conservative regarding its outlook for this year, in our view. Given the tougher comps due to the firm's solid performance in the second half of 2020, top-line growth may not be as impressive in the second half of this year. Facebook expects consumer demand to shift slightly more toward services (like travel) from products this year, which may be a headwind to revenue growth as Facebook advertising has lower exposure to service industries. Management also reiterated that regulations and changes to Apple's identifier for advertisers could create headwinds.

While the firm faces tougher ad revenue growth comps in the second half of this year, we expect most of that to be offset by stronger brand ad spending. In addition, we believe that during an economic recovery, not only will current businesses increase ad spending, but also new small businesses will likely turn to Facebook and Instagram for marketing. Plus, while Apple's move may lower ad ROIs, we believe advertisers will have little choice but to use Facebook due to its large audience. Due to a slightly speedier turnaround in ad spending in late 2020, we lowered our average growth assumption for the next five years, but believe margins can be higher than we initially expected, which after taking into account the time value of money, results in a fair value estimate of $335 (from $306). This wide-moat name has become attractive as it is now trading at a 19% discount to our fair value estimate.

We See Minimal Impact of Election 2020 on Facebook and Alphabet; Maintaining FVEs Ali Mogharabi, Senior Equity Analyst, 11 Jan 2021

With the final races of the 2020 elections decided, our views regarding the potential impact of antitrust suits and legislative efforts against Alphabet and Facebook have not changed. We think the antitrust suits against both firms will ultimately be decided by the U.S. Supreme Court, which is likely to apply what's known as the consumer welfare standard—benefiting Alphabet and Facebook. In addition,

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Facebook Inc Class A FB ★★★ 14 Sep 2021 21:23, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
376.53 USD 14 Sep 2021	407.00 USD 29 Jul 2021 01:06, UTC	0.93	1.06 USD Tril 14 Sep 2021	Wide	Stable	High	Standard	1 Sep 2021 05:00, UTC

given the Democrats' only slight advantage in the Senate, we do not expect large changes to the antitrust laws or to Section 230 of the Communications Decency Act, which offers immunity from liability for Internet content. However, regulations surrounding data, which have bipartisan support, are likely. We are maintaining our $1,980 and $306 fair value estimates of wide-moat Alphabet and Facebook, respectively. While both companies are trading at a discount to our fair value estimates, they remain 3-star stocks.

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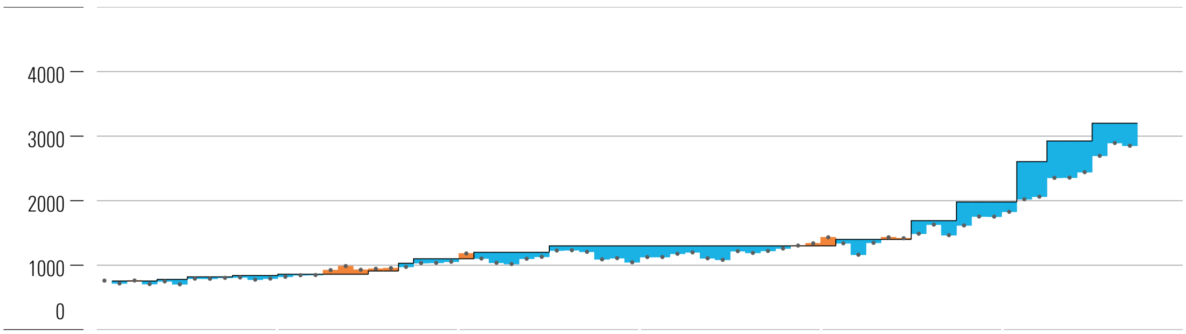
Facebook Inc Class A FB ★★★ 14 Sep 2021 21:23, UTC

Competitors Price vs. Fair Value

Alphabet Inc Class A GOOGL



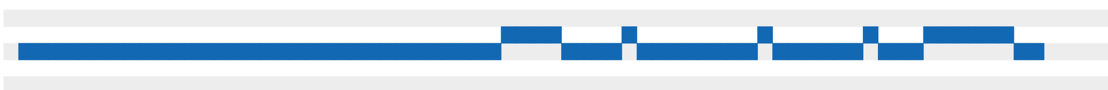
Fair Value: 3,200.00
28 Jul 2021 03:31, UTC

