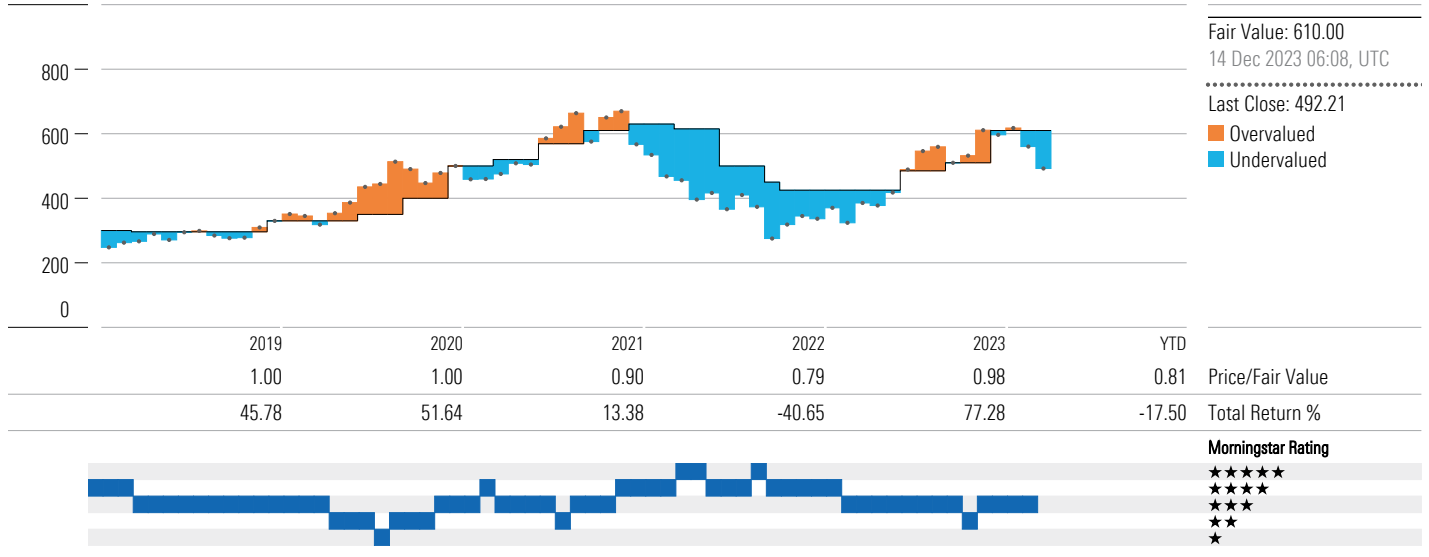


Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

Last Price 492.21 USD 15 Mar 2024	Fair Value Estimate 610.00 USD 14 Dec 2023 06:08, UTC	Price/FVE 0.81	Market Cap 258.15 USD Bil 14 Mar 2024	Economic Moat™ Wide	Equity Style Box Large Growth	Uncertainty High	Capital Allocation Exemplary	ESG Risk Rating Assessment¹ 6 Mar 2024 06:00, UTC
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Price vs. Fair Value



Total Return % as of 15 Mar 2024. Last Close as of 15 Mar 2024. Fair Value as of 14 Dec 2023 06:08, UTC.

Contents

- Analyst Note (15 Mar 2024)
- Business Description
- Business Strategy & Outlook (14 Dec 2023)
- Bulls Say / Bears Say (18 Dec 2023)
- Economic Moat (13 Dec 2023)
- Fair Value and Profit Drivers (14 Dec 2023)
- Risk and Uncertainty (13 Dec 2023)
- Capital Allocation (14 Dec 2023)
- Analyst Notes Archive
- Financials
- ESG Risk
- Appendix
- Research Methodology for Valuing Companies

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

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

Adobe Earnings: Guidance Is Needlessly Unclear, but We Believe the Big Picture Is Largely Unchanged

Analyst Note Dan Romanoff, CPA, Senior Equity Analyst, 15 Mar 2024

We are maintaining our fair value estimate of \$610 per share after Adobe reported good first-quarter results, but offered perplexing guidance for the second quarter that is ultimately slightly disappointing. The problem with guidance is threefold in our opinion. First, management refused to simply reiterate its full-year outlook for net new annual recurring revenue, which it repeatedly said it "felt really good" about. Second, it implies the second half of the year will be even more back-end-loaded. Third, multiple moving parts made the outlook overly confusing. We think these factors are driving a steep after-hours selloff. However, given recent pricing actions that should roll out in the rest of the world, pending important product launches, and rapid generative artificial intelligence adoption, we are not making material changes to our model and think shares are back in the "attractive" category.

Revenue performance was solid and better than anticipated, with notable strength in digital media. The company's strategy of creating a broad demand funnel at the top and driving usage to help convert users seems to be working. First-quarter revenue grew 12% year over year in constant currency (11% as reported) to \$5.18 billion, exceeding the top end of guidance at \$5.15 billion. Digital media grew 12% year over year as reported and effectively drove the vast majority of upside in the quarter relative to our model, while digital experience grew 10%. Within digital media, we see Creative Cloud and Acrobat doing well this quarter, with better subscriber growth and good consumption within Firefly for enterprise customers in creative, and strong mobile and Acrobat Sign performance. Many of these

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Sector Technology	Industry Software - Infrastructure
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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).

elements were present in last quarter's solid results.

Profitability remains impressive, which is consistent with our long-term model, and therefore changes to our margin assumptions were minimal, even as we modestly lowered our near-term revenue estimates.

Business Strategy & Outlook Dan Romanoff, CPA, Senior Equity Analyst, 14 Dec 2023

Adobe has come to dominate in content creation software with its iconic Photoshop and Illustrator solutions, both now part of the broader Creative Cloud. 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 December 2021 launch of Adobe Express helps further broaden the company's funnel, as it incorporates popular features of the full Creative Cloud but comes in lower cost and free versions. The 2023 introduction of Firefly marks an important artificial intelligence solution that should also attract new users. We think Adobe is properly focusing on bringing new users under its umbrella and believe that converting these users will become more important over time.

