# Investment Management Certificate Program (IMCP)

University of Wisconsin-Milwaukee

Lubar School of Business

www.lubar.uwm.edu/IMCP

## Class of 2023 Report Packet


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| Recommendation: Hold | | | | |
|---|---|---|---|---|
| Current Price | **$23.97** | --- | Ticker | ASB |
| 1 Year Bear | $14 | *-37%* | Sh. Out. (M) | 150.1 |
| 1 Year Base | **$23** | ***8%*** | M.Cap. ($B) | 3.35 |
| 1 Year Bull | $29 | *27%* | EV ($M) | - |

Bank Holding, Commercial and Consumer Banking

# Associated Banc-Corp

## Price History

| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | -11% | 5.7% | 3.1% | X% | 30.7% | 12.5% | -6.6% |

## Summary

I recommend a hold rating with a target of $23. Although ASB has a great earning potential once interest rates rise, the firm needs to continue to expand its lending capabilities. ASB's shift to focusing on interest revenue, instead of non-interest revenue, creates a riskier environment where returns are more dependant on factors outside the firm's control. The stock is undervalued based on relative analysis and overvalued based on DCF analysis.

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($B) | **1.22** | **1.51** | **1.55** | **1.43** | **1.15** | **1.16** | **1.20** |
| *Gr. %* | 3.7% | 23.8% | 2.9% | -8.1% | -19 % | 0.6% | 4.0% |
| *v. Cons.* | - | - | - | - | - | 4.1% | 9.7% |
| *Industry* | 9.7% | 9.1% | 7.5% | 12.3% | 6.7% | 7.8% | 7.8% |
| **EPS** | **$1.52** | **$1.99** | **$2.04** | **$2.00** | **$2.11** | **$1.80** | **$2.04** |
| *Gr. %* | 20.6% | 31.2% | 2.1% | -1.5% | 5.0% | -14% | 13.3% |
| *v. Cons.* | - | - | - | - | - | -23% | 20% |
| *Industry* | 19.7% | 27.0% | 9.9% | -26% | 75.1% | -5.8% | 12.8% |

## Key Drivers

- Growth in deposits: ASB has seen a tremendous growth in deposits because of the government stimulus for Covid-19. This growth in deposits weighs down ROA now, but could boost earnings, if the firm successfully grows lending.
- Expanding lending capabilities: ASB announced it is launching an Auto Finance team and an Equipment Finance vertical and is anticipating significant increases in revenue.
- Company restructuring: Associated Banc-Corp recently appointed a new president and CEO, who has shifted the company's focus on improving technologies to reduce yearly expenses.
- Dispositions: ASB has sold its less profitable business lines to focus on interest revenue.
- Macroeconomic trends: With interest rates expected to rise, the firm's interest revenue is forecasted to increase, which is now its primary focus.

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **17.5%** | **18.7%** | **20.9%** | **24.2%** | **24.2%** | **30.9%** | **21.8%** |
| *Industry* | 18.0% | 18.1% | 22.8% | 21.6% | 21.6% | 28.7% | 25.2% |
| **ROE** | 6.6% | 7.2% | 8.4% | 7.6% | 7.6% | 9.7% | 8.1% |
| *Industry* | 8.0% | 7.8% | 9.7% | 8.1% | 8.1% | 9.7% | 8.1% |
| **ROA** | 0.7% | 0.8% | 1.0% | 0.9% | 0.9% | 0.9% | 0.7% |
| *Industry* | 0.9% | 0.9% | 1.2% | 0.9% | 0.9% | 0.9% | 0.9% |
| **A T/O** | 0.04 | 0.04 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 |
| **A/E** | 9.45 | 9.14 | 8.57 | 8.21 | 8.55 | 8.99 | 9.08 |

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 17.9 | 10.5 | 11.5 | 7.4 | 12.1 | 10.6 | 13.8 |
| *Industry* | 19.1 | 17.2 | 13.2 | 12.8 | 11.7 | 11.8 | 13.4 |
| P/S | 3.29 | 2.8 | 2.23 | 1.69 | 2.93 | 3.14 | 3.02 |
| P/B | 1.28 | 1.11 | 0.96 | 0.7 | 0.9 | 0.9 | 0.8 |
| P/CF | 11.37 | 9.43 | 7.58 | 4.7 | 14.4 | | |
| V/EBITDA | - | - | - | - | - | | |
| D/P | - | - | - | - | - | | |

## Valuation

Using a relative valuation approach, Associated Banc-Corp is undervalued in comparison to other Midwest regional banks. The DCF analysis implies that the stock is worth $21.04, which makes it overvalued compared to its actual price of $23.97. Using a combination approach of the valuation methods, the stock is valued at about $23.

## Risks

- Changes in tax laws can hinder returns.
- Cyberattacks could hurt business, especially with a large shift to the cloud.
- Market conditions have a large impact on returns.

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## Company Overview

Associated Banc-Corp (ASB) is a leading regional bank which offers a variety of financial products and services across the Midwest. ASB offers branch locations in Wisconsin, Illinois, and Minnesota, as well as commercial financial services in Indiana, Michigan, Missouri, Ohio, and Texas. ASB consistently holds high regional rankings compared to competitors based off customer satisfaction. Associated Banc-Corp was founded in 1861, and is the largest bank headquartered in Wisconsin.

Associated Banc-Corp operates through the following segments: Corporate and Commercial Specialty; Community, Consumer and Business; and Risk Management and Shared Services.

318% growth in the Risk Management and Shared Services segment was caused by the disposition of ABRC, which recorded a $168 million pre-tax gain.

**Corporate and Commercial Specialty (43.5% of sales):** Provides various financial services targeted towards larger businesses, developers, not-for-profits, municipalities, and financial institutions. Sales grew 29.7% over the past year. Services offered include:

- Lending solutions, such as loans and loan services.
- Deposit and cash management solutions, such as commercial checking services and liquidity solutions, and
- Specialized financial services, such as interest rate risk management, foreign exchange solutions, and commodity hedging.

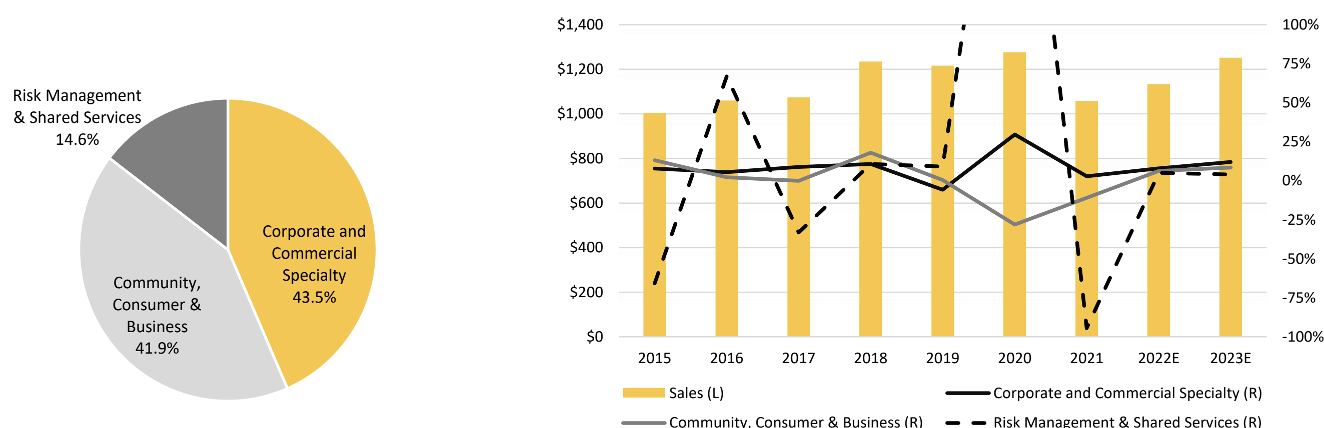
**Community, Consumer and Business (41.9% of sales):** Catered towards individuals, as well as small and mid-size businesses. Sales decreased by 28.1% over the past year. Services offered include:

- Lending solutions, such as mortgages, personal and business loans,
- Deposit and transactional solutions, such as debit, credit and prepaid cards, online banking, and money transfer services,
- Investment services
- Insurance and benefits-related products and services, and
- Fiduciary services, such as administration of employee benefit plans and institutional asset management.

**Risk Management and Shared Services (14.6% of sales):** Parent company activity as well as corporate risk management, credit administration, finance, treasury, operations, and technology. Revenues grew 318% over the past year. Segment revenues include:

- Corporation's investment portfolio
- Intersegment activity

**Figures 1 & 2: Revenue by segment in 2020 (left) and total revenue (in millions) & YoY revenue growth since 2015 (right)**






Source: Company reports

## Business/Industry Drivers

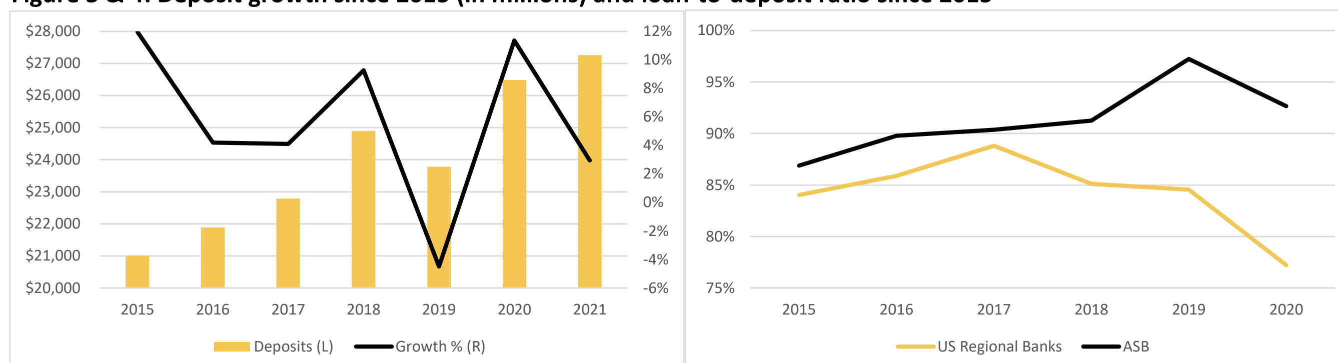
Though several factors may contribute to Associated Banc-Corp's future success, the following are the most important business drivers:

1) Growth in Deposits
2) Expanding Lending Capabilities
3) Company Restructuring
4) Dispositions
5) Macroeconomic Trends

Growth in Deposits

Due to the government stimulus for Covid-19, banks are flush with deposits. ASB has total deposits of over $27.2 billion, which is about a 3% growth from 2020 year-end. Pre-pandemic, Associated Bank had total deposits over $23.7 billion, which equates to a roughly 14.7% increase in deposits over 1.5 years. This increase gives ASB more money to lend, which can lead to an increase in loan balance.

