Research Highlights

A weekly summary of our best ideas and developments in the companies we cover.

Morningstar Equity Research
Oct. 15-19, 2018

Contents

Autonomous Vehicles: Massive Disruption, Massive Opportunity

We think autonomous vehicles will be one of the most dramatic changes to humanity this century. The move to AVs will have many ramifications in and out of the auto industry, as not only will vehicle interiors and design change, but so will the manner in which people use their new free time because they eventually will not have to watch the road. Over the next decade, we see the industry moving toward Level 4 autonomy, in which vehicles operate without a steering wheel or pedals within a geofenced area, most likely in dense city centers. We expect these vehicles will operate as part of fleets managed by ride-hailing firms such as Uber and Lyft, as well as by ride-hailing operations yet to be formed by automakers. We don't think automakers will want consumers buying an AV soon because of liability reasons, and we don't see consumers willing to embrace car-sharing in large volume because of the accelerated depreciation.

AVs are not a trend that will go away in a recession. In our view, there's too much brainpower in the tech and auto industries for AVs not to come to fruition. It's also an area where for once, the auto industry and U.S. regulators both want to bring AVs to market. Regulators want to curb fatalities, while automakers want to monetize AV services such as ride-hailing, deliveries for small businesses, and e-commerce. Also, if the auto industry does not change, we think Silicon Valley will steal the industry's pie, so automakers must adapt or die. The pie in the U.S. alone is too big for automakers to ignore AVs. Sales of automobiles in the U.S., assuming 17 million annual sales at about $34,000 a unit on average, is a nearly $600 billion industry. However, if we assume that in 2030, U.S. passengers will travel about 5.1 trillion miles, with consumers paying $0.25 per mile, then mobility is a $1.3 trillion industry. The latter figure assumes no private vehicle ownership, so it's likely too large for 2030, but this possible market size expansion is one reason AVs are drawing so much interest from tech firms and should be a topic investors understand.

For our auto coverage, the fate of private vehicle ownership is the key factor determining what the industry looks like over the next few decades because in some scenarios the volume contraction of the U.S. fleet is severe. We don't expect private vehicle ownership will go away, especially outside of city centers, but it could change negatively in the latter part of the next decade and beyond in a way that to us suggests automakers taking the lead in AV services, such as GM, will make it through the coming disruption. For 2030 and beyond, as AVs become available to consumers, the AV story could take many forms, perhaps even including governments banning human driving for safety reasons in a Level 5 (full autonomy all the time) AV world. For now, we will stick primarily to our predictions for next decade and stress that this story is in its early stages and very fluid.

- This report is primarily for the U.S., market and focuses on mobility for people rather than cargo, food, or other commercial services. We stress that AVs are an emerging story and that the eventual industry structure, as well as the winners and losers, are far from certain.
- AV ride-hailing could dwarf the current nearly $600 billion U.S. new-vehicle sales market. We estimate that in 2030, if all U.S. passenger miles were taken via ride-hailing at $0.70/mile, mobility would be over a $3.5 trillion market.
- In 2017, 78% of U.S. vehicle miles occurred in urban areas or on interstate highways. This suggests to us that Level 4 AVs could see wide adoption next decade, though probably late in the decade. Eventually, mapping can be expanded to suburbs and perhaps rural areas. People could then drive in rural areas off the interstate or in a Level 5 world, perhaps only drive when they want to.
- We think the fate of private vehicle ownership is by far the most important factor determining the fortune of the auto industry. Vehicle occupancy ratios, the percentage of U.S. households that do not own a vehicle, remaining low despite the emergence of firms like Uber, and commuting data lead us to think it's way too early to proclaim that private ownership is doomed. We do think that people who do not drive frequently, such as residents of dense city cores like Manhattan, are the most likely to give up owning a vehicle in a Level 4 or 5 world.
- We strongly disagree with the notion that autonomy implies that vehicles will be used 24/7. Traffic flow data shows Americans tend to use their vehicles at the same peak times during the week, and capacity utilization is about 50%. For vehicles to be needed all the time, people will have to drastically change their lives so that mobility is needed 24 hours a day nationally, which we do not see as likely because of sleep patterns.
- Our cost-per-mile math implies that AV ride-hailing needs to be available for around $0.25-$0.35/mile for it to be competitive with owning a paid-off mass market vehicle, such as a crossover or compact sedan. GM has talked about offering its AV ride-hailing through its Cruise subsidiary at rates well under $1/mile by 2025, but that does not necessarily mean $0.25/mile.
- AVs are a rare advancement in which regulators and the auto industry are on the same page. Both want AVs, but we think for different reasons. Automakers want to commercialize them and save lives, while regulators want to reduce or eliminate fatalities. There were 37,133 traffic deaths in the U.S. last year, and annual increases for 2015 and 2016 fatalities were the two highest on record since 1966. The National Highway Traffic Safety Administration estimates that 94% of all traffic fatalities are caused by human error. This convergence with regulators and industry is why we feel AVs are not a fad and will happen, though in a geofenced Level 4 form first.
- AVs will need to coexist for a long time with non-AVs, assuming legislation does not require all vehicles on the road to be autonomous. We estimate that turning the entire U.S. fleet could take over 22 years.
- If we are wrong, and private vehicle ownership radically changes, then we think the auto industry is in deep trouble. Exhibit 10 looks at scenarios where the U.S. light-vehicle fleet falls severely, to under 20% of its current size. This could occur only in a Level 5 AV world, and we think that even if this became reality it would not happen until the 2030s. If it did come to be, mass consolidation and bankruptcy of automakers, or at least a massive contraction in their size, would be the likely result, with the largest players such as GM, Toyota, and VW left standing.
- GM remains on our Best Ideas list, and we consider it to be a leading AV player. Validation of that opinion came recently with SoftBank and Honda investing in GM's Cruise business, and *Consumer*

Reports saying Cadillac's Super Cruise had the best automated driver-assist system (beating Tesla's Autopilot). GM plans to start its AV ride-hailing business in 2019, and we think it was smart to concentrate Cruise's testing in a complex environment in San Francisco. The hard learning now will make GM's task of scaling Cruise out to more locations faster and faster each time.

- GM spinning off Cruise seems more likely with a second investor in Honda, but we'd prefer to see Cruise scale up before leaving the support of the parent. GM's board should consider the implications to GM without Cruise, because GM with no AV story is just a dividend stock, in our view, that could have limited appeal to investors as AVs expand throughout the next decade.
- We like GM for reasons other than its leadership in AVs. It still has more economies of scale to realize via a new emerging-markets platform due to start rolling out in 2019. This manufacturing change along with GM Korea's 2018 restructuring should lead to a 2019 profit for the international segment, its first since 2012. We also like that GM started revamping its most profitable vehicles this year with the new-generation full-size pickup. This platform will then be used to revamp the full-size SUV lineup and Cadillac will receive several new crossover and SUV models. We see over 40% upside to GM's stock price.
- We like to think about investing possibilities from AVs outside of our coverage list. Best Idea Intel is one possibility due to its Mobileye acquisition making it a leading AV supplier. Via our PitchBook service, we also see private companies to keep an eye on, such as Connected Signals and Traffic Technology Services. These companies focus on vehicle-to-infrastructure products that will help vehicles talk to stoplights, a critical need to keep traffic moving efficiently in an AV world.
- Other ideas focus on how people will use their free time, which will mean way more mobile device usage, perhaps services not yet invented, such as virtual reality from a vehicle rather than a headset, augmented reality for both recreation and for advertising, and likely increased drug and alcohol consumption.
- RV manufacturer Winnebago could be a winner in AVs. We would not be surprised if far off in the future, the company greatly expanded its sales in urban markets with autonomous motor homes for city commuting. We think that in a Level 4 or Level 5 AV world, commuters will not be content to sit idle or merely listen to headphones, and a motor home could be used as a rolling service provider, such as a bank or salon, so people can make the most efficient use of their commuting time.