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, Marketo, and Workfront, 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 \$2.8 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 well in excess of \$200 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.

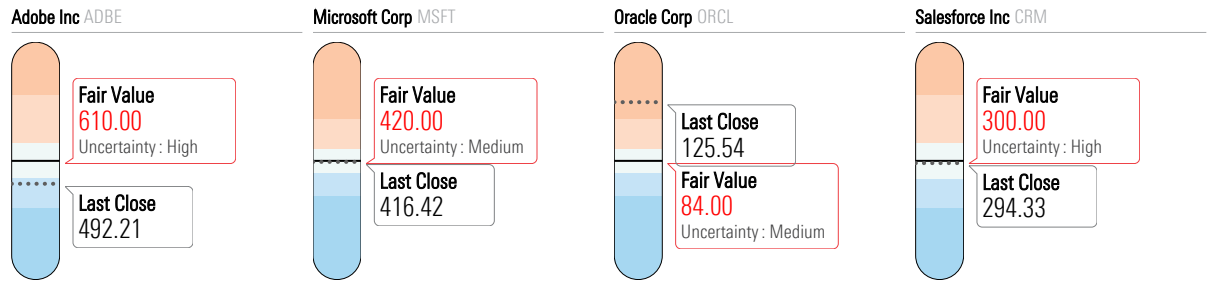
Bulls Say Dan Romanoff, CPA, Senior Equity Analyst, 18 Dec 2023

- ▶ 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

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Competitors



	Adobe Inc ADBE	Microsoft Corp MSFT	Oracle Corp ORCL	Salesforce Inc CRM
Economic Moat	Wide	Wide	Narrow	Wide
Currency	USD	USD	USD	USD
Fair Value	610.00 14 Dec 2023 06:08, UTC	420.00 31 Jan 2024 04:55, UTC	84.00 16 Jan 2024 16:33, UTC	300.00 29 Feb 2024 14:12, UTC
1-Star Price	945.50	567.00	113.40	465.00
5-Star Price	366.00	294.00	58.80	180.00
Assessment	Fairly Valued 14 Mar 2024	Fairly Valued 15 Mar 2024	Significantly Overvalued 14 Mar 2024	Fairly Valued 14 Mar 2024
Morningstar Rating	★★★★ 15 Mar 2024 21:21, UTC	★★★ 15 Mar 2024 21:21, UTC	★ 15 Mar 2024 21:21, UTC	★★★★ 15 Mar 2024 21:21, UTC
Analyst	Dan Romanoff, Senior Equity Analyst	Dan Romanoff, Senior Equity Analyst	Julie Bhusal Sharma, Equity Analyst	Dan Romanoff, Senior Equity Analyst
Capital Allocation	Exemplary	Exemplary	Poor	Standard
Price/Fair Value	0.81	0.99	1.49	0.98
Price/Sales	13.49	13.95	6.73	8.56
Price/Book	15.63	13.26	61.36	4.93
Price/Earning	48.26	38.45	33.12	72.22
Dividend Yield	—	0.67%	1.27%	0.13%
Market Cap	258.15 Bil	3,159.57 Bil	345.02 Bil	294.22 Bil
52-Week Range	328.17 — 638.25	259.21 — 427.82	82.08 — 129.37	178.21 — 318.72
Investment Style	Large Growth	Large Growth	Large Core	Large Growth

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, 18 Dec 2023

- ▶ 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 concerns that Adobe may overpay for increasingly large deals.

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Economic Moat Dan Romanoff, CPA, Senior Equity Analyst, 13 Dec 2023

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 represents approximately 70% to 75% of revenue. This segment contains Creative Cloud, which is nearly 50% of revenue, and Document Cloud, which is approximately 10% of revenue. While both product groups generate strong revenue growth, growth in Creative Cloud is materially higher. Creative Cloud is composed of the iconic products Photoshop, Premiere, Illustrator, InDesign, After Effects, Fireworks, XD, and Dreamweaver, among others, and a variety of mobile versions of these products and additional discrete mobile solutions. 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. More recently, Adobe acquired Allegorithmic for 3D texturing, Workfront for workflow management, and Frame.io for video workflow. Over the years, Photoshop, Illustrator, Premiere, 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 within an entire industry that has standardized around it. Similarly, it helps ensure that when Adobe releases or acquires a related new solution it too becomes widely adopted.

Creative Cloud also benefits from a network effect in our view. By virtue of the widespread penetration of Creative Cloud, creative professionals have significant incentive to become well versed in the

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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 represents approximately 25% of revenue. 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.

We applaud Adobe's vision and bold foray into the digital marketing space. In our view, marketing

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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.

Fair Value and Profit Drivers Dan Romanoff, CPA, Senior Equity Analyst, 14 Dec 2023

Our fair value estimate for Adobe is \$610 per share, which implies a fiscal 2024 enterprise value/sales multiple of 13 times, and an adjusted P/E multiple of 34 times.

We model a five-year revenue CAGR of approximately 12%. We foresee solid growth in both digital media and digital experience even as both steadily slow over time. Digital experience should benefit both from 2023 price increases that should filter in over the course of several years and increasing penetration into an enormous 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

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upselling existing users to higher price point products and cross selling acquired technologies, such as Workfront and Frame.io. 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, which were 46% in fiscal 2023, to expand modestly on an annual basis given increased scale. Management continues to talk about pushing margins higher over time but given the company's margins are already right near the top of the software group, we think expansion is likely but will be more incremental from here.

Risk and Uncertainty Dan Romanoff, CPA, Senior Equity Analyst, 13 Dec 2023

We assign Adobe a Morningstar Uncertainty Rating of High. 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.

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, 14 Dec 2023

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

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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 material net cash position with gross leverage under one times trailing EBITDA. Adobe's capital deployment strategy centers around re-investing in the business and making generally small tuck-in acquisitions. 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.

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 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, Narayen 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, Narayen has been continued to shrink the share count, and

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is likely to continue in this regard in our view.