**Figure 3 & 4: Deposit growth since 2015 (in millions) and loan-to-deposit ratio since 2015**




*Source: Company Filings, Factset*

Associated Banc-Corp's loans haven't grown at the same rate as its deposits, which has driven down the loan-to-deposit ratio (LDR) as seen in figure 4. Although the LDR has decreased, it is within the optimal range of 80% to 90%. This means that ASB is liquid enough to cover loans, but isn't losing out on interest revenue. ASB has consistently had a higher LDR compared to other regional banks, recording a 20% higher margin than competitors in 2020.

Expanding Lending Capabilities

ASB announced this year that it is launching a new Auto Finance team, specializing in consumer auto loans. It has already established agreements with over 550 car dealerships as of September 1, 2021 and is expecting to start booking loans in the fourth quarter of 2021. The company is forecasting over $1 billion in loan balances by the end of 2022, and $2 billion by the end of 2023. The total consumer loan balance as of 6/30/2021 was approximately $8.5 billion, meaning the projected balance for 2022 would account for roughly 10.5% of its total consumer portfolio.

**Figure 5: Composition of total consumer loans as of Q2 2021**

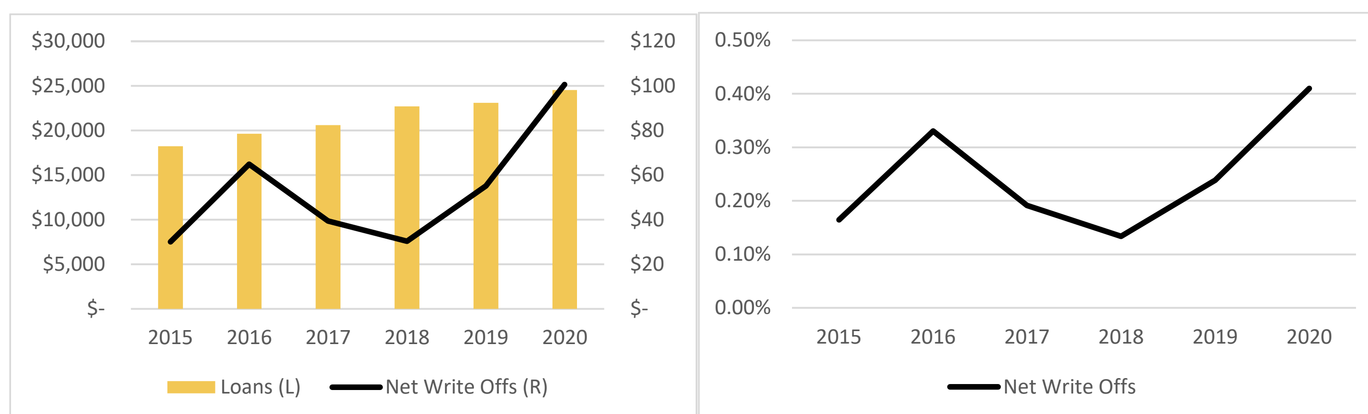
| Consumer Loans | Amount (in millions) | % of Total |
|---|---|---|
| Residential Mortgage | $ 7,638 | 89.1% |
| Home Equity | $ 632 | 7.4% |
| Student Loans | $ 112 | 1.3% |
| Credit Cards | $ 104 | 1.2% |
| Other Consumer | $ 85 | 1.0% |
| **Total** | **$ 8,571** | **100.0%** |

*Source: Company Filings*

ASB is also launching a new Equipment Finance vertical that is expected to begin operations in the first quarter of 2022. This will help diversify its commercial loan portfolios and create opportunities to develop more relationships with the many manufacturing companies located in the Midwest. The current consumer and business loan portfolio consists of 17.1% wholesale/manufacturing companies, making it the firm's second largest industry. ASB anticipates loan balances of $150 million by the end of 2022, and $300+ million by the end of 2023.

Combined, the Auto Finance and Equipment Finance teams expect to generate incremental revenues of about $20 million in 2022 and $60 million in 2023. This is roughly 5.6% of 2020 sales.

**Figures 6 & 7: Net write offs compared to total loans (in millions), and Net write offs as a percentage of total loans**



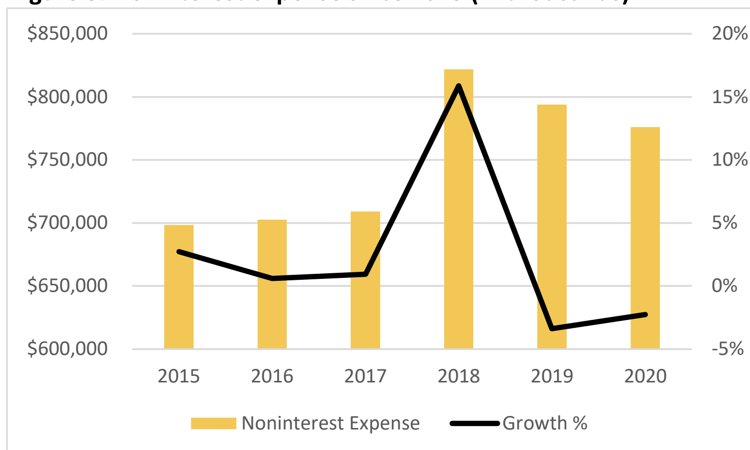

*Source: Company Filings*

In 2020, ASB had net loan write offs of about $101 million, which was 0.41% of its total loans. Net loan write-offs nearly doubled from 2019 to 2020, due to the pandemic. As of Q2 2021, ASB had just over $9 million in net loan write offs for the first 6 months of 2021, which is a dramatic decrease from 2020. Economic conditions are much better in 2021, which is causing this improvement.

Company Restructuring

Associated Banc-Corp has made several sizable changes to the company, including changes in management. In Q1 of 2021, ASB appointed a new president and CEO, Andrew J Harmening. Under new leadership, ASB is shifting its focus on improving its technology so it can grow mobile banking. This will help meet customer demand and mobile banking would allow ASB to consolidate branches, which lowers expenses. These consolidations will be made in a strategic manner so the firm is still able to meet the demands of its consumers, while cutting unnecessary expenses. ASB consolidated eight branches in 2021, with an additional two branches expected to be consolidated in 2022.

**Figure 8: Noninterest expense since 2015 (in thousands)**




*Source: Company Filings*

Associated Banc-Corp is also moving about 10% of its workforce to be mostly remote and closing unnecessary offices. This will further reduce costs, and be invested into improving cloud technologies and digital banking platforms, which will cut annual expenses by roughly $10 million. This would equate to an addition of roughly $0.05 to EPS. As seen in figure 8, ASB has already been lowering its noninterest expenses since 2018. The total expected cost of the digital transformation is about $50 million, or a reduction in EPS of $0.25 meaning this investment would pay itself off in saved expenses within five years.

Dispositions

Associated Banc-Corp has been trimming its business to focus on its more profitable business. In Q1 of 2021, ASB sold one of its wealth management subsidiaries, Whitnell, to Rockefeller Capital Management. The sale was recorded at $8 million, and ASB recorded a $2 million pretax gain. In the terms of the sale, ASB is forming a partnership with Rockefeller to become one of its mortgage lending referrals and a third-party trust solution provider. Rockefeller manages around $69 billion in assets in 14 different states, which will help expand Associated Banc-Corp's operations.

In Q2 2020, ASB sold Associated Benefits & Risk Consulting (ABRC) to USI Insurance Services for $266 million. This equated to a $163 million pre-tax book gain on its Risk Management and Shared Services segment but has greatly reduced its insurance commissions and fees revenue, as seen in figure 9.

**Figure 9: Insurance revenue since 2020**

| Insurance Commissions and Fees (In Thousands) | | | | | | |
|---|---|---|---|---|---|---|
| Year | 2020 | | | | 2021 | |
| Period | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 |
| Revenue | $22,608 | $22,430 | $114 | $93 | $76 | $86 |
| Growth % | 14.8% | -0.8% | -99.5% | -18.4% | -18.3% | 13.2% |

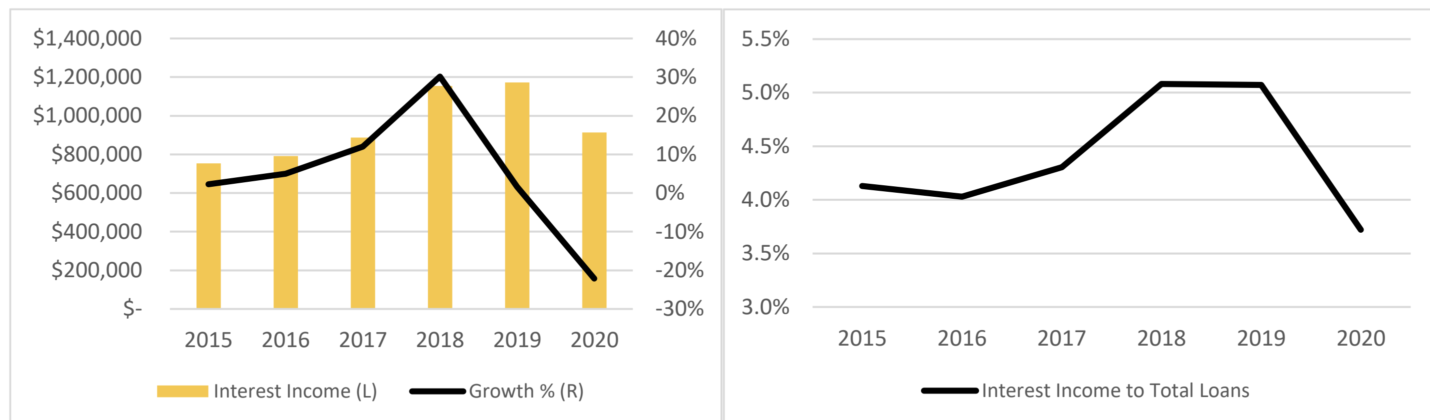
*Source: Company Filings*

This was a strategic disposition that gave ASB the necessary capital to expand on its lending business.