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Amazon AU Forcing Traditional Retailers to Up the Ante on E-Commerce

Australian retailers saw little from Amazon AU in fiscal 2018, but we think this will gradually change. We expect Amazon AU's revenue will grow from next to nothing to AUD 24 billion in fiscal 2028, representing a sizable 5% of total Australian retail spending. Amazon AU's strategy is to be the online retailer of choice, not a niche player. We expect Amazon AU to win the hearts and minds of Australian consumers, but not by dropping prices dramatically. Instead, we see the online giant offering industry-leading delivery times and the lowest delivery fees, while also locking in customer loyalty with Prime. Some Australian retailers offer quicker deliveries than Amazon AU, and leading click-and-collect platforms are unlikely to be beaten by a pure online player, but we expect Amazon AU to improve delivery times as the national distribution network expands, capturing market share. Amazon AU Prime already has the cheapest delivery fees, and shipping costs for nonmembers are at the lower end of the range.

Most Retailers Fairly Priced or Overvalued, Except for Turnaround Myer

Amazon AU is likely to hit the hardest those brick-and-mortar retailers operating in consolidated markets and selling product categories with high online penetration. For instance, the department store sector is one of the more challenged and we expect significant store closures as a result of a shrinking addressable market. Hardware and auto parts are among the more fortunate categories, due to high shipping costs relative to product values and the immediacy of need. The market has caught on to this fact but is either overly positive or negative, with too much upside priced in for Wesfarmers and Super Retail Group and too much downside for Myer.

- We don't predict an Australian "retail Armageddon," but rather a slow demise of the traditional retail model based solely on physical stores, especially in categories with relatively high online penetration.
- On average, we forecast gross profit margins to be flat long term, kept in check by fierce competition, while rising e-commerce expenses are offset by rationalizing store networks to stabilize EBIT margins

Some Leading Discretionary Retailers Offer Value, While Consumer Staples Are Fully Priced

Share price performances, including dividends, of discretionary retailers JB Hi-Fi, Harvey Norman, Super Retail Group, and Myer have been disappointing for equity investors, underperforming the broader market S&P/ASX 200 index, since Amazon announced it was setting up shop in Australia in April 2017.

In the lead-up to Amazon's Australian launch in late 2017, only Woolworths Group and Wesfarmers eked out positive returns to Dec. 4, 2017, but still underperformed the index. Woolworths owns discount department store Big W, but earnings are dominated by consumer defensive sales in grocery and liquor. For Wesfarmers, we consider only about half of earnings are generated from discretionary retail.

When Amazon's Australian retailing platform went live on Dec. 5, 2017, its pricing and ranging missed expectations of many market commentators. This perceived weak initial offer triggered a rally in some discretionary retailers, such as Super Retail Group and JB Hi-Fi, both recouping ground lost since April 2017. We agree with the market's implicit view these two retailers can compete with Amazon AU, defending market share while maintaining EBIT margins. However, we are wary of dismissing Amazon's growth potential in Australia based on only the first year of trading performance, ranging, and pricing.

Currently, shares in JB Hi-Fi and Harvey Norman are fairly valued, but offer no margin of safety. In Harvey Norman's case, its portfolio is more diversified by geography and income sources than others, which better protects the company from the intense domestic retailing competition. Conversely, the material bounce in Super Retail Group from lows in March 2018 has left shares screening as overvalued.

Shares in Myer were left behind as the department store chain dealt with slowing sales and woes around the firm's leadership and balance sheet. Yet Myer's past underperformance offers investors upside at current share prices, despite material structural and competitive headwinds over the next decade.

Between December 2017 and October 2018, consumer staple plays Wesfarmers and Woolworths performed best, both ahead of the S&P/ASX 200 index by 8% and 4%, respectively. The Wesfarmers conglomerate was the standout, as its share price rallied following its demerger announcement of supermarket chain Coles. But we view the extent of the appreciation as unjustifiable based on unchanged underlying cash flows we see for the firms post-demerger. We think the market currently overestimates the potential for EBIT margins expanding in the conglomerate's two largest businesses, hardware chain Bunnings and food retailing.

Amazon AU Remains a Huge Concern for Aussie Retailers Despite Making Only Modest Inroads
Amazon's Marketplace and own retail offering have proven limited as the retailing giant has gradually ramped up in Australia, but we don't think this indicates the firm will remain only a niche player. When Amazon started trading, it only operated a relatively small 24,000 square meter fulfillment center in Melbourne. In August 2018, Amazon added its second fulfillment center in Sydney, at some 42,500 square meters, so almost twice as large as the one in Melbourne. In the U.S., Amazon operates more than 120 fulfillment centers, with an average size of about 70,000 square meters. On a per capita basis, this equates to eight fulfillment centers on a population the size of Australia—each with about twice the average footprint of the current two Australian centers.

Aggressive discounting across a broad range of its products was absent, but low-balling prices isn't Amazon's core retailing strategy. Rather, our analysis suggests Amazon AU wants to be perceived by consumers as offering comparable pricing with the lowest competing prices in the market and differentiates itself from its competitors through convenience, service, and relatively low delivery costs. The introduction of Amazon Prime to Australia on June 19, 2018, ties Prime members to the Amazon platform by offering free standard shipping (three to five days in metro areas) on all products sold and fulfilled by Amazon for a monthly membership fee of AUD 6.99, creating switching costs for Prime members to shop elsewhere. Further, we expect delivery times to improve as Amazon expands its domestic distribution network.