Analyst Notes Archive

Adobe: Termination of Figma Agreement Does Not Change Adobe's Leadership Position Dan Romanoff, CPA, Senior Equity Analyst, 18 Dec 2023

After a 15-month saga of claims and counterclaims with relevant oversight bodies, Adobe and Figma have agreed to terminate their \$20 billion merger agreement. We have consistently viewed the acquisition as strategically strong and financially challenging, so our reaction to the news is similarly mixed. We now expect Adobe to invest resources and take the time to improve its XD solution and introduce key functionality throughout its portfolio, mainly to bring its applications to the web and introduce the ability to have multiple users simultaneously editing a single work product. Adobe's development team is excellent, so we view this as a matter of time without material margin pressure. From a financial perspective, we think investors will be pleased that Adobe will not be issuing approximately \$10 billion in new shares and utilizing \$10 billion in cash that could otherwise be used to buy back shares. There is no Figma impact contemplated in our model, so no changes are required. Our fair value estimate remains \$610 per share, leaving the stock fairly valued, in our view.

While we do not believe the termination of the Figma deal has a near-term impact on Adobe's wide moat, it does create a nick in the company's armor. Therefore, we think Adobe has some wood to chop from a software development and feature addition perspective, as Figma usage greatly outpaces Adobe XD usage. We note XD is one small product within the firm's industry-leading (and industry defining) creative cloud. Even if the deal would have closed, Adobe would still have needed time to port web-based and multiple editor features from Figma to the broader portfolio. Over the last 25 years, we think the company has proven it is up to the task. Lastly, we do not view the \$1 billion breakup fee as material in the context of Adobe's cash hoard of \$7.8 billion and the company's \$272 billion market capitalization.

Adobe Earnings: Good Period With Soft 2024 Guidance That Is Likely Just Conservative Dan Romanoff, CPA, Senior Equity Analyst, 14 Dec 2023

Wide-moat Adobe reported fourth-quarter results, including revenue and non-GAAP EPS that exceeded both the top end of guidance and our expectations. On the surface, the outlook for fiscal 2024 is slightly below Street expectations. We attribute this to both conservatism and an imperfect understanding of prior guidance around when the impact of 2023 pricing increases will be felt, which skews more to 2025 than expected. We modestly lowered our near-term estimates based on guidance, while also modestly raising our medium-term growth assumptions, and advanced our model for the year-end. In turn, we increased our fair value estimate to \$610 from \$510 previously. Shares are selling off in the aftermarket, which we assume is based on the outlook and not surprising given the strong run the stock has had. We

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view shares as approximately fairly valued.

Revenue performance was solid and better than we expected, which we attribute to typically conservative guidance. Fourth-quarter revenue grew 13% year over year in constant currency (12% as reported) to \$5.05 billion, exceeding the top end of guidance at \$5.03 billion. Digital media grew 11% year over year as reported and effectively drove all of the upside in the quarter relative to our model, while digital experience grew 10%. Within digital media, we see both Creative Cloud and Acrobat as having strong quarters, with better subscriber growth and good consumption within Firefly for enterprise customers in creative, and strong mobile and Adobe Sign performance for Acrobat.

Profitability remains strong and is in line with our long-term model. Non-GAAP operating margin was 46.4%, compared with 44.7% a year ago. We have long been impressed with management's ability to drive margins, even in the face of the high investment levels needed to create and train foundational artificial intelligence models. We think margins can grind higher over time but will be limited by Adobe's already stellar profitability levels.

Adobe: New AI Models Punctuate Analyst Day Featuring a Dizzying Array of Product Announcements

Dan Romanoff, CPA, Senior Equity Analyst, 11 Oct 2023

Wide-moat Adobe hosted its analyst day, which focused on innovation. With no new financial disclosures or an updated framework for guidance, we are maintaining our \$510 per share fair value estimate and see shares as fairly valued after strong performance throughout 2023. Still, the company announced a bevy of new products and general releases of previously announced solutions, as well as previewing some pending innovations. From a product standpoint, we came away impressed. We think the company's leadership position in serving the creative markets remains intact and we are incrementally confident in our long-term forecast.

Adobe announced new generative AI models, including Firefly Image 2, Firefly Vector, and Firefly Design. These models are all based on Adobe's pillar of trust for digital rights, which continue to believe will be a magnet for enterprise users. Firefly Image 2 represents a leap forward in capabilities and resolution from the original version, which was just released in March 2023. Firefly Vector, as the name implies, is based on vector graphics and is appropriate for Adobe Illustrator, which we think will be a welcome addition to the portfolio. The company also previewed some pending generative AI models, including both video and audio which, in our opinion, were beyond impressive.

Adobe also announced the launch of more than 100 new features throughout its portfolio, many centering around generative AI. Firefly has also now been incorporated into Adobe Express. We think the addition of next-generation AI capabilities further cements the company's leadership position.

The closest Adobe came to a financial update was to note it is investing in AI capabilities and product innovation, and that management believes the company can grow through adding new users, and

Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
492.21 USD 15 Mar 2024	610.00 USD 14 Dec 2023 06:08, UTC	0.81	258.15 USD Bil 14 Mar 2024	Wide	Large Growth	High	Exemplary	 6 Mar 2024 06:00, UTC

expanding relationships through upselling and cross-selling, while still increasing operating margins. Given management's track record, we are on board with their assessment.

Adobe Earnings: Creative Cloud Drives Strength While Firefly AI Begins To Produce Revenue Dan Romanoff, CPA, Senior Equity Analyst, 15 Sep 2023

Wide-moat Adobe reported good third-quarter results, including revenue and non-GAAP EPS that exceeded the top end of guidance and our expectations along with it. We characterize management's fourth-quarter guidance as in line with investor expectations, which given recent strength and with Firefly AI now generating revenue, could be interpreted as a slight disappointment. We think this mentality mainly misses the mark given such a short-term focus. Further, management will provide fiscal 2024 targets within its fourth-quarter results in December so in-line guidance for one quarter matters less to us here. To begin to accommodate recently announced price increases in the area of 10% for various Creative Cloud and single app instances, we are modestly raising our growth estimates over the next several years. Our fair value estimate therefore increases to \$510, from \$485 previously, although after a strong run, we see shares as fairly valued.

