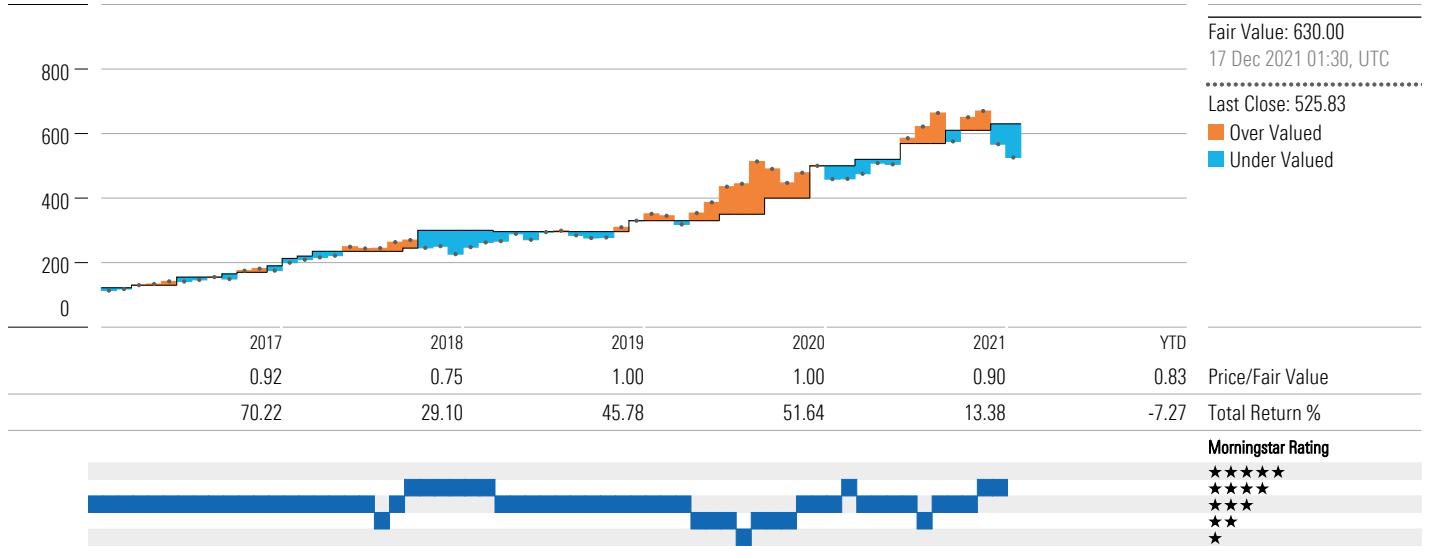


Adobe Inc ADBE ★★★★★ 10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	★★★★★ 5 Jan 2022 06:00, UTC

Price vs. Fair Value



Total Return % as of 10 Jan 2022. Last Close as of 10 Jan 2022. Fair Value as of 17 Dec 2021 01:30, UTC.

Contents

- Analyst Note (17 Dec 2021)
- Business Description
- Business Strategy & Outlook (17 Dec 2021)
- Bulls Say / Bears Say (16 Dec 2021)
- Economic Moat (16 Dec 2021)
- Fair Value and Profit Drivers (16 Dec 2021)
- Risk and Uncertainty (16 Dec 2021)
- Capital Allocation (16 Dec 2021)
- Analyst Notes Archive
- Financials
- Research Methodology for Valuing Companies

Important Disclosure

The conduct of Morningstar's analysts is governed by Code of Ethics/Code of Conduct Policy, Personal Security Trading Policy (or an equivalent of), and Investment Research Policy. For information regarding conflicts of interest, please visit: <http://global.morningstar.com/equitydisclosures>.

The primary analyst covering this company does not own its stock.

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

Adobe's ARR Slip-Up and Light Guidance for 2022 Leave Shares Attractive; FVE Up to \$630

Analyst Note Dan Romanoff, CPA, Senior Equity Analyst, 17 Dec 2021

In conjunction with its analyst day, wide-moat Adobe reported mixed fourth-quarter results, including revenue upside, messy billings, modest EPS upside, and light guidance. However, we also believe the outlook is better than it appears. After all, the 2022 outlook is just 1% below FactSet consensus, with pressure driven by having one less week than 2021 and foreign exchange combining to add a 300 basis point headwind to growth. After factoring guidance and results along with rolling our DCF forward, we raise our fair value estimate to \$630 per share from \$610. We thought investors were a bit overexcited about the stock a month ago when the shares were \$688 and see today's 10% drop after the 8% drop in the month leading up to today skewing overly pessimistic. We see Adobe's dominance as unencumbered and an expanding portfolio poised to attack a growing market as signs that shares are now undervalued.

Fourth-quarter revenue grew 20% year over year to \$4.110 billion, versus guidance of \$4.070 billion and FactSet consensus of \$4.073 billion. Billings came in at \$571 million, compared to guidance of \$550 million excluding Frame.io, although the acquisition contributed \$29 million, suggesting Adobe missed on this key metric. We think this is a blip rather than a problem. Digital media revenue grew 21% year over year while digital experience, or DX, revenue grew 23% year over year--both being modestly ahead of our own expectations. Adobe noted solid demand throughout the quarter from individuals, SMB, and enterprise customers, but did not see a typical two-week surge in e-commerce demand, noting that this

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

Sector

Technology

Industry

Software - Infrastructure

Business Description

Adobe provides content creation, document management, and digital marketing and advertising software and services to creative professionals and marketers for creating, managing, delivering, measuring, optimizing and engaging with compelling content multiple operating systems, devices and media. The company operates with three segments: digital media content creation, digital experience for marketing solutions, and publishing for legacy products (less than 5% of revenue).

was consistent with Adobe's Digital Economy Index. We have seen similar trends in some of our other companies. Frame.io saw good traction and Workfront helped drive larger deal sizes in the DX segment. We remain impressed by Adobe's ability to drive new users in digital media and we are encouraged by solid results in digital experience, which we think continue in 2022.

Business Strategy & Outlook

Dan Romanoff, CPA, Senior Equity Analyst, 17 Dec 2021

Adobe has come to dominate in content creation software with its iconic Photoshop and Illustrator solutions, both now part of the broader Creative Cloud, which is now offered via a subscription model. The company has added new products and features to the suite through organic development and bolt-on acquisitions to drive the most comprehensive portfolio of tools used in print, digital, and video content creation. The benefits from software as a service are well known in that it offers significantly improved revenue visibility and the elimination of piracy for the company, and a much lower cost hurdle to overcome (\$1,000 or more up-front, versus plans as low as \$10 per month) and a solution that is regularly updated with new features for users.

CEO Shantanu Narayen provided Adobe with another growth leg in 2009 with the acquisition of Omniture, a leading web analytics solution that serves as the foundation of the digital experience segment that Adobe has used as a platform to layer in a variety of other marketing and advertising solutions. Adobe benefits from the natural cross-selling opportunity from Creative Cloud to the business and operational aspects of marketing and advertising. On the heels of the Magento and Marketo acquisitions in the second half of fiscal 2018 and Workfront in 2021, we expect Adobe to continue to focus its M&A efforts on the digital experience segment and other emerging areas.

The Document Cloud is driven by one of Adobe's first products, Acrobat, and the ubiquitous PDF file format created by the company, and is now a \$2.0 billion business. The rise of smartphones and tablets, coupled with bring-your-own-device and a mobile workforce have made a file format that is usable on any screen more relevant than ever.

