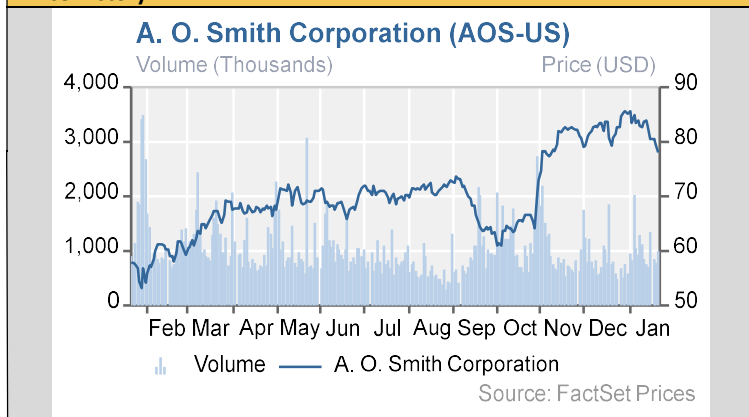


Recommendation: Sell

Current Price	\$83.63	---	Ticker	AOS
1 Year Bear	\$41	-103%	Sh. Out. (\$M)	161.5
1 Year Base	\$58	-44%	M.Cap. (\$M)	1,329
1 Year Bull	\$66	-26%	EV (\$M)	1,276

Price History

	5Y	3Y	2Y	LTM	YTD	3M	1M
Return	86%	113%	82%	53%	55%	23%	2%

Financials

	2017	2018	2019	2020	2021	2022F	2023F
Sales(\$B)	3.0	3.2	3.0	2.9	3.5	4.0	4.3
Gr. %	11.6%	6.4%	-6.1%	-3.3%	21.1%	14.5%	7.5%
v. Cons.	-	-	-	-	-	13.4%	6.7%
Industry	5.1%	0.8%	1.2%	-7.0%	16.2%	4.7%	4.2%
EPS	\$1.72	\$2.61	\$2.17	\$2.14	\$2.91	\$3.49	\$3.64
Gr. %	8.9%	51.7%	-16.9%	-1.6%	36.3%	20.0%	4.2%
v. Cons.	-	-	-	-	-	0.9%	-0.3%
Industry	15.0%	16.5%	8.1%	-2.7%	24.3%	15.6%	9.1%

Ratios

	2017	2018	2019	2020	2021	2022F	2023F
NPM	9.9%	13.9%	12.4%	12.4%	11.9%	13.8%	13.8%
Industry	10.3%	11.2%	10.9%	10.6%	10.8%	-	-
ROE	18.7%	26.4%	21.9%	19.6%	25.7%	29.9%	27.3%
Industry	20.1%	19.7%	22.9%	17.7%	16.0%	-	-
ROA	9.7%	14.2%	12.1%	11.1%	14.9%	15.4%	14.1%
Industry	7.9%	10.0%	8.3%	8.0%	7.4%	-	-
A T/O	0.98	1.02	0.98	0.93	0.93	1.08	1.02
A/E	1.92	1.86	1.81	1.77	1.73	1.68	1.65

Valuation

	2017	2018	2019	2020	2021	2022F	2023F
P/E	36.09	16.55	21.47	25.85	28.69	23.76	21.02
Industry	27.20	16.01	21.00	29.90	33.10	25.00	22.90
P/S	3.57	2.31	2.65	3.08	3.82	-	-
P/B	6.38	4.18	4.64	4.80	7.41	-	-
P/CF	15.86	16.38	17.41	15.86	47.34	-	-
V/EBITDA	17.14	10.85	13.79	15.84	19.28	-	-
D/P	33.0%	29.5%	40.6%	46.2%	42.5%	-	-

Email: francoi9@uwm.edu

Phone: 920-655-1652

Industrials, Building Materials

A. O. Smith Corporation**Summary**

I recommend a sell rating with a target price of \$72. Although AOS has been trying to diversify and expand its presence in both of its business sectors, I do not believe this growth is sustainable. While AOS continues to produce great relative returns, once sales growth tapers off, its stock price will adjust accordingly. I believe AOS stock is fairly valued based on relative valuation and overvalued based on DCF.

Key Drivers

- Innovation through Research and Development: AOS prides itself on innovation and invests heavily in R&D to be a leader in innovation/efficiency for its product offerings.
- Global Outreach: AOS operates globally. 27.4% of total sales come from AOS' ROW segment. AOS has the product offerings to meet the needs of both domestic and global customers.
- Competitor Analysis: AOS operates in a highly competitive market. AOS sales are driven by its strong demand and brand recognition worldwide.
- Macroeconomic Trends: Operating globally, the strengthening of the U.S. dollar could negatively affect AOS and its earnings. In addition, tensions between the U.S. and China would adversely affect AOS. The stock's return is also cyclical vs the market relative to the ISM PMI.

Valuation

Using a relative valuation approach, AOS appears to be fairly valued in comparison to its industry and competitors. I value AOS at \$72. A combination of the approaches suggests that AOS is overvalued, as the stock's value is about \$58 and shares currently trade at \$83.63.

Risks

- Concentrated customer relationships
- Global exposure outside of the U.S.
- Slowing sales growth
- Increasing organic growth

Company Overview

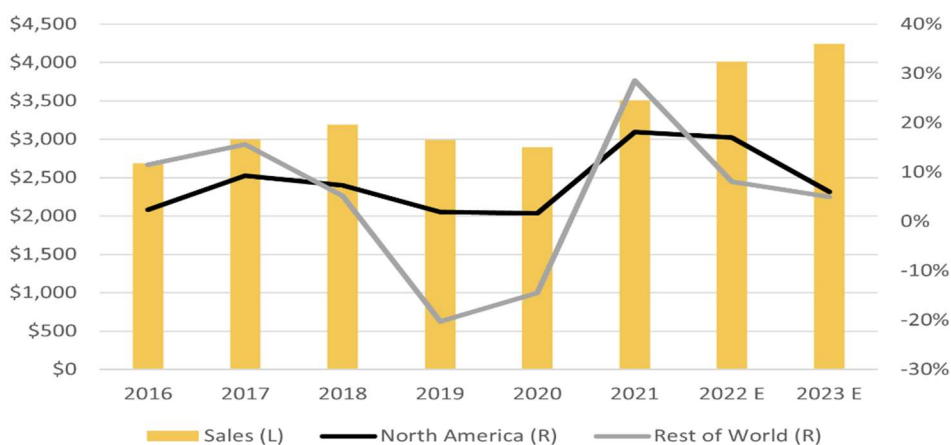
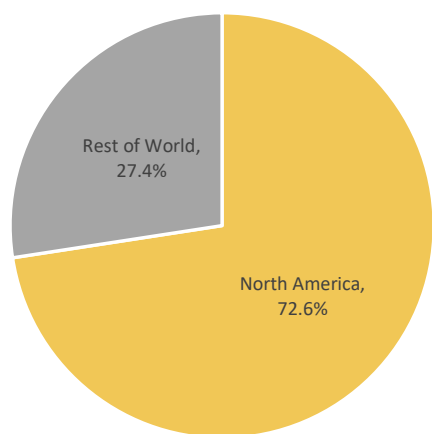
A. O. Smith Corporation (AOS) is primarily a manufacturer of both commercial and residential water heaters, boilers, and water treatment/purification products. AOS is headquartered in Milwaukee, Wisconsin, and employs over 14,000 people worldwide. Founded in 1874, AOS has created Guiding Principles or values that employees are expected to follow to ensure the company’s ethical and sustainable business practices. Being one of the world’s leading manufacturers in the water technology industry, AOS prides itself on its innovative technology and its energy efficiency among products.

AOS generates revenue from its two segments: North America and Rest of World.

Between fiscal 2016 and 2020, total sales have grown at an annualized rate of 1.9%.

- 1. North America-** This segment accounts for 72.6% of AOS’s entire sales. The North American segment specializes in both commercial and residential markets for water technology products. This segment offers a comprehensive line of water treatment products such as water heaters, boilers, filtration products, and more. A large portion of sales is through the replacement of existing products. AOS sells through many distribution channels including wholesale distribution channels, maintenance repair and operations (MRO) channels, retail channels, and e-commerce channels. AOS is known for its brand recognition.
- 2. Rest of World-** This segment accounts for 27.4% of AOS’s entire sales. The Rest of World segment is mainly concentrated in China, India, and parts of Europe. China alone accounts for approximately 23.4% of AOS’s total sales revenue. AOS has established brand recognition over the twenty-five years it has been in China. This segment mainly specializes in the manufacturing of water heaters, water treatment products, as well as air purification products. The retail and e-commerce channels generate most of the sales revenue in this segment. Sales in China decreased 22.7% in 2019 due to AOS having questionable relationships with suppliers, weaker end-market demand, and a higher portion of sales going to mid-price product offerings rather than its premium price product offerings.