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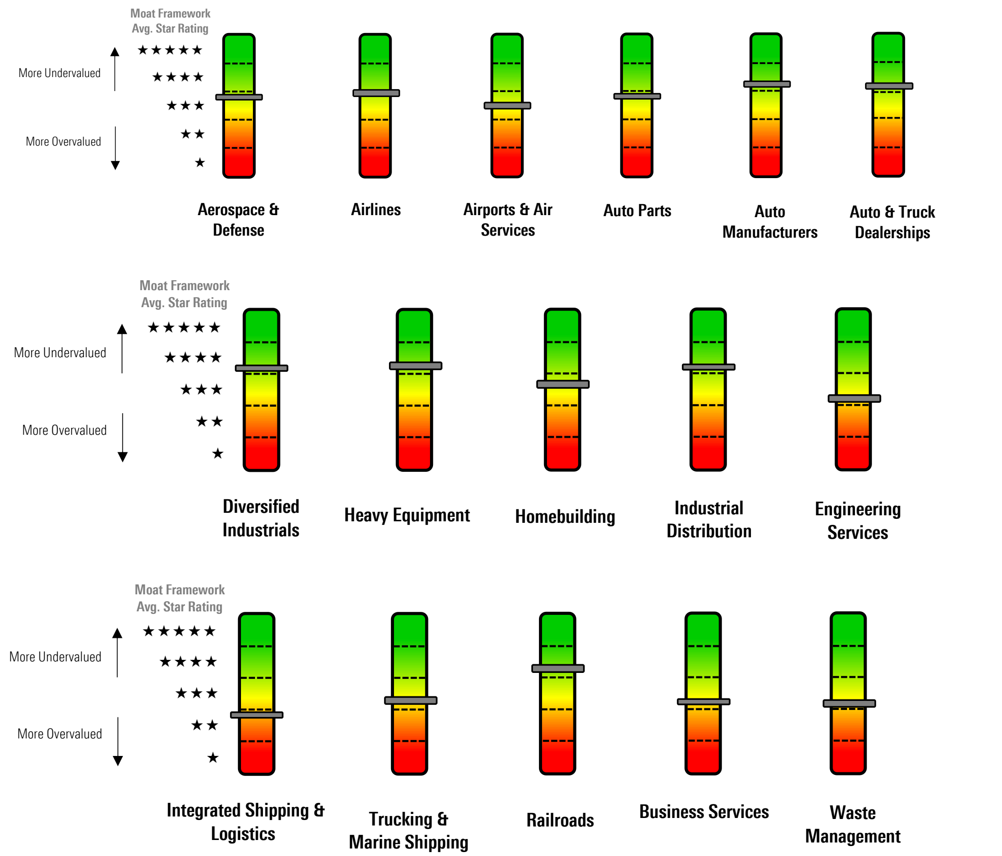
Moat Framework Series: Industrials

The Morningstar economic moat frameworks are a critical tool we employ to fine-tune our economic moat analysis across different industries. In this report, we highlight the industrials sector and include investment ideas from each industry group.

Certain Industrials Industries Are Trading at Attractive Valuations and Offer Moaty Names



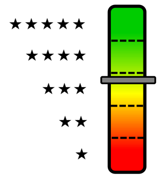
Source: Morningstar. Data as of Oct. 19, 2018.

In aerospace and defense and airports/air services, we highlight undervalued wide-moat General Dynamics and Grupo Aeroportuario del Pacifico. Although we assign no moats across our airlines coverage, Delta offers attractive risk-adjusted return potential. In automotives, BMW, Adient, and AutoNation are undervalued. In heavy equipment and industrial distribution, narrow-moat Kion Group and Anixter look undervalued. We don't assign any moats in our homebuilders coverage, but Lennar offers attractive potential. Across the diversified industrials space, we see modest upside for Honeywell and a long opportunity in Johnson Controls in engineering services. Narrow-moat Stericycle and Sodexo are attractive opportunities in waste management and business services. In trucking and marine shipping, Maersk is compelling. We highlight Canadian Pacific as a good representation of the railroads moat framework, and narrow-moat FedEx is an attractive opportunity in integrated shipping and logistics.

Exhibit 1 Industrials Moat Framework Valuation Dashboard

Aerospace & Defense

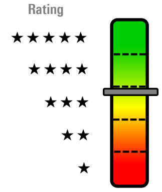
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
24	★★★	0.96

Aerospace and defense firms design, engineer, manufacture, and manage supply chains for the production and sale of commercial aircraft, business jets, fighter and military transport aircraft, land vehicles, submarines, ships, and munitions. The U.S. Department of Defense accounts for roughly half of global defense spending, but significant defense customers can be found in the Middle East, Europe, and Asia.

Company Star Rating

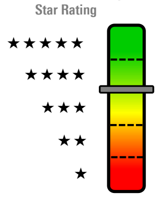


Highlighted Company	Star Rating	P/FVE
General Dynamics	★★★	0.88

Falls Church, Virginia-based General Dynamics manufactures submarines, armored vehicles, information technology systems, and Gulfstream jets. It operates its businesses in decentralized manner, and following the acquisition of CSRA, which closed during the second quarter of 2018, General Dynamics operates five segments: aerospace (24% of pro forma sales), combat systems (16%), marine systems (23%), information technology (25%), and mission systems (12%). Based on the new revenue recognition standard, the firm generated $30.9 billion in 2017 sales.

Airlines

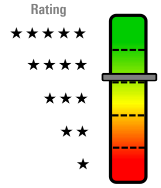
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
13	★★★	0.88

Airlines generate most of their revenue by flying passengers, but they also transport cargo. Although less of a revenue driver, the high margins on co-branded credit cards have increasingly driven operating profits, particularly for U.S. airlines. Although airlines face substantial government regulations, and international air routes are still often restricted, carriers enjoy nearly unfettered access to most domestic airports.

Company Star Rating

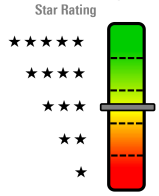


Highlighted Company	Star Rating	P/FVE
Delta	★★★★	0.83

Atlanta-based Delta Air Lines is one of the world's largest airlines, flying to more than 325 destinations in 60 countries. Delta operates a hub and spoke system, where it gathers and distributes passengers across the globe through key locations in Atlanta, New York, Salt Lake City, Detroit, Seattle, and Minneapolis-St. Paul. Delta generated just over $41 billion in revenue during 2017 and operated a mainline fleet of 856 aircraft at year-end 2017.

Airports & Air Services

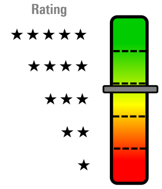
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
6	★★★	0.98

Private airport operators manage all the workings of an airport, including exterior items such as runways and interior items such as eateries and other vendors. Various forms of airport privatization exist globally from one- to three-year service contracts all the way up to full divestiture/freehold. Per Airports Council International data, among the world's 500 busiest airports, 38% are privatized.

Company Star Rating

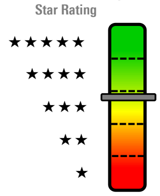


Highlighted Company	Star Rating	P/FVE
Grupo Aeroportuario del Pacifico	★★★	0.88

Grupo Aeroportuario del Pacifico operates 12 airports near the Pacific coastline in Mexico. Approximately 60% of total passengers are domestic, and the largest airport (Guadalajara) comprises approximately 30% of total group traffic. The company operates five of the 10 most popular airports in Mexico. It serves a diverse mix of passengers with popular tourist destinations in Los Cabos and Puerto Vallarta, Guadalajara's business and manufacturing footprint, and Tijuana's exposure to Southern California. Outside of Mexico, the company operates the two major airports in Jamaica: Montego Bay and Kingston.