Adobe is juggling many balls at present, with the recent general availability of Firefly along with several other solutions, price increases, the looming Figma acquisition, and other changes on the pricing and packaging front. We see these as uniformly positive for the company, and we expect the company to remain the clear leader in the creative market as a result. We will be looking for more details on innovation, bundling, and growth opportunities at Adobe MAX, Adobe Summit, and fourth-quarter results, which are all on the horizon. Net new creative ARR was \$464 million in the quarter, compared with guidance of \$410 million.

Third-quarter revenue grew 13% year over year in constant currency (10% as reported) to \$4.89 billion, exceeding the top end of guidance at \$4.87 billion. Digital media grew 11% year over year as reported and effectively drove all of the upside in the quarter relative to our model, while digital experience grew 10%. Within digital media, we see both Creative Cloud and Acrobat as having strong quarters.

Adobe Earnings: Strong Results, Uptick in Guidance, and Clearer AI Roadmap Drive Estimates Higher Dan Romanoff, CPA, Senior Equity Analyst, 16 Jun 2023

Wide-moat Adobe reported an excellent second quarter, including revenue and non-GAAP EPS that exceeded our expectations as well as the top end of guidance. The firm also raised its full-year outlook for total revenue and non-GAAP EPS, as management anticipates an uptick in both revenue and annual recurring revenue, or ARR, in both Creative and Document Cloud from previous estimates. The impressive results, coupled with our belief that management is reinforcing its leadership position with Firefly AI, lead to slight increases in our assumption for both margins and revenue over the intermediate term, which result in our fair value estimate increasing to \$485 per share, from \$425 previously. Despite

Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
492.21 USD 15 Mar 2024	610.00 USD 14 Dec 2023 06:08, UTC	0.81	258.15 USD Bil 14 Mar 2024	Wide	Large Growth	High	Exemplary	 6 Mar 2024 06:00, UTC

this increase, we view shares as fairly valued.

Second-quarter revenue grew 13% year over year in constant currency (10% as reported) to \$4.82 billion, exceeding the top end of guidance at \$4.78 billion. Strength was broad-based in segments and geographies with digital experience revenue, or DX, growing 12% year over year as demand remains high for the Experience platform and native applications. The digital media segment remains robust as well, as segment revenue grew 10% year over year as reported.

Profitability was again in line with our long-term model, with non-GAAP operating margin coming in at 45.3%, compared with 45.0% a year ago, and 45.8% last quarter. We have long been impressed with management's ability to drive margins, even in the face of high investment levels.

Unsurprisingly, artificial intelligence was the focus of the call, building off Adobe's recent Summit announcements. Firefly in particular drew attention, with management focusing on the potential for seamless integration into existing products with integration announcements for Photoshop, Illustrator, and Express already made. Since the Firefly Beta was launched in March, users have created over half a billion generations with creation from Photoshop being 80 times higher than Adobe had projected.

Adobe Announces Slew of Innovations and Goes All-in on Generative AI at Summit; FVE Remains \$425 Dan Romanoff, CPA, Senior Equity Analyst, 21 Mar 2023

Adobe hosted its Summit customer experience event accompanied by a tome of press releases and capped it off with a Q&A session for the investor community. In broad strokes, the firm announced an array of innovations to both the Adobe Experience Manager and Adobe Experience Cloud, highlighted by its new Firefly family of generative artificial intelligence, or AI, models. After viewing some short demos of product capabilities, we came away impressed and believe that wide-moat Adobe has widened its lead in both content creation and customer experience. Unfortunately for Adobe, we think some of the other announcements from today's event will be overshadowed by Firefly. We are maintaining our fair value estimate of \$425 per share.

In connection with the event, Adobe released its beta version of its first Firefly models, which we are eager to try out first hand. After years of discussion surrounding AI more broadly, we are surprised by the pace of AI introduction, integration, and proliferation that is finally washing over our software coverage. The ability to describe a piece of graphical content using natural language text, have Firefly create the image, and then being able to further edit it on the fly with either further natural language prompts or by using the myriad of Adobe's tools within Creative Cloud is impressive. These capabilities will obviously allow for a step-function in user efficiency. Pricing and general availability information are forthcoming for Firefly, but the possibilities skew our bias positively from a financial perspective.

Taking AI-generated content and being able to move it through an automated workflow using additional AI capabilities throughout Adobe's portfolio is also a significant development that incorporates a variety

Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

Last Price	Fair Value Estimate	Price/FVE	Market Cap	Economic Moat™	Equity Style Box	Uncertainty	Capital Allocation	ESG Risk Rating Assessment ¹
492.21 USD 15 Mar 2024	610.00 USD 14 Dec 2023 06:08, UTC	0.81	258.15 USD Bil 14 Mar 2024	Wide	Large Growth	High	Exemplary	6 Mar 2024 06:00, UTC

of the company’s other announcements from today’s events. For example, using Firefly to create content, and then automatically move from Creative Cloud to the Digital Experience suite to create marketing campaigns. ■■