Figures 1 & 2: Revenue by Segment in 2020 (left) and Total Revenue (in millions) and YoY Revenue Growth by Segment since 2016 (right)



Source: Company reports

Business/Industry Drivers

Though several factors may contribute to A. O. Smith’s future success, the following are the most important business drivers:

- 1) Innovation through Research and Development
- 2) Global Outreach
- 3) Competitor Analysis
- 4) Macroeconomic Trends

Innovation through Research and Development

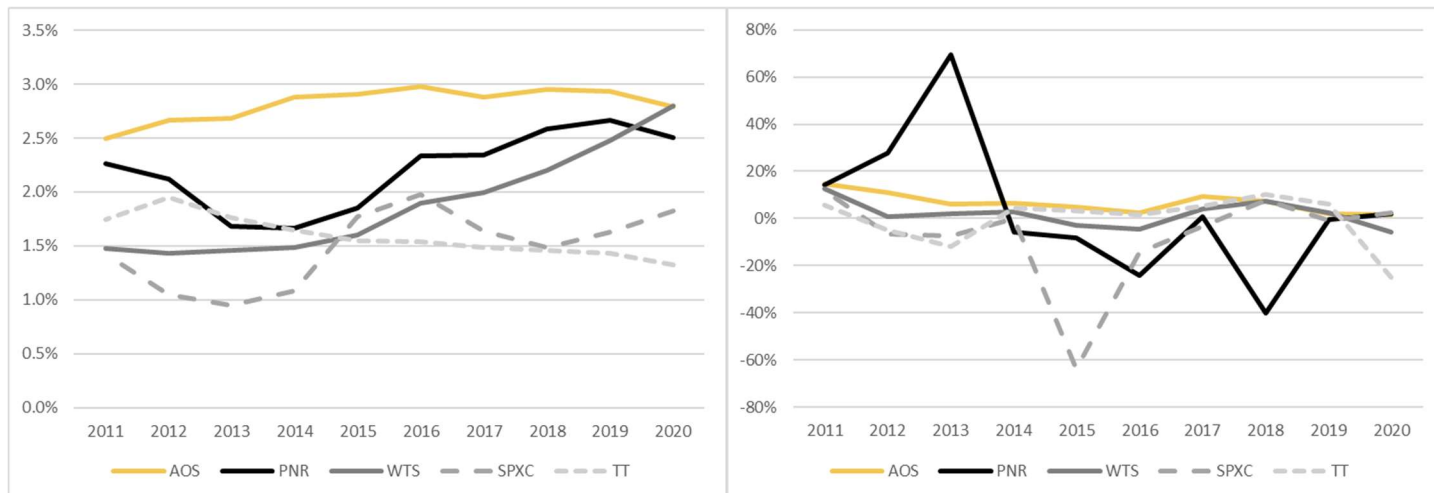
The CTC which opened in 2018, has become a vital component to AOS’ success in innovation.

At A. O. Smith Corporation (AOS), its vision is “to be a leading provider of innovative and energy-efficient products used to heat, treat and conserve water, providing value to our residential and commercial customers.” This vision is brought to life in part by the Lloyd R. Smith Corporate Technology Center (CTC), located in Milwaukee, WI. The CTC which opened in October of 2018, was created to make new energy-efficient products and processes for AOS. The CTC will serve as AOS’ innovative hub for product development, testing, and finalizing of core technologies to be distributed globally.

Many different labs call the CTC home. This includes the analytical lab where water quality is tested to ensure safe drinking and gauge success in new technologies. One of the most expansive portions of the CTC is dedicated to the Water Lab. The Water Lab tests heating and treatment products such as heat pumps, burners, and heat exchangers. In addition, the Water Lab also is home to the Department of Energy (DOE) test lab. In the DOE lab, new and old residential water heating technologies are tested to ensure they meet industry and federal standards. Other labs inside the CTC include the Coatings Lab, Electronics Sensors and Materials Lab, Microbiological Lab, and the Prototype Lab. Each of these labs lends a helping hand in driving AOS to create innovative and environmentally friendly products.

In addition to the CTC, AOS has a Global Engineering Center in Nanjing, China. These two buildings contribute to AOS’ spending towards research and development in an effort to improve its competitiveness. Having many sources of innovation will allow AOS to have profitable growth, increase the value of its products to its customers, and mitigate risk. AOS has spent \$80.7 million in 2020, \$87.9 million in 2019, and \$94.0 million in 2018 on research and development (R&D). The high R&D cost in 2018 can be partially attributed to the CTC which cost \$8.5 million to construct. This accounts for 9.0% of the total R&D expense and 10.0% of capital expenditures in 2018. AOS’ research and development as a percent of its total sales in comparison to comparable companies is shown below in Figure 3.

Figures 3 & 4: Comparable Companies R&D Expense (% total Sales) (left) and Comparable Companies YoY Sales Growth (right)



Source: Company reports

AOS reducing greenhouse gas emissions will attract socially responsible investors.

Another source of innovation for AOS will be its ability to meet U.S. greenhouse gas reduction totals and increase its lineup of high-efficiency products. On September 22nd, 2021, AOS released a paper titled “Electrification of Water and Space Heating in Buildings.” This paper outlined a roadmap to reduce greenhouse gas emissions from water and space heating in buildings. As a company, AOS has pledged to reduce emissions by 10% through 2025. Reducing carbon outputs will require product affordability, lifestyle changes, and incentives.

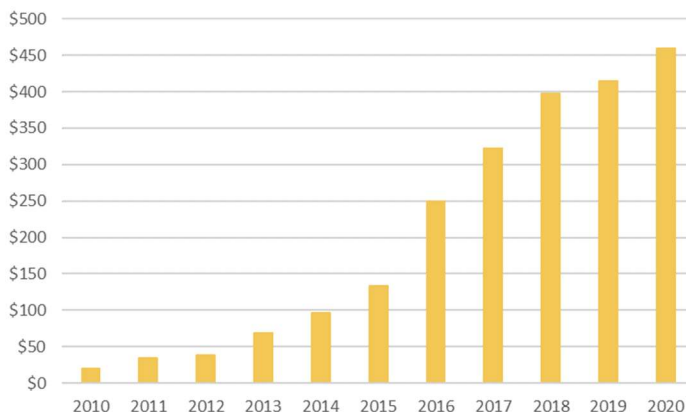
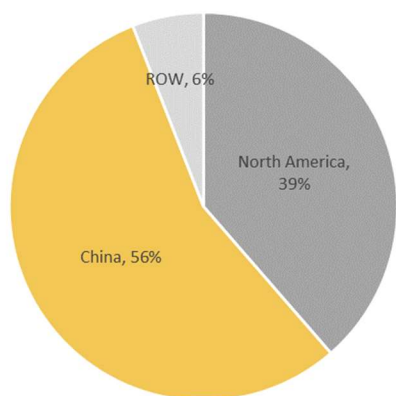
Global Outreach

AOS is made up of two main segments; North America (NA) and Rest of World (ROW). In the NA segment, a large portion of sales comes from the replacement of existing products. AOS estimates 80-85% of both water heater and boiler units sold in the U.S. are due to replacement needs. Most sales are derived from replacement need rather than new construction which has provided a cushion from the effects COVID-19 have had on a manufacturing business. In addition, COVID-19 forced more individuals to stay home to avoid the effects of the pandemic. Staying at home puts increased use on residential water heaters, boilers, and water treatment products, thus driving up replacements in the future.

The average water heater has an expected lifetime of 10-15 years. Water heaters and water treatment products have the luxury of being considered non-discretionary items that need to be replaced as soon as possible in the event they stop working. So, AOS is a stable and/or defensive company due to its demand predictability. However, even with the stability, AOS sales in 2020 declined 3.3% in comparison to sales in 2019. The decline in sales can be attributed to overall lower sales in China, reduced boiler sales, and lower commercial water heater volumes in NA.

The water treatment industry is an area for huge success and growth in AOS’ global future. In 2010, AOS had revenue of \$20 million in the water treatment business. 2010 is especially important to note due to AOS launching branded water treatment products in China for the first time during that year. In 2020, AOS has revenue of \$459 million in the water treatment business. In just 10 years, AOS grew its water treatment business 2,295%. For China especially, water treatment is important since traditional tap water is undrinkable.

Figures 5 & 6: 2020 Water Treatment Sales by Segment (left) and Global Water Treatment Revenue (in millions) (right)



Source: A. O. Smith Summer Analyst Presentation

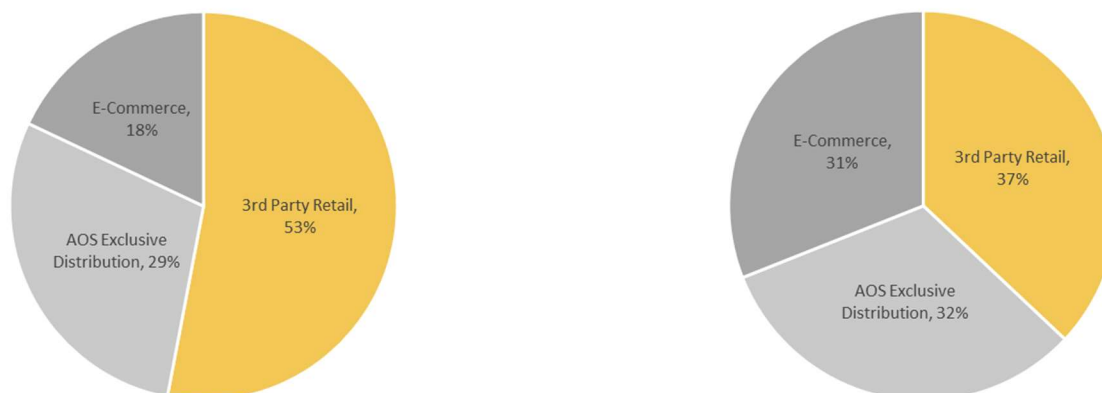
Other acquisitions have propelled AOS’ growth in the water treatment industry. In 2013, AOS purchased MiM Water Technologies in Istanbul, Turkey to formally enter into the water treatment market. Two years later, in 2015, AOS branded water treatment products in India. This was followed by purchasing Aquasana in 2016, which focuses on residential water filtration products. Additionally, in 2016, AOS branded water treatment products in Vietnam to further expand its ROW presence. Another acquisition was made in 2017 when AOS purchased Hague Quality Water International which specializes in water

softeners and filters. In 2018, the home improvement retailer Lowe's launched AOS branded water treatment products. Most recently, in 2019 AOS purchased Water-Right. Water-Right is a Wisconsin-based water treatment company and has increased the NA water treatment sales segment as shown in Figure 6. According to FactSet estimates, AOS is projected to grow 34.3% in 2022 and 74.9% in 2023. This growth is attributed to AOS' increase in purchasing other companies in the water technologies industry. Acquiring this organic growth is a large risk for AOS due to the possibility of paying too much for integration.

China plays a huge role in the success of AOS worldwide. China alone accounts for 24.2% of AOS' total net sales. AOS offers a differentiated product line in China due to Chinese consumers having different needs. AOS sales in China are derived of primarily wall-hung and tankless water heaters, reverse osmosis products for water purification, as well as air purification products. Traditionally, most sales in China are from 3rd party retail distributions. In 2015, AOS sold its products in over 8,000 retail outlets in China, compared to 2020 where AOS sold in over 6,400 retail outlets. This decline in 3rd party retail sales is offset by Chinese e-commerce sales increasing 13% from 2015 to 2020.