Auto Parts

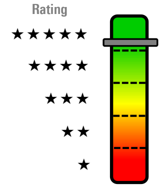
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
16	★★★	0.93

Auto part suppliers provide products and services to automakers. Similarities include long-term contracts, annual price declines, manufacturing discipline, engineering emphasis, and capital intensity. Suppliers develop, manufacture, deliver, and sometimes install their products on their customers' assembly lines. Suppliers can be both competitors and customers to each other.

Company Star Rating

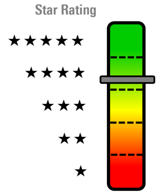


Highlighted Company	Star Rating	P/FVE
Adient	★★★★★	0.44

Adient began trading Oct. 31, 2016, when Johnson Controls spun off its automotive experience segment into this new company. Adient is the leading seating supplier to the industry with nearly 40% share in both North America and Europe as well as a dominant share in China of about 45%. Operations in China are accounted for under the equity method so revenue there is unconsolidated. Unconsolidated seating and interiors revenue from joint ventures totaled over $17 billion in fiscal 2017. The company is headquartered in Ireland but has corporate offices in the Detroit area. Fiscal 2018 consolidated revenue, i.e. excluding joint venture sales, is likely to be about $17.5 billion.

Auto Manufacturers

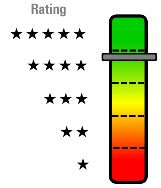
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
18	★★★★	0.82

Automakers develop and manufacture vehicles that are sold mainly through franchised dealerships and through some company-owned stores. Automakers top the supply chains that provide end users with numerous vehicle types for passenger and light commercial use. In addition to new vehicle operations, most automakers have captive finance companies.

Company Star Rating

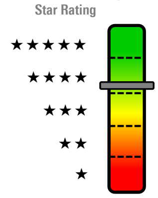


Highlighted Company	Star Rating	P/FVE
BMW	★★★★	0.64

In addition to being one of the world's leading premium light-vehicle manufacturers, BMW Group produces BMW motorcycles and provides financial services. Premium light-vehicle brands include BMW, Mini, and ultraluxury brand Rolls-Royce. Operations include 24 production facilities in 13 countries, with a sales network reaching 140 countries. Worldwide annual volume exceeds 2 million automobiles and more than 120,000 motorcycles.

Auto & Truck Dealerships

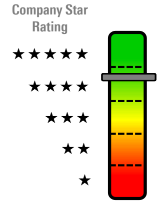
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
9	★★★★	0.85

Auto dealers are franchise retailers selling new and used vehicles, parts and service, and finance and insurance. The parts and service business typically composes nearly half of a dealer's gross profit, but new-vehicle sales are the genesis of all other operations. The sector is almost entirely U.S.-focused, but some U. S. companies have expanded into Europe and Brazil, and we think at least one dealer will enter Canada soon.

Company Star Rating



Highlighted Company	Star Rating	P/FVE
AutoNation	★★★★	0.70

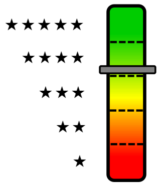
AutoNation is the largest automotive dealer in the United States, with 2017 revenue of $21.5 billion and over 250 dealerships in 16 states, primarily in Sun Belt metropolitan areas. New-vehicle sales account for about 57% of revenue; the company also sells used vehicles, parts, and repair services, as well as auto financing. The company (formerly Republic Industries) spun off its waste management unit (Republic Services) in 1999 and its car rental businesses (ANC Rental) in 2000.

Source: Morningstar. Data as of Oct. 12, 2018.

Exhibit 2 Industrials Moat Framework Valuation Dashboard

Diversified Industrials

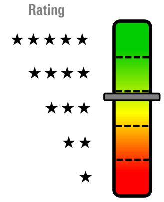
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
62	★★★★	0.94

Diversified industrial firms include companies that focus on a single category of highly engineered equipment or components, as well as companies that operate business lines that span industries, geographies, and customer markets contained under one parent or holding company.

Company Star Rating

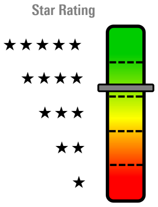


Highlighted Company	Star Rating	P/FVE
Honeywell	★★★	0.93

Honeywell traces its roots to inventor Albert Butz's company, the Butz-Thermo Electric Regulator Company in 1885, which produced a predecessor to the modern thermostat. From its origins developing climate control technology, which still operates today, Honeywell has emerged as a sprawling conglomerate with operations that span the globe. Today, Honeywell operates through four business segments – Aerospace, Home and Building Technologies, Performance Materials and Technologies, and Safety and Productivity Solutions – increasingly transforming itself into a software-industrial company serving diverse end markets like the U.S. defense, e-commerce, and oil & gas industries.

Heavy Equipment

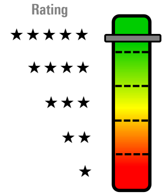
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
11	★★★★	0.84

Heavy equipment firms manufacture value-added finished products for trucking, construction, agriculture, and mining end markets. These companies often outsource some or all of their necessary metal fabrication and components (such as tires and electronics). Sales are typically either direct to end users or through third-party distribution.

Company Star Rating

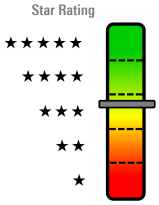


Highlighted Company	Star Rating	P/FVE
Kion Group	★★★★★	0.50

Kion Group is the number-two forklift truck manufacturer globally, after Toyota, and a leading global warehouse automation equipment supplier. The Germany-headquartered company gets 75% of its revenue from the sale of new forklifts and maintenance services. Another roughly 25%, and growing portion, comes from warehouse automation equipment under the Dematic division, which caters to sectors such as e-commerce, third-party logistics, and supermarkets. Its forklift trucks and warehouse equipment service the same end markets.

Homebuilding

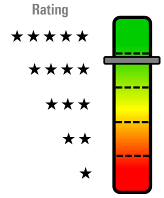
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
5	★★★	0.75

Homebuilders purchase land and then design, build, and sell single-family detached homes, townhomes and condominiums, and to a much lesser extent, multifamily apartments. In many cases, homebuilders must develop their land holdings before construction can begin. Most large homebuilders also possess a mortgage banking arm that originates mortgage loans primarily for its homebuyers.

Company Star Rating

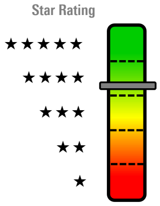


Highlighted Company	Star Rating	P/FVE
Lennar	★★★★	0.63

After merging with CalAtlantic in February 2018, Lennar is positioned to become the largest homebuilder in the United States. The company's homebuilding operations target first-time, move-up, and active adult homebuyers mainly under the Lennar brand name. Lennar's financial-services segment provides mortgage financing and related services to its homebuyers and third parties. Miami-based Lennar is also involved in ancillary multifamily construction and real estate investment and asset management (Rialto).

Industrial Distribution

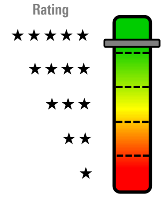
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
7	★★★★	0.90

Industrial distributors sell industrial, infrastructure, electrical, and construction supplies. These firms aggregate demand on a national level and distribute products in smaller quantities to customers of all sizes. Industrial distributors bring their products to market through multiple sales channels, including sales representatives, catalogs, online, and vending machines.