Adobe believes it is attacking an addressable market greater than \$205 billion. The company is introducing and leveraging features across its various cloud offerings (like Sensei artificial intelligence) to drive a more cohesive experience, win new clients, upsell users to higher price point solutions, and cross sell digital media offerings.

Bulls Say

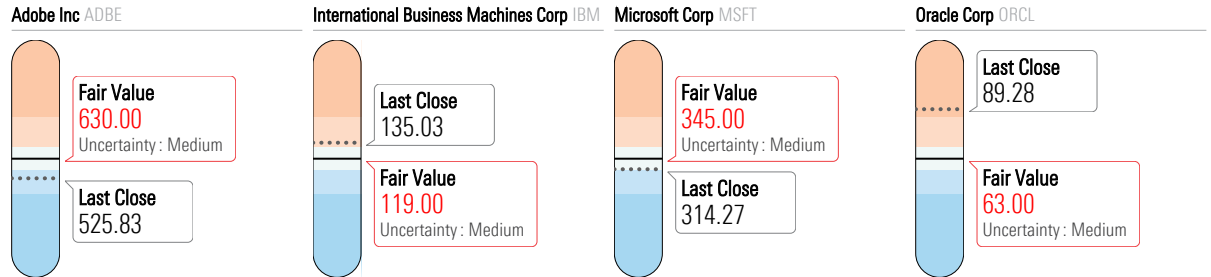
Dan Romanoff, CPA, Senior Equity Analyst, 16 Dec 2021

- ▶ Adobe is the de facto standard in content creation software and PDF file editing, categories the company created and still dominates.
- ▶ Shift to subscriptions eliminates piracy and makes revenue recurring, while removing the high up-front price for customers. Growth has accelerated and margins are expanding from the initial conversion

Adobe Inc ADBE ★★★★★ 10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	5 Jan 2022 06:00, UTC

Competitors



	Adobe Inc ADBE	International Business Machines Corp IBM	Microsoft Corp MSFT	Oracle Corp ORCL
Economic Moat	Wide	Narrow	Wide	Narrow
Moat Trend	Stable	Negative	Stable	Negative
Currency	USD	USD	USD	USD
Fair Value	630.00 17 Dec 2021 01:30, UTC	119.00 5 Nov 2021 17:55, UTC	345.00 27 Oct 2021 02:29, UTC	63.00 20 Dec 2021 22:26, UTC
1-Star Price	850.50	160.65	465.75	85.05
5-Star Price	441.00	83.30	241.50	44.10
Assessment	Under Valued 10 Jan 2022	Over Valued 10 Jan 2022	Fairly Valued 10 Jan 2022	Significantly Over Valued 10 Jan 2022
Morningstar Rating	★★★★★ 10 Jan 2022 22:27, UTC	★★ 10 Jan 2022 22:27, UTC	★★★ 10 Jan 2022 22:27, UTC	★ 10 Jan 2022 22:27, UTC
Analyst	Dan Romanoff, Senior Equity Analyst	Julie Bhusal Sharma, Equity Analyst	Dan Romanoff, Senior Equity Analyst	Julie Bhusal Sharma, Equity Analyst
Capital Allocation	Exemplary	Poor	Exemplary	Poor
Price/Fair Value	0.83	1.13	0.91	1.42
Price/Sales	16.02	1.64	13.53	6.24
Price/Book	16.91	5.45	15.53	47.38
Price/Earning	52.48	26.07	35.15	25.88
Dividend Yield	—	4.85%	0.73%	1.43%
Market Cap	242.99 Bil	120.92 Bil	2,357.81 Bil	233.69 Bil
52-Week Range	420.78—699.54	112.10—145.99	212.03—349.67	59.74—106.34
Investment Style	Large Growth	Large Value	Large Growth	Large Value

inflection.

- ▶ Adobe is extending its empire in the creative world from content creation to marketing services more broadly through the expansion of its digital experience segment. This segment should drive growth in the coming years.

Bears Say Dan Romanoff, CPA, Senior Equity Analyst, 16 Dec 2021

- ▶ Momentum is slowing in Creative Cloud after elevated growth driven largely by the model transition to SaaS.
- ▶ There is greater uncertainty in digital experience given this is an emerging space and one that Adobe neither created nor dominates. Growth could be slower than we anticipate or margin expansion may not materialize.
- ▶ Digital experience has been built largely through acquisition, including Magento and Marketo in 2018. This raises the possibility of disruption from inadequate integration efforts and lends credence to

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

concerns that Adobe may overpay for increasingly large deals.

Economic Moat Dan Romanoff, CPA, Senior Equity Analyst, 16 Dec 2021

For Adobe overall we assign a wide moat, arising from switching costs and network effects. Based on the company's segments, we believe digital media has a wide moat from switching costs and network effects, digital experience has a narrow moat arising from switching costs, and publishing has a narrow moat from switching costs.

Digital media represented approximately 70% of revenue in fiscal 2018. This segment contains Creative Cloud, which was approximately 59% of revenue in fiscal 2018, and Document Cloud, which was approximately 11% of revenue in fiscal 2018. While both product groups generate strong revenue growth, growth in Creative Cloud is materially higher. Creative Cloud is composed of the iconic products Photoshop, Premier, Illustrator, InDesign, After Effects, Fireworks, XD, and Dreamweaver, among others: a variety of mobile versions of these products and additional discrete mobile solutions; and consumer-targeted Photoshop Elements and Premiere Elements. Document Cloud consists of the Acrobat family of products, including Scan and Sign.


Since its introduction in 1989, Photoshop quickly became the industry leader and eventually the industry standard for image editing software. Rather than remaining complacent, Adobe has consistently invested in the solution, introducing new features and adding applications that could be sold to existing users of Photoshop. These features and products were both internally developed and as a result of acquisitions. Notably, Fireworks and Dreamweaver came from the 2005 Macromedia acquisition, while InDesign and PageMaker came from the 1994 acquisition of Aldus. Over the years, Photoshop, Illustrator, Premier, InDesign, and After Effects were the company's most popular products, and beginning in 2003 were available as the Creative Suite bundle. While that bundle no longer exists, we believe these same products drive the bulk of demand in Creative Cloud. Other products serve more specialized needs or tend to be in more emerging technology areas within graphics, such as 3D illustrating.

The high switching costs moat source is the primary driver of the wide moat surrounding Creative Cloud. While there is a wide variety of competitive products, Adobe Creative Cloud is so pervasive within the creative world and the educational system that replacing it would be an insurmountable barrier, in our view. Further, because nearly all creative professionals use it, it makes it so all other creative professionals must use it. While the Creative Cloud has its issues, particularly premium pricing, and any one organization or freelance professional might be willing to switch, they would find it difficult to work with anybody else. Similarly, it helps ensure that when Adobe releases a related new solution it too becomes widely adopted.

Creative Cloud also benefits from a network effect. By virtue of the widespread penetration of Creative

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

Cloud, creative professionals have significant incentive to become well versed in the solutions therein. For example, Photoshop has become so ingrained in the creative world that design curriculum at major universities incorporates all critical Creative Cloud applications. As more prospective employees learn Photoshop, enterprises have even more incentive to deploy Photoshop within their organizations, perpetuating the positive flywheel effect. Further, the rapid adoption of Photoshop within the creative professions more broadly (advertising, graphics, web design, content creation, and so on) allowed Adobe to fill in adjacent needs with new products, further entrenching itself within the creative world. Because of its popularity, there are hundreds of plug-ins from third-party developers available for Photoshop alone. These add even more features to the Creative Cloud, attracting even more users.