Macroeconomic Trends

Interest rates have been at all-time lows due to the pandemic. This has directly affected Associated Banc-Corp's profits. Because interest rates were at all-time lows, ASB has taken a huge hit on their interest income, which is its largest revenue item. In 2020, ASB recorded interest income of about $913 million, which was a 22.2% decrease from 2019.

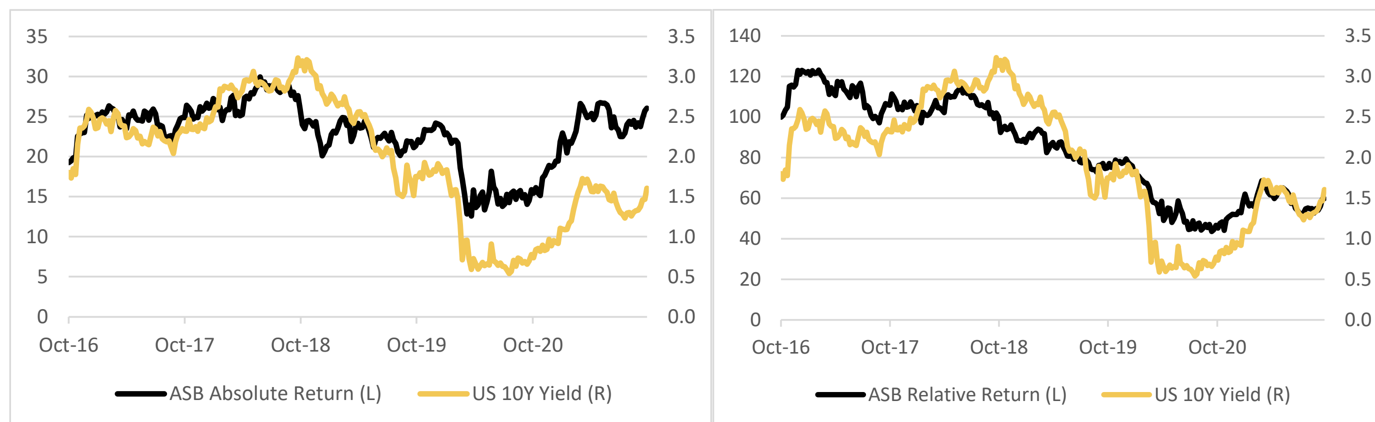
**Figures 10 & 11: Interest income since 2015 (in thousands) and interest income to total sales**




*Source: Company Filings*

As shown in figures 12 and 13, as US 10-year bond yields go down, Associated Banc-Corp's total return also decreases. This shows that as interest rates move, ASB returns follow suit. Figure 13 depicts Associated Bank's returns relative to the S&P 500, which shows the same pattern. The stock outperforms when rates rise and vice versa. Yields are beginning to rise as inflation has ramped up and the economy has improved, so this is positive for ASB.

**Figures 12 & 13: Absolute return (left) and relative return (right)**




*Source: Factset*

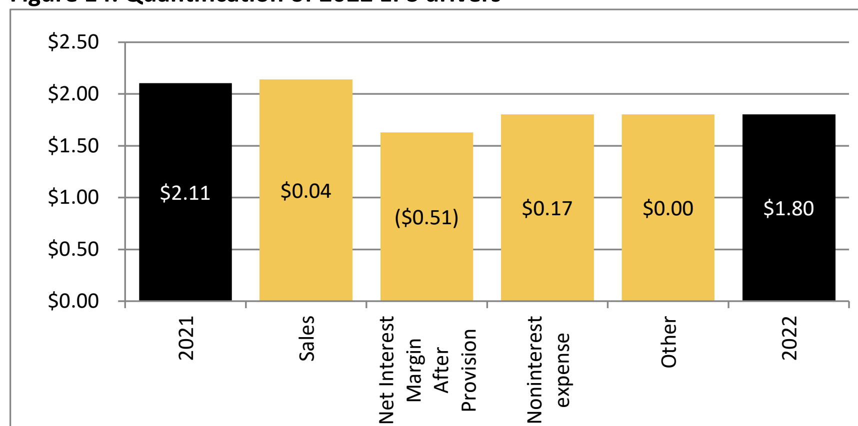
# Financial Analysis

Quantification of Drivers

I anticipate EPS to decline by $0.31 to $1.80 in 2022. Sales will increase and raise EPS by $0.04 due to the loan growth and expected Fed tapering, causing a growth in ASB's interest income. Net interest margin after provision is expected to decrease EPS by $0.51. Savings in noninterest expenses will increase EPS by $0.17.

The expected increase in interest rates is a major driver for ASB. Associated Banc-Corp was able to withstand historically low interest rates, a rise in interest rates will much benefit. The $0.51 decrease in net interest margin is caused by an increase in expected provision for loan loss in 2022. ASB is expecting to recover about $80 million in loan losses in 2021, which grew its net interest margin to 100%, effectively cancelling out interest expenses. With ASB's focus on the consolidation of unnecessary bank branches, and a greater focus on mobile banking, noninterest expenses will continue to decrease, driving up EPS.

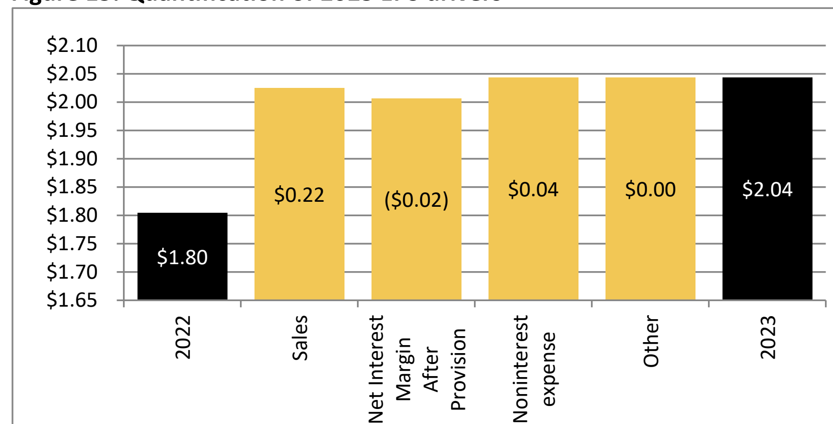
**Figure 14: Quantification of 2022 EPS drivers**




*Source: Company Filings, IMCP*

I expect 2023 EPS to increase $0.24 to $2.04. With the Fed's continued tapering as well as expected growth from new lending projects, I anticipate sales to increase EPS by $0.22. I expect net interest margin to decrease EPS by $0.02, due to increased loan losses, based off an increase in total loan balance.

**Figure 15: Quantification of 2023 EPS drivers**




*Source: Company Reports, IMCP*

Estimate and Consensus Comparison

I am more optimistic than consensus estimates for 2022 and 2023 for both EPS and sales due to ASB's expected increase in interest revenue margins, as well as it's increased lending capabilities. I am anticipating EPS to be $0.20 higher than consensus in 2022 and $0.12 higher than consensus in 2023.

**Figure 16: EPS and YoY growth estimates**

| My Estimates | 2022 | 2023 | Consensus | 2022 | 2023 |
|---|---|---|---|---|---|
| EPS | $1.80 | $2.04 | EPS | $1.60 | $1.92 |
| Growth | -14.3% | 13.3% | Growth | -23.5% | 19.9% |
| Sales ($M) | 1,157.00 | 1,203.28 | Sales ($M) | 1,098.97 | 1,204.89 |
| Growth | 0.6% | 4.0% | Growth | 4.0% | 9.7% |

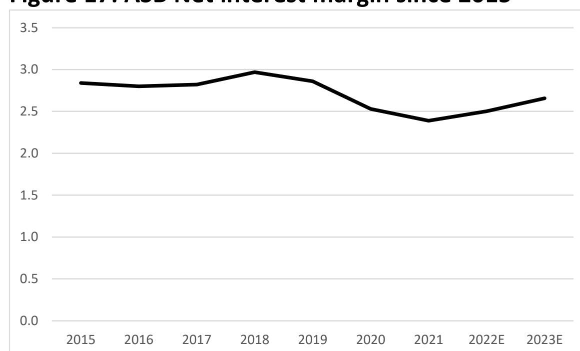
*Source: Factset, IMCP*

Revenues

Associated Banc-Corp's non-interest revenue/interest revenue ratio has historically been around 35-40%. In 2020, total revenues dropped by ~8% which can be attributed to the decrease in interest revenue and increase in non-interest revenue.

US Regional Bank industry average NIM was ~2.7% in 2021, meaning ASB is slightly below average.