Company Star Rating

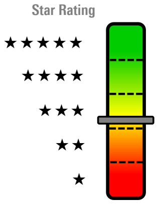


Highlighted Company	Star Rating	P/FVE
Anixter	★★★★★	0.60

Anixter International is a leading distributor of network, security, electrical, and utility power products and services. The company has a global footprint with 310 warehouse or branch locations across 50 countries and offers over 135,000 customers access to nearly 600,000 products, as well as value-added supply-chain and technical services. Anixter operates three distinct businesses: network and security solutions, or NSS; electrical and electronics solutions, or EES; and utility power solutions, or UPS.

Engineering Services

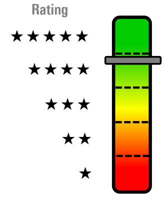
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
31	★★★	1.10

Engineering-services firms provide the expertise, services, and equipment to efficiently and cost-effectively solve complex problems in often challenging environments. These companies primarily perform and provide the required services and equipment to extract commodities from geological deposits.

Company Star Rating



Highlighted Company	Star Rating	P/FVE
Johnson Controls	★★★★	0.63

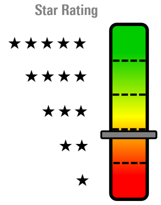
Johnson Controls operates two distinct businesses. The building technologies and solutions segment manufactures, installs, and services HVAC systems, building management systems and controls, industrial refrigeration systems, and fire and security solutions. The power solutions segment manufactures vehicle batteries that are sold to automakers and aftermarket retailers.

Source: Morningstar. Data as of Oct. 15, 2018.

Exhibit 3 Industrials Moat Framework Valuation Dashboard

Integrated Shipping & Logistics

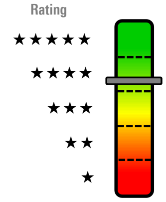
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
13	★★	1.13

Third-party logistics, or 3PL, providers operate asset-light business models, buying capacity from asset-based carriers and reselling it to shippers for a spread. The industry includes highway brokers, global forwarders, and outsoursed contract logistics. Global integrators such as FedEx and UPS not only provide domestic and intercontinental express package delivery but also participate to a significant degree in the 3PL space.

Company Star Rating

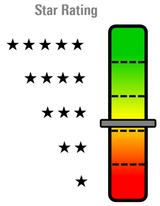


Highlighted Company	Star Rating	P/FVE
FedEx	★★★★	0.84

FedEx pioneered overnight delivery in 1973 and remains the world's largest express delivery firm. In fiscal 2018, FedEx derived about 55% of its $65 billion top line from its Express division, 28% of sales from Ground, and 10% from its Freight less-than-truckload trucking segment. FedEx Office provides document production and shipping services, and Trade Networks offers freight forwarding. FedEx acquired the large Dutch parcel delivery firm, TNT Express, in 2016.

Trucking & Marine Shipping

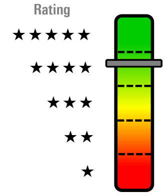
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
11	★★★	1.02

Truckload carriers move full trailer loads for individual shippers, while less-than-truckload firms consolidate and move smaller loads from multiple customers. In the marine segment, inland tank barge providers move bulk liquid cargo throughout the domestic U.S. inland waterway system, while the large steamship lines concentrate on containerized ocean freight and the ports process containers and break bulk cargo.

Company Star Rating

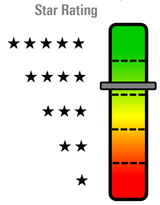


Highlighted Company	Star Rating	P/FVE
Maersk	★★★★	0.68

AP Moller Maersk is a Denmark-listed global conglomerate involved in global trade, shipping, and energy. Maersk Line, the largest contributor to group revenue and earnings, has been the largest container shipping company globally for more than 20 years. Maersk was founded in 1904 and has since been run by the Moller-Maersk family, who currently hold slightly more than 50% of the share capital. The group has been active over the past few years in divesting noncore operations, such as its long-standing stakes in Danske Bank and Dansk Supermarked.

Railroads

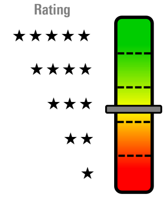
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
14	★★★★	0.96

Railroads haul coal, chemicals, grain, intermodal containers, automobiles, and myriad other commodities. Unlike those in many other geographies, North American railroads generally own the land or rights of way, track, and terminals over which they operate, plus motive power and most rolling stock. Although passenger trains run mainly on railroad-owned assets, freight railroads in North America no longer carry passengers for hire.

Company Star Rating

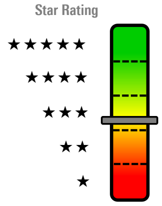


Highlighted Company	Star Rating	P/FVE
Canadian Pacific	★★★	1.00

Canadian Pacific is a CAD 6.5 billion railroad operating on 18,703 miles of track across most of Canada and in the Midwestern and Northeastern United States; it is the second-smallest Class I railroad by revenue and route miles. During 2017, CP hauled shipments of grain (24%), intermodal containers 21% of freight revenue), energy products (like crude and frac sand), chemicals, and plastics (14%), coal (10%), fertilizer and potash (10%), automotive products (5%), and a diverse mix of other merchandise.

Business Services

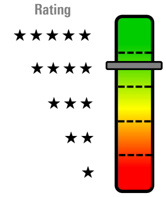
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
34	★★★	1.06

The business services category includes a broad range of companies that typically serve businesses across more than one industry. This framework includes TIC businesses, payment processors, food services companies, recruiters, security services businesses, and publishers. Most companies we cover in this category have a moat, but because of the diverse industries, the sources vary widely.

Company Star Rating

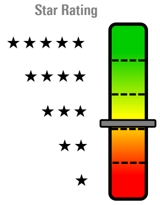


Highlighted Company	Star Rating	P/FVE
Sodexo	★★★★	0.79

Sodexo is one of the largest food-service companies globally, operating in more than 80 countries with annual sales of over EUR 20 billion. Sodexo's model stems from operating on-premise catering facilities, rather than centralised industrial kitchens. While food services remains the largest business segment (66% of revenue in 2017), the company has actively pursued a strategy of diversifying its business activities into other areas, such as facilities-management services, which now represents 30% of group revenue.

Waste Management

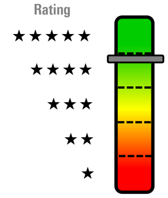
Moat Framework Avg. Star Rating



# Companies	Avg. Star Rating	Avg. P/FVE
5	★★★	1.05

Vertically integrated waste management companies establish collection routes around a network of physical assets, such as landfills, incinerators, and recycling centers. Non-hazardous-waste vendors handle the majority of trash generated by municipal, industrial, and commercial customers.