Within Document Cloud, Adobe created the portable document format, or PDF, as an evolution of its original product, PostScript. In 1990, there was no file format that was readily usable across operating system platforms, but by the mid-1990s, there were several products vying for widespread adoption. Adobe's PDF won, thanks in part to distributing Acrobat Reader for free to PC OEMs, and has become the standard. Adobe developed an enterprise Acrobat product (currently Acrobat Pro DC) as a PDF editor and workflow solution. Currently we believe there are no truly competitive solutions to the PDF file format, even if there is a wide variety of PDF editors in free and paid versions. By any measure, Acrobat Pro DC remains the gold standard in PDF editors, but it is also the most expensive solution. We believe the company's creation of the PDF file format, its first-mover advantage with Acrobat, and significant installed base have created a narrow moat based on switching costs for Adobe's Document Cloud.

Digital experience represented approximately 27% of revenue in fiscal 2018. This segment contains Advertising Cloud, Analytics Cloud, Marketing Cloud, and Magento Commerce Cloud. The Magento Commerce Cloud was added with the Magento acquisition in June 2018. Adobe does not break out revenue associated with each product group within the Digital Experience Cloud but instead groups them as Experience Cloud.

Adobe does not have a first-mover advantage within digital experience. Rather than building this area out organically, the company acquired its way in. Indeed, the main thrust of this segment came in 2009 when Adobe acquired Omniture for \$1.8 billion. In the latest 12 months leading up to the acquisition, Omniture generated \$345 million in revenue, representing 35% growth over the comparable prior period. Other more significant acquisitions in the segment have included Neolane in 2013 for \$600 million, TubeMogul in 2016 for \$629 million (\$212 million in last 12 months, or LTM, revenue), Magento in 2018 for \$1.8 billion, and Marketo in 2018 for \$4.8 billion (\$240 million in LTM as of June 2016 before it went private). Through acquisitions and eventual organic feature and product development, Adobe has established itself as a leader in various categories that fall under the digital experience umbrella, including digital marketing analytics, campaign management, and customer engagement, among others.

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	 Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

We applaud Adobe's vision and bold foray into the digital marketing space. In our view, marketing professionals prefer an independent platform for analytics and other solutions, as opposed to relying on the tools and data provided by the hyperscale Internet service providers. However, unlike with Photoshop where no serious competitive threat exists, there are a wide variety of large competitors in the various marketing analytics, campaign management, customer engagement, advertising platform, and related areas. We believe Adobe's tightly integrated and robust platform is seen as a strong suite by the marketplace, but the space is nascent and evolving rapidly, with often blurry lines between solutions. While there seems to be an emerging leadership group containing, Adobe, salesforce.com, Oracle, and SAP, the solutions offered by these companies are not perfect substitutes for one another. Further, there are many small privately held companies that innovate and continue to provide leading point solutions with no unified platform. Adobe is clearly using M&A to bolster its position and deliver a broad suite of marketing-related solutions to companies in a digital age. We believe there are switching costs to leaving the platform, especially given the breadth of solutions the company has to offer.

In our view, there is no more-comprehensive marketing platform. This approach makes sense to us in that Adobe is leveraging its already strong position within the creative professional market. We believe switching costs drive a narrow moat for Adobe's digital experience segment. While we believe in the strong and comprehensive solutions under this umbrella, we note Adobe did not create the markets involved, does not have a first-mover advantage, and does not enjoy any quasi-monopoly status with products here. Further, the company competes against other large cap software peers for marketing platforms--notably salesforce.com, Oracle, and SAP. Additionally, we believe that as a result of the explosion in demand for a more data-driven approach to marketing and advertising, there has been rapid evolution in the underlying technology, and myriad solutions for potential customers, which is why we do not believe Adobe enjoys a wide moat in this segment.

The publishing segment represented approximately 3% of revenue in fiscal 2018. This segment contains the company's first product, PostScript, along with ColdFusion, the eLearning Suite, Technical Communications Suite, Type, Shockwave, and a variety of other products that do not fit well in either digital media or digital experience. We believe this segment has a narrow moat based on switching costs to support it given that many users have been using Adobe for decades.

Fair Value and Profit Drivers Dan Romanoff, CPA, Senior Equity Analyst, 16 Dec 2021

Our fair value estimate for Adobe is \$630 per share, which implies a fiscal 2022 enterprise value/sales multiple of 17 times, adjusted P/E multiple of 45 times, and a 2.6% free cash flow yield.

We model total revenue growth slowly decelerating from 23% (actual) in fiscal 2021 to 14% in fiscal 2025, representing a CAGR of approximately 14%. We foresee solid growth in both digital media and digital experience even as both steadily slow over time. Digital experience should benefit from

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

increasing penetration into a \$110 billion market as defined by Adobe. We believe a relatively frictionless cross-selling opportunity exists for the company, as creative professionals are already steeped in Adobe products. The desire to consolidate vendors makes Adobe an obvious choice to turn to for needed marketing software solutions, and the fact that Adobe's products are strong should help initially in what we believe is a large greenfield opportunity. Within digital media, we have been impressed by Adobe's ability to draw in new users that many did not believe existed. We believe some of this is related to piracy, which is effectively eliminated in the SaaS model. Additionally, the company has had success upselling existing users to higher price point products. We believe continued innovation, gathering new users, and upselling existing users in Creative Cloud should help drive strong growth for the next several years.

We model non-GAAP operating margins decreasing from 46% in fiscal 2021 (actual) to 45% in fiscal 2026 driven by giving back some margin benefit from lower travel, entertainment and facility spending in 2021.

Risk and Uncertainty Dan Romanoff, CPA, Senior Equity Analyst, 16 Dec 2021

We assign Adobe a medium fair value uncertainty rating. It faces risks that vary by segment. Creative Cloud's high market share over the last 25 years means a significant portion of high margin revenue is at risk, however slight that risk may be, if a competitor were to make inroads in the space. The dampening of cross selling opportunities with Digital Experience would likely then be diminished, which would be problematic, as Digital Experience represents the larger growth opportunity over the next five years in our view. While Adobe is generally considered a leader in the various categories included under its Digital Experience Umbrella, it did not create any of these categories and does not dominate them the way it does with Creative Cloud.

Adobe has built the Digital Experience business largely through acquisitions. The two recent acquisitions of Magento and Marketo also pose risks, as those were on the larger side for the company. Any integration missteps could potentially cause delays in new contract signings. Further, material missteps could possibly result in substantial write-downs regarding these (or other) acquisitions. Further, while the margin structure may ultimately be lower in Digital Experience relative to Creative Cloud, the company has worked to improve margins over time, and we believe Adobe must continue to drive down costs and expand margins to meet investor expectations.

Lastly, we generally model the Publishing segment as modestly declining throughout our projections. This segment is largely composed of legacy products with very high margins. At this point we believe this cash cow business could be a potential source of disappointment if it were to begin to more rapidly deteriorate, which is not contemplated in our model.

Adobe Inc ADBE ★★★★★ 10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

While we do not see significant ESG risks, we note Adobe faces strong competition for software engineers on the hiring front, and also faces risks arising from a potential data breach within its data centers.

Capital Allocation Dan Romanoff, CPA, Senior Equity Analyst, 16 Dec 2021

We assign Adobe an Exemplary Capital Allocation rating. The rating reflects our assessments of sound balance sheet, exceptional investment, and appropriate shareholder distributions. We think investments back into the business are most likely to be the key driver of total shareholder returns and are therefore appropriately prioritized over other capital returns such as dividends and buyback, although given the company's prodigious free cash flow generation, we see share buybacks and acquisitions continuing.