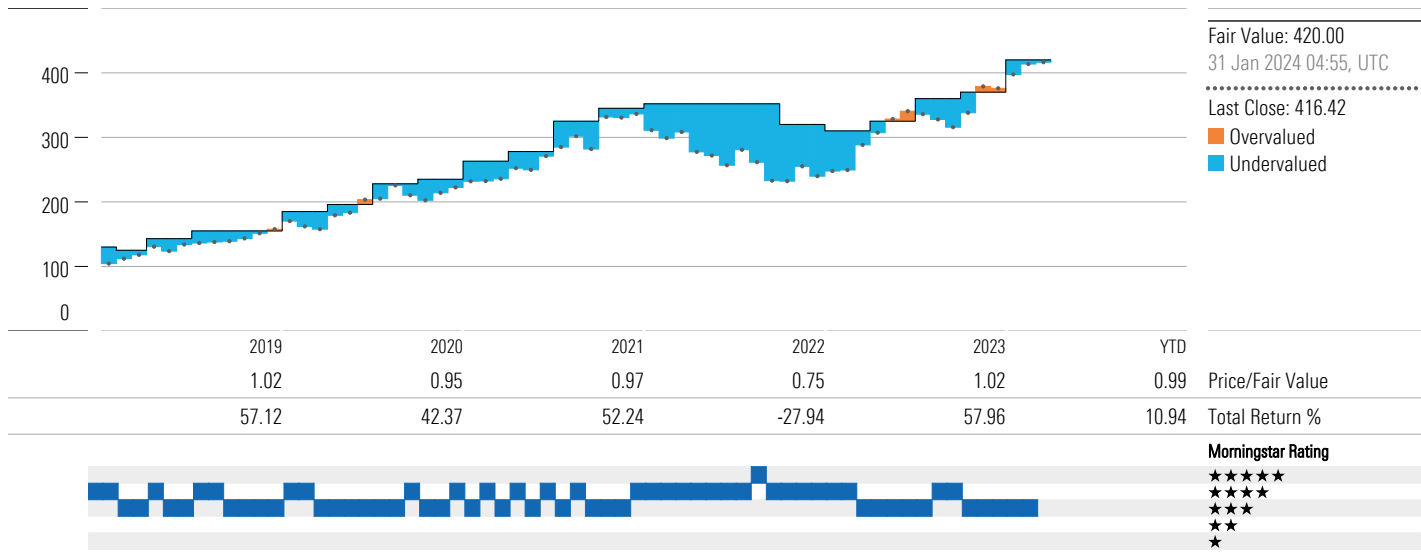
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Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

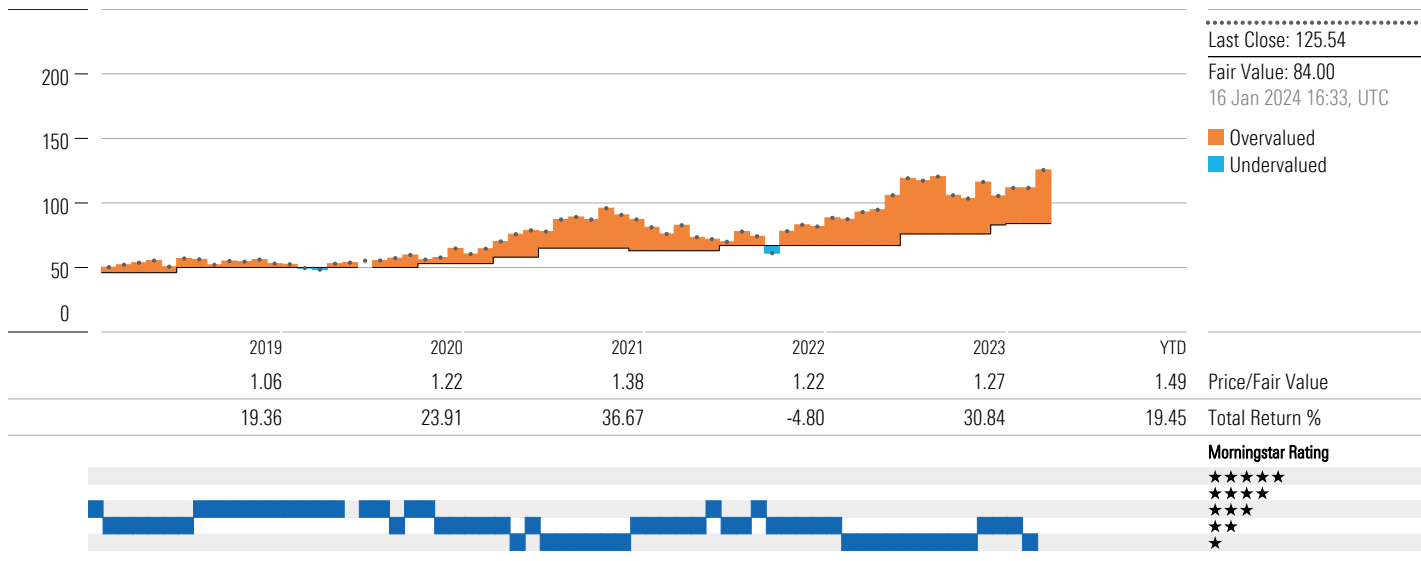
Competitors Price vs. Fair Value

Microsoft Corp MSFT



Total Return % as of 15 Mar 2024. Last Close as of 15 Mar 2024. Fair Value as of 31 Jan 2024 04:55, UTC.