Company Star Rating



Highlighted Company	Star Rating	P/FVE
Stericycle	★★★★	0.62

Stericycle provides regulated medical waste management services to large-quantity generators (such as hospitals) and small-quantity generators (such as medical and dental offices). The firm handles disposal via its massive network of processing facilities that house autoclaves (steam treatment to kill pathogens) and, to a lesser degree, incinerators. Medical waste includes the likes of needles, syringes, gloves, cultures, bloodied materials, and anatomical waste. The company also provides a host of ancillary services, including OSHA compliance, pharmaceutical waste management, sharps management, patient-communications solutions, hazardous waste pickup, and secure document destruction (Shred-it).

Source: Morningstar. Data as of Oct. 16, 2018.

Best Ideas

Company and Industry	Morningstar Rating	Fair Value Estimate	Current Price	Uncertainty Rating	Moat Rating	Price / Fair Value	Market Cap (B)	Analyst
Basic Materials								
Cameco (CCJ)	★★★★★	$19.5	$11.56	High	Narrow	0.59	4.58	Inton
Compass Minerals International (CMP)	★★★★	$83	$67.34	High	Wide	0.81	2.28	Goldstein
Martin Marietta Materials (MLM)	★★★★	$260	$162.75	High	Narrow	0.63	10.26	Inton
Communication Services								
BT Group (BT.A)	★★★★	GBX 360	GBX 244.85	High	Narrow	0.68	24.29	C. Nichols
China Mobile (941)	★★★★	HKD 100	HKD 77.85	Medium	Narrow	0.78	1594.02	Baker
Comcast (CMCSA)	★★★★	$42	$35.94	Medium	Wide	0.86	164.67	Macker
Telefonica (TEF)	★★★★★	$13	$6.97	High	Narrow	0.54	36.20	C. Nichols
Telstra (TLS)	★★★★	AUD 4.4	AUD 3.17	Medium	Narrow	0.72	37.58	Han
Consumer Cyclical								
Alibaba Group Holding (BABA)	★★★★	$240	$142.02	High	Wide	0.59	365.27	Hottovy
Bayerische Motoren Werke (BMW)	★★★★	EUR 117	EUR 75.13	High	Narrow	0.64	48.86	Hilgert
Expedia Group (EXPE)	★★★★	$185	$118.44	High	Narrow	0.64	17.70	Wasiolek
General Motors (GM)	★★★★	$45	$31.08	High	None	0.69	45.05	Whiston
Hanesbrands (HBI)	★★★★★	$27	$16.55	Medium	Narrow	0.61	5.97	Hottovy
InvoCare (IVC)	★★★★	AUD 16	AUD 12.36	Medium	Wide	0.77	1.36	Ragonese
Mattel (MAT)	★★★★	$21.5	$14.19	High	Narrow	0.66	4.88	Katz
Norwegian Cruise Line Holdings (NCLH)	★★★★	$69	$49.89	High	Narrow	0.72	11.05	Katz
Walt Disney (DIS)	★★★★	$130	$116.18	Medium	Wide	0.89	172.79	Macker
WPP (WPP)	★★★★	GBX 1500	GBX 1033	Medium	Narrow	0.69	12.98	Mogharabi
Consumer Defensive								
A2 Milk (ATM)	★★★★	AUD 14.6	AUD 10.31	High	Narrow	0.71	7.69	Fleck
G8 Education (GEM)	★★★★★	AUD 3.5	AUD 2.17	High	None	0.62	0.98	James
General Mills (GIS)	★★★★★	$58	$43.65	Low	Wide	0.75	26.03	Vora
Imperial Brands (IMB)	★★★★★	GBX 3700	GBX 2577	Low	Wide	0.70	24.58	Gorham
Kao (4452)	★★★	JPY 8800	JPY 8115	Low	Wide	0.92	3955.42	Wei
Mondelez International (MDLZ)	★★★★	$52	$41.04	Medium	Wide	0.79	60.19	Lash
PepsiCo (PEP)	★★★★	$122	$107.93	Low	Wide	0.88	152.35	Vora
Procter & Gamble (PG)	★★★★	$97	$80.24	Low	Wide	0.83	199.73	Lash
Reckitt Benckiser Group (RB.)	★★★★	GBX 7300	GBX 6471	Low	Wide	0.89	45.75	Gorham
Energy								
Cenovus Energy (CVE)	★★★★	$21	$11.12	Very High	None	0.53	13.66	Gemino
Enbridge (ENB)	★★★★★	$64	$42.35	Medium	Wide	0.66	73.03	Gemino
Enterprise Products Partners (EPD)	★★★★	$35.5	$28.52	Low	Wide	0.80	62.06	Ellis
Royal Dutch Shell (RDS.B)	★★★★	$83	$66.75	Medium	Narrow	0.80	273.68	Good
Total (TOT)	★★★★	$77	$60.53	Medium	None	0.79	158.41	Good
Woodside Petroleum (WPL)	★★★★	AUD 46.5	AUD 36.17	High	None	0.78	33.86	Taylor