The balance sheet is sound with a net cash position, including \$5.8 billion in cash and \$4.1 billion in debt. Gross leverage is under one times trailing EBITDA. We expect the balance sheet to remain sound as the company has typically maintained a conservative balance sheet and generates more than enough free cash flow to fund growth, buy back shares, and execute its acquisition strategy.

Adobe's capital deployment strategy centers around re-investing in the business and making generally small tuck-in acquisitions. The company does not pay a dividend but does repurchase shares. We expect the share count to continue to decline over time. We also think the company will continue with its acquisition strategy.

Shantanu Narayen joined the company in 1998 as senior vice president of worldwide product development. He was promoted to COO, and ultimately to CEO, a position he has had since 2007. Narayen has steered the company through a variety of critical changes over the years.

Narayen is responsible for initially bundling Photoshop, Illustrator, and other products into what was then known as the Creative Suite in 2003, which he ultimately converted to a subscription model in 2013. While moving to a SaaS model was not a novel move by 2013, it had never been attempted at a company the size of Adobe. After the initial margin and growth hit, both measures improved markedly, with growth remaining strong years after the transition and margins rebounding to pre-transition levels within a few years.

While the transition to SaaS was a critical shift for Adobe, the acquisition of Omniture in 2009 represented a new strategic direction for the company. Omniture was purchased for \$1.7 billion and served as the foundation for what was initially Adobe Marketing and is now called the Adobe Analytics Cloud. At its core Omniture is a web analytics platform. By virtue of moving beyond content creation for creative professionals, the company significantly expanded its total addressable market. Omniture also served as the core of what has become the Adobe Experience Cloud, which is a collection of leading solutions for marketing, analytics, advertising, and commerce, integrated on a single platform. It also

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

allows Adobe to sell a wide variety of marketing technology solutions into a customer base that already thinks of Adobe as the clear leader in content creation. The strategy has paid off handsomely thus far, as momentum in Experience Cloud is undeniable in a market that is loosely two times the size of the market for the company's content creation solutions. Management recognizes this and has been directing M&A investment in this direction since the Omniture transaction, including large deals for Magento and Marketo in fiscal 2018. After some uneven performance early on, Narayan stepped into to personally oversee parts of the integration, which we believe improved the process. Adobe has also acquired its way into emerging areas like collaboration and workflow management with the Workfront deal in 2021.

Beyond business model and strategic shifts, Narayan has been continued to shrink the share count, and is likely to continue in this regard in our view.

Analyst Notes Archive

Adobe's Digital Experience Drives Q3 Strength; FVE Up to \$610 Dan Romanoff, CPA, Senior Equity Analyst, 22 Sep 2021

Wide-moat Adobe reported strong third-quarter results, including upside to guidance for revenue and non-GAAP EPS, and provided a better than expected quarterly outlook. We continue to see strength in all segments and geographies regarding quarterly results and are pleased to see continued strength in the digital experience, or DX, segment, which we believe is critical for growth longer-term. We think results continue to support our investment case that Adobe will continue to dominate the creative segment, and its well-rounded portfolio, including Magento and Marketo, position the firm as a digital marketing leader. Given results and guidance, we are raising our fair value estimate to \$610 per share, from \$569. Given the stock's run year to date, we see shares as fairly valued.

Third-quarter revenue grew 22% year over year to \$3.935 billion, compared with guidance of \$3.880 billion and FactSet consensus of \$3.882 billion. Digital media revenue grew 23% year over year while DX revenue accelerated to 26% year-over-year growth, with both being nicely ahead of our own expectations. Workfront continues to help drive larger deal sizes in the DX segment, while the midmarket has come back meaningfully. We remain impressed by Adobe's ability to drive new users in digital media and we are relieved to see the DX resurgence, and we see no reason why these trends will not continue through 2022. Publishing and advertising revenue declined 22% year over year, which was a little shy of our forecast. Net new digital ARR was \$455 million, versus guidance of \$440 million, which was a small beat relative to the last couple years of outperformance, which was attributed to individual content creators. Document cloud remained strong in the quarter with continued momentum and increased usage for Adobe Sign and increased its revenue by 31% and its ARR by 33%, both year over year. Non-GAAP operating margin was 46.0%, compared with 43.5% a year ago and slightly ahead

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

of our own expectations.

Picture-Perfect Quarter for Adobe; FVE Up to \$569 Dan Romanoff, CPA, Senior Equity Analyst, 18 Jun 2021

Wide-moat Adobe reported strong second-quarter results, including upside to guidance for revenue and non-GAAP EPS, and provided a better-than-expected third-quarter outlook. Management did not raise full-year guidance but was enthusiastic about exceeding its previously issued 2021 outlook. We see strength in all segments and all geographies regarding quarterly results and are pleased to see continued strength in the digital experience, or DX, segment. SMB performance is back to prepandemic levels in the U.S. and improving globally as well. We think results continue to support our investment case that Adobe will continue to dominate the creative segment, and its well-rounded portfolio, including Magento and Marketo, positions the firm as a digital marketing leader. Given results and guidance, we are raising our fair value estimate to \$569 per share from \$520. Given the stock's run year to date, we see shares as fairly valued.


Second-quarter revenue grew 23% year over year to \$3.835 billion, compared with guidance of \$3.720 billion and FactSet consensus of \$3.721 billion. Digital media revenue grew 25% year over year while DX revenue grew 21% year over year, with both being nicely ahead of our own expectations. Workfront deals helped lift deal sizes, including the largest deal ever in the DX segment during the quarter. We remain impressed by Adobe's ability to drive new users in digital media and we are relieved to see the DX resurgence, and we see no reason why these trends will not continue through 2022. Publishing and advertising revenue declined 10% year over year, which was a little better than our forecast. Net new digital ARR was \$518 million, versus guidance of \$450 million. Document cloud (within digital media) remained strong in the quarter with continued momentum for Adobe Sign, which saw 40% year-over-year ARR growth. Non-GAAP operating margin was 45.9%, compared with 42.7% a year ago and nicely ahead of our own expectations.

Strength Abounds As Adobe Reports Impressive Results; FVE Up to \$520 Dan Romanoff, CPA, Senior Equity Analyst, 24 Mar 2021

Wide-moat Adobe reported strong first quarter results, including upside to guidance for both revenue and non-GAAP EPS, and provided quarterly guidance that was ahead of Street expectations. Importantly, management also raised its full year outlook. The company announced CFO John Murphy will be retiring this year for personal reasons and a search is underway for a successor. We see strength on all fronts of quarterly performance. New customer engagement levels remained strong and activity on adobe.com remains elevated as a result of the extended remote work environment. We think results continue to support our investment case that Adobe will continue to dominate the creative segment, and its well-rounded portfolio, including Magento and Marketo, position the firm as a digital marketing leader. Given results and guidance, we are raising our fair value estimate to \$520 per share, from \$500.

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

As software has lagged early in 2021, we see shares as increasingly attractive.