Last Close: 2,850.89

Over Valued

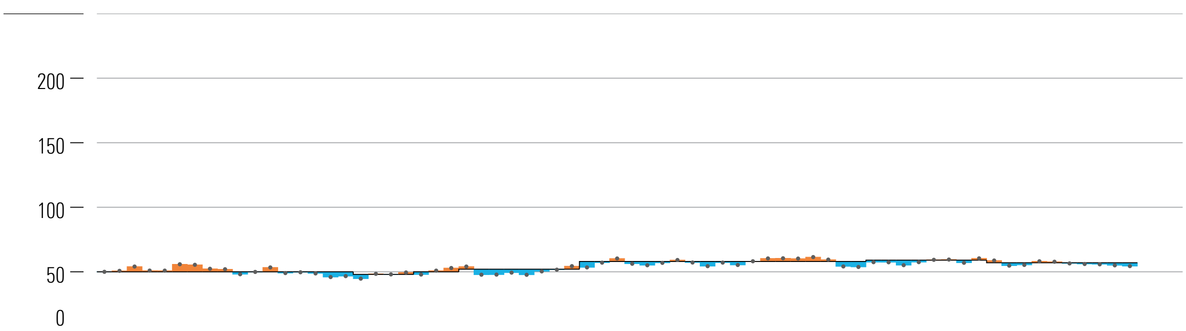
Under Valued

2016	2017	2018	2019	2020	YTD	
0.94	0.96	0.80	1.03	0.89	0.89	Price/Fair Value
1.86	32.93	-0.80	28.18	30.85	62.66	Total Return %



Total Return % as of 14 Sep 2021. Last Close as of 14 Sep 2021. Fair Value as of 28 Jul 2021 03:31, UTC.

Verizon Communications Inc VZ



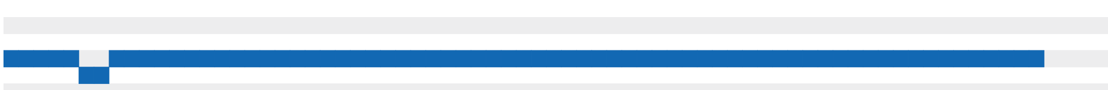
Fair Value: 57.00
24 Dec 2020 02:07, UTC

Last Close: 54.41

Over Valued

Under Valued

2016	2017	2018	2019	2020	YTD	
1.07	1.06	0.97	1.06	1.03	0.95	Price/Fair Value
20.41	3.51	10.70	13.52	-0.29	-4.18	Total Return %



Total Return % as of 14 Sep 2021. Last Close as of 14 Sep 2021. Fair Value as of 24 Dec 2020 02:07, UTC.

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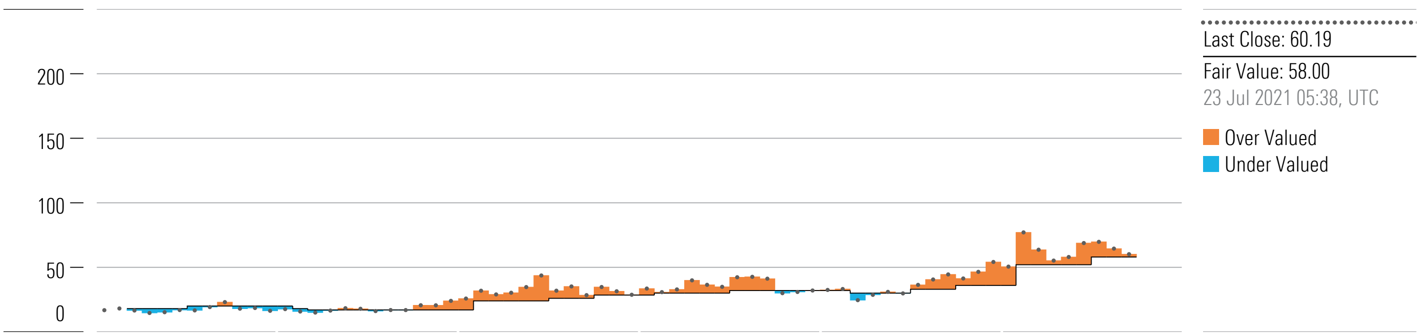
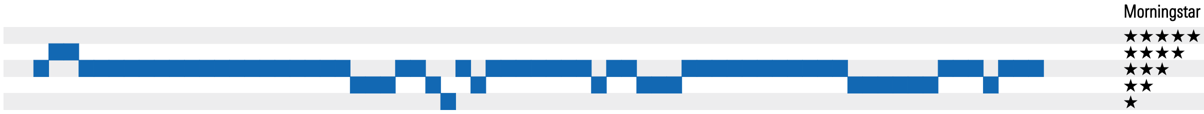
Facebook Inc Class A FB ★★★ 14 Sep 2021 21:23, UTC

Twitter Inc TWTR



	2016	2017	2018	2019	2020	YTD
Price/Fair Value	0.82	1.41	1.01	1.00	1.50	1.04
Total Return %	-29.56	47.30	19.70	11.52	68.95	11.15

Morningstar Rating



Total Return % as of 14 Sep 2021. Last Close as of 14 Sep 2021. Fair Value as of 23 Jul 2021 05:38, UTC.