Source: Morningstar. As of Oct. 19, 2018

Best Ideas

Company and Industry	Morningstar Rating	Fair Value Estimate	Current Price	Uncertainty Rating	Moat Rating	Price / Fair Value	Market Cap (B)	Analyst
Financial Services								
Agricultural Bank of China (601288)	★★★	CNY 4.2	CNY 3.79	High	Narrow	0.90	1270.17	Tan
American International Group (AIG)	★★★★★	$76	$48.61	Medium	None	0.64	43.19	Horn
BlackRock (BLK)	★★★★	$580	$399.87	Medium	Wide	0.69	64.29	Warren
Capital One Financial (COF)	★★★★	$127	$90.35	Medium	Narrow	0.71	43.23	Plunkett
Credit Suisse Group (CSGN)	★★★★	CHF 22	CHF 13.15	High	Narrow	0.60	33.53	Scholtz
Mitsubishi UFJ Financial Group (8306)	★★★★	JPY 797	JPY 686.6	Medium	None	0.86	8979.83	Makdad
Pendal Group (PDL)	★★★★	AUD 11	AUD 8.39	Medium	Narrow	0.76	2.35	Likos
Westpac Banking (WBC)	★★★★	AUD 35	AUD 26.85	Medium	Wide	0.77	90.38	Ellis
Healthcare								
Allergan (AGN)	★★★★	$263	$188.89	Medium	Wide	0.72	64.12	Waterhouse
McKesson (MCK)	★★★★★	$210	$132.7	Medium	Wide	0.63	26.51	Lekraj
Medtronic (MDT)	★★★	$105	$95.92	Medium	Wide	0.91	129.79	Wang
Ramsay Health Care (RHC)	★★★★	AUD 65	AUD 54.06	Medium	Narrow	0.83	10.92	James
Roche Holding (ROG)	★★★★★	CHF 333	CHF 244.95	Low	Wide	0.74	209.27	Andersen
Industrials								
Anixter International (AXE)	★★★★★	$107	$64.9	Medium	Narrow	0.61	2.17	Bernard
Beijing Enterprises Holdings (392)	★★★★	HKD 58	HKD 42.4	Medium	Narrow	0.73	53.51	Song
CK Hutchison Holdings (1)	★★★★	HKD 118	HKD 80.4	Medium	None	0.68	310.04	Tan
G4S (GFS)	★★★★★	GBX 337	GBX 219.3	Medium	None	0.65	3.43	Field
GEA Group (G1A)	★★★★★	EUR 45	EUR 26.38	Medium	Wide	0.59	4.76	Molina
General Dynamics (GD)	★★★★	$220	$191.22	Medium	Wide	0.87	56.65	Higgins
Grupo Aeroportuario del Pacifico (GAP B)	★★★	MXN 221	MXN 187.16	High	Wide	0.85	108.03	Higgins
Guangshen Railway (525)	★★★★★	HKD 6.5	HKD 3.05	High	None	0.47	23.42	Song
Johnson Controls International (JCI)	★★★★	$53	$33.19	High	Narrow	0.63	30.70	Bernard
Kion Group (KGX)	★★★★★	EUR 90	EUR 47.52	Medium	Narrow	0.53	5.60	Molina
Royal Philips (PHIA)	★★★★	EUR 42	EUR 35.55	Medium	Narrow	0.85	33.11	Vonk
Sodexo (SW)	★★★★	EUR 110	EUR 87.12	Medium	Narrow	0.79	12.69	Field
Stericycle (SRCL)	★★★★	$86	$53.12	High	Narrow	NA	4.56	Young
Real Estate								
Aveo Group (AOG)	★★★★	AUD 2.8	AUD 1.98	Medium	None	0.71	1.15	Sherlock
Sun Hung Kai Properties (16)	★★★★	HKD 153	HKD 103.4	Medium	Narrow	0.68	299.55	Zhong
Welltower (WELL)	★★★★	$72	$63.46	Medium	None	0.88	23.61	Brown
Technology								
Intel (INTC)	★★★★	$65	$44.97	Medium	Wide	0.69	207.36	Davuluri
Microchip Technology (MCHP)	★★★★★	$112	$67.55	Medium	Wide	0.60	16.27	Colello
Murata Manufacturing (6981)	★★★★	JPY 24000	JPY 16310	High	Narrow	0.68	3528.24	Ito
MYOB Group (MYO)	★★★	AUD 3.82	AUD 3.56	Medium	Narrow	0.93	2.13	James
Synaptics (SYNA)	★★★★	$64	$37.15	Very High	None	0.58	1.30	Davuluri
Tencent Holdings (700)	★★★★★	HKD 590	HKD 282	High	Wide	0.48	2684.71	Tam
Utilities								
Dominion Energy (D)	★★★★	$84	$72.23	Low	Wide	0.86	47.22	Fishman
Enel (ENEL)	★★★★	EUR 5.7	EUR 4.36	Medium	None	0.76	44.36	Fulop
FirstEnergy (FE)	★★★★	$41	$38.06	Low	Narrow	0.93	18.50	Fishman
Scana (SCG)	★★★★★	$56	$40.26	Medium	Narrow	0.72	5.74	Miller

Source: Morningstar. As of Oct. 19, 2018

Highlighted Stocks

Capital One Financial COF

Morningstar Rating	Sector	Moat Trend	Currency	Fair Value Estimate	Current Price	Uncertainty Rating	Moat Rating	Price/Fair Value	Market Cap (Bil)
★★★★	Financial	Stable	USD	127	91.89	Medium	Narrow	0.72	43.23

Source: Morningstar. As of Oct. 19, 2018

Investors don't seem to appreciate how important a role technology plays in a bank winning new business and defending its competitive position.

Analyst Note, Oct. 15, 2018
We maintain that technology investment and related capital spending is of growing importance to banks, specifically Best Idea Capital One, and investors should be paying better attention to banks' technological capabilities. Early adopters such as Capital One stand to benefit from higher growth, while laggards will see an eroding competitive advantage. Investors don't seem to appreciate how important a role technology plays in a bank winning new business and defending its competitive position. We believe Capital One's impressive technology capabilities will benefit its growth in the coming years and increase the likelihood of winning new card partnerships without having to pay a premium. This is why we continue to believe that Capital One is materially undervalued by the market.

In a new Select piece, Capital One: A Moat in Tech That Vikings Can't Surmount, we take a look at the role technology investment is playing in narrow-moat Capital One's efforts to maintain its positioning in an industry known for intense competition. Capital One's leadership in technology may be most observable in the bank's retail card partnership operations. In July, Capital One caught many investors by surprise when it deftly stole Walmart's retail credit card portfolio from rival Synchrony. Some will suggest that Capital One likely just offered Walmart better economics. We think it's more likely a result of Capital One's superior tech offering built on its decision to provide its internally generated intellectual property as open-source software available to anyone. In addition, Capital One’s technology greatly benefits from the company’s decision to migrate its operations from local hosted data centers to Amazon Web Services. We believe Capital One’s embrace of the public cloud should significantly accelerate development speed, which was likely a key competency that enabled it to win Walmart’s credit card business.

We suspect Capital One's focus on DevOps, a concept likely new to many investors, played a significant part in winning Walmart. Simply put, DevOps is a culture that aims to unify software development and operations, resulting in faster deployments and greater efficiencies.

Colin Plunkett, CFA | colin.plunkett@morningstar.com

Western Digital WDC

Morningstar Rating	Sector	Moat Trend	Currency	Fair Value Estimate	Current Price	Uncertainty Rating	Moat Rating	Price/Fair Value	Market Cap (Bil)
★★★★	Technology	Negative	USD	75	56.68	Very High	None	0.76	16.18

Source: Morningstar. As of Oct. 19, 2018

We believe the secular headwinds against HDD demand in PCs will continue. With a lower total cost of ownership from SSD products in many PC applications, we anticipate there will be an ongoing decline in annual HDD sales as SSDs increase share and as PC unit sales generally decline.

Analyst Note, Oct. 15, 2018

After taking a fresh look at hard-disk drive manufacturer, Western Digital, we are maintaining our no-moat rating and negative moat trend. We are also decreasing our fair value estimate to $75 per share from $84, but shares are currently trading at a significant discount.

Western Digital is one of two leaders in the hard-disk drive, or HDD, market, and with the purchase of SanDisk in 2016, it's become a significant player within the NAND flash market. The firm has invested significant resources into negotiating the technological transition from HDD to flash storage. Solid-state drives, or SSDs, have important performance benefits over the older spinning disc media, and as a result, HDDs have lost their luster for both PCs and servers. HDDs currently have superior cost metrics and higher capacities, but SSDs have been closing these gaps and quickly limiting the number of use cases for HDDs. We believe Western Digital has significant competitive advantages in the HDD market, but these are unlikely to generate excess returns on capital over the next 10 years as that storage solution continues to decline. In sum, we do not believe that Western Digital has a moat capable of generating returns above the cost of capital for the next decade.

We believe the secular headwinds against HDD demand in PCs will continue. With a lower total cost of ownership from SSD products in many PC applications, we anticipate there will be an ongoing decline in annual HDD sales as SSDs increase share and as PC unit sales generally decline. We do believe that HDDs will remain a significant component of the storage environment to accommodate the business-critical storage needs of enterprises, but SSDs have already made significant headway in the enterprise market by taking a major portion of the share in mission critical applications.