First quarter revenue grew 26% year over year to \$3.905 billion, compared with guidance of \$3.750 billion and FactSet consensus of \$3.751 billion. Digital Media revenue grew 32% year over year while Digital Experience revenue grew 24% year over year, with both being nicely ahead of our own expectations. Publishing and Advertising revenue declined 34% year over year, as expected based on the discontinuation of transactional advertising services. Workfront added \$38 million in revenue, while FX drove \$62 million in year-over-year revenue growth. Net new digital ARR was \$435 million, versus guidance of \$410 million. Document Cloud (within Digital Media) was strong in the quarter with good momentum for Adobe Sign, leading to 50% year-over-year revenue growth. Not surprisingly, Magento also did well, with management commenting that online spending has permanently increased. Non-GAAP operating margin was 46.8%, compared with 40.3% a year ago and nicely ahead of our own expectations.


Adobe Delivers Solid Results While Keeping the Big Picture in Focus; FVE Up to \$500 Dan Romanoff, CPA, Senior Equity Analyst, 11 Dec 2020

Wide-moat Adobe reported strong fourth-quarter results, including upside to consensus for both revenue and non-GAAP EPS, and provided quarterly guidance that was ahead of Street expectations, but included an extra week along with the Workfront acquisition. Normalizing for these items, we believe the full-year revenue outlook is in line, while EPS is slightly better than expectations. In conjunction with its earnings release, Adobe also provided its annual investor day presentation, which contained some incremental data points but no big surprises. The company did authorize a new \$15 billion share buyback plan. New customer engagement levels remained robust and activity on adobe.com remains elevated as a result of the extended remote work environment. We think results and the investor day combine to support our investment case that Adobe will continue to dominate the creative segment, and its well-rounded portfolio, including Magento and Marketo, position the firm as a digital marketing leader. Given results and guidance, in conjunction with advancing our DCF a year, we have included higher growth throughout our forecast and are therefore raising our fair value estimate to \$500 per share, from \$400. As such, we see shares trading at a modest discount to our fair value.

Fourth-quarter revenue grew 14% year over year to \$3.424 billion, compared with CapIQ consensus of \$3.365 billion. Digital Media was \$45 million ahead of our model and drove most of the upside. Advertising was moved from Digital Experience to Publishing, so direct compares are challenging, but we calculate that both of these segments also ahead of our model. Net new digital ARR was \$548 million, versus guidance of \$540 million, a slowdown from much stronger upside recently but still solid. Document Cloud (within Digital Media) was strong in the quarter and we note that Adobe Sign was more directly discussed this year beyond smaller mentions in the past. Not surprisingly, Magento was also strong.

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

Adobe Delivers Picture-perfect Quarter with Mostly in Line Guidance; FVE Up to \$400

Dan Romanoff, CPA, Senior Equity Analyst, 16 Sep 2020

Wide-moat Adobe reported strong third-quarter results, including upside to consensus for both revenue and EPS, and provided quarterly guidance that was generally in line with Street expectations. Given that the company pulled its annual guidance last quarter and the strength in revenue this quarter, we think revenue guidance for the fourth quarter that is less than half a percent below CapIQ consensus is simply due to conservatism by management, which is not at all surprising given coronavirus-driven macro uncertainty. New customer engagement levels remained robust and activity on adobe.com remains elevated as a result of the extended remote work environment. We think results support our investment case that Adobe will continue to dominate the creative segment, and its well-rounded portfolio, including Magento and Marketo, position the firm as a digital marketing leader. Given results, we have included slightly higher growth throughout our forecast and are therefore raising our fair value estimate to \$400 per share, from \$350. While we believe Adobe offers an exceptional franchise, we struggle with valuation as shares are already trading over \$500.


Third-quarter revenue grew 14% year over year to \$3.225 billion, compared with CapIQ consensus of \$3.160 billion. Digital media was well ahead of our model and drove most of the upside, although digital experience was actually ahead of our model as well for the first time in several quarters. Digital experience showed signs of life, growing 14% year over year after normalizing for the discontinuation of the advertising cloud transactional business, and saw particular strength in large deals. Net new digital ARR was again excellent at \$458 million, versus guidance of \$340 million. Document cloud (within digital media) was strong in the quarter across a variety of metrics, once again including Adobe Sign, which saw enterprise bookings growth of more than 200% year over year. Not surprisingly, Magento was strong again.

Adobe Reports Solid but Mixed Results with Guidance Slightly Light; Not a Surprise; FVE up to \$350

Dan Romanoff, CPA, Senior Equity Analyst, 12 Jun 2020

Wide-moat Adobe reported mixed second-quarter results, including a revenue miss with EPS upside, and provided guidance that was slightly shy of street expectations for its third quarter and pulled full-year guidance. Given the coronavirus and the economic slowdown, this is not surprising, and we think results were solid overall. New customer engagement levels picked up noticeably in May and activity on adobe.com was elevated given remote working. Adobe expects a change in the way companies work going forward, which we increasingly agree with. We think results support our investment case that Adobe will continue to dominate the creative segment, and its well rounded portfolio, including Magento and Marketo, position the firm as a digital marketing platform leader. We have adjusted our model to include higher profitability more than offsetting slightly lower revenue levels based on the elimination of certain Digital Experience business and are therefore raising our fair value estimate to

Adobe Inc ADBE ★★★★★ 10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment¹
525.83 USD 10 Jan 2022	630.00 USD 17 Dec 2021 01:30, UTC	0.83	242.99 USD Bil 7 Jan 2022	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC

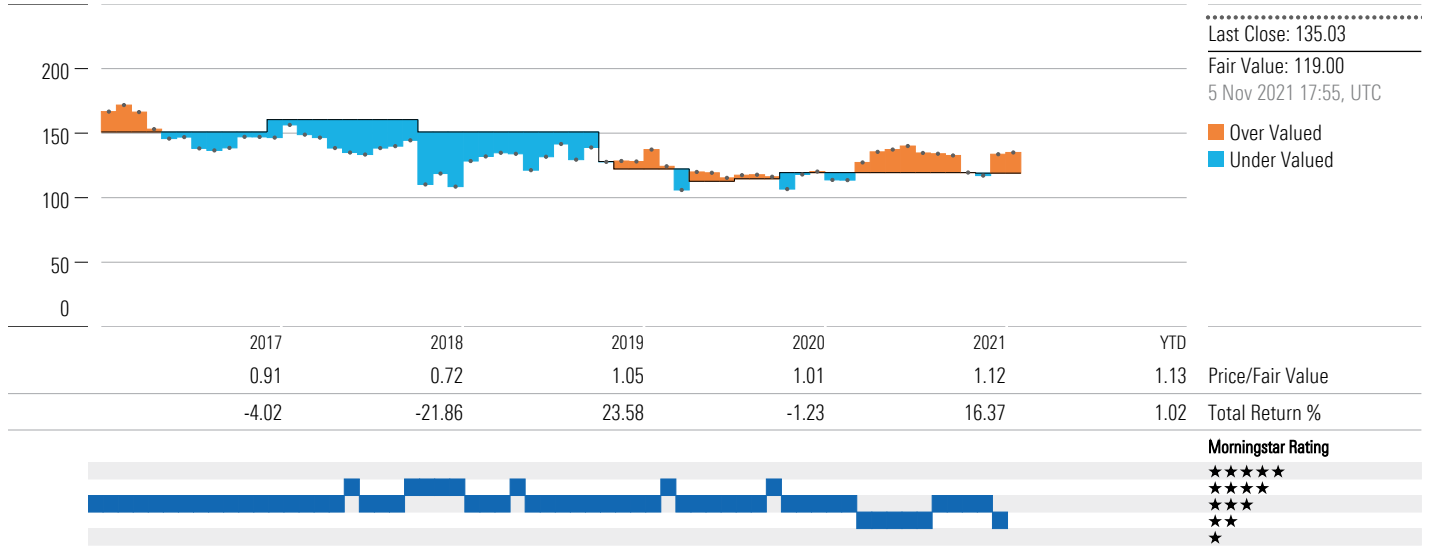
\$350 per share. While we believe Adobe offers an exceptional franchise, we struggle with valuation as shares are already trading near \$400.