Any source of tension between the U.S. and China could cause serious problems for AOS and its profitability. Sales in 2019 decreased 23% in China which resulted in ROW sales decreasing 20.3% as a result. This decrease in sales is attributed to weaker end-market demand, inventory shifts, and the sales of AOS premium-priced products decreasing in favor of its mid-price products. In addition, a report released in May of 2019 raised questions about AOS's relationships with its suppliers. AOS disproved these claims but its stock price dropped 9% in the days following the report being released.

Figures 7 & 8: China Sales in 2015 by Distribution Channel (left) and China Sales in 2020 by Distribution Channel (right)



Source: A. O. Smith Summer Analyst Presentation

AOS' e-commerce sales are increasing due to online shopping growth in China. AOS has managed this growth by offering more website domains to market its products. These domains include www.suning.com, www.jd.com, and www.tmall.com. Another trend is the growing Chinese middle and upper classes. This should positively impact AOS' premium-tier products. Finally, urbanization has allowed AOS to increase its presence in the residential water treatment and water heater market. AOS is an established brand in China which has helped propel its growth and expand AOS' service and distribution networks.

The effects of the COVID-19 pandemic took a toll on AOS sales. The pandemic resulted in 2020 sales in China declining 15.3% compared to sales in 2019. Other ROW sales declined by 8.6% from 2019 to 2020. Business closures and travel restrictions are in part to blame for the stark decline in sales. In addition, Chinese government-imposed restrictions to reduce the effects of COVID-19 resulted in closing AOS Chinese operations for four weeks. AOS is making a continued effort to reduce the spread of COVID-19 by implementing training, new plant configurations to maintain social distancing, deep cleaning, and

sanitization methods for all facilities. These efforts prioritize the safety of AOS employees, suppliers, and customers and will continue to be followed even if they reduce efficiency to protect the health of everyone involved. AOS continues to maintain and monitor COVID-19 to operate effectively.

Competitor Analysis

Highly competitive markets influence AOS' innovation.

The water technology industry is a highly competitive market. Firms need to constantly evolve to increase energy efficiency and innovation. AOS competes on a wide variety of metrics including: "product design, reliability, quality of products and services, advanced technologies, product performance, maintenance costs and price." However, competitors may have greater access to financial capital and be able to invest more in innovative development, marketing, and manufacturing processes as the water technology industry continues to grow.

AOS's main competitors in water heating and boiler production in the U.S. are Rheem, Bradford White, Rinnai, Aereco, and Navien. The main water treatment competitors in the U.S. are Culligan, Kinetico, Pentair, and Ecowater. In the ROW segment, AOS's main competitors in the water heater market segment are Haier and Midea. Additionally, in the water treatment segment, AOS's main ROW competitors are Angel, Midea, Truliva, and Xiaomi.

AOS maintains a high market share in both residential and commercial U.S. water heater markets.

AOS has the leading market share in both residential and commercial water heater markets in the U.S. In its NA segment alone, water heaters and related parts accounted for 82.8% of 2020 sales. The U.S. residential water heater market is closely held by both AOS and competitor Rheem at 37% and 36% respectively. AOS lost 2% of market share from 2018, whereas Rheem has gained 3% market share in the same time period. As shown in Figure 10, AOS has the largest market share in commercial water heater sales in the U.S. However, that figure has decreased by 2% from 2018 to 2020.

Figures 9 & 10: Residential Water Heater Market Share in the U.S. (left) and Commercial Water Heater Market Share in the U.S. (right)



Source: Statista and A. O. Smith Summer Analyst Presentation

In addition, Figures 11 and 12 below show that, AOS has 9.2% of the market cap in its industry and generates 10.2% of sales in relation to its industry competitors. Since AOS has higher gross margins (figure 28), this implies that the market is less optimistic on growth and risk for AOS than its competitors. Whereas Midea Group, a Chinese electrical appliance manufacturer, dominates with 67.5% of the total market cap but only 13.3% of total sales by industry.

Figures 11 & 12: Industry Concentration (2021) by Market Cap (left) vs. Sales (right)



Source: FactSet

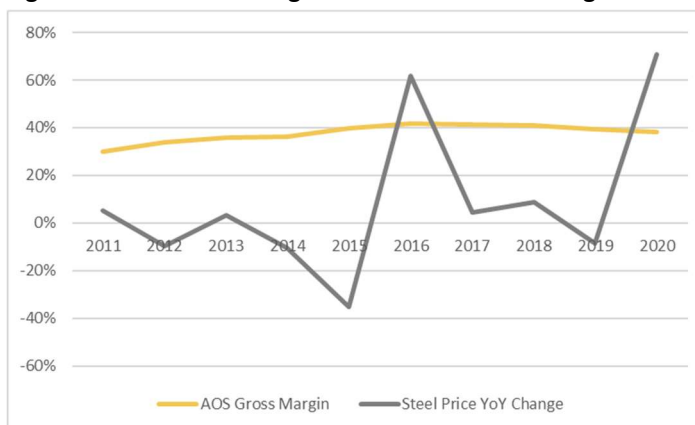
43% of AOS total net sales in 2020 are from five customers.

AOS has strong relationships with its corporate partners and manufacturers. These strong relationships lead to high sales volumes concentrated by a few customers. AOS’s largest five customers contribute approximately 43% of its net sales in 2020. These relationships should continue in the future; however, if the firm isn’t able to retain these customers or they go to competitors for business, it would be a huge loss for AOS.

Macroeconomic Trends

The largest raw material input for AOS is steel. Steel is used for AOS manufacturing operations and has been periodically stressed during parts of the COVID-19 pandemic. In addition, steel prices have been volatile and have been steadily increasing since the second half of 2020. In just one year, steel prices rose 306% from 2020 to October 2021. To minimize the effects of this volatility, AOS plans to enter into futures contracts to fix the cost of this raw material. AOS plans to purchase steel futures contracts on the New York Metals Exchange (NYMEX), as well as copper futures contracts on the London Metals Exchange (LME). Keeping the cost of raw materials in check will allow for higher operating earnings, and fewer price increases to its customers.

Figure 13: AOS Gross Margin vs Steel Price YoY Change

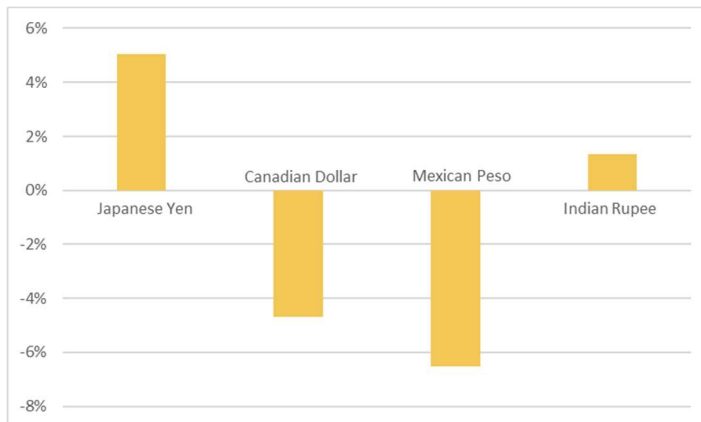


Source: FactSet

AOS operating outside of the U.S. is subject to risks related to foreign currencies. AOS has a large presence in China as well as Canada, Mexico, and India. Having a global presence, AOS experiences fluctuations in currency exchange rates, interest rates, hyperinflation, and instability. Strengthening of the

U.S. dollar relative to other foreign currencies could decrease AOS' profitability. AOS products are priced in the local currency in which they are sold. Currently, 34.2% of AOS sales are outside of the U.S.

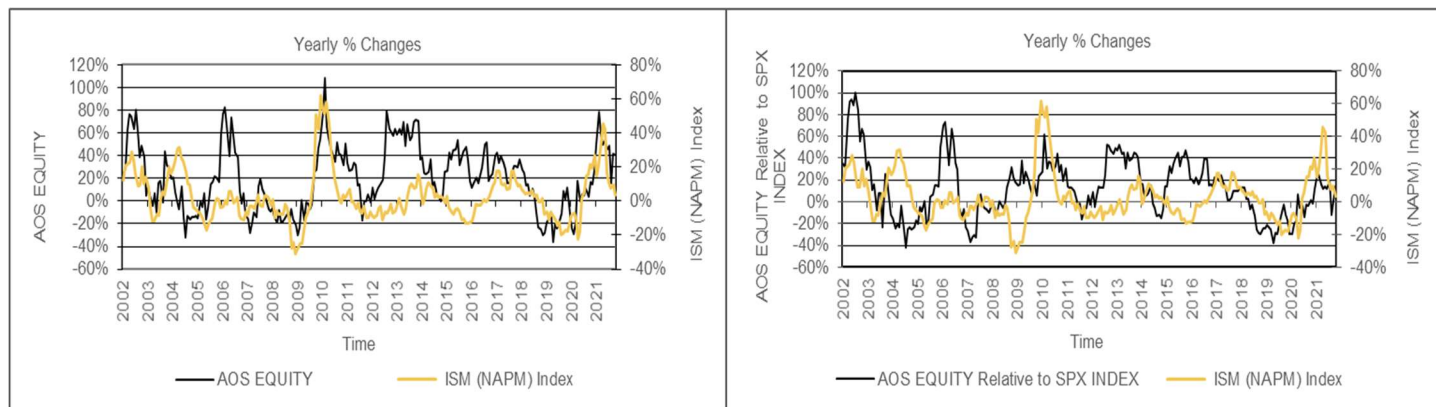
Figure 14: USD Purchasing Power change October 2020 to October 2021



Source: FactSet

AOS is an industrial company and is correlated to the purchasing managers' index (ISM PMI). This index is a monthly indicator of U.S. economic activity comprised of surveys of purchasing managers response to current business conditions. As shown in Figures 15 and 16 below, AOS seems to be positively correlated to the ISM PMI index. Figure 16, shows the beta of relative return to the market is 0.57 and the correlation is 0.25, which means AOS is more cyclical than the overall market.