While Western Digital's SSD capabilities give it the potential ability to curb overall HDD declines within certain enterprise applications, thus far, we believe Western Digital has been unable to translate its history within enterprise storage to share gains in the SSD enterprise market. Through the firm's SanDisk acquisition, Western Digital has a joint venture (Flash Ventures) with Toshiba to collaborate in the development and manufacturing of flash memory wafers. That said, while flash competitor Samsung does have a moat, we do not believe moats are easily developed in the flash market due to the commoditized nature of that technology, the capital intensity, and the cyclical nature of the market.

Seth Sherwood | seth.sherwood@morningstar.com

Sensient Technologies SXT

Morningstar Rating	Industry	Moat Trend	Currency	Fair Value Estimate	Current Price	Uncertainty Rating	Moat Rating	Price/Fair Value	Market Cap (Bil)
★★★★	Basic Materials	Stable	USD	74	64.38	Low	Narrow	0.87	3.25

Source: Morningstar. As of Oct. 19, 2018

CEO Paul Manning contends that the fourth quarter will represent a "turning point" for the company.

Analyst Note, Oct. 19, 2018
Sensient Technologies issued soft third-quarter results, sending shares sharply lower. Management highlighted lower volumes stemming from execution disruptions related to restructuring efforts as well as elevated onion costs as the key headwinds facing the flavors and fragrances segment. Additionally, for the color group, destocking and softness in the cosmetic colors business provided an additional challenge. Although adjusted earnings per share still increased from the prior-year period, we've tempered our fourth-quarter outlook. Management now expects a mid-single-digit year-on-year decline in fourth-quarter adjusted earnings per share. On our lower near-term revenue and profit outlook, our fair value estimate falls to $74 per share from $76. Our narrow moat rating is unchanged.

On the bright side, management views the main headwinds discussed above as temporary. CEO Paul Manning contends that the fourth quarter will represent a "turning point" for the company, and prior guidance for segment-level performance beyond 2018 remains in place. For the flavors and fragrances group, management guides to mid-single-digit revenue growth (we forecast only 3% growth through 2022) and high-single-digit profit growth (we forecast 9%). Regardless, we remain highly skeptical that the company's long-term 20% operating margin target for the segment is realistic. Our midcycle operating margin target is only 17%.

Profitability for the color group and Asia-Pacific group has been a bit more steady, with third-quarter Asia-Pacific margins being the sole bright spot in the earnings release. However, we see no major catalysts for margin expansion in these two businesses and actually assume that midcycle profitability for both will settle slightly below third-quarter levels.

Although Sensient's third-quarter performance was disappointing, we contend that investors have overreacted. Our long-term outlook is effectively unchanged, and we now view shares as undervalued.

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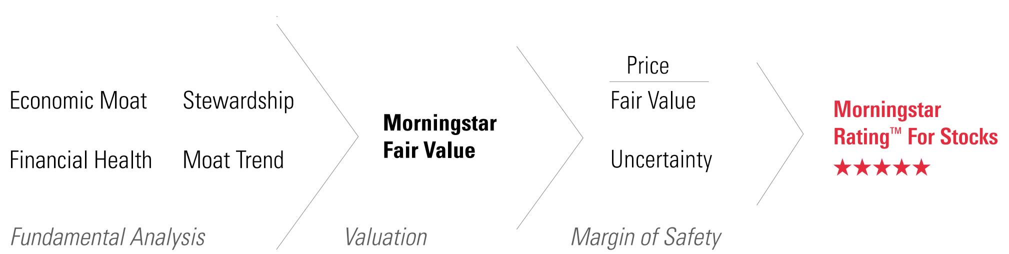
Research Methodology for Valuing Companies

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.

Morningstar Research Methodology



Source: Morningstar.

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.

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 (ROIC) over and above our estimate of a firm's cost of capital, or weighted average cost of capital (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 their cost of capital more quickly than companies with moats.

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 where we see signs of deterioration.

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 5 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 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.

Uncertainty Around That Fair Value Estimate

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

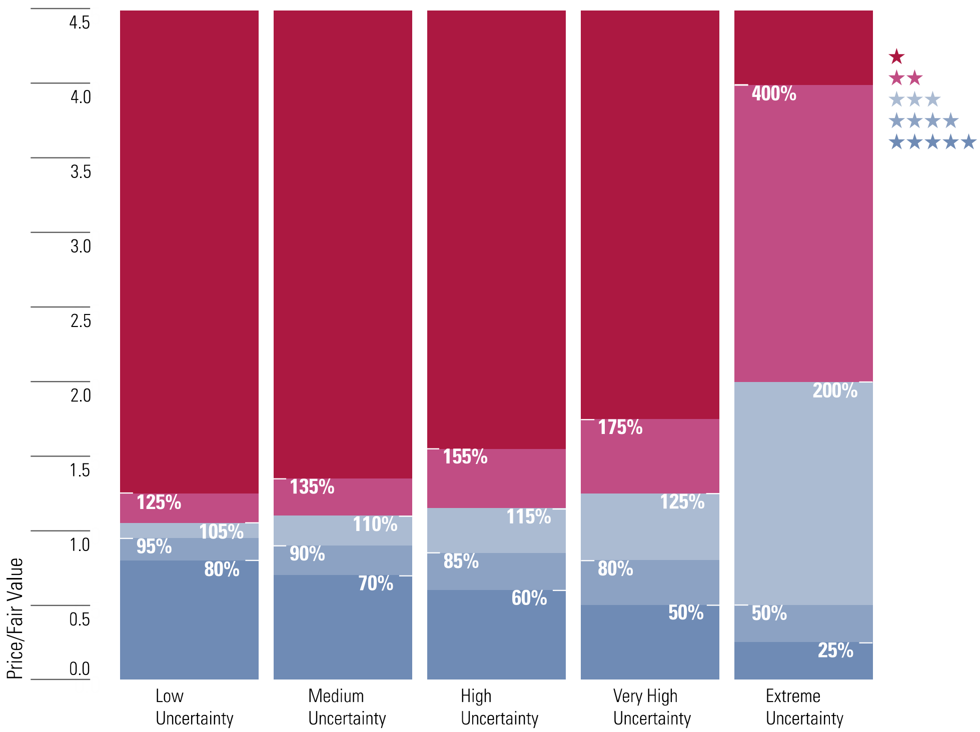
Analysts consider at least two scenarios in addition to their base case: a bull case and a bear case. Assumptions are chosen such that the analyst believes there is a 25% probability that the company will perform better than the bull case and a 25% probability that the company will perform worse than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

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

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

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

Morningstar Equity Research Star Rating Methodology



Market Price

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

For more details about our methodology, please go to http://global.morningstar.com/equitydisclosures.

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 recalculated 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-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.

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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 the future and is no indication of future performance. A security investment return and an investor's principal value will fluctuate so that, when redeemed, an investor's shares may be worth more or less than their original cost. A security's current investment performance may be lower or higher than the investment performance noted within the report. Morningstar's uncertainty rating serves as a useful data point with respect to sensitivity analysis of the assumptions used in our determining a fair value price.

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