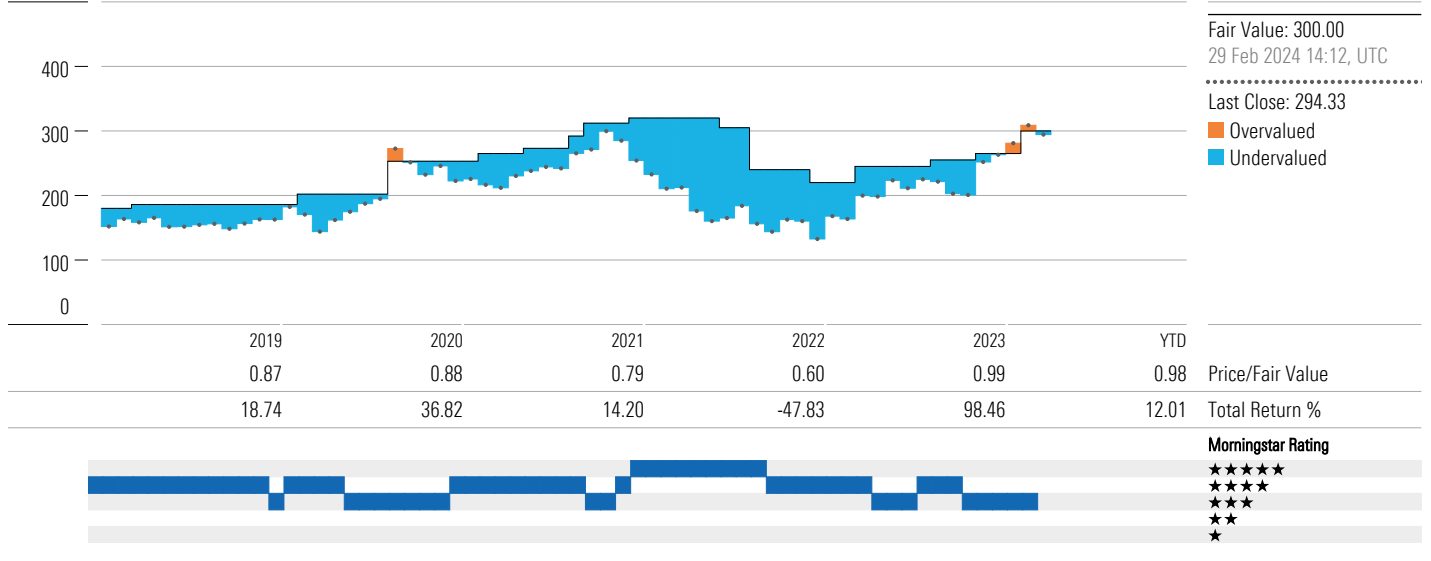
Oracle Corp ORCL



Total Return % as of 15 Mar 2024. Last Close as of 15 Mar 2024. Fair Value as of 16 Jan 2024 16:33, UTC.

Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

Salesforce Inc CRM



Total Return % as of 15 Mar 2024. Last Close as of 15 Mar 2024. Fair Value as of 29 Feb 2024 14:12, UTC.

Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

Last Price 492.21 USD 15 Mar 2024	Fair Value Estimate 610.00 USD 14 Dec 2023 06:08, UTC	Price/FVE 0.81	Market Cap 258.15 USD Bil 14 Mar 2024	Economic Moat™ Wide	Equity Style Box Large Growth	Uncertainty High	Capital Allocation Exemplary	ESG Risk Rating Assessment¹ 6 Mar 2024 06:00, UTC
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Morningstar Historical Summary

Financials as of 30 Nov 2023

Fiscal Year, ends 30 Nov	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	TTM
Revenue (USD Bil)	4.15	4.80	5.85	7.30	9.03	11.17	12.87	15.79	17.61	19.41	19.41	19.41
Revenue Growth %	2.3	15.6	22.1	24.7	23.7	23.7	15.2	22.7	11.5	10.2	10.2	10.2
EBITDA (USD Mil)	735	1,277	1,837	2,538	3,229	4,119	5,049	6,606	6,976	7,784	7,784	7,784
EBITDA Margin %	17.7	26.6	31.4	34.8	35.8	36.9	39.2	41.9	39.6	40.1	40.1	40.1
Operating Income (USD Mil)	433	903	1,494	2,168	2,840	3,268	4,237	5,802	6,098	6,650	6,650	6,650
Operating Margin %	10.4	18.8	25.5	29.7	31.5	29.3	32.9	36.8	34.6	34.3	34.3	34.3
Net Income (USD Mil)	268	630	1,169	1,694	2,591	2,951	5,260	4,822	4,756	5,428	5,428	5,428
Net Margin %	6.5	13.1	20.0	23.2	28.7	26.4	40.9	30.6	27.0	28.0	28.0	28.0
Diluted Shares Outstanding (Mil)	508	507	504	501	498	492	485	481	471	459	459	459
Diluted Earnings Per Share (USD)	0.53	1.24	2.32	3.38	5.20	6.00	10.83	10.02	10.10	11.82	11.82	11.82
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	0.00

Valuation as of 29 Feb 2024

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Recent Qtr	TTM
Price/Sales	8.9	9.9	8.9	12.0	12.5	14.5	18.8	17.3	9.0	14.1	14.1	13.2
Price/Earnings	144.9	75.8	44.4	51.8	43.5	54.9	46.1	56.5	33.3	50.5	50.5	47.4
Price/Cash Flow	28.7	32.5	23.6	30.1	27.9	36.6	42.4	37.7	20.2	37.5	37.5	35.2
Dividend Yield %	—	—	—	—	—	—	—	—	—	—	—	—
Price/Book	5.4	6.7	6.9	10.2	11.8	15.1	18.1	18.2	11.1	16.4	16.4	15.4
EV/EBITDA	46.2	35.0	26.1	32.4	34.4	38.6	47.2	40.6	22.1	34.4	0.0	0.0

Operating Performance / Profitability as of 30 Nov 2023

Fiscal Year, ends 30 Nov	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	YTD	TTM
ROA %	2.5	5.6	9.6	12.4	15.6	14.9	23.4	18.7	17.5	19.1	19.1	19.1
ROE %	4.0	9.1	16.2	21.3	29.1	29.7	44.2	34.4	33.0	35.5	35.5	35.5
ROIC %	3.6	7.9	13.0	17.3	21.7	19.4	32.6	26.2	25.1	27.0	27.0	27.0
Asset Turnover	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7

Financial Leverage

Fiscal Year, ends 30 Nov	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Recent Qtr	TTM
Debt/Capital %	11.9	21.4	20.3	18.2	30.6	8.6	25.8	23.6	22.4	19.5	19.5	—
Equity/Assets %	62.8	59.7	58.5	58.2	49.9	50.7	54.6	54.3	51.7	55.5	55.5	—
Total Debt/EBITDA	2.1	1.5	1.0	0.7	1.3	1.0	0.9	0.7	0.7	0.5	0.5	—
EBITDA/Interest Expense	12.3	19.9	26.1	34.1	36.3	26.2	43.5	58.5	62.3	68.9	68.9	68.9