Figures 15 & 16: AOS vs ISM PMI (left) and AOS Relative to SPX vs ISM PMI (right)



Source: Bloomberg, IMCP

Financial Analysis

Quantification of Drivers

I expect EPS to grow to \$3.49 in FY 2022 and \$3.64 in FY 2023. Sales continue to be the main driver in EPS rising for both forecasted years. Sales in both NA and ROW are predicted to increase due to the continued need for water heater replacement, as well as AOS expanding its global water treatment presence. Increasing gross margins also boost EPS growth. AOS has done an exceptional job minimizing its cost of goods sold in production, especially navigating through the effects of the pandemic. In addition, continued close contact with suppliers will lead to higher gross margins. I anticipate SG&A, R&D, and other expenses to rise as a percentage of sales and reduce EPS by \$0.26 in 2022 and \$0.07 in 2023 due to AOS continuing to emphasize its goal of producing innovative and energy-efficient product offerings.

Other miscellaneous expenses (interest and tax) will play a factor in increasing EPS by \$0.35 and decreasing EPS by \$0.24 in 2022 and 2023, respectively.

Figures 17 & 18: Quantification of EPS Drivers 2022 (left) and 2023 (right)



Source: Company Reports, IMCP

Review of Estimates

I am more optimistic about sales growth for 2022 and 2023 than consensus. AOS made recent acquisitions to expand both its water treatment sector and water heating outreach. I believe AOS will continue to make acquisitions that support its high predicted sales growth. On the contrary, I am more pessimistic about AOS’ EPS growth. Consensus EPS ranges from \$2.92 - \$3.65, and my estimates range from \$2.91 - \$3.64. In 2021, AOS has revised and raised its initial outlook for EPS 5.0% to \$2.86 - \$2.90 in 2021.

Figure 19: Sales and EPS Estimates vs. Consensus (2021-2023)

	2021	2022E	2023E
Sales Estimates	\$ 3,506	\$ 4,014	\$ 4,315
YoY Growth	21.1%	14.5%	7.5%
Sales Consensus	\$ 3,509	\$ 3,980	\$ 4,098
YoY Growth	21.2%	13.4%	3.0%
EPS Estimates	\$ 2.91	\$ 3.49	\$ 3.64
YoY Growth	36.0%	19.9%	4.3%
EPS Consensus	\$ 2.92	\$ 3.52	\$ 3.65
YoY Growth	35.2%	20.5%	3.7%

Source: FactSet

Sales Forecast

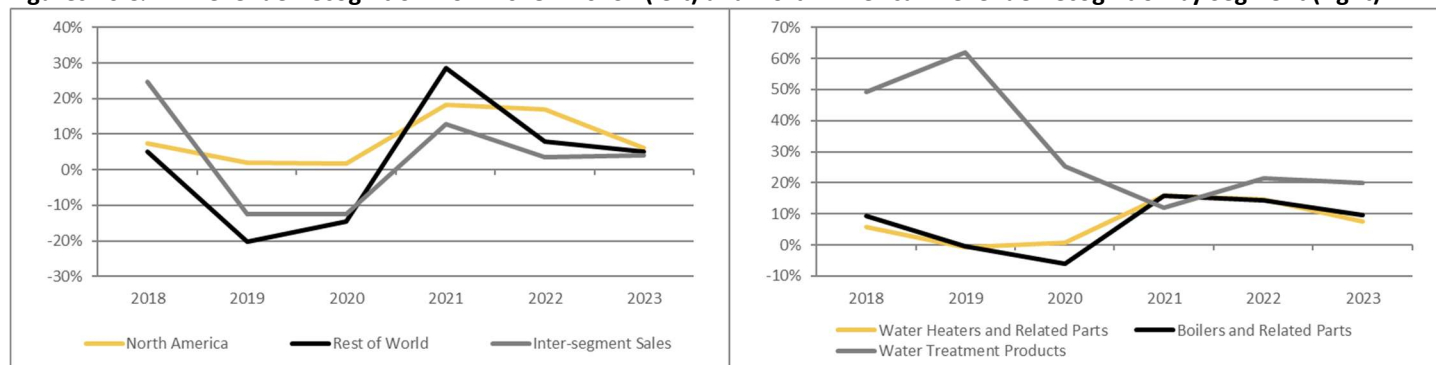
21.1% sales increase from 2020 – 2021 due to strong demand.

Despite having negative revenue growth from 2018 – 2019, AOS sales have increased dramatically from 2020 – 2021. NA Sales have increased by 18.1%, and ROW increased by 28.6% from 2020 – 2021. These huge increases can be attributed to several factors. These factors include strong demand for AOS products, implementing inflation-related pricing actions, prioritizing innovation/energy-efficiency, and capitalizing on the replacement cycle of products. AOS’s current strong sales growth has caused AOS to revise its initial sales estimates of 20.0% YoY growth to 21.0% YoY growth.

Figure 21 shows AOS NA sector revenue broken down by segment. On average, water heaters and related parts account for 57.5% of NA sales where boilers and related parts make up 6.3%, and water treatment

parts make up 4.9%. Similar to overall sales in NA, each of the three segments (heaters, boilers, and water treatment), had an overall decrease in sales performance from 2018 – 2020. Price increases in primarily water heaters drove the high sales growth in NA and offset rising material costs.

Figures 20 & 21: Revenue Recognition from 2018 – 2023E (left) and North American Revenue Recognition by Segment (right)

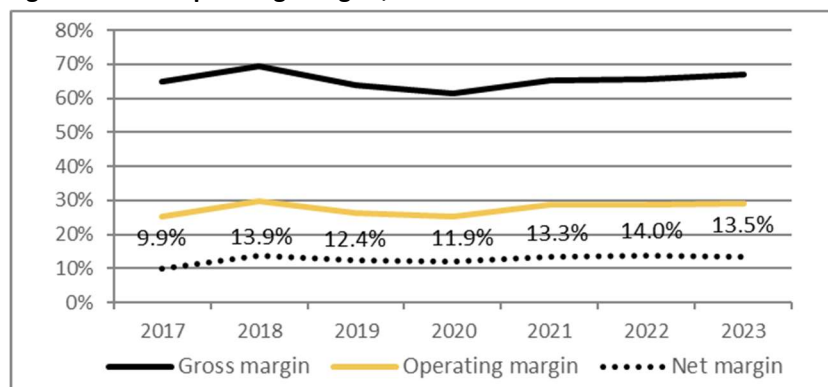


Source: FactSet

Operating Income and Margins

AOS has had relatively steady margins besides a minimal decrease from 2018 – 2020. Sales are expected to increase 21.1% from 2020 – 2021 thus driving up gross margins. However, higher SG&A expenses in 2022 - 2023 will affect much of the benefit of higher gross margins. In 2020, SG&A expenses were \$55.3 million lower than 2019, and 2019 was \$38.2 million lower than in 2018, an 8.4% and 5.3% decrease of total SG&A respectively. This savings is attributed to lower selling and advertising expenses in China. Also, R&D expenses have continued to decrease. In 2020, R&D expenses were \$7.2 million lower than 2019, and 2019 was \$6.1 million than 2018. This is an 8.9% and 6.9% decrease in R&D, respectively. I expect this trend down in both SG&A and R&D expenses to reverse, which would still allow for slightly higher net margins because of the large improvement in the gross margin.

Figure 22: AOS Operating Margins, 2017-2023E



Source: FactSet

Return on Equity

AOS has had some variance in its ROE. AOS’ ROE hit a low of 19.6% in 2020 due to the effects of the pandemic. This resulted in low sales in 2020 due to store closures for safety concerns mainly in the ROW segment. The low ROE in 2020 translated into a lower EBIT, asset turnover, and ROA in comparison to other years as highlighted below in Figure 23.

Going forward, I predict ROE will increase to 28.4% in 2022 and decline in 2023 to 24.6%. The main reason for this decline is due to sales growth which is predicted to slow from 2022 to 2023. Even with this

predicted decline in ROE in 2023, AOS maintains a high ROE in the mid-twenty percent range. This is far better than its competitors which averaged a ROE of 18.9% in 2021. This indicates AOS has an efficient use of capital.

Figure 23: ROE Breakdown, 2018 – 2023E

5-Stage DuPont	2018	2019	2020	2021	2022E	2023E
EBIT / sales	15.8%	13.8%	13.2%	15.5%	14.8%	15.5%
Sales / avg assets	1.02	0.98	0.93	1.10	1.18	1.11
EBT / EBIT	98.3%	97.3%	98.1%	96.3%	98.7%	99.5%
Net income / EBT	89.7%	91.9%	91.7%	89.0%	95.6%	87.8%
ROA	14.2%	12.1%	11.1%	14.7%	16.5%	15.0%
Avg assets / avg equity	1.86	1.81	1.77	1.75	1.72	1.64
ROE	26.4%	21.9%	19.6%	25.8%	28.4%	24.6%

Source: Company Reports, IMCP

Free Cash Flow

AOS's total cash flow has varied from year to year. AOS is not highly levered with debt, thus the firm uses FCF to repurchase shares of stock. AOS' NOPAT was \$408 million in 2021 and is projected to rise to \$487 million and \$522 million in 2022 and 2023 respectively. I predict AOS NOPAT to rise due to its EBIT rising due to its increase in projected sales, as well as taxes, staying relatively low in 2022 and 2023. I predict AOS to have declining FCFF and FCFE. I predict its FCFF to decline 51.8% to \$265 million, and its FCFE to decline 67.3% to \$173 million in 2022. Rising NOPAT with declining FCF is largely due to investments in net fixed assets.

AOS is actively repurchasing shares of stock.

Due to the effects of the COVID-19 pandemic, AOS has scaled back its stock repurchase program; however, as of January 27th, 2021, the AOS Board of Directors approved adding an additional 7,000,000 shares to its existing discretionary share buyback program. AOS currently has 8.6 million shares available for repurchase and plans on spending \$400 million through 2021 for these buybacks.