First-quarter revenue grew 14% year over year to \$3.128 billion, which was driven by Digital Media growth, but was still short of both CapIQ consensus and our model. Digital Media was barely shy of our model, while Digital Experience was 6% light, and Publishing was nicely ahead. Digital Experience subscription bookings rebounded from the slowdown at the end of last quarter, and in fact grew 14% year over year, but the decision to halt the transaction-driven business within Advertising Cloud hurt segment results. Net new digital ARR was excellent at \$443 million, versus guidance of \$385 million. Document Cloud (within Digital Media) was strong in the quarter across a variety of metrics, including 175% increased usage in Adobe Sign since the beginning of the year and a doubling of net new ARR. Magento also saw strong transaction volumes. ■■

Adobe Inc ADBE ★★★★★ 10 Jan 2022 22:27, UTC

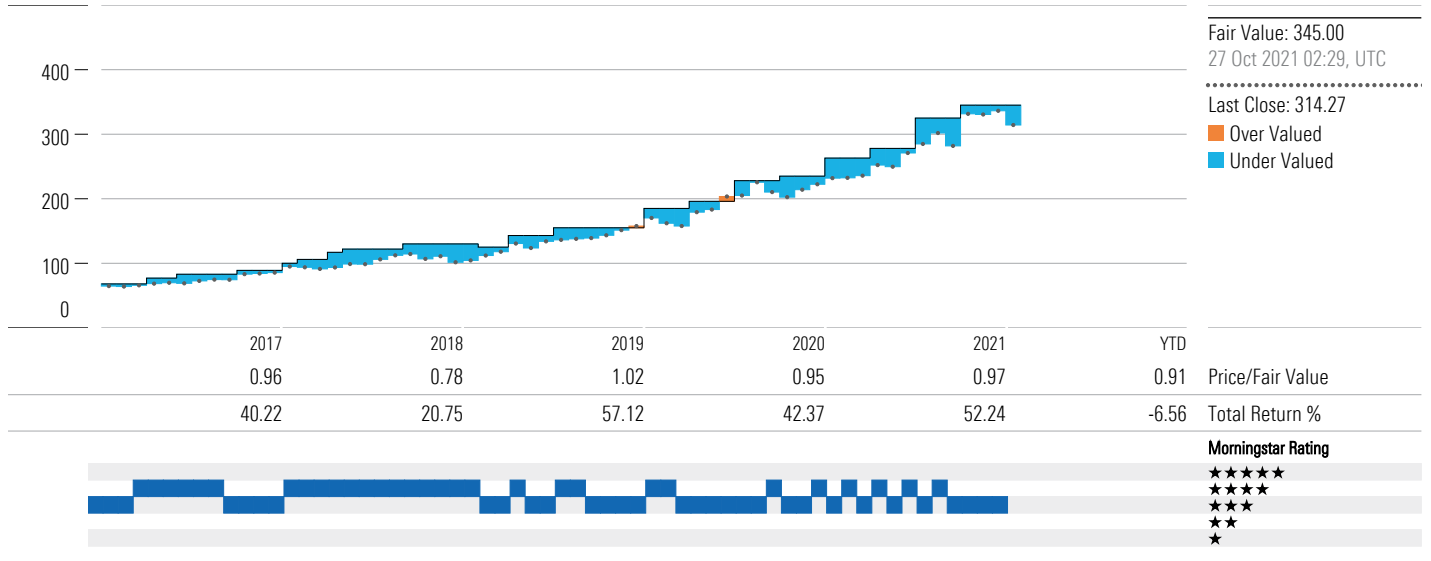
Competitors Price vs. Fair Value

International Business Machines Corp IBM



Total Return % as of 10 Jan 2022. Last Close as of 10 Jan 2022. Fair Value as of 5 Nov 2021 17:55, UTC.

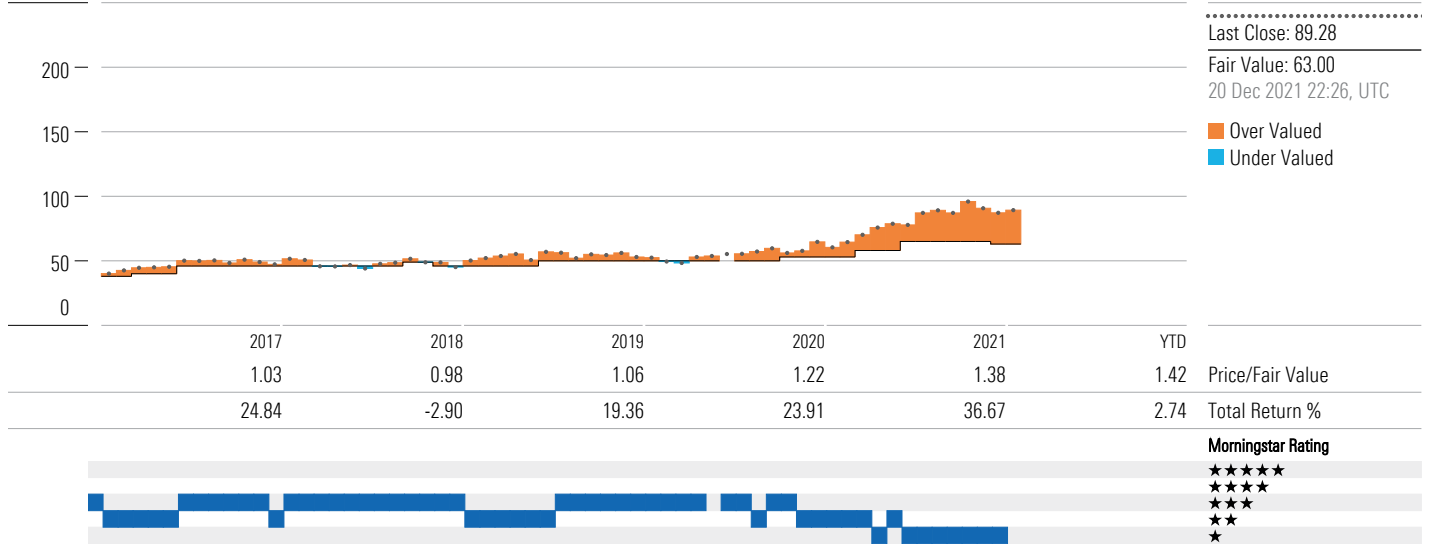
Microsoft Corp MSFT



Total Return % as of 10 Jan 2022. Last Close as of 10 Jan 2022. Fair Value as of 27 Oct 2021 02:29, UTC.

Adobe Inc ADBE ★★★★★ 10 Jan 2022 22:27, UTC


Oracle Corp ORCL



Total Return % as of 10 Jan 2022. Last Close as of 10 Jan 2022. Fair Value as of 20 Dec 2021 22:26, UTC.