Morningstar Analyst Historical/Forecast Summary as of 14 Mar 2024

Financials	Estimates					Forward Valuation	Estimates					
	2022	2023	2024	2025	2026		2022	2023	2024	2025	2026	
Fiscal Year, ends 30 Nov 2023												
Revenue (USD Mil)	17,606	19,409	21,425	23,958	26,784	Price/Sales	9.1	14.3	10.4	9.3	8.3	
Revenue Growth %	11.5	10.2	10.4	11.8	11.8	Price/Earnings	25.2	38.0	27.0	24.0	20.7	
EBITDA (USD Mil)	6,954	7,522	7,720	9,772	10,794	Price/Cash Flow	—	—	—	—	—	
EBITDA Margin %	39.5	38.8	36.0	40.8	40.3	Dividend Yield %	—	—	—	—	—	
Operating Income (USD Mil)	6,098	6,650	6,842	8,862	9,857	Price/Book	11.6	17.0	11.7	9.0	7.1	
Operating Margin %	34.6	34.3	31.9	37.0	36.8	EV/EBITDA	22.9	36.5	28.4	22.4	20.3	
Net Income (USD Mil)	6,457	7,377	8,245	9,162	10,564							
Net Margin %	36.7	38.0	38.5	38.2	39.4							
Diluted Shares Outstanding (Mil)	471	459	453	448	444							
Diluted Earnings Per Share(USD)	13.71	16.07	18.22	20.47	23.82							
Dividends Per Share(USD)	0.00	0.00	0.00	0.00	0.00							

Adobe Inc ADBE ★★★★★ 15 Mar 2024 21:21, UTC

Last Price 492.21 USD 15 Mar 2024	Fair Value Estimate 610.00 USD 14 Dec 2023 06:08, UTC	Price/FVE 0.81	Market Cap 258.15 USD Bil 14 Mar 2024	Economic Moat™ Wide	Equity Style Box Large Growth	Uncertainty High	Capital Allocation Exemplary	ESG Risk Rating Assessment¹ 6 Mar 2024 06:00, UTC
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ESG Risk Rating Breakdown

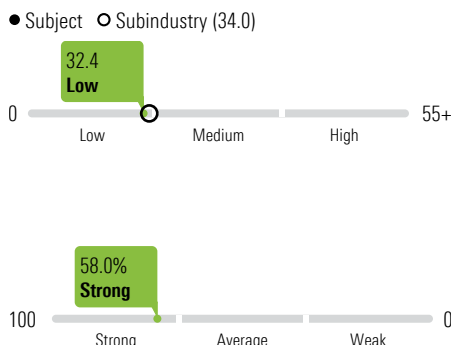
Exposure

Company Exposure ¹	32.4
– Manageable Risk	30.1
Unmanageable Risk²	2.2

Management

Manageable Risk	30.1
– Managed Risk ³	17.5
Management Gap⁴	12.6

Overall Unmanaged Risk 14.9



- ▶ Exposure represents a company’s vulnerability to ESG risks driven by their business model
- ▶ Exposure is assessed at the Subindustry level and then specified at the company level
- ▶ Scoring ranges from 0-55+ with categories of low, medium, and high-risk exposure
- ▶ Management measures a company’s ability to manage ESG risks through its commitments and actions
- ▶ Management assesses a company’s efficiency on ESG programs, practices, and policies
- ▶ Management score ranges from 0-100% showing how much manageable risk a company is managing

ESG Risk Rating



ESG Risk Ratings measure the degree to which a company’s value is impacted by environmental, social, and governance risks, by evaluating the company’s ability to manage the ESG risks it faces.

1. A company’s Exposure to material ESG issues 2. Unmanageable Risk refers to risks that are inherent to a particular business model that cannot be managed by programs or initiatives 3. Managed Risk = Manageable Risk multiplied by a Management score of 58.0% 4. Management Gap assesses risks that are not managed, but are considered manageable 5. ESG Risk Rating Assessment = Overall Unmanaged Risk = Management Gap plus Unmanageable Risk

ESG Risk Rating Assessment⁵



ESG Risk Rating is of Mar 06, 2024. Highest Controversy Level is as of Mar 08, 2024. Sustainalytics Subindustry: Enterprise and Infrastructure Software. Sustainalytics provides Morningstar with company ESG ratings and metrics on a monthly basis and as such, the ratings in Morningstar may not necessarily reflect current Sustainalytics’ scores for the company. For the most up to date rating and more information, please visit: sustainalytics.com/esg-ratings/.

Peer Analysis 06 Mar 2024

Peers are selected from the company’s Sustainalytics-defined Subindustry and are displayed based on the closest market cap values

Company Name	Exposure	Management	ESG Risk Rating
Adobe Inc	32.4 Low	58.0 Strong	14.9 Low
Microsoft Corp	34.1 Low	59.5 Strong	15.2 Low
Salesforce Inc	33.6 Low	59.7 Strong	14.9 Low
Oracle Corp	33.1 Low	61.0 Strong	14.3 Low
Digital Turbine Inc	32.6 Low	41.2 Average	20.3 Medium

Appendix

Historical Morningstar Rating

Adobe Inc ADBE 15 Mar 2024 21:21, UTC

Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	—	—	—	—	—	—	—	—	★★★	★★★	★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★	★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★★	★★★★	★★★★	★★★★★	★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★	★★★★	★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★★	★★★	★★★	★★★	★★	★★★	★★★	★★★	★★★	★★★★	★★★	★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★	★★	★★	★★	★	★★	★★	★★	★★★	★★★	★★★	★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★★

Microsoft Corp MSFT 15 Mar 2024 21:21, UTC

Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	—	—	—	—	—	—	—	—	★★★	★★★	★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★	★★★	★★★★	★★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★★	★★★★	★★★★	★★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★	★★★	★★★	★★★★	★★★	★★★★	★★★	★★★★	★★★	★★★★	★★★	★★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★	★★★	★★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★	★★★	★★★	★★★★	★★★★	★★★	★★★	★★★★	★★★	★★★	★★★★	★★★★