Figure 24: AOS Free Cash Flow Calculations

Free Cash Flow							
	2017	2018	2019	2020	2021	2022E	2023E
NOPAT	\$235	\$388	\$309	\$283	\$408	\$487	\$522
<i>Growth</i>		65.4%	-20.5%	-8.4%	44.3%	19.5%	7.1%
NOWC	512	468	563	622	407	462	616
Net fixed assets	1,431	1,433	1,558	1,543	1,616	1,784	1,961
Total net operating capital	\$1,943	\$1,901	\$2,121	\$2,165	\$2,023	\$2,246	\$2,578
<i>Growth</i>		-2.2%	11.6%	2.1%	-6.5%	11.0%	14.8%
- Change in NOWC		(45)	95	59	(215)	55	155
- Change in NFA		2	125	(15)	73	168	177
FCFF		\$430	\$89	\$239	\$549	\$265	\$190
<i>Growth</i>			-79.4%	169.8%	130.1%	-51.8%	-28.4%
- After-tax interest expense		6	8	5	15	7	3
+ Net new short-term and long-term debt		(189)	101	(175)	(6)	(85)	15
FCFE		\$235	\$182	\$58	\$529	\$173	\$202
<i>Growth</i>			-22.6%	-67.9%	807.0%	-67.3%	16.8%
Sources of cash (FCFE)		\$235	\$182	\$58	\$529	\$173	\$202
Uses of cash							
Other expense		(\$63)	(\$70)	(\$68)	(\$75)	(\$80)	(\$65)
Increase mkt sec		(88)	(208)	(61)	59	65	85
Dividends		97	130	149	167	173	180
Change in other equity		275	290	14	368	0	-
		\$221	\$143	\$35	\$519	\$158	\$200
Change in other liab		(13)	(39)	(24)	(10)	(15)	(2)
Total		\$235	\$182	\$58	\$529	\$173	\$202

Source: Company Reports, FactSet, IMCP

Valuation

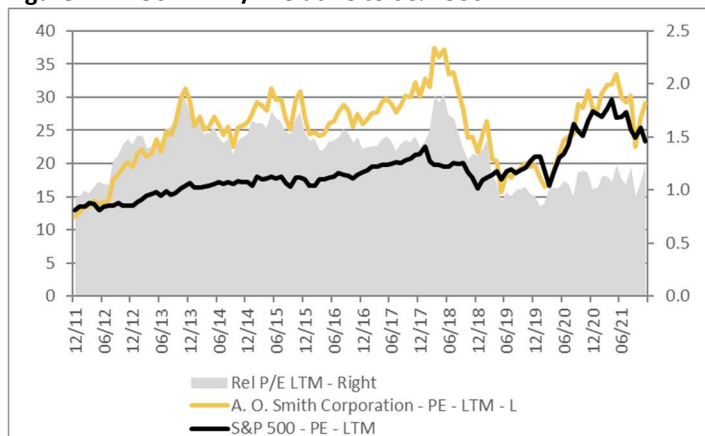
AOS target price is \$72.

AOS was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is overvalued relative to other firms and is currently worth \$88.82. However, due to variation in AOS' earnings over the past several years, this metric may not be the most accurate. Relative valuation shows AOS to be much more fairly valued based on its fundamentals versus those of its peers in the industrial industry. A detailed DCF analysis values AOS at \$58.45. Taking into consideration the earnings multiples assumption and the DCF analysis, I value AOS at \$72.

Trading History

The current stock price of AOS is at a five-year high of \$83.63. AOS stock price has gone up approximately 74.6% over the last five years; the only year with negative return being 2018 (-30.3%) due to concerns in ROW with China. AOS' stock price has taken off since October 28th, 2021, due to reporting record sales numbers in the third quarter. Fourth quarter 2021 sales are expected to increase in line with the third quarter, thus showing no signs of a decrease awaiting fourth-quarter earnings results. AOS's current LTM P/E is 23.8, up 2.0 from its 5-year average of 21.8.

Figure 27: AOS LTM P/E relative to S&P 500



Source: FactSet

Assuming the firm maintains a 24.4 NTM P/E at the end of 2022, it should trade at \$88.82 by the end of the year:

- Price = P/E x EPS = 24.4 x \$3.64 = \$88.82.

Discounting \$88.82 back to today at a 10.4% cost of equity (explained in Discounted Cash Flow section) yields a price of \$79.58. Given AOS's potential for earnings growth and strong demand for its products, this seems like a reasonable valuation.

Relative Valuation

AOS is currently trading at a P/E under the average for its comps group with a P/E TTM of 28.7 compared to an average of 33.1. I believe AOS is overvalued so its lower P/E would be an indication of AOS performing well this fiscal year. AOS' high sales growth from 2020 to 2021 has helped raise its P/E, however, sales growth can only be sustained for a set time before additional innovation is needed. On the contrary, AOS has both a high P/B and P/S ratio in comparison to its comps. AOS has a P/B of 7.07 in comparison to its comp average of 5.47. This high P/B may be due to AOS' high ROE in 2021. Excluding the competitor Ametek (AME), due to it being an outlier, the average P/S for AOS comps is 3.69, and AOS P/S is 4.56. Again, AOS has a higher net margin (11.7%) than the median (10.2%) of comps.

Figure 28: AOS Comparable Companies

Ticker	Current Price	Market Value	Price Change						Earnings Growth					Beta	LT Debt/Equity	S&P Rating	LTM Dividend		
			1 day	1 Mo	3 Mo	6 Mo	52 Wk	YTD	LTG	NTM	2019	2020	2021				2022	Yield	Payout
AOS	\$82.87	\$13,190	(0.1)	5.3	16.8	21.1	43.7	51.2		17.7%	-14.0%	-4.5%	37.7%	20.5%	1.08	6.9%	A-	1.34%	36.0%
PNR	\$73.40	\$12,146	(1.8)	(1.6)	(3.7)	6.1	39.5	38.3	13.6	22.0%	6.6%	2.4%	58.4%	11.5%	1.16	32.4%		1.09%	26.4%
AME	\$141.09	\$32,638	0.0	1.2	7.1	4.0	18.8	16.7	10.3	31.5%	12.3%	0.5%	26.8%	12.6%	1.29	36.1%	A	0.57%	19.5%
TT	\$201.65	\$47,900	0.1	6.4	6.0	10.6	43.0	38.9	16.0	20.0%	8.2%	0.0%	185.4%	16.0%	0.98	69.4%		1.23%	40.7%
WTS	\$192.00	\$6,455	(1.6)	(8.1)	11.4	35.4	62.5	57.8	8.0	24.6%	8.8%	-4.7%	37.9%	9.7%	0.77	13.2%	B-	0.54%	21.5%
SPXC	\$59.61	\$2,707	(2.6)	(12.2)	1.2	(3.4)	7.9	9.3	15.0	34.8%	-13.2%	34.2%	6.6%	23.5%	1.38	22.1%	B	0.00%	0.0%
Average		\$19,173	(1.0)	(1.5)	6.5	12.3	35.9	35.3	12.6	25.1%	1.5%	4.7%	58.8%	15.6%	1.11	30.0%		0.79%	24.0%
Median		\$12,668	(0.9)	(0.2)	6.6	8.3	41.3	38.6	13.6	23.3%	7.4%	0.3%	37.8%	14.3%	1.12	27.2%		0.83%	24.0%
SPX	\$4,667		(0.7)	(0.4)	3.9	10.6	27.1	24.3			1.4%	-15.3%	46.5%	9.6%					

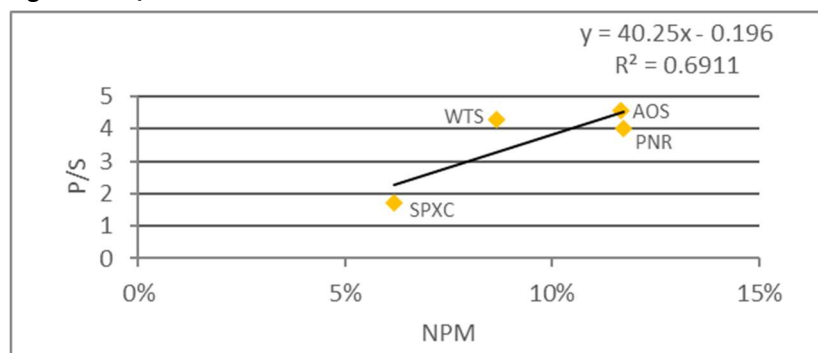
Ticker	2021 ROE	P/B	P/E							2020				EV/		P/CF		Sales Growth		Book Equity
			2018	2019	2020	TTM	NTM	2021	2022	NPM	P/S	NM	OM	ROIC	EBIT	Current	NTM	STM		
AOS	24.9%	7.07	16.6	21.5	25.8	28.7	24.4	28.4	23.5	11.7%	4.56	11.9%	15.4%	17.4%	18.8	46.5	17.6%	6.0%	\$11.72	
PNR	24.0%	5.20	19.3	21.9	24.6	24.3	19.9	21.7	19.4	11.7%	4.02	11.8%	16.0%	11.8%	20.1	19.0	11.0%	7.6%	\$14.13	
AME	16.9%	4.98	20.3	26.6	31.8	35.3	26.8	29.5	26.2	19209.1%	7188.91	19.2%	23.6%	11.0%	27.4	30.1	12.8%	5.3%	\$28.35	
TT	22.2%	7.40	36.1	48.6	68.3	35.7	29.8	33.3	28.7	4.0%	3.85	7.8%	12.9%	8.2%	23.4	27.8	8.3%	4.8%	\$27.26	
WTS	15.6%	5.61	17.3	24.5	31.3	42.0	33.7	35.9	32.7	8.6%	4.28	7.6%	12.9%	9.0%	21.5		7.2%		\$34.20	
SPXC	9.7%	2.55	15.4	32.2	25.6	31.3	23.3	26.4	21.4	6.2%	1.74	6.5%	8.6%	11.6%	21.4	18.5	-9.5%	3.7%	\$23.37	
Average	18.9%	5.47	20.8	29.2	34.6	32.9	26.3	29.2	25.3	3208.6%	1201.22	10.8%	14.9%	11.5%	22.1	28.4	7.9%	5.5%		
Median	19.5%	5.40	18.3	25.6	28.5	33.3	25.6	28.9	24.9	10.2%	4.15	9.8%	14.2%	11.3%	21.5	27.8	9.6%	5.3%		
SPX			15.6	19.8	27.0			23.1	21.1											

Source: FactSet, IMCP

A more thorough analysis of P/S and NPM is shown in Figure 29. However, two competitors were removed, AME and TT, due to being outliers and skewing the data. The calculated R-squared of the regression indicates that over 69.1% of a sampled firm's P/S is explained by its NPM. Out of all comps, AOS has the highest P/S ratio of this grouping (4.56) and the highest NPM of 11.7% (same as comp PNR). According to this measure, AOS is slightly overvalued, being a bit above the regression line. Assuming the regression line shown in Figure 29 is fair, the stock should trade at \$89.91.