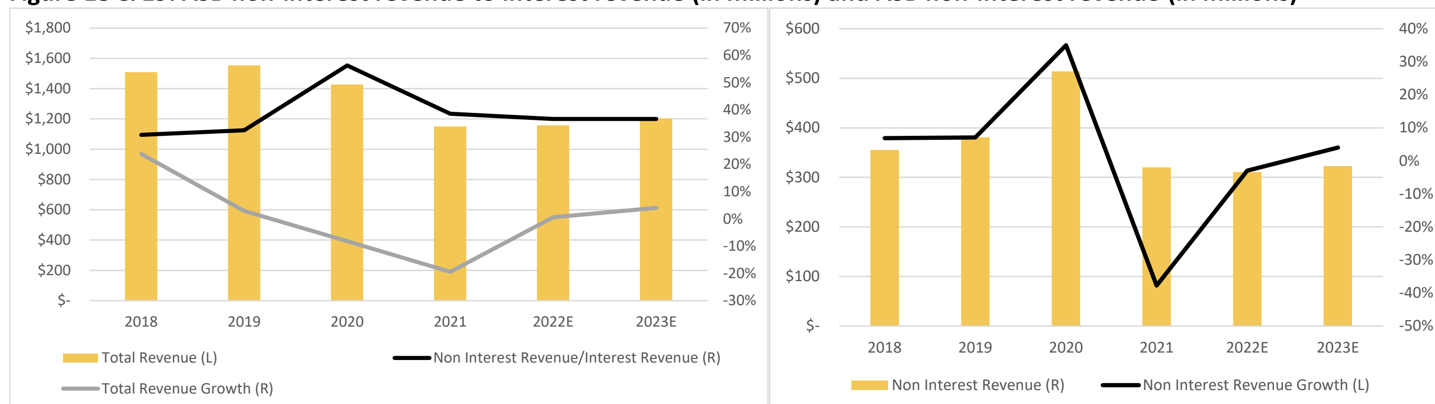
**Figure 17: ASB Net interest margin since 2015**




*Source: Factset*

ASB makes the majority of their income on its interest bearing products, so the large decrease in interest revenue in 2020 significantly hurt its total sales. As seen in figure 17, ASB's net interest margin has been declining since 2018 but with increased interest rates, I anticipate NIM to grow, further boosting revenue growth.

**Figure 18 & 19: ASB non-interest revenue to interest revenue (in millions) and ASB non-interest revenue (in millions)**




*Source: Company Reports, IMCP*

As seen in figure 19, non-interest revenue grew 35% to $514 million in 2020, which was caused by a large disposition of its wealth management subsidiary. In 2021, non-interest revenue returned to previous levels, where I anticipate it will continue to slowly grow. While non-interest revenue is an important part of Associated Banc-Corp's business, its shift to focusing on expanding lending capabilities will provide much more upside.

Return on Equity

Associated Banc-Corp's ROE relative to comps (Midwest regional banks) is 1.4% below the average. The net income to sales ratio in 2021 is ~6% higher than 2020 due to $80 million in written off loans being recovered. I expect the net income to sales ratio to decline in 2022, dropping the ROE to 7.1%. I forecasted a growth in net income to sales in 2023, because of the aforementioned interest rate increases and declining expenses, which will bring the ROE back up to 7.7%.

**Figure 20: ROE breakdown, 2018-2023E**

| 3-stage | 2018 | 2019 | 2020 | 2021E | 2022E | 2023E |
|---|---|---|---|---|---|---|
| Net income / sales | 22.1% | 21.0% | 21.5% | 27.8% | 23.7% | 25.8% |
| Sales / avg assets | 0.05 | 0.05 | 0.04 | 0.03 | 0.03 | 0.03 |
| ROA | 1.0% | 1.0% | 0.9% | 0.9% | 0.8% | 0.8% |
| Avg assets / avg equity | 9.14 | 8.57 | 8.21 | 8.55 | 8.99 | 9.08 |
| ROE | 9.5% | 8.5% | 7.7% | 8.1% | 7.1% | 7.7% |

*Source: Company Filings*

Free Cash Flow

**Figure 21: Free cash flow calculations**

| Free Cash Flow | 2017 | 2018 | 2019 | 2020 | 2021E | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| NOPAT | $229 | $334 | $327 | $307 | $320 | $274 | $311 |
| *Growth* | | *45.5%* | *-2.0%* | *-6.1%* | *4.3%* | *-14.3%* | *13.3%* |
| NOWC | 4,704 | 5,632 | 5,182 | 3,714 | 3,300 | 3,984 | 4,598 |
| Net fixed assets | 2,602 | 2,961 | 2,960 | 2,971 | 3,100 | 3,119 | 3,244 |
| Total net operating capital | $7,305 | $8,593 | $8,142 | $6,685 | $6,400 | $7,103 | $7,842 |
| *Growth* | | *17.6%* | *-5.2%* | *-17.9%* | *-4.3%* | *11.0%* | *10.4%* |
| - Change in NOWC | | 929 | (450) | (1,469) | (414) | 684 | 614 |
| - Change in NFA | | 359 | (1) | 11 | 129 | 19 | 125 |
| FCFF | | -$954 | $778 | $1,764 | $605 | -$428 | -$428 |
| *Growth* | | | *-181.5%* | *126.8%* | *-65.7%* | *-170.8%* | *0.0%* |
| - After-tax interest expense | | 64 | 64 | 19 | 64 | 58 | 65 |
| + Net new short-term and long-term debt | | 689 | (640) | (1,548) | 18 | 500 | 500 |
| FCFE | | -$330 | $74 | $197 | $559 | $14 | $6 |
| *Growth* | | | *-122.4%* | *165.8%* | *183.6%* | *-97.5%* | *-54.6%* |
| Sources of cash (FCFE) | | -$330 | $74 | $197 | $559 | $14 | $6 |
| Uses of cash | | | | | | | |
| Other expense | | $0 | $0 | $0 | $0 | $0 | $0 |
| Increase mkt sec | | - | - | - | - | - | - |
| Dividends | | 116 | 127 | 130 | 122 | 122 | 122 |
| Change in other equity | | (326) | 59 | 8 | 489 | (0) | 0 |
| | | ($210) | $186 | $138 | $611 | $122 | $122 |
| Change in other liab | | 56 | 47 | (78) | (12) | 50 | 50 |
| Total | | ($266) | $138 | $216 | $623 | $72 | $72 |

*Source: Company Fillings, IMCP*

ASB's free cash flow has been volatile the past few years due to asset sales. NOPAT has been relatively stable since 2018, but I am expecting a 14.3% decline in 2022 based on no recovery of prior reserves and modest loan losses. I have forecasted an increase in net operating working capital for the next two years due to increased lending opportunities which will bring in more revenue. In order to continue to fund ASB's expected growth, I have forecast new debt each year, so FCFE is about zero.

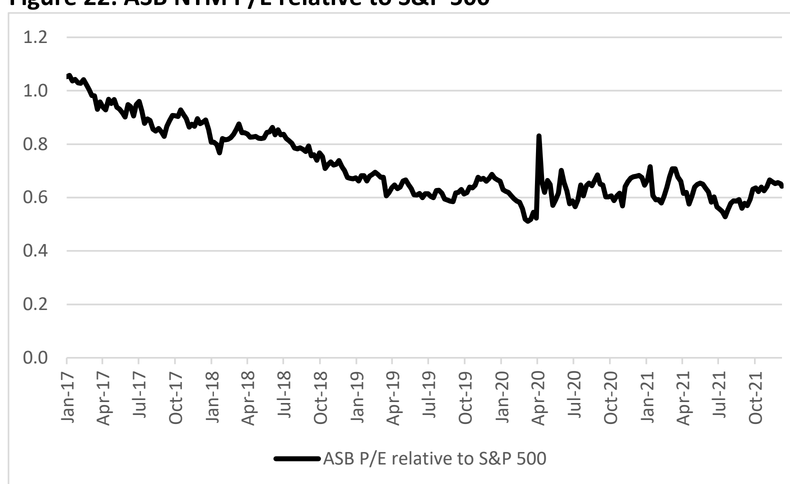
## Valuation

ASB was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is undervalued and is worth $24.64. Relative valuation shows ASB to be slightly undervalued based on its fundamentals versus other Midwest regional banks. Price to book valuation yielded a price of $22.06. A detailed DCF analysis values ASB slightly lower, at $21.04. Based on these valuations, I believe the firm is worth $23.

Trading History

ASB is currently trading at a low P/E relative to the S&P 500, but there has been a climb over the past six months. This is the result of optimism about future interest rates, which is expected to increase in 2022. ASB's current NTM P/E is at 13.6 compared to its five-year average of 13.2. ASB has been on a steady decline from 18.6 five years ago, reaching as low as 6.2 in 2020.

**Figure 22: ASB NTM P/E relative to S&P 500**




*Source: FactSet*

Assuming the firm maintains a 13 NTM P/E at the end of 2022, it should trade at $27.30 by the end of the year:

- Price = P/E x EPS = 13 x $2.10 2023EPS = $27.30.

Discounting $27.30 back to today at a 10.8% cost of equity (explained in Discounted Cash Flow section) yields a price of $24.64. Considering ASB is currently trading at ~$24, this valuation indicates that the stock is slightly undervalued.

Relative Valuation

Associated Banc-Corp is trading at a P/E lower than its peers. ASB's TTM P/E is 10.4, which is the second lowest P/E and 0.9 less than the average of 11.7. Associated Banc-Corp has the highest dividend yield, which is 3.47%, or 1.43% higher than the average. P/S for ASB is right in line with the average of comps, and P/B is the lowest out of all the firms, or 0.25 less than the average.