Adobe Inc ADBE ★★★★★

10 Jan 2022 22:27, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Moat Trend™	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
525.83 USD	630.00 USD	0.83	242.99 USD Bil	Wide	Stable	Medium	Exemplary	 5 Jan 2022 06:00, UTC
10 Jan 2022	17 Dec 2021 01:30, UTC		7 Jan 2022					

Morningstar Historical Summary

Financials as of 31 Aug 2021

Fiscal Year, ends 30 Nov	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	TTM
Revenue (USD K)	4,403,677	4,055,240	4,147,065	4,795,511	5,854,430	7,301,505	9,030,000	11,171,000	12,868,000	—	11,675,000	15,099,000
Revenue Growth %	4.5	-7.9	2.3	15.6	22.1	24.7	23.7	23.7	15.2	—	23.6	21.4
EBITDA (USD K)	1,486,047	744,876	734,698	1,277,438	1,837,115	2,538,040	3,229,000	4,119,000	5,049,000	—	4,905,000	6,319,000
EBITDA Margin %	33.8	18.4	17.7	26.6	31.4	34.8	35.8	36.9	39.2	—	42.0	41.9
Operating Income (USD K)	1,177,274	449,220	432,568	903,095	1,493,602	2,168,095	2,840,000	3,268,000	4,237,000	—	4,301,000	5,516,000
Operating Margin %	26.7	11.1	10.4	18.8	25.5	29.7	31.5	29.3	32.9	—	36.8	36.5
Net Income (USD K)	832,775	289,985	268,395	629,551	1,168,782	1,693,954	2,591,000	2,951,000	5,260,000	—	3,589,000	5,839,000
Net Margin %	18.9	7.1	6.5	13.1	20.0	23.2	28.7	26.4	40.9	—	30.7	38.7
Diluted Shares Outstanding (K)	502,721	513,476	508,480	507,164	504,299	501,123	498,000	492,000	485,000	—	481,000	481,250
Diluted Earnings Per Share (USD)	1.66	0.56	0.53	1.24	2.32	3.38	5.20	6.00	10.83	—	7.45	12.08
Dividends Per Share (USD)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00

Valuation as of 31 Dec 2021

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Recent Qtr	TTM
Price/Sales	4.3	7.6	8.9	9.9	8.9	12.0	12.5	14.5	18.8	17.3	17.3	17.3
Price/Earnings	22.7	106.4	144.9	75.8	44.4	51.8	43.5	54.9	46.1	56.5	56.5	56.5
Price/Cash Flow	12.6	26.7	28.7	32.5	23.6	30.1	27.9	36.6	42.4	37.9	37.9	37.9
Dividend Yield %	—	—	—	—	—	—	—	—	—	—	—	—
Price/Book	2.8	4.4	5.4	6.7	6.9	10.2	11.8	15.1	18.1	18.2	18.2	18.2
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 31 Aug 2021

Fiscal Year, ends 30 Nov	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD	TTM
ROA %	8.8	2.8	2.5	5.6	9.6	12.4	15.6	14.9	23.4	—	—	24.1
ROE %	13.4	4.3	4.0	9.1	16.2	21.3	29.1	29.7	44.2	—	—	44.7
ROIC %	11.2	4.0	3.6	7.9	13.0	17.3	21.7	19.4	32.6	—	—	33.3
Asset Turnover	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.6	—	—	0.6

Financial Leverage

Fiscal Year, ends 30 Nov	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Recent Qtr	TTM
Debt/Capital %	18.3	18.2	11.9	21.4	20.3	18.2	30.6	8.6	25.8	—	24.1	—
Equity/Assets %	66.4	64.8	62.8	59.7	58.5	58.2	49.9	50.7	54.6	—	55.1	—
Total Debt/EBITDA	1.0	2.0	2.1	1.5	1.0	0.7	1.3	1.0	0.9	—	1.0	—
EBITDA/Interest Expense	22.0	11.0	12.3	19.9	26.1	34.1	36.3	26.2	43.5	Infinite	57.7	56.4

Morningstar Analyst Historical/Forecast Summary as of 16 Dec 2021

Financials	Estimates					Forward Valuation	Estimates					
	2020	2021	2022	2023	2024		2020	2021	2022	2023	2024	
Fiscal Year, ends 30 Nov												
Revenue (USD Bil)	11	13	16	18	21	Price/Sales	13.4	17.8	15.8	14.0	12.1	
Revenue Growth %	23.7	15.2	22.7	13.6	15.4	Price/Earnings	60.8	66.3	42.2	37.9	32.0	
EBITDA (USD Mil)	4,681	5,903	7,659	8,130	9,089	Price/Cash Flow	36.5	43.2	36.3	32.2	32.3	
EBITDA Margin %	41.9	45.9	48.5	45.4	43.9	Dividend Yield %	—	—	—	—	—	
Operating Income (USD Mil)	3,269	4,237	5,802	6,537	7,357	Price/Book	—	—	—	—	—	
Operating Margin %	29.3	32.9	36.8	36.5	35.6	EV/EBITDA	32.0	38.7	32.5	30.6	27.4	
Net Income (USD Mil)	3,869	4,903	6,003	6,630	7,744							
Net Margin %	34.6	38.1	38.0	37.0	37.4							
Diluted Shares Outstanding (Mil)	492	486	481	477	472							
Diluted Earnings Per Share(USD)	7.87	10.10	12.47	13.89	16.42							
Dividends Per Share(USD)	0.00	0.00	0.00	0.00	0.00							

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, in-depth 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 short-term market-price movements), but we believe these negatives are mitigated by deep analysis and our long-term 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 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 economic profits as returns on invested capital (or ROIC) over and above our es-

timate 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 mid-cycle 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 working capital 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



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.

	Margin of Safety	
Qualitative Analysis	★★★★★ Rating	★ Rating
Uncertainty Ratings	★★★★★ 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

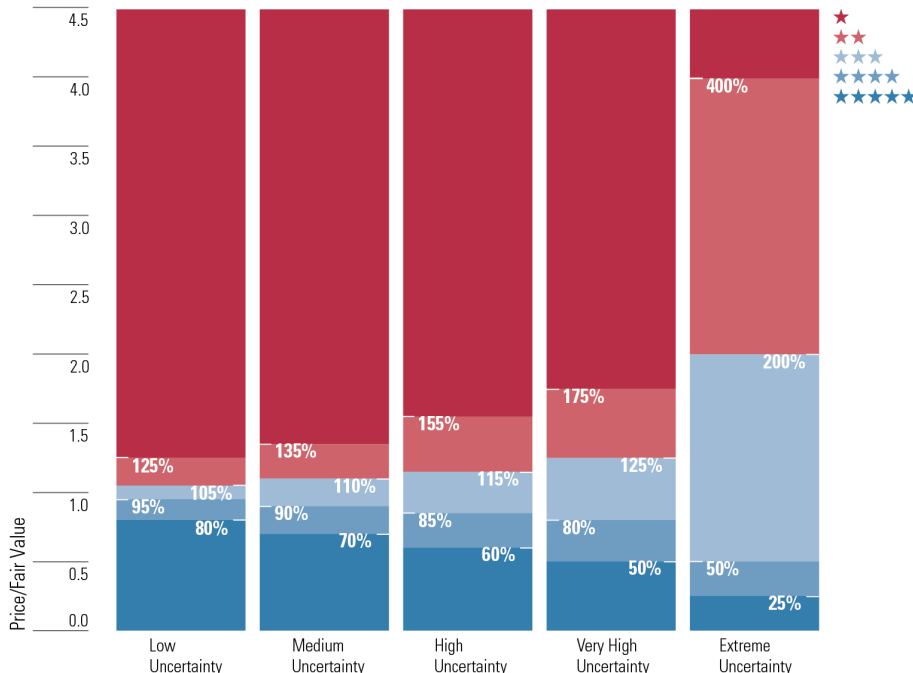
The market prices used in this analysis and noted in the report come from exchange on which the stock is listed which we believe is a reliable source.