- Estimated P/S = Estimated 2022 NPM (12.6%) x 40.25 – 0.196 = 4.86
- Target Price = Estimated P/S (4.86) x Estimated Sales per Share (\$18.50) = \$89.91

Figure 29: P/S vs NPM



Source: FactSet

For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. For fundamentals, 100.0% of the weight was on the stock's 2021 ROE. For valuation, 75.0% of the

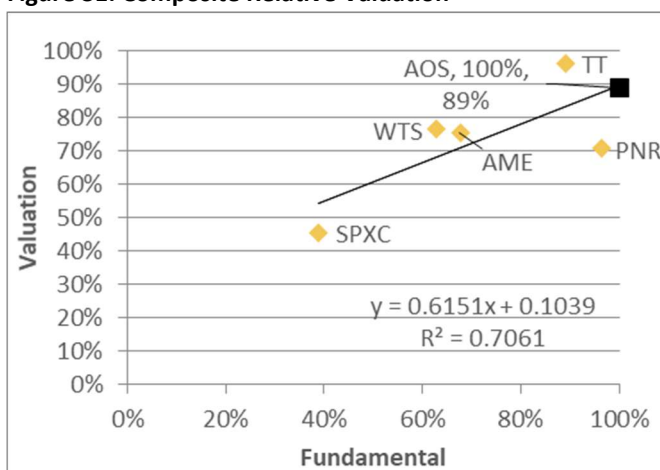
weight was on P/B and 25.0% was on EV/EBIT. Most of the weight was on the P/B metric due to industrial companies like AOS and its competitors being asset intensive. The regression line had an R-squared of approximately 0.71. AOS appears to be on the regression line having a fundamental weight of 100% and valuation weight of 89%, so it is fairly valued.

Figure 30: AOS and Competitors Fundamental vs Valuation Breakdown

Ticker	Name	Fundamental					Valuation		
		Rank	Diff	Target Value	Weight		100.0%	75.0%	25.0%
					Fund	Value	2021 ROE	P/B	EV/EBIT
AOS	SMITH (A.O.)	5	43%	131%	100%	89%	100%	96%	69%
PNR	PENTAIR PLC	6	57%	128%	96%	71%	96%	70%	73%
AME	AMETEK INC	2	23%	99%	68%	75%	68%	67%	100%
TT	TRANE TECHNOLOGIES PLC	3	24%	120%	89%	96%	89%	100%	86%
WTS	WATTS WATER TECHNOLOGIES	1	17%	94%	63%	77%	63%	76%	79%
SPXC	SPX CORP	4	24%	70%	39%	45%	39%	34%	78%

Source: IMCP

Figure 31: Composite Relative Valuation



Source: IMCP

Discounted Cash Flow Analysis

A three-stage discounted cash flow model was also used to value AOS.

For this analysis, the company’s cost of equity was calculated to be 10.4% using the Capital Asset Pricing Model. The underlying assumptions used in calculating this rate are as follows:

- The risk-free rate, as represented by the ten-year Treasury bond yield, is 1.5%.
- A ten-year beta of 1.05 was utilized which is lower than the building materials industry average and AOS competitors in Figure 28.
- A long-term market rate of return of 10% was assumed since historically, the market has generated an annual return of approximately 10%.

Given the above assumptions, the cost of equity is 10.4%: (1.5 + 1.05 (10.0 – 1.5)).

Stage One - The model’s first stage simply discounts fiscal years 2022 and 2023 free cash flow to equity (FCFE). These per share cash flows are forecasted to be \$1.61 and \$1.17, respectively. Discounting these

cash flows, using the cost of equity calculated above, results in a value of \$2.41 per share. Thus, stage one of this discounted cash flow analysis contributes \$2.41 in value.

Stage Two - Stage two of the model focuses on fiscal years 2024 to 2028. During this period, FCFE is calculated based on revenue growth, NOPAT margin, and capital growth assumptions. The resulting cash flows are then discounted using the company's 10.4% cost of equity. I assume 6.7% sales growth in 2024, which regresses to 4.6% through 2028. AOS' NFA and NOPAT margin is expected to be stable from 2024 – 2028. Overall AOS' FCFE is expected to be stable declining after 2024 due to increases in total investments in operating capital.

Figure 32: FCFE and discounted FCFE, 2024 – 2028

	2024	2025	2026	2027	2028
FCFE	\$5.30	\$3.82	\$3.42	\$3.72	\$3.86
* Discount factor	0.74	0.67	0.61	0.55	0.50
Discounted FCFE	\$3.94	\$2.57	\$2.08	\$2.05	\$1.93

Source: IMCP

Discounted at a 10.4% cost of equity, these discounted cash flows total \$12.57.

Stage Three – Net income for the years 2024 – 2028 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from \$3.54 in 2024 to \$4.70 in 2028.

Figure 33: EPS estimates for 2024 – 2028

	2024	2025	2026	2027	2028
EPS	\$3.54	\$3.82	\$4.10	\$4.40	\$4.70

Source: IMCP

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. For this analysis, I assumed a terminal 2028 P/E of 18.5. The current TTM P/E is 28.1 and is pricing in the high sales growth from 2020 to 2021. While I believe AOS will continue to have good sales margins, I do not think they are sustainable until 2028 thus reducing its P/E to a more sustainable factor. This P/E is approximately the same multiple as expected for the market because of its similar cyclicity and risk.

Given the assumed terminal earnings per share of \$4.70 and a price-to-earnings ratio of 18.5, a terminal value of \$87.02 per share is calculated. Using the 10.4% cost of equity, this number is discounted back to a present value of \$43.47.

Total Present Value – given the above assumptions and utilizing a three-stage discounted cash flow model, an intrinsic value of \$58.45 is calculated (2.41 + 12.47 + 43.47). Given AOS's current price of \$83.63, this model indicates that the stock is highly overvalued.

Scenario Analysis

AOS is difficult to value with certainty due to the uncertainty in AOS' ROW segment. AOS has over 27% of its sales derived from its ROW segment, and a vast majority of these sales come from China exclusively (23%). Tensions between the U.S. and China could have significant implications on profitability and sales for AOS. A bull and a bear case, shown in Figures 34 and 35, show the valuation of AOS given two varying economic conditions/factors.

Bull Case: The bull case assumes there are no trade tensions between the U.S. and China. In addition, the bull case assumes that sales will continue to fall from 2023, however, not as fast as the base case shown in stage two of the DCF analysis above. The market return and risk-free rate will stay the same as prior

assumptions, however, I believe AOS beta would increase due to more risk associated with these assumptions. I have chosen to increase AOS beta from 1.05 to 1.25, which would be above both the building products industry average and AOS competitor average. The NOPAT/sales ratio will stay relatively constant increasing a small amount to account for an increase in sales growth from the base case DCF analysis. Finally, AOS's P/E would increase to 23.0 from 18.5 in the previous assumptions. In this scenario, the target price is \$66.08, \$7.63 larger than the base case DCF analysis shown above.

Figure 34: Bull Case Estimated Value

Summary (using P/E multiple for terminal value)		
First stage	\$2.36	Present value of first 2 year cash flow
Second stage	\$11.61	Present value of year 3-7 cash flow
Third stage	\$52.11	Present value of terminal value P/E
Value (P/E)	\$66.08	

Source: IMCP

Bear Case: The bear case assumes there is some uncertainty in AOS sales projections. The sales uncertainty could be due to increased tensions between the U.S. and China or other macroeconomic factors. In addition, AOS's P/E would fall to 15.5, which is less than the market indicating low growth for AOS. I predict NOPAT/sales would also fall due to a decrease in sales. AOS's beta would increase slightly due to an increase in risk to 1.10. All other factors would remain unchanged from the base case shown above in the DCF section. In this scenario, the target price is \$40.55. This target price is \$17.90 less than the target price with the base case assumptions.

Figure 35: Bear Case Estimated Value

Summary (using P/E multiple for terminal value)		
First stage	\$2.40	Present value of first 2 year cash flow
Second stage	\$11.03	Present value of year 3-7 cash flow
Third stage	\$27.12	Present value of terminal value P/E
Value (P/E)	\$40.55	

Source: IMCP

Business Risks

There are many reasons to be optimistic about AOS given its strong 2021 sales as well as high demand for its products. However, there are many risks outside of the company's control, as mentioned in its February '21 10K. This leads to my sell position on the company's stock.

Exposure to COVID-19 risks:

AOS conducts a large portion of business in its ROW segment. This segment was hit especially hard in the bulk of the COVID-19 shutdown. There is no end in sight for COVID and its variants that arise. These risks not only affect AOS, but affect its suppliers, distributors, manufacturers, and customers as well.

Global Economic Downturn:

A global economic downturn would affect consumer spending patterns and consumer confidence. This would result in a decline in demand for AOS product offerings and ultimately impact its profitability and cashflows. An economic downturn could also affect AOS suppliers which would cause a delay in the supply of materials, vendor bankruptcies... etc. On the other hand, much of its sales are for replacement products that are needed.

Participating in Highly Competitive Markets:

The industrial sector is a very competitive market. AOS operates in different markets globally, so there is constant change it must adjust to. Changing consumer preferences and purchasing behavior can alter AOS' target market and product offerings. Competitors may have greater means to invest in marketing, research, and development, as well as innovation. AOS must always be looking for competitive advantages.

Exposure in China and Other ROW activity:

AOS has over 27% of its total revenue coming from its ROW sector. Trade tensions between the U.S. and China or the slowing of the Chinese economy would have huge implications on sales revenue for AOS. There are also general risks associated with doing business outside of the U.S. These risks include but are not limited to political and economic instability, poor labor market conditions, trade restrictions/tariffs, as well as different laws that govern its global operations.