Morningstar Equity Analyst Report | Report as of 15 Sep 2021 02:11, UTC | Reporting Currency: USD | Trading Currency: USD | Exchange: NASDAQ - ALL MARKETS

Facebook Inc Class A FB ★★★ 14 Sep 2021 21:23, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment[1]
376.53 USD 14 Sep 2021	407.00 USD 29 Jul 2021 01:06, UTC	0.93	1.06 USD Tril 14 Sep 2021	Wide	Stable	High	Standard	1 Sep 2021 05:00, UTC

Morningstar Historical Summary

Financials as of 30 Jun 2021

Fiscal Year, ends 31 Dec	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	TTM
Revenue (USD Bil)	3.71	5.09	7.87	12.47	17.93	27.64	40.65	55.84	70.70	85.97	55.25	104.79
Revenue Growth %	88.0	37.1	54.7	58.4	43.8	54.2	47.1	37.4	26.6	21.6	51.7	39.4
EBITDA (USD Bil)	2.06	1.19	3.82	6.18	8.16	14.87	23.63	29.23	29.73	39.53	27.70	52.08
EBITDA Margin %	55.5	23.5	48.5	49.5	45.5	53.8	58.1	52.3	42.1	46.0	50.1	49.7
Operating Income (USD Bil)	1.76	0.54	2.80	4.99	6.23	12.43	20.20	24.91	23.99	32.67	23.75	44.56
Operating Margin %	47.3	10.6	35.6	40.1	34.7	45.0	49.7	44.6	33.9	38.0	43.0	42.5
Net Income (USD Bil)	1.00	0.05	1.50	2.94	3.69	10.22	15.93	22.11	18.49	29.15	19.89	38.96
Net Margin %	18.0	0.6	18.9	23.5	20.5	36.9	39.2	39.6	26.2	33.9	36.0	37.2
Diluted Shares Outstanding (Mil)	2,361	2,166	2,517	2,664	2,853	2,925	2,956	2,921	2,876	2,888	2,881	2,891
Diluted Earnings Per Share (USD)	0.31	0.01	0.60	1.10	1.29	3.49	5.39	7.57	6.43	10.09	6.90	13.48
Dividends Per Share (USD)	—	—	—	—	—	—	—	—	—	—	—	—

Valuation as of 31 Aug 2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Recent Qtr	TTM
Price/Sales	—	11.3	20.9	18.1	18.6	13.5	14.3	7.4	8.9	10.0	10.6	10.5
Price/Earnings	—	2,500.0	133.3	73.0	105.3	44.4	34.2	19.7	32.9	31.2	29.8	28.2
Price/Cash Flow	—	35.7	39.2	39.7	40.3	26.5	24.3	13.1	16.9	23.3	25.1	22.2
Dividend Yield %	—	—	—	—	—	—	—	—	—	—	—	—
Price/Book	—	5.4	10.7	10.2	7.2	6.2	7.2	4.7	6.2	6.6	7.4	7.7
EV/EBITDA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Operating Performance / Profitability as of 30 Jun 2021

Fiscal Year, ends 31 Dec	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	YTD	TTM
ROA %	14.3	0.3	9.0	10.1	8.2	17.8	21.3	24.3	16.0	19.9	12.1	25.1
ROE %	22.9	0.4	11.0	11.3	9.1	19.7	23.8	27.9	20.0	25.4	14.9	31.3
ROIC %	19.9	0.6	10.1	11.2	9.0	19.4	23.4	27.0	18.2	22.8	13.6	28.4
Asset Turnover	0.8	0.5	0.5	0.4	0.4	0.5	0.5	0.6	0.6	0.6	0.3	0.7

Financial Leverage

Fiscal Year, ends 31 Dec	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Recent Qtr	TTM
Debt/Capital %	7.5	14.5	1.5	0.3	0.2	—	—	—	8.6	7.0	7.3	—
Equity/Assets %	67.7	77.8	86.4	90.3	89.5	91.1	88.0	86.4	75.8	80.5	81.0	—
Total Debt/EBITDA	0.4	2.0	0.1	0.0	0.0	—	—	0.0	0.3	0.3	0.4	—
EBITDA/Interest Expense	49.0	23.4	68.2	268.5	354.9	1,486.9	3,937.5	—	—	—	—	—