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.

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.

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.

General Disclosure

Unless otherwise provided in a separate agreement, recipients accessing this report may only use it in the country in which the Morningstar distributor is based. Unless stated otherwise, the original distributor of the report is Morningstar Research Services LLC, a U.S.A. domiciled financial institution.

This report is for informational purposes only and has no regard to the specific investment objectives, financial situation or particular needs of any specific recipient. This publication is intended to provide information to assist institutional investors in making their own investment decisions, not to provide investment advice to any specific investor. Therefore, investments discussed and recommendations made herein may not be suitable for all investors: recipients must exercise their own independent judgment as to the suitability of such investments and recommendations in the light of their own investment objectives, experience, taxation status and financial position.

The information, data, analyses and opinions presented herein are not warranted to be accurate, correct, complete or timely. Unless otherwise provided in a separate agreement, neither Morningstar, Inc. or the Equity Research Group represents that the report contents meet all of the presentation and/or disclosure standards applicable in the jurisdiction the recipient is located.

Except as otherwise required by law or provided for in a separate agreement, the analyst, Morningstar, Inc. and the Equity Research Group and their officers, directors and employees shall not be responsible or liable for any trading decisions, damages or other losses resulting from, or related to, the information, data, analyses or opinions within the report. The Equity Research Group encourages recipients of this report to read all relevant issue documents (e.g., prospectus) pertaining to the security concerned, including without limitation, information relevant to its investment objectives, risks, and costs before making an investment decision and when deemed necessary, to seek the advice of a legal, tax, and/or accounting professional.

The Report and its contents are not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Morningstar, Inc. or its affiliates to any registration or licensing requirements in such jurisdiction.

Where this report is made available in a language other than English and in the case of inconsistencies between the English and translated versions of the report, the English version will control and supersede any ambiguities associated with any part or section of a report that has been issued in a foreign language. Neither the analyst, Morningstar, Inc., or the Equity Research Group guarantees the accuracy of the translations.

This report may be distributed in certain localities, countries and/or jurisdictions ("Territories") by independent third parties or independent intermediaries and/or distributors ("Distributors"). Such Distributors are not acting as agents or representatives of the analyst, Morningstar, Inc. or the Equity Research Group. In Territories where a Distributor distributes our report, the Distributor is solely responsible for complying with all applicable regulations, laws, rules, circulars, codes and guidelines established by local and/or regional regulatory bodies, including laws in connection with the distribution third-party research reports.

Conflicts of Interest

- ▶ No interests are held by the analyst with respect to the security subject of this investment research report.

Research Methodology for Valuing Companies

- ▶ Morningstar, Inc. may hold a long position in the security subject of this investment research report that exceeds 0.5% of the total issued share capital of the security. To determine if such is the case, please click <http://msi.morningstar.com> and <http://mdi.morningstar.com>.
- ▶ Analysts' compensation is derived from Morningstar, Inc.'s overall earnings and consists of salary, bonus and in some cases restricted stock.
- ▶ Neither Morningstar, Inc. or the Equity Research Group receives commissions for providing research nor do they charge companies to be rated.
- ▶ Neither Morningstar, Inc. or the Equity Research Group is a market maker or a liquidity provider of the security noted within this report.
- ▶ Neither Morningstar, Inc. or the Equity Research Group has been a lead manager or co-lead manager over the previous 12-months of any publicly disclosed offer of financial instruments of the issuer.
- ▶ Morningstar, Inc.'s investment management group does have arrangements with financial institutions to provide portfolio management/investment advice some of which an analyst may issue investment research reports on. However, analysts do not have authority over Morningstar's investment management group's business arrangements nor allow employees from the investment management group to participate or influence the analysis or opinion prepared by them.
- ▶ Morningstar, Inc. is a publicly traded company (Ticker Symbol: MORN) and thus a financial institution the security of which is the subject of this report may own more than 5% of Morningstar, Inc.'s total outstanding shares. Please access Morningstar, Inc.'s proxy statement, "Security Ownership of Certain Beneficial Owners and Management" section <https://shareholders.morningstar.com/investor-relations/financials/sec-filings/default.aspx>
- ▶ Morningstar, Inc. may provide the product issuer or its related entities with services or products for a fee and on an arms' length basis including software products and licenses, research and consulting services, data services, licenses to republish our ratings and research in their promotional material, event sponsorship and website advertising.

Further information on Morningstar, Inc.'s conflict of interest policies is available from <https://shareholders.morningstar.com>. Also, please note analysts are subject to the CFA Institute's Code of Ethics and Standards of Professional Conduct.

For a list of securities which the Equity Research Group currently covers and provides written analysis on please contact your local Morningstar office. In addition, for historical analysis of securities covered, including their fair value estimate, please contact your local office.

For Recipients in Australia: This Report has been issued

and distributed in Australia by Morningstar Australasia Pty Ltd (ABN: 95 090 665 544; ASFL: 240892). Morningstar Australasia Pty Ltd is the provider of the general advice ('the Service') and takes responsibility for the production of this report. The Service is provided through the research of investment products.

To the extent the Report contains general advice it has been prepared without reference to an investor's objectives, financial situation or needs. Investors should consider the advice in light of these matters and, if applicable, the relevant Product Disclosure Statement before making any decision to invest. Refer to our Financial Services Guide (FSG) for more information at <http://www.morningstar.com.au/fsg.pdf>.

For Recipients in Hong Kong: The Report is distributed by Morningstar Investment Management Asia Limited, which is regulated by the Hong Kong Securities and Futures Commission to provide services to professional investors only. Neither Morningstar Investment Management Asia Limited, nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information unless expressly agreed to by Morningstar Investment Management Asia Limited. For enquiries regarding this research, please contact a Morningstar Investment Management Asia Limited Licensed Representative at <https://shareholders.morningstar.com>.

For recipients in India: This Investment Research is issued by Morningstar Investment Adviser India Private Limited. Morningstar Investment Adviser India Private Limited is registered with the Securities and Exchange Board of India (Registration number INA000001357) and provides investment advice and research. Morningstar Investment Adviser India Private Limited has not been the subject of any disciplinary action by SEBI or any other legal/regulatory body. Morningstar Investment Adviser India Private Limited is a wholly owned subsidiary of Morningstar Investment Management LLC. In India, Morningstar Investment Adviser India Private Limited has one associate, Morningstar India Private Limited, which provides data related services, financial data analysis and software development. The Research Analyst has not served as an officer, director or employee of the fund company within the last 12 months, nor has it or its associates engaged in market making activity for the fund company.

*The Conflicts of Interest disclosure above also applies to relatives and associates of Manager Research Analysts in India # The Conflicts of Interest disclosure above also applies to associates of Manager Research Analysts in India. The terms and conditions on which Morningstar Investment Adviser India Private Limited offers Investment Research to clients, varies from client to client, and are detailed in the respective client agreement.

For recipients in Japan: The Report is distributed by Ibbotson Associates Japan, Inc., which is regulated by Financial Services Agency. Neither Ibbotson Associates Japan, Inc., nor its representatives, are acting or will be deemed to be acting as an investment professional to any recipients of this information.

For recipients in Singapore: For Institutional Investor audiences only. Recipients of this report should contact their financial professional in Singapore in relation to this report. Morningstar, Inc., and its affiliates, relies on certain exemptions (Financial Advisers Regulations, Section 32B and 32C) to provide its investment research to recipients in Singapore.