Foreign Currency Risk:

Having a significant presence outside of the U.S, AOS is impacted by changes in exchange rates. AOS prices its products in the ROW segment in the local currency. An appreciation of the USD relative to local foreign currency would hurt AOS profitability.

Appendix 1: SWOT Analysis

Strengths	Weaknesses
Brand recognition Demand predictability Commitment to innovation	Chinese tension Trade uncertainties Highly established competition
Opportunities	Threats
Water purification expansion Broadening ROW presence Expanding e-commerce	Rising raw material cost Change in consumer behaviors COVID-19 variants

Appendix 2: Porter's 5 Forces

Threat of New Entrants – Low

Entrance into the industrials/building materials sector is very capital intensive. New entrants would have to put up a lot of capital to compete with seasoned players such as AOS and other competitors. In addition, a lot of revenue in a capital intensive comes from demand. Being a new entrant into the industrials sector, demand would likely be very low due to consumers being unaware of new entrants into the market.

Threat of Substitutes – Low

AOS has many different product lines and names that are associated with its products. These differing product names and product offerings allow for AOS to cater to all different types of consumers and their needs.

Supplier Power – Moderate

AOS is a price taker for raw material inputs that are associated with the making of its products. These raw materials are very volatile in price. AOS plans on entering into futures contracts to help regulate its spending on these materials.

Buyer Power – Moderate

43% of AOS's total net sales in 2020 are from its top five customers. In addition, a majority of sales come from replacement needs in NA and ROW segments. If AOS were to increase and/or diversify its customer base it would have a higher buying power.

Intensity of Competition – Moderate

There are many established competitors that AOS must compete with for market share. AOS has a lot of product offerings in comparison to some of its competitors which may specialize in one or two products. Having many product offerings means a large base of competitors. However, AOS puts an emphasis on R&D which aims to ensure consumers are getting the most innovative/efficient products.

Appendix 3: Sales

Sales							
Items	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23
Sales	2,997	\$3,188	2,993	2,895	3,506	4,012	\$4,243
<i>Growth</i>		6.4%	-6.1%	-3.3%	21.1%	14.5%	5.7%
North America	1,905	2,045	2,084	2,118	2,503	2,928	3,104
<i>Growth</i>		7.3%	1.9%	1.7%	18.1%	17.0%	6.0%
<i>% of sales</i>	63.6%	64.1%	69.6%	73.2%	71.4%	73.0%	73.2%
Rest of World	1,116	1,174	936	800	1,029	1,112	1,167
<i>Growth</i>		5.1%	-20.3%	-14.5%	28.6%	8.0%	5.0%
<i>% of sales</i>	37.3%	36.8%	31.3%	27.6%	29.4%	2.0%	27.5%
Inter-segment Sales	(24)	(30)	(27)	(23)	(26)	(27)	(28)
<i>Growth</i>		24.6%	-12.5%	-12.4%	12.9%	3.5%	4.0%
<i>% of sales</i>	-0.8%	-1.0%	-0.9%	-0.8%	-0.8%	-0.7%	6.0%
Total	63.6%	64.1%	69.6%	73.2%	69.7%	70.2%	72.2%
NA Revenue Breakdown:							
Water Heaters and Related Parts	1,663	1,757	1,743	1,754	2,030	2,327	2,503
<i>Growth</i>		5.7%	-0.8%	0.6%	15.7%	14.6%	7.6%
<i>% of sales</i>	55.5%	55.1%	58.2%	60.6%	57.9%	58.0%	59.0%
Boilers and Related Parts	183	200	200	187	217	248	272
<i>Growth</i>		9.3%	-0.4%	-6.2%	15.7%	14.5%	9.5%
<i>% of sales</i>	6.1%	6.3%	6.7%	6.5%	6.2%	6.2%	6.4%
Water Treatment Products	59	87	141	177	198	241	288
<i>Growth</i>		49.2%	62.0%	25.3%	11.9%	21.4%	19.8%
<i>% of sales</i>	2.0%	2.7%	4.7%	6.1%	5.7%	6.0%	6.8%

Appendix 4: Income Statement

Income Statement (in millions)							
Items	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23
Sales	\$2,997	\$3,188	\$2,993	\$2,895	\$3,506	\$4,014	\$4,315
Direct costs	1,810	1,924	1,864	1,844	2,231	2,529	2,675
Gross Margin	1,187	1,264	1,129	1,052	1,275	1,485	1,640
SG&A, R&D, D&A, and other	723	761	716	668	730	891	971
EBIT	463.9	503.5	413.4	383.5	545.0	594	669
Interest	10	8	11	7	20	8	3
EBT	454	495	402	376	525	586	666
Taxes	224	114	102	99	132	105	146
Income	230	382	300	277	393	481	519
Other	(67)	(63)	(70)	(68)	(75)	(80)	(65)
Net income	297	444	370	345	467	561	584
Basic Shares	172.6	170.5	170.5	161.5	160.5	160.5	160.5
Fully Diluted Shares	174.6	172.1	166.7	162.6	161.4	161.4	161.4
EPS	\$1.72	\$2.61	\$2.17	\$2.14	\$2.91	\$3.49	\$3.64
EPS Fully Diluted	\$1.70	\$2.58	\$2.22	\$2.12	\$2.89	\$3.47	\$3.62
DPS	\$0.49	\$0.57	\$0.76	\$0.92	\$1.04	\$1.08	\$1.12

Appendix 5: Balance Sheet

Balance Sheet (in millions)							
Items	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23
Cash	347	260	374	573	525	278	509
Operating assets ex cash	947	994	949	928	882	1,287	1,381
Operating assets	1,293	1,253	1,323	1,502	1,407	1,565	1,889
Operating liabilities	781	785	760	880	1,000	1,104	1,273
NOWC	512	468	563	622	407	462	616
NOWC ex cash (NWC)	166	208	189	49	(118)	183	108
NFA	1,431	1,433	1,558	1,543	1,616	1,784	1,961
<i>Invested capital</i>	<i>\$1,943</i>	<i>\$1,901</i>	<i>\$2,121</i>	<i>\$2,165</i>	<i>\$2,023</i>	<i>\$2,246</i>	<i>\$2,578</i>
Marketable securities	473	385	177	117	175	240	325
<i>Total assets</i>	<i>\$3,197</i>	<i>\$3,072</i>	<i>\$3,058</i>	<i>\$3,161</i>	<i>\$3,198</i>	<i>\$3,589</i>	<i>\$4,176</i>
S-T and L-T debt and financing leases	\$410	\$221	\$323	\$148	\$142	\$57	\$72
Other liabilities	361	348	309	285	276	261	259
Debt/equity-like securities	-	-	-	-	-	-	-
Equity	1,645	1,717	1,667	1,848	1,780	2,168	2,572
<i>Total supplied capital</i>	<i>\$2,416</i>	<i>\$2,286</i>	<i>\$2,298</i>	<i>\$2,281</i>	<i>\$2,198</i>	<i>\$2,486</i>	<i>\$2,903</i>
<i>Total liabilities and equity</i>	<i>\$3,197</i>	<i>\$3,072</i>	<i>\$3,058</i>	<i>\$3,161</i>	<i>\$3,198</i>	<i>\$3,589</i>	<i>\$4,176</i>

Appendix 6: Ratios

Ratios							
Items	Dec-17	Dec-18	Dec-19	Dec-20	Dec-21	Dec-22	Dec-23
Profitability							
Gross margin	39.6%	39.6%	37.7%	36.3%	36.4%	37.0%	38.0%
Operating (EBIT) margin	15.5%	15.8%	13.8%	13.2%	15.5%	14.8%	15.5%
Net profit margin	9.9%	13.9%	12.4%	11.9%	13.3%	14.0%	13.5%
Activity							
NFA (gross) turnover		2.23	2.00	1.87	2.22	2.36	2.30
Total asset turnover		1.02	0.98	0.93	1.10	1.18	1.11
Liquidity							
Op asset / op liab	1.66	1.60	1.74	1.71	1.41	1.42	1.48
NOWC Percent of sales		15.4%	17.2%	20.5%	14.7%	10.8%	12.5%
Solvency							
Debt to assets	12.8%	7.2%	10.6%	4.7%	4.4%	1.6%	1.7%
Debt to equity	24.9%	12.9%	19.4%	8.0%	8.0%	2.6%	2.8%
Other liab to assets	11.3%	11.3%	10.1%	9.0%	8.6%	7.3%	6.2%
Total debt to assets	24.1%	18.5%	20.7%	13.7%	13.1%	8.8%	7.9%
Total liabilities to assets	48.6%	44.1%	45.5%	41.5%	44.3%	39.6%	38.4%
Debt to EBIT	0.88	0.44	0.78	0.38	0.26	0.10	0.11
EBIT/interest	45.93	59.94	37.58	52.53	27.25	74.63	207.38
Debt to total net op capital	21.1%	11.6%	15.2%	6.8%	7.0%	2.5%	2.8%
ROIC							
NOPAT to sales	7.8%	12.2%	10.3%	9.8%	11.6%	12.1%	12.1%
Sales to NWC		17.04	15.06	24.31	(101.46)	123.01	29.64
Sales to NFA		2.23	2.00	1.87	2.22	2.36	2.30
Sales to IC ex cash		1.97	1.77	1.73	2.27	2.32	2.14
Total ROIC ex cash		24.0%	18.2%	16.9%	26.4%	28.1%	25.8%
NOPAT to sales	7.8%	12.2%	10.3%	9.8%	11.6%	12.1%	12.1%
Sales to NOWC		6.50	5.80	4.89	6.81	9.24	8.00
Sales to NFA		2.23	2.00	1.87	2.22	2.36	2.30
Sales to IC		1.66	1.49	1.35	1.67	1.88	1.79
Total ROIC		20.2%	15.3%	13.2%	19.5%	22.8%	21.6%
NOPAT to sales	7.8%	12.2%	10.3%	9.8%	11.6%	12.1%	12.1%
Sales to EOY NWC	18.06	15.31	15.81	59.21	(29.71)	21.90	40.00
Sales to EOY NFA	2.09	2.22	1.92	1.88	2.17	2.25	2.20
Sales to EOY IC ex cash	1.88	1.94	1.71	1.82	2.34	2.04	2.09
Total ROIC using EOY IC ex cash	14.7%	23.6%	17.7%	17.8%	27.2%	24.8%	25.2%
NOPAT to sales	7.8%	12.2%	10.3%	9.8%	11.6%	12.1%	12.1%
Sales to EOY NOWC	5.85	6.81	5.31	4.65	8.61	8.69	7.00
Sales to EOY NFA	2.09	2.22	1.92	1.88	2.17	2.25	2.20
Sales to EOY IC	1.54	1.68	1.41	1.34	1.73	1.79	1.67
Total ROIC using EOY IC	12.1%	20.4%	14.5%	13.1%	20.2%	21.7%	20.2%
ROE							
5-stage							
EBIT / sales		15.8%	13.8%	13.2%	15.5%	14.8%	15.5%
Sales / avg assets		1.02	0.98	0.93	1.10	1.18	1.11
EBT / EBIT		98.3%	97.3%	98.1%	96.3%	98.7%	99.5%
Net income / EBT		89.7%	91.9%	91.7%	89.0%	95.6%	87.8%
ROA		14.2%	12.1%	11.1%	14.7%	16.5%	15.0%
Avg assets / avg equity		1.86	1.81	1.77	1.75	1.72	1.64
ROE		26.4%	21.9%	19.6%	25.8%	28.4%	24.6%
Payout Ratio		21.8%	35.2%	43.3%	35.8%	30.9%	30.8%
Retention Ratio		78.2%	64.8%	56.7%	64.2%	69.1%	69.2%
Sustainable Growth Rate		20.7%	14.2%	11.1%	16.5%	19.6%	17.1%