Morningstar Analyst Historical/Forecast Summary as of 28 Jul 2021

Financials

Fiscal Year, ends 31 Dec	2019	2020	2021 (Estimates)	2022 (Estimates)	2023 (Estimates)
Revenue (USD Bil)	71	86	120	141	169
Revenue Growth %	26.6	21.6	40.0	17.1	19.8
EBITDA (USD Bil)	35	46	77	86	93
EBITDA Margin %	48.9	53.6	64.2	61.2	55.3
Operating Income (USD Bil)	24	33	48	55	66
Operating Margin %	33.9	38.0	39.8	38.8	39.0
Net Income (USD Bil)	18	29	39	45	55
Net Margin %	26.2	33.9	32.7	32.1	32.4
Diluted Shares Outstanding (Mil)	2,876	2,890	2,888	2,888	2,888
Diluted Earnings Per Share(USD)	6.43	10.09	13.64	15.66	18.96
Dividends Per Share(USD)	0.00	0.00	0.00	0.00	0.00

Forward Valuation

	2019	2020	2021 (Estimates)	2022 (Estimates)	2023 (Estimates)
Price/Sales	8.3	9.1	8.8	7.5	6.3
Price/Earnings	31.9	27.1	27.6	24.0	19.9
Price/Cash Flow	27.6	32.9	21.8	17.7	15.7
Dividend Yield %	—	—	—	—	—
Price/Book	—	—	—	—	—
EV/EBITDA	15.7	15.9	13.1	11.7	10.8

Research Methodology for Valuing Companies

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, indepth competitive advantage analysis, and a variety of other analytical tools to augment this process. Moreover, we think analyzing valuation through discounted cash flows presents a better lens for viewing cyclical companies, high-growth firms, businesses with finite lives (e.g., mines), or companies expected to generate negative earnings over the next few years. That said, we don't dismiss multiples altogether but rather use them as supporting cross-checks for our DCF-based fair value estimates. We also acknowledge that DCF models offer their own challenges (including a potential proliferation of estimated inputs and the possibility that the method may miss shortterm market-price movements), but we believe these negatives are mitigated by deep analysis and our longterm approach.

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 a 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 singlepoint 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 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.

When considering a company's moat, we also assess whether there is a substantial threat of value destruction, stemming from risks related to ESG, industry disruption, financial health, or other idiosyncratic issues. In this context, a risk is considered potentially value destructive if its occurrence would eliminate a firm's economic profit on a cumulative or midcycle basis. If we deem the probability of occurrence sufficiently high, we would not characterize the company as possessing an economic moat.

To assess the sustainability of excess profits, 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.

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.

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 workingcapital accounts, and capital spending. Based on these projections, we calculate earnings before interest, after taxes (EBI) and the net new investment (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 (RONIC), and the number of years until perpetuity, when excess returns cease. The investment rate and return on new invested capital decline until a perpetuity value is calculated. 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

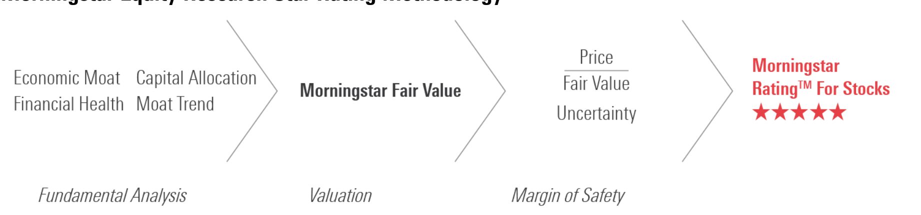
Once a company's marginal ROIC hits its cost of capital, we calculate a continuing value, using a standard perpetuity formula. At perpetuity, we assume that any growth or decline or investment in the business neither creates nor destroys value and that any new investment provides a return in line with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

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

Morningstar Equity Research Star Rating Methodology



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Research Methodology for Valuing Companies

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, exposure to material ESG risks, 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. In cases where there is less than a 25% probability of an event, but where the event could result in a material decline in value, analysts may adjust the uncertainty rating to reflect the increased risk. Analysts may also make a fair value adjustment to reflect the impact of this event.

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.