Oracle Corp ORCL 15 Mar 2024 21:21, UTC

Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	—	—	—	—	—	—	—	—	★	★★	★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★	★	★	★	★	★	★	★	★	★	★★	★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★	★★	★★	★★★	★★	★★	★★★	★★	★★	★★	★★	★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★	★	★	★	★	★	★★	★	★★	★★	★★	★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★	★★★★	★★★★	★★	★★★★	★★★★	—	★★★	★★★★	★★★★	★★★★	★★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★★	★★★★	★★★★	★★★★	★★★★	★★	★★	★★	★★	★★	★★	★★★★

Salesforce Inc CRM 15 Mar 2024 21:21, UTC

Dec 2024	Nov 2024	Oct 2024	Sep 2024	Aug 2024	Jul 2024	Jun 2024	May 2024	Apr 2024	Mar 2024	Feb 2024	Jan 2024
—	—	—	—	—	—	—	—	—	★★★	★★★	★★★
Dec 2023	Nov 2023	Oct 2023	Sep 2023	Aug 2023	Jul 2023	Jun 2023	May 2023	Apr 2023	Mar 2023	Feb 2023	Jan 2023
★★★	★★★	★★★★	★★★★	★★★★	★★★	★★★	★★★	★★★★	★★★★	★★★★	★★★★
Dec 2022	Nov 2022	Oct 2022	Sep 2022	Aug 2022	Jul 2022	Jun 2022	May 2022	Apr 2022	Mar 2022	Feb 2022	Jan 2022
★★★★	★★★★	★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
Dec 2021	Nov 2021	Oct 2021	Sep 2021	Aug 2021	Jul 2021	Jun 2021	May 2021	Apr 2021	Mar 2021	Feb 2021	Jan 2021
★★★★	★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★
Dec 2020	Nov 2020	Oct 2020	Sep 2020	Aug 2020	Jul 2020	Jun 2020	May 2020	Apr 2020	Mar 2020	Feb 2020	Jan 2020
★★★	★★★	★★★	★★★	★★★	★★★	★★★	★★★★	★★★★	★★★★	★★★★	★★★
Dec 2019	Nov 2019	Oct 2019	Sep 2019	Aug 2019	Jul 2019	Jun 2019	May 2019	Apr 2019	Mar 2019	Feb 2019	Jan 2019
★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★	★★★★

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 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 re-

turns 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.

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 de-

rive 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 is designed to capture the range of potential outcomes for a company's intrinsic value. This rating is used to assign the margin of safety required before investing, which in turn explicitly drives our stock star rating system. The Uncertainty Rating is aimed at identifying the confidence we should have in assigning a fair value estimate for a given stock.

Our Uncertainty Rating is meant to take into account anything that can increase the potential dispersion of future outcomes for the intrinsic value of a company, and any-

Morningstar Equity Research Star Rating Methodology



Research Methodology for Valuing Companies

thing that can affect our ability to accurately predict these outcomes. The rating begins with a suggested rating produced by a quantitative process based on the trailing 12-month standard deviation of daily stock returns. An analyst overlay is then applied, with analysts using the suggested rating, historical rating data, and their own knowledge of the company to inform them as they make the final Uncertainty Rating decision. Ultimately, the rating decision rests with the analyst. Analysts take into account many characteristics when making their final decision, including cyclical factors, operational and financial factors such as leverage, company-specific events, ESG risks, and anything else that might increase the potential dispersion of future outcomes and our ability to estimate those outcomes.

Our recommended margin of safety—the discount to fair value demanded before we’d recommend buying or selling the stock—widens as our uncertainty of the estimated value of the equity increases. The more uncertain we are about the potential dispersion of outcomes, 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 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

Our uncertainty rating is based on the interquartile range, or the middle 50% of potential outcomes, covering the 25th percentile–75th percentile. This means that when a stock hits 5 stars, we expect there is a 75% chance that the intrinsic value of that stock lies above the current market price. Similarly, when a stock hits 1 star, we expect there is a 75% chance that the intrinsic value of that stock lies below the current market price.

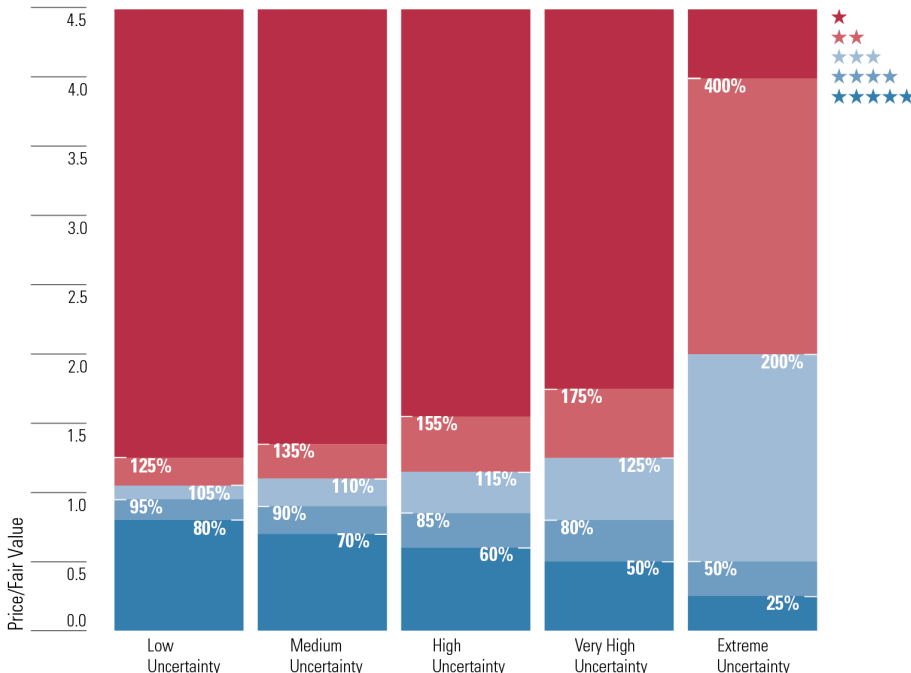
4. Market Price

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

Morningstar Equity Research Star Rating Methodology



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 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 ad-

justed 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 compan-

Research Methodology for Valuing Companies

ies' 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.

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/

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