Appendix 7: Comp Sheet

Ticker	Current Price	Market Value	Price Change						Earnings Growth						Beta	LT Debt/Equity	S&P Rating	LTM Dividend		
			1 day	1 Mo	3 Mo	6 Mo	52 Wk	YTD	LTG	NTM	2019	2020	2021	2022				Yield	Payout	
AOS	\$82.87	\$13,190	(0.1)	5.3	16.8	21.1	43.7	51.2			17.7%	-14.0%	-4.5%	37.7%	20.5%	1.08	6.9%	A-	1.34%	36.0%
PNR	\$73.40	\$12,146	(1.8)	(1.6)	(3.7)	6.1	39.5	38.3	13.6	22.0%	6.6%	2.4%	58.4%	11.5%	1.16	32.4%		1.09%	26.4%	
AME	\$141.09	\$32,638	0.0	1.2	7.1	4.0	18.8	16.7	10.3	31.5%	12.3%	0.5%	26.8%	12.6%	1.29	36.1%	A	0.57%	19.5%	
TT	\$201.65	\$47,900	0.1	6.4	6.0	10.6	43.0	38.9	16.0	20.0%	8.2%	0.0%	185.4%	16.0%	0.98	69.4%		1.23%	40.7%	
WTS	\$192.00	\$6,455	(1.6)	(8.1)	11.4	35.4	62.5	57.8	8.0	24.6%	8.8%	-4.7%	37.9%	9.7%	0.77	13.2%	B-	0.54%	21.5%	
SPXC	\$59.61	\$2,707	(2.6)	(12.2)	1.2	(3.4)	7.9	9.3	15.0	34.8%	-13.2%	34.2%	6.6%	23.5%	1.38	22.1%	B	0.00%	0.0%	
Average		\$19,173	(1.0)	(1.5)	6.5	12.3	35.9	35.3	12.6	25.1%	1.5%	4.7%	58.8%	15.6%	1.11	30.0%		0.79%	24.0%	
Median		\$12,668	(0.9)	(0.2)	6.6	8.3	41.3	38.6	13.6	23.3%	7.4%	0.3%	37.8%	14.3%	1.12	27.2%		0.83%	24.0%	
SPX	\$4,667		(0.7)	(0.4)	3.9	10.6	27.1	24.3			1.4%	-15.3%	46.5%	9.6%						
Ticker	2021		P/E							2020				EV/		P/CF		Sales Growth		Book Equity
	ROE	P/B	2018	2019	2020	TTM	NTM	2021	2022	NPM	P/S	NM	OM	ROIC	EBIT	Current	NTM	STM		
AOS	24.9%	7.07	16.6	21.5	25.8	28.7	24.4	28.4	23.5	11.7%	4.56	11.9%	15.4%	17.4%	18.8	46.5	17.6%	6.0%	\$11.72	
PNR	24.0%	5.20	19.3	21.9	24.6	24.3	19.9	21.7	19.4	11.7%	4.02	11.8%	16.0%	11.8%	20.1	19.0	11.0%	7.6%	\$14.13	
AME	16.9%	4.98	20.3	26.6	31.8	35.3	26.8	29.5	26.2	19209.1%	7188.91	19.2%	23.6%	11.0%	27.4	30.1	12.8%	5.3%	\$28.35	
TT	22.2%	7.40	36.1	48.6	68.3	35.7	29.8	33.3	28.7	4.0%	3.85	7.8%	12.9%	8.2%	23.4	27.8	8.3%	4.8%	\$27.26	
WTS	15.6%	5.61	17.3	24.5	31.3	42.0	33.7	35.9	32.7	8.6%	4.28	7.6%	12.9%	9.0%	21.5		7.2%		\$34.20	
SPXC	9.7%	2.55	15.4	32.2	25.6	31.3	23.3	26.4	21.4	6.2%	1.74	6.5%	8.6%	11.6%	21.4	18.5	-9.5%	3.7%	\$23.37	
Average	18.9%	5.47	20.8	29.2	34.6	32.9	26.3	29.2	25.3	3208.6%	1201.22	10.8%	14.9%	11.5%	22.1	28.4	7.9%	5.5%		
Median	19.5%	5.40	18.3	25.6	28.5	33.3	25.6	28.9	24.9	10.2%	4.15	9.8%	14.2%	11.3%	21.5	27.8	9.6%	5.3%		
SPX			15.6	19.8	27.0			23.1	21.1											

Appendix 8: 3-stage DCF Model

Year ending January	First Stage			Second Stage				
	2021	2022	2023	2024	2025	2026	2027	2028
Sales Growth	21.1%	14.5%	7.5%	6.7%	5.2%	5.0%	4.8%	4.6%
NOPAT / S	11.6%	12.1%	12.1%	12.4%	12.7%	13.0%	13.3%	13.6%
S / NOWC	8.61	8.69	7.00	20.02	38.15	37.96	38.07	37.93
S / NFA (EOY)	2.17	2.25	2.20	2.23	2.24	2.24	2.25	2.23
S / IC (EOY)	1.73	1.79	1.67	2.01	2.11	2.12	2.12	2.11
ROIC (EOY)	20.2%	21.7%	20.2%	24.9%	26.8%	27.5%	28.2%	28.6%
ROIC (BOY)		24.1%	23.2%	22.1%	26.8%	28.8%	29.5%	30.2%
Share Growth	-0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Sales	\$3,506	\$4,014	\$4,315	\$4,604	\$4,844	\$5,086	\$5,330	\$5,575
NOPAT	\$408	\$487	\$522	\$571	\$615	\$661	\$709	\$758
Growth	44.3%	19.5%	7.1%	9.4%	7.7%	7.5%	7.2%	7.0%
- Change in NOWC	-215	55	155	-386	-103	7	6	7
NOWC EOY	407	462	616	230	127	134	140	147
Growth NOWC	-34.6%	13.4%	33.5%	-62.7%	-44.8%	5.5%	4.5%	5.0%
- Chg NFA	73	168	177	103	102	102	103	129
NFA EOY	1,616	1,784	1,961	2,065	2,166	2,268	2,371	2,500
Growth NFA	4.8%	10.4%	9.9%	5.3%	4.9%	4.7%	4.5%	5.4%
Total inv in op cap	-142	223	332	-283	-1	109	109	136
Total net op cap	2023	2246	2578	2295	2293	2402	2511	2647
FCFF	\$549	\$265	\$190	\$854	\$617	\$552	\$600	\$622
% of sales	15.7%	6.6%	4.4%	18.5%	12.7%	10.9%	11.3%	11.2%
Growth		-51.8%	-28.4%	350.6%	-27.8%	-10.5%	8.8%	3.6%
- Interest (1-tax rate)	15	7	3	3	3	3	3	3
Growth	178.1%	-56.4%	-61.5%	6.7%	5.2%	5.0%	4.8%	4.6%
FCFE w/o debt	\$534	\$258	\$187	\$851	\$614	\$549	\$597	\$619
% of sales	15.2%	6.4%	4.3%	18.5%	12.7%	10.8%	11.2%	11.1%
Growth		-51.7%	-27.5%	355.2%	-27.9%	-10.6%	8.8%	3.6%
/ No Shares	160.5	160.5	160.5	160.5	160.5	160.5	160.5	160.5
FCFE	\$3.33	\$1.61	\$1.17	\$5.30	\$3.82	\$3.42	\$3.72	\$3.86
Growth		-51.7%	-27.5%	355.2%	-27.9%	-10.6%	8.8%	3.6%
* Discount factor		0.91	0.82	0.74	0.67	0.61	0.55	0.50
Discounted FCFE		\$1.46	\$0.96	\$3.94	\$2.57	\$2.08	\$2.05	\$1.93
Third Stage								
Terminal value P/E								
Net income	\$467	\$561	\$584	\$568	\$612	\$658	\$706	\$755
% of sales	13.3%	14.0%	13.5%	12.3%	12.6%	12.9%	13.2%	13.5%
EPS	\$2.91	\$3.49	\$3.64	\$3.54	\$3.82	\$4.10	\$4.40	\$4.70
Growth	36.3%	20.0%	4.2%	-2.7%	7.8%	7.5%	7.2%	7.0%
Terminal P/E								18.50
* Terminal EPS								\$4.70
Terminal value								\$87.02
* Discount factor								0.50
Discounted terminal value								\$43.47
Summary (using P/E multiple for terminal value)								
First stage	\$2.41	Present value of first 2 year cash flow						
Second stage	\$12.57	Present value of year 3-7 cash flow						
Third stage	\$43.47	Present value of terminal value P/E						
Value (P/E)	\$58.45							