**Figure 23: ASB comparable companies**

| Ticker | Name | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Pst 5yr | Beta | LT Debt/ Equity | S&P Rating | LTM Dividend Yield | Payout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ASB | ASSOCIATED BANC-CORP | $23.97 | $3,587 | 2.6 | (3.7) | 6.7 | 13.3 | 10.7 | 6.1 | 7.0 | -21.1% | -39.6% | 82.4% | -20.7% | 23.3% | | 1.03 | 49.2% | B | 3.20% | 34.9% |
| WTFC | WINTRUST FINANCIAL CORP | $96.73 | $5,537 | 4.1 | (2.1) | 8.2 | 23.5 | 24.3 | 6.5 | | -11.0% | -22.4% | 62.0% | -10.8% | 17.5% | | 1.44 | 57.3% | A | 1.28% | 16.3% |
| UMBF | UMB FINANCIAL CORP | $101.47 | $4,913 | 2.1 | (1.2) | (3.5) | 6.2 | 10.4 | (4.4) | 6.0 | -0.1% | 22.6% | 18.8% | -0.4% | 7.7% | | 0.96 | 10.4% | B+ | 1.35% | 19.0% |
| ONB | OLD NATIONAL BANCORP | $17.27 | $5,098 | 1.8 | (6.4) | (3.5) | 4.4 | (11.7) | (4.7) | | -6.9% | 3.4% | 15.3% | -9.8% | 20.5% | | 0.73 | 76.1% | A- | 3.06% | 33.5% |
| FNB | F N B CORP/FL | $12.93 | $4,566 | 1.5 | (3.5) | 7.9 | 13.8 | 1.6 | 6.6 | 6.0 | -5.4% | -18.6% | 29.2% | -6.5% | 14.7% | | 1.05 | 16.0% | B+ | 3.57% | 39.2% |
| NCBS | NICOLET BANKSHARES INC | $95.40 | $1,291 | 2.0 | 0.0 | 9.7 | 29.9 | 13.4 | 11.3 | | 25.8% | 3.3% | 15.3% | 5.3% | 7.4% | | 0.62 | 23.2% | | 0.00% | 0.0% |
| **Average** | | | $4,165 | 2.4 | (2.8) | 4.3 | 15.2 | 8.1 | 3.6 | 6.3 | -3.1% | -8.5% | 37.1% | -7.2% | 15.2% | | 0.97 | 38.7% | | 2.08% | 23.8% |
| **Median** | | | $4,739 | 2.1 | (2.8) | 7.3 | 13.6 | 10.5 | 6.3 | 6.0 | -6.2% | -7.7% | 24.0% | -8.1% | 16.1% | | 0.99 | 36.2% | | 2.21% | 26.3% |
| **SPX** | S&P 500 INDEX | $4,543 | | 0.5 | 3.6 | (3.9) | 2.0 | 16.2 | (4.7) | | | -15.3% | 49.1% | 9.2% | 5.1% | | | | | | |

| Ticker | Website | 2021 ROE | P/B | P/E 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | 2021 NPM | 2021 P/S | NM | OM | ROIC | EV/ EBIT | P/CF Current | Sales Growth NTM | STM | Pst 5yr | Book Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ASB** | http://www.associatedbank.com | 8.5% | 0.93 | 11.2 | 14.4 | 10.4 | 11.0 | 13.9 | 13.9 | 11.3 | 30.5% | 3.37 | 31.1% | | 5.9% | - | 9.9 | 2.2% | 11.3% | | $25.66 |
| **WTFC** | http://www.wintrust.com | 10.6% | 1.35 | 11.8 | 13.0 | 12.0 | 12.7 | 14.3 | 14.3 | 12.2 | 25.4% | 3.24 | 24.4% | | 7.1% | - | 14.2 | -5.8% | 10.2% | | $71.62 |
| **UMBF** | http://www.umbfinancial.com | 11.2% | 1.56 | 13.8 | 11.3 | 14.6 | 14.0 | 14.0 | 14.0 | 13.0 | 27.4% | 3.83 | 26.5% | | 10.3% | - | 9.5 | 3.8% | 5.5% | | $64.95 |
| **ONB** | http://www.oldnational.com | 9.5% | 0.95 | 12.6 | 11.0 | 10.5 | 10.3 | 11.1 | 11.1 | 9.2 | 62.3% | 6.22 | 32.5% | | 5.3% | - | 9.2 | 66.5% | 17.1% | | $18.21 |
| **FNB** | http://www.fnb-online.com | 7.8% | 0.82 | 10.8 | 9.9 | 9.8 | 10.5 | 11.2 | 11.1 | 9.7 | 35.4% | 3.69 | 30.4% | | 6.9% | - | 9.3 | -0.2% | 8.0% | | $15.81 |
| **NCBS** | http://www.nicoletbank.com | 10.3% | 1.50 | 13.4 | 11.9 | 12.9 | 17.3 | 13.8 | 13.8 | 12.8 | 39.5% | 5.73 | 25.4% | | 7.2% | - | 14.8 | | | | $63.73 |
| **Average** | | 9.6% | 1.18 | 12.2 | 11.9 | 11.7 | 12.7 | 13.1 | 13.0 | 11.4 | 36.7% | 4.35 | 28.4% | | 7.1% | - | 11.1 | 13.3% | 10.4% | | |
| **Median** | | 9.9% | 1.15 | 12.2 | 11.6 | 11.3 | 11.9 | 13.9 | 13.9 | 11.7 | 33.0% | 3.76 | 28.4% | | 7.0% | - | 9.7 | 2.2% | 10.2% | | |
| **SPX** | S&P 500 INDEX | | | 19.8 | 27.0 | 23.2 | | | 20.2 | 19.2 | | | | | | | | | | | |

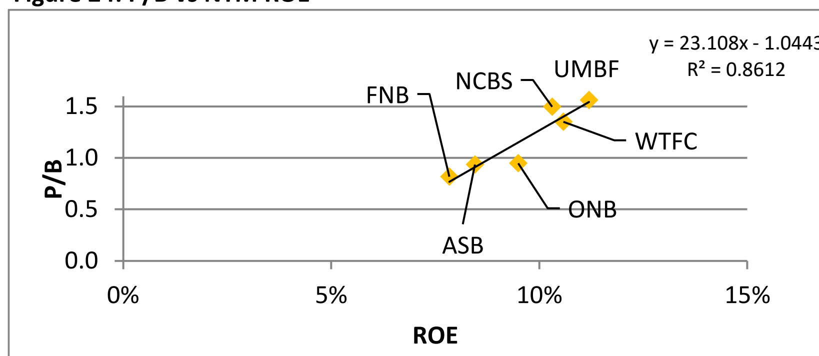
*Source: FactSet, IMCP*

A more thorough analysis of P/B and ROE is shown in figure 24. The calculated R-squared of the regression indicates that over 86% of a sampled firm's P/B is explained by its NTM ROE. ASB has the lowest P/B and second lowest ROE of this grouping, and according to this measure is slightly undervalued.

- Estimated P/B = 2021 ROE (8.5%) x 23.108 - 1.0443 = 0.920
- Target Price = Estimated P/B (0.920) x 2022E BVPS (26.56) = $24.44

Discounting back to the present at a 10.8% cost of equity leads to a target price of $22.06 using this metric.

**Figure 24: P/B vs NTM ROE**




*Source: Factset*

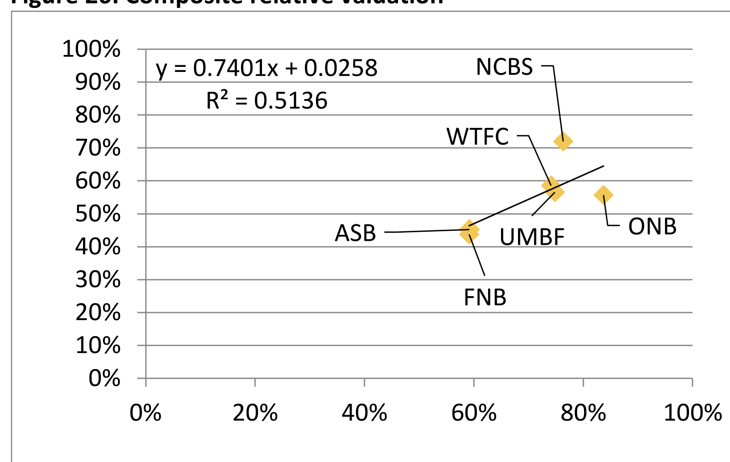
For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. The regression line had an R-squared of 0.5136. One can see that ASB is below the regression line, so based on this fundamental, ASB is slightly undervalued.

**Figure 25: Composite valuation, % of range**

| | | | | | | | Fundamentals | | | Valuation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Weight | 20.0% | 40.0% | 40.0% | 25.0% | 25.0% | 25.0% | 25.0% |
| | | Rank | | Target | Weighted | | 1/ | 2021 | 2021 | | | | Div |
| Ticker | Name | Diff | Diff | Value | Fund | Value | Payout | ROE | NPM | P/B | P/S | P/CF | Yield |
| ASB | ASSOCIATED BANC-CORP | 3 | 1% | 46% | 59% | 45% | 47% | 76% | 49% | 60% | 54% | 67% | 40% |
| WTFC | WINTRUST FINANCIAL CORP | 2 | -1% | 57% | 74% | 59% | 100% | 95% | 41% | 86% | 52% | 96% | 100% |
| UMBF | UMB FINANCIAL CORP | 4 | 1% | 58% | 75% | 57% | 86% | 100% | 44% | 100% | 62% | 65% | 94% |
| ONB | OLD NATIONAL BANCORP | 6 | 9% | 65% | 84% | 56% | 49% | 85% | 100% | 61% | 100% | 62% | 42% |
| FNB | F N B CORP/FL | 5 | 3% | 46% | 59% | 44% | 42% | 70% | 57% | 52% | 59% | 63% | 36% |
| NCBS | NICOLET BANKSHARES INC | 1 | -13% | 59% | 76% | 72% | 71% | 92% | 63% | 96% | 92% | 100% | 68% |

*Source: IMCP*

**Figure 26: Composite relative valuation**




*Source: IMCP*

<u>Discounted Cash Flow Analysis</u>

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

For the purpose of this analysis, the company's cost of equity was calculated to be 12.1% 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 1.60%.
- A ten-year beta of 1.1 was utilized since the company has slightly higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 10.8% (1.60 + 1.1 (10.0 – 1.60)).