Qualitative Analysis Uncertainty Ratings	Margin of Safety ★★★★★Rating	★Rating
Low	20% Discount	25% Premium
Medium	30% Discount	35% Premium
High	40% Discount	55% Premium
Very High	50% Discount	75% Premium
Extreme	75% Discount	300% Premium

4. Market Price

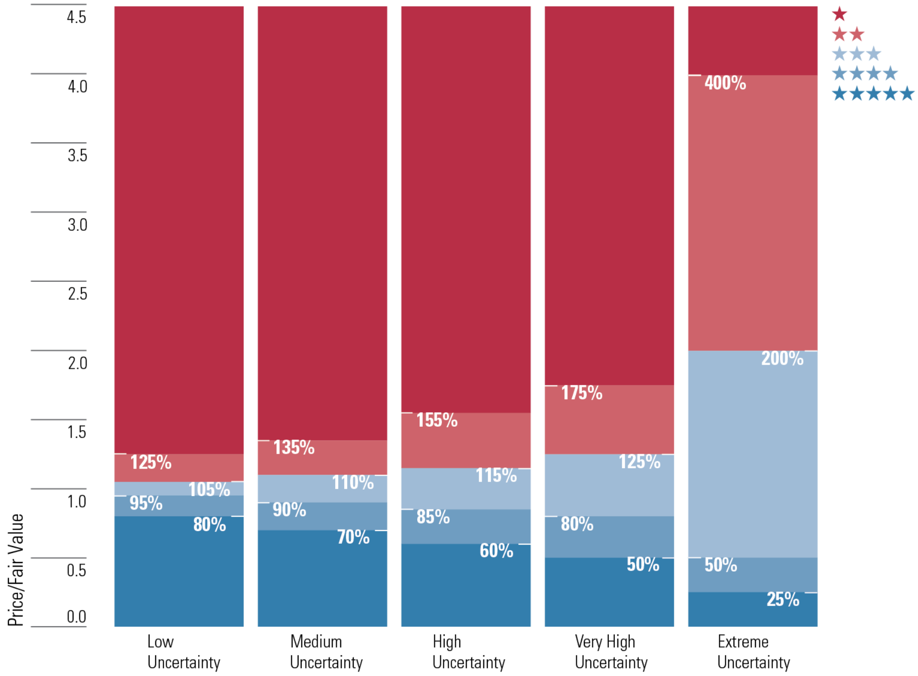
The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

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

Morningstar 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. Our analysts keep close

Morningstar Equity Research Star Rating Methodology



tabs on the companies they follow, and, based on thorough and ongoing analysis, raise or lower their fair value estimates as warranted.

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. Scenario analysis developed by our analysts indicates that 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. Scenario analysis by our analysts indicates that the market is pricing in an excessively optimistic outlook, limiting upside potential and leaving the investor exposed to Capital loss.

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.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider companies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exem-

Research Methodology for Valuing Companies

plary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

Capital Allocation (or Stewardship) analysis published prior to Dec. 9, 2020, was determined using a different process. Beyond investment strategy, financial leverage, and dividend and share buyback policies, analysts also considered execution, compensation, related party transactions, and accounting practices in the rating.

Capital Allocation Rating: Our Capital Allocation (or Stewardship) Rating represents our assessment of the quality of management's capital allocation, with particular emphasis on the firm's balance sheet, investments, and shareholder distributions. Analysts consider companies' investment strategy and valuation, balance sheet management, and dividend and share buyback policies. Corporate governance factors are only considered if they are likely to materially impact shareholder value, though either the balance sheet, investment, or shareholder distributions. Analysts assign one of three ratings: "Exemplary", "Standard", or "Poor". Analysts judge Capital Allocation from an equity holder's perspective. Ratings are determined on a forward looking and absolute basis. The Standard rating is most common as most managers will exhibit neither exceptionally strong nor poor capital allocation.

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Sustainalytics ESG Risk Rating Assessment: The ESG Risk Rating Assessment is provided by Sustainalytics; a Morningstar company.

Sustainalytics' ESG Risk Ratings measure the degree to which company's economic value at risk is driven by environment, social and governance (ESG) factors.

Sustainalytics analyzes over 1,300 data points to assess a company's exposure to and management of ESG risks. In other words, ESG Risk Ratings measures a company's unmanaged ESG Risks represented as a quantitative score. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) with lower scores representing less unmanaged risk and, for 95% of cases, the unmanaged ESG Risk score is below 50.

Based on their quantitative scores, companies are grouped into one of five Risk Categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree of unmanaged ESG risk across all subindustries covered.

The ESG Risk Rating Assessment is a visual representation of Sustainalytics ESG Risk Categories on a 1 to 5 scale. Companies with Negligible Risk = 5 Globes, Low Risk = 4, Medium Risk = 3 Globes, High Risk = 2 Globes, Severe Risk = 1 Globe. For more information, please visit sustainalytics.com/esg-ratings/

Ratings should not be used as the sole basis in evaluating a company or security. Ratings involve unknown risks and uncertainties which may cause our expectations not to occur or to differ significantly from what was expected and should not be considered an offer or solicitation to buy or sell a security.

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.

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Research Methodology for Valuing Companies

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