*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 \$0.09 and \$0.04, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of \$0.12 per share. Thus, stage one of this discounted cash flow analysis contributes \$0.12 to 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 10.8% cost of equity. I assume stable sales growth figures

through 2024 to 2028. My estimates for sales growth as follow: 2024 -> 5%, 2025 -> 5%, 2026 -> 4.5%, 2027 -> 4.5%, 2028 -> 4.5%. The NFA turnover ratio will remain at 2021 levels, but NOPAT margin is expected to increase to 29.0% in 2028 from 27.8% in 2021, due to incremental revenues from higher interest rates.

**Figure 27: FCFE and discounted FCFE, 2022 – 2028**

| | First Stage | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|
| Year ending January | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| FCFE | $0.09 | $0.04 | $2.43 | $2.64 | $0.83 | $0.86 | $0.90 |
| Discounted FCFE | $0.08 | $0.03 | $1.78 | $1.75 | $0.49 | $0.47 | $0.44 |

*Source: IMCP*

Added together, these discounted cash flows total $4.93.

*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 $2.11 in 2021 to $2.35 in 2028.

**Figure 28: EPS estimates for 2021 – 2028**

| | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|
| EPS | $2.11 | $1.80 | $2.04 | $1.88 | $2.06 | $2.15 | $2.25 | $2.35 |

*Source: IMCP*

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. The stock's TTM P/E is 10.4, which is lower than the peer average of 11.7 (see figure 23). Its P/E has also declined versus the market over the past five years (see figure 22). By 2028, margins will be back to 2021 levels and growth should stabilize. Assuming a normal market P/E of 15 with banks still trading at a discount to the S&P 500, and ASB being a small sized regional bank, a P/E of 14 is warranted.

Given the assumed terminal earnings per share of $2.35 and a price to earnings ratio of 14, a terminal value of $32.88 per share is calculated. Using the 10.8% cost of equity, this number is discounted back to a present value of $16.00.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $21.05 is calculated (0.12 + 4.93 + 16.00). Given ASB's current price of $22.11, this model indicates that the stock is slightly overvalued.

Scenario Analysis

Due to the cyclical nature of the banking industry, valuations are prone to significant fluctuations. In order to understand how ASB will perform in different market conditions, I adjusted my DCF model assumptions for a bear and a bull scenario. In each of these scenarios, I adjusted the beta and terminal P/E. For the bull case scenario, the beta and P/E were adjusted to 1 and 20, respectively. This scenario yielded a target price of $29.31. For the bear case, I adjusted the beta and P/E to 1.3 and 8, respectively, and had a target price of $12.97.

**Figure 29: Bull case**

| Summary (using P/E multiple for terminal value) | | |
|---|---|---|
| First stage | $0.12 | Present value of first 2 year cash flow |
| Second stage | $5.09 | Present value of year 3-7 cash flow |
| Third stage | $24.10 | Present value of terminal value P/E |
| Value (P/E) | **$29.31** | |

**Figure 30: Bear case**

| Summary (using P/E multiple for terminal value) | | |
|---|---|---|
| First stage | $0.11 | Present value of first 2 year cash flow |
| Second stage | $4.63 | Present value of year 3-7 cash flow |
| Third stage | $8.23 | Present value of terminal value P/E |
| Value (P/E) | **$12.97** | |

## Business Risks

Changes in tax laws:
There is a bill in Congress that contains a proposal for a new corporate tax rate of 26.5%, a 5.5% increase from the current rate. Other task risks include changes in loss carry forwards, changes in gain/loss recognition, and changes in interest expense write-offs. While only the new rate is being proposed, tax laws are always changing and can significantly hinder returns.

Cyberattacks:
With ASB shifting more towards technology, cyberattacks can be detrimental to business operations. Mobile banking is convenient for customers, but if ASB lacks proper security, the large investments to mobile banking will be futile. Also, with increased internal reliance on technology, and having an all-in-one customer relationship management, outages can lose business.

Market conditions:
ASB is a highly cyclical company and has historically struggled during economic downturns. When interest rates are low, ASB revenues suffer. Interest rates can be unpredictable, so its vital that Associated Banc-Corp is disciplined with the balance sheet and doesn’t overspend before an economic downturn.

Lending growth:
As mentioned earlier, ASB has substantial deposits and a higher loan to deposits ratio than competitors. It’s important that the loan balance increases in the coming years, or else ASB interest expense could rise without a corresponding increase in interest revenue, effectively driving down margins.

New Strategy Execution:
ASB has been shifting its focus on expanding lending capabilities, while selling off less profitable businesses. While I mentioned that as a driver, there is a risk that the new strategy doesn’t work as well as planned. Also with an increased reliance on interest rates, ASB is more susceptible to very bad years when interest rates are low.

# Appendix 1: Porter's 5 Forces

Threat of New Entrants – Low

The banking industry has large barriers to entry because competition, capital investments, and regulation. ASB is an established bank, and new entrants would struggle to compete with its services.

Threat of Substitutes – High

Although ASB is working on improving its mobile banking and technology, large national banks have already made it the standard. Associated Banc-Corp needs to continue to compete with the large banks' services in order to retain its customer base.

Supplier Power – Medium

Associated Banc-Corp requires deposits from customers to fund its lending business, but depositors also need banks to store their savings.

Buyer Power – High

Associated Banc-Corp primarily does business in Wisconsin and the surrounding states. With Wisconsin being the headquarters of many industrial companies, ASB is looking to provide more value to those firms through its new Equipment Finance vertical. This new product caters to industrial companies by helping plants acquire heavy machinery.

Intensity of Competition – Very High

ASB's largest competition is from larger national banks, like US Bank and Chase Bank, which both have large offices in Milwaukee. Associated Banc-Corp has deep roots in Wisconsin communities, which keeps its services competitive with large firms.

# Appendix 2: SWOT Analysis

| Strengths | Weakness |
|---|---|
| Deep roots Wisconsin<br>Ability to explore new markets | Limited success outside core business<br>Gaps in products for customers |
| **Opportunities** | **Threats** |
| Expanding lending products<br>Expanding to more Midwest states | Interest rate risks<br>Competition |

# Appendix 3: Sales Forecast

| Sales | | | | | BaseCase | | | Bull Case | | Bear Case | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** | **Dec-22** | **Dec-23** | **Dec-22** | **Dec-23** |
| Sales | 1,219 | $1,510 | 1,553 | $1,427 | 1,150 | 1,157 | $1,203 | $1,157 | $1,203 | $1,157 | $1,203 |
| *Growth* | | *23.8%* | *2.9%* | *-8.1%* | *-19.4%* | *0.6%* | *4.0%* | *0.6%* | *4.0%* | *0.6%* | *4.0%* |
| Interest Income | 887 | 1,154 | 1,173 | 913 | 830 | 847 | 880 | 847 | 880 | 847 | 880 |
| *Growth* | | *30.2%* | *1.6%* | *-22.2%* | *-9.1%* | *2.0%* | *4.0%* | *2.0%* | *4.0%* | *2.0%* | *4.0%* |
| *% of sales* | *72.7%* | *76.4%* | *75.5%* | *64.0%* | *72.2%* | *73.2%* | *73.2%* | *73.2%* | *73.2%* | *73.2%* | *73.2%* |
| Noninterest Income | 333 | 356 | 381 | 514 | 320 | 310 | 323 | 310 | 323 | 310 | 323 |
| *Growth* | | *6.9%* | *7.1%* | *35.0%* | *-37.7%* | *-3.0%* | *4.0%* | *-3.0%* | *4.0%* | *-3.0%* | *4.0%* |
| *% of sales* | *27.3%* | *23.6%* | *24.5%* | *36.0%* | *27.8%* | *2.0%* | *26.8%* | *26.8%* | *26.8%* | *26.8%* | *26.8%* |

# Appendix 4: Income Statement

| Income Statement | | | | | | | |
|---|---|---|---|---|---|---|---|
| Items | Dec-17 | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
| Interest Income | $887 | $1,154 | $1,173 | $913 | $830 | $847 | $880 |
| Non-interest Income | 333 | 356 | 381 | 514 | 320 | 310 | 323 |
| Sales | $1,219 | $1,510 | $1,553 | $1,427 | $1,150 | $1,157 | $1,203 |
| Interest | 145 | 275 | 337 | 150 | 80 | 85 | 91 |
| Provision for loan losses | 26 | - | 16 | 174 | (80) | 13 | 14 |
| Net interest income after provision | 1,048 | 1,235 | 1,200 | 1,103 | 1,150 | 1,060 | 1,099 |
| Non-interest expense | 709 | 822 | 794 | 776 | 750 | 713 | 705 |
| EBT | 339 | 413 | 407 | 327 | 400 | 347 | 393 |
| Taxes | 110 | 80 | 80 | 20 | 80 | 73 | 83 |
| Income | 229 | 334 | 327 | 307 | 320 | 274 | 311 |
| Other | - | - | - | - | - | - | - |
| Net income | 229 | 334 | 327 | 307 | 320 | 274 | 311 |
| Basic Shares | 151 | 167 | 161 | 153 | 152 | 152 | 152 |
| Fully Diluted Shares | 154 | 170 | 162 | 154 | 153 | 153 | 153 |
| EPS | $1.52 | $1.99 | $2.04 | $2.00 | $2.11 | $1.80 | $2.04 |
| EPS Fully Diluted | $1.49 | $1.97 | $2.02 | $2.00 | $2.09 | $1.79 | $2.03 |
| DPS | $0.57 | $0.69 | $0.79 | $0.85 | $0.80 | $0.80 | $0.80 |

# Appendix 5: Balance Sheet

| Balance Sheet | | | | | | | |
|---|---|---|---|---|---|---|---|
| Items | Dec-17 | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
| Cash | 484 | 507 | 373 | 416 | 370 | 418 | 288 |
| Loans | 20,605 | 22,782 | 22,756 | 24,197 | 23,800 | 25,228 | 27,246 |
| Operating assets ex cash and loans | 6,794 | 7,398 | 6,297 | 5,835 | 6,800 | 6,841 | 7,115 |
| Operating assets | 27,882 | 30,687 | 29,426 | 30,448 | 30,970 | 32,487 | 34,649 |
| Interest-bearing demand deposits | 17,308 | 19,199 | 18,328 | 18,821 | 19,600 | 20,384 | 21,607 |
| Operating liabilities ex deposits | 5,871 | 5,856 | 5,916 | 7,914 | 8,070 | 8,119 | 8,444 |
| NOWC | 4,704 | 5,632 | 5,182 | 3,714 | 3,300 | 3,984 | 4,598 |
| NOWC ex cash (NWC) | 4,220 | 5,125 | 4,809 | 3,298 | 2,930 | 3,566 | 4,310 |
| NFA | 2,602 | 2,961 | 2,960 | 2,971 | 3,100 | 3,119 | 3,244 |
| *Invested capital* | *$7,305* | *$8,593* | *$8,142* | *$6,685* | *$6,400* | *$7,103* | *$7,842* |
| Marketable securities | - | - | - | - | - | - | - |
| *Total assets* | *$30,484* | *$33,648* | *$32,386* | *$33,420* | *$34,070* | *$35,606* | *$37,893* |
| S-T and L-T debt and financing leases | $3,681 | $4,370 | $3,730 | $2,182 | $2,200 | $2,700 | $3,200 |
| Other liabilities | 386 | $443 | 490 | 412 | 400 | 450 | 500 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 3,237 | $3,781 | 3,922 | 4,091 | 3,800 | 3,953 | 4,142 |
| *Total supplied capital* | *$7,305* | *$8,593* | *$8,142* | *$6,685* | *$6,400* | *$7,103* | *$7,842* |
| *Total liabilities and equity* | *$30,484* | *$33,648* | *$32,386* | *$33,420* | *$34,070* | *$35,606* | *$37,893* |

# Appendix 6: Ratios

| Ratios | Dec-17 | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
|---|---|---|---|---|---|---|---|
| Profitability | | | | | | | |
| Gross margin | 85.9% | 81.8% | 77.3% | 77.3% | 100.0% | 91.6% | 91.3% |
| Operating (EBIT) margin | 27.8% | 27.4% | 26.2% | 22.9% | 34.8% | 30.0% | 32.7% |
| Net profit margin | 18.8% | 22.1% | 21.0% | 21.5% | 27.8% | 23.7% | 25.8% |
| Activity | | | | | | | |
| NFA (gross) turnover | | 0.54 | 0.52 | 0.48 | 0.38 | 0.37 | 0.38 |
| Total asset turnover | | 0.05 | 0.05 | 0.04 | 0.03 | 0.03 | 0.03 |
| Liquidity | | | | | | | |
| Op asset / op liab | 4.75 | 5.24 | 4.97 | 3.85 | 3.84 | 4.00 | 4.10 |
| NOWC Percent of sales | | 342.3% | 348.1% | 311.7% | 304.9% | 314.8% | 356.6% |
| Solvency | | | | | | | |
| Debt to assets | 12.1% | 13.0% | 11.5% | 6.5% | 6.5% | 7.6% | 8.4% |
| Debt to equity | 113.7% | 115.6% | 95.1% | 53.3% | 57.9% | 68.3% | 77.3% |
| Other liab to assets | 1.3% | 1.3% | 1.5% | 1.2% | 1.2% | 1.3% | 1.3% |
| Total debt to assets | 13.3% | 14.3% | 13.0% | 7.8% | 7.6% | 8.8% | 9.8% |
| Total liabilities to assets | 32.6% | 31.7% | 31.3% | 31.4% | 31.3% | 31.6% | 32.0% |
| Debt to EBIT | 10.87 | 10.57 | 9.18 | 6.67 | 5.50 | 7.78 | 8.14 |
| EBIT/interest | 3.09 | 5.18 | 5.10 | 16.19 | 5.00 | 4.76 | 4.76 |
| Debt to total net op capital | 50.4% | 50.9% | 45.8% | 32.6% | 34.4% | 38.0% | 40.8% |
| ROIC | | | | | | | |
| NOPAT to sales | 18.8% | 22.1% | 21.0% | 21.5% | 27.8% | 23.7% | 25.8% |
| Sales to NWC | | 0.32 | 0.31 | 0.35 | 0.37 | 0.36 | 0.31 |
| Sales to NFA | | 0.54 | 0.52 | 0.48 | 0.38 | 0.37 | 0.38 |
| Sales to IC ex cash | | 0.20 | 0.20 | 0.20 | 0.19 | 0.18 | 0.17 |
| Total ROIC ex cash | | 4.5% | 4.1% | 4.4% | 5.2% | 4.3% | 4.4% |
| NOPAT to sales | 18.8% | 22.1% | 21.0% | 21.5% | 27.8% | 23.7% | 25.8% |
| Sales to NOWC | | 0.29 | 0.29 | 0.32 | 0.33 | 0.32 | 0.28 |
| Sales to NFA | | 0.54 | 0.52 | 0.48 | 0.38 | 0.37 | 0.38 |
| Sales to IC | | 0.19 | 0.19 | 0.19 | 0.18 | 0.17 | 0.16 |
| Total ROIC | | 4.2% | 3.9% | 4.1% | 4.9% | 4.1% | 4.2% |
| NOPAT to sales | 18.8% | 22.1% | 21.0% | 21.5% | 27.8% | 23.7% | 25.8% |
| Sales to EOY NWC | 0.29 | 0.29 | 0.32 | 0.43 | 0.39 | 0.32 | 0.28 |
| Sales to EOY NFA | 0.47 | 0.51 | 0.52 | 0.48 | 0.37 | 0.37 | 0.37 |
| Sales to EOY IC ex cash | 0.18 | 0.19 | 0.20 | 0.23 | 0.19 | 0.17 | 0.16 |
| Total ROIC using EOY IC ex cash | 3.4% | 4.1% | 4.2% | 4.9% | 5.3% | 4.1% | 4.1% |
| NOPAT to sales | 18.8% | 22.1% | 21.0% | 21.5% | 27.8% | 23.7% | 25.8% |
| Sales to EOY NOWC | 0.26 | 0.27 | 0.30 | 0.38 | 0.35 | 0.29 | 0.26 |
| Sales to EOY NFA | 0.47 | 0.51 | 0.52 | 0.48 | 0.37 | 0.37 | 0.37 |
| Sales to EOY IC | 0.17 | 0.18 | 0.19 | 0.21 | 0.18 | 0.16 | 0.15 |
| Total ROIC using EOY IC | 3.1% | 3.9% | 4.0% | 4.6% | 5.0% | 3.9% | 4.0% |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 27.4% | 26.2% | 22.9% | 34.8% | 30.0% | 32.7% |
| Sales / avg assets | | 0.05 | 0.05 | 0.04 | 0.03 | 0.03 | 0.03 |
| EBT / EBIT | | 33.5% | 33.9% | 29.6% | 34.8% | 32.8% | 35.8% |
| Net income /EBT | | 80.7% | 80.4% | 93.8% | 80.0% | 79.0% | 79.0% |
| ROA | | 0.3% | 0.3% | 0.3% | 0.3% | 0.3% | 0.3% |
| Avg assets / avg equity | | 9.14 | 8.57 | 8.21 | 8.55 | 8.99 | 9.08 |
| ROE | | 3.2% | 2.9% | 2.3% | 2.8% | 2.3% | 2.7% |
| **3-stage** | | | | | | | |
| Net income / sales | | 22.1% | 21.0% | 21.5% | 27.8% | 23.7% | 25.8% |
| Sales / avg assets | | 0.05 | 0.05 | 0.04 | 0.03 | 0.03 | 0.03 |
| ROA | | 1.0% | 1.0% | 0.9% | 0.9% | 0.8% | 0.8% |
| Avg assets / avg equity | | 9.14 | 8.57 | 8.21 | 8.55 | 8.99 | 9.08 |
| ROE | | 9.5% | 8.5% | 7.7% | 8.1% | 7.1% | 7.7% |
| Payout Ratio | | 34.9% | 38.9% | 42.5% | 38.0% | 44.3% | 39.1% |
| Retention Ratio | | 65.1% | 61.1% | 57.5% | 62.0% | 55.7% | 60.9% |
| Sustainable Growth Rate | | 6.2% | 5.2% | 4.4% | 5.0% | 3.9% | 4.7% |

# Appendix 7: 3-Stage DCF Model

| | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | First Stage | | | Second Stage | | | | |
| Year ending January | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | *-19.4%* | *0.6%* | *4.0%* | *5.0%* | *5.0%* | *4.5%* | *4.5%* | *4.5%* |
| *NOPAT / S* | *27.8%* | *23.7%* | *25.8%* | *28.0%* | *29.0%* | *29.0%* | *29.0%* | *29.0%* |
| *S / NOWC* | *0.35* | *0.29* | *0.26* | *0.28* | *0.30* | *0.30* | *0.30* | *0.30* |
| *S / NFA (EOY)* | *0.37* | *0.37* | *0.37* | *0.37* | *0.37* | *0.37* | *0.37* | *0.37* |
| *S / IC (EOY)* | *0.18* | *0.16* | *0.15* | *0.16* | *0.17* | *0.17* | *0.17* | *0.17* |
| *ROIC (EOY)* | *5.0%* | *3.9%* | *4.0%* | *4.5%* | *4.8%* | *4.8%* | *4.8%* | *4.8%* |
| *ROIC (BOY)* | | *4.3%* | *4.4%* | *4.5%* | *4.9%* | *5.0%* | *5.0%* | *5.0%* |
| *Share Growth* | *-0.7%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $1,150 | $1,157 | $1,203 | $1,263 | $1,327 | $1,386 | $1,449 | $1,514 |
| NOPAT | $320 | $274 | $311 | $354 | $385 | $402 | $420 | $439 |
| *Growth* | *4.3%* | *-14.3%* | *13.3%* | *13.9%* | *8.7%* | *4.5%* | *4.5%* | *4.5%* |
| - Change in NOWC | -414 | 684 | 614 | -86 | -90 | 199 | 208 | 217 |
| *NOWC EOY* | *3300* | *3984* | *4598* | *4512* | *4422* | *4621* | *4829* | *5046* |
| *Growth NOWC* | *-11.1%* | *20.7%* | *15.4%* | *-1.9%* | *-2.0%* | *4.5%* | *4.5%* | *4.5%* |
| - Chg NFA | 129 | 19 | 125 | 162 | 170 | 161 | 168 | 176 |
| *NFA EOY* | *3,100* | *3,119* | *3,244* | *3,406* | *3,576* | *3,737* | *3,905* | *4,081* |
| *Growth NFA* | *4.3%* | *0.6%* | *4.0%* | *5.0%* | *5.0%* | *4.5%* | *4.5%* | *4.5%* |
| Total inv in op cap | -285 | 703 | 739 | 76 | 80 | 360 | 376 | 393 |
| Total net op cap | 6400 | 7103 | 7842 | 7918 | 7998 | 8358 | 8734 | 9127 |
| FCFF | $605 | ($428) | ($428) | $277 | $305 | $42 | $44 | $46 |
| *% of sales* | *52.6%* | *-37.0%* | *-35.6%* | *22.0%* | *23.0%* | *3.0%* | *3.0%* | *3.0%* |
| *Growth* | | *-170.8%* | *0.0%* | *-164.8%* | *9.8%* | *-86.2%* | *4.5%* | *4.5%* |
| - Interest (1-tax rate) | 64 | 58 | 65 | 69 | 72 | 75 | 79 | 82 |
| *Growth* | *237.7%* | *-10.0%* | *13.3%* | *5.0%* | *5.0%* | *4.5%* | *4.5%* | *4.5%* |
| + Net new debt | 18 | 500 | 500 | 160 | 168 | 159 | 166 | 173 |
| Debt | 2200 | 2700 | 3200 | 3360 | 3528 | 3687 | 3853 | 4026 |
| *Debt / tot net op capital* | *34.4%* | *38.0%* | *40.8%* | *42.4%* | *44.1%* | *44.1%* | *44.1%* | *44.1%* |
| FCFE w debt | $559 | $14 | $6 | $369 | $401 | $126 | $131 | $137 |
| *% of sales* | *48.6%* | *1.2%* | *0.5%* | *29.2%* | *30.2%* | *9.1%* | *9.1%* | *9.1%* |
| *Growth* | | *-97.5%* | *-54.6%* | *5699.8%* | *8.6%* | *-68.6%* | *4.5%* | *4.5%* |
| / No Shares | 152.0 | 152.0 | 152.0 | 152.0 | 152.0 | 152.0 | 152.0 | 152.0 |
| FCFE | $3.68 | $0.09 | $0.04 | $2.43 | $2.64 | $0.83 | $0.86 | $0.90 |
| *Growth* | | *-97.5%* | *-54.6%* | *5699.8%* | *8.6%* | *-68.6%* | *4.5%* | *4.5%* |
| * Discount factor | | 0.90 | 0.81 | 0.73 | 0.66 | 0.60 | 0.54 | 0.49 |
| Discounted FCFE | | $0.08 | $0.03 | $1.78 | $1.75 | $0.49 | $0.47 | $0.44 |
| **Terminal value P/E** | | | | | | | | |
| Net income | $320 | $274 | $311 | $285 | $313 | $327 | $342 | $357 |
| *% of sales* | *27.8%* | *23.7%* | *25.8%* | *22.6%* | *23.6%* | *23.6%* | *23.6%* | *23.6%* |
| EPS | $2.11 | $1.80 | $2.04 | $1.88 | $2.06 | $2.15 | $2.25 | $2.35 |
| *Growth* | *5.0%* | *-14.3%* | *13.3%* | *-8.2%* | *9.7%* | *4.5%* | *4.5%* | *4.5%* |
| Terminal P/E | | | | | | | | 14.00 |
| * Terminal EPS | | | | | | | | $2.35 |
| Terminal value | | | | | | | | $32.88 |
| * Discount factor | | | | | | | | 0.49 |
| Discounted terminal value | | | | | | | | $16.00 |
| **Summary (using P/E multiple for terminal value)** | | | | | | | | |
| First stage | $0.12 | Present value of first 2 year cash flow | | | | | | |
| Second stage | $4.93 | Present value of year 3-7 cash flow | | | | | | |
| Third stage | $16.00 | Present value of terminal value P/E | | | | | | |
| Value (P/E) | **$21.04** | | | | | | | |

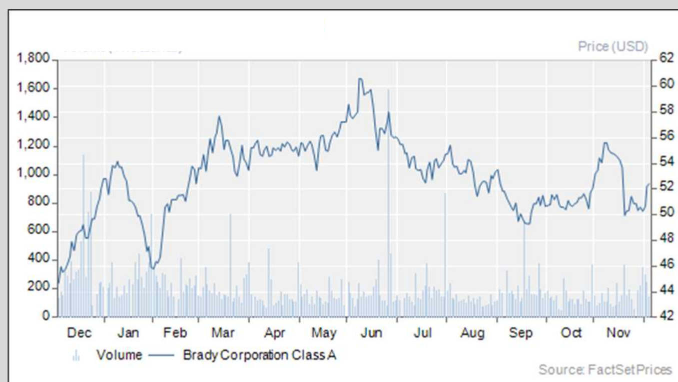
| **Cost of equity** | |
|---|---|
| Market return | 10.0% |
| - Risk free rate | 1.60% |
| = Market risk premium | 8.4% |
| * Beta | 1.10 |
| = Stock risk premium | 9.2% |
| **$r = r_f +$ stock RP** | **10.8%** |

Industrials, Miscellaneous Manufacturing

# Brady Corporation

| Recommendation: Buy | | | | |
|---|---|---|---|---|
| Current Price | $52.25 | --- | Ticker | BRC |
| 1 Year Bear | $54 | *11%* | Sh. Out. (M) | 51.8 |
| 1 Year Base | $62 | *22%* | M.Cap. ($B) | 2.73 |
| 1 Year Bull | $68 | *33%* | EV ($B) | 2.67 |

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | 52% | 28% | -6% | 10% | 3% | 6% | 4% |

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($M) | 1,113 | 1,174 | 1,161 | 1,081 | 1,145 | 1,291 | 1,350 |
| *Gr. %* | -0.7% | 5.4% | -1.1% | -6.8% | 5.9% | 12.8% | 4.6% |
| *v. Cons.* | - | - | - | - | - | 13.0% | 3.0% |
| *Industry* | 6.5% | 6.3% | 0.1% | -6.4% | 12.9% | 8.3% | 4.8% |
| **EPS** | $1.84 | $1.73 | $ 2.46 | $2.11 | $2.47 | $2.94 | $3.32 |
| *Gr. %* | 16.5% | -5.8% | 42.0% | -14.2% | 17.0% | 18.9% | 12.9% |
| *v. Cons.* | - | - | - | - | - | 23.5% | 13.1% |
| *Industry* | 14.2% | 83.0% | 7.7% | -2.4% | 32.0% | 20.7% | 12.6% |

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | 8.6% | 7.8% | 11.3% | 10.4% | 11.3% | 12.0% | 13.2% |
| *Industry* | 6.4% | 9.0% | 10.2% | 8.7% | 7.4% | | |
| **ROE** | 14.7% | 12.5% | 16.4% | 13.1% | 14.2% | | |
| *Industry* | 11.4% | 21.0% | 21.3% | 15.8% | 11.4% | | |
| **ROA** | 9.1% | 8.6% | 11.3% | 9.8% | 9.4% | 10.5% | 11.0% |
| *Industry* | 24.6% | 28.5% | 27.8% | 24.0% | 6.0% | | |
| **A T/O** | 1.06 | 1.11 | 1.05 | 0.94 | 0.91 | 0.88 | 0.83 |
| **D/A** | 10.3% | 5.0% | 4.3% | 0.0% | 2.8% | | |

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 20.8 | 25.1 | 23.3 | 25.0 | 27.7 | 16.8 | 14.9 |
| *Industry* | 29.0 | 28.9 | 21.1 | 28.0 | 25.2 | 24.0 | 21.2 |
| P/S | 1.77 | 1.94 | 2.63 | 2.60 | 2.76 | 2.11 | 2.04 |
| P/B | 2.78 | 3.00 | 3.57 | 3.18 | 3.16 | | |
| P/CF | 13.73 | 16.00 | 18.94 | 19.63 | 15.65 | 13.89 | 12.68 |
| EV/EBITDA | 10.6 | 10.7 | 13.6 | 12.7 | 14.2 | | |
| D/P | 2.5% | 2.2% | 1.6% | 1.9% | 1.6% | | |

## Summary


I recommend a buy rating with a price target of $62. Although organic sales growth has been flat, Brady made three acquisitions in fiscal 2021 that create synergies by targeting a market estimated to grow at a rate well above GDP growth. Combined with Brady's proven ability to cut costs, the stock is poised for long term earnings growth. The stock is moderatley undervalued based on relative and DCF analysis.


## Key Drivers

- Secular Trends in the AIDC Space: The automatic identification and data capture (AIDC) market is growing at a 10% CAGR and is expected reach $100 billion by 2030. Brady's largest segment focuses on the space.
- Acquisitions of Faster Growing Applications: Brady made three acquisitions at the end of fiscal 2021 for $244M (21% of F21 sales), which bring new technology and a stronger focus on the AIDC space.
- International Exposure Concerns: Despite international expansion providing growth opportunities, it also exposes Brady to international political and economic risks.
- Online Presence and Expanding Sales Force: Brady's marketing through digital channels has been historically weak. Increased spending on digital marketing and an expanding sales force could provide organic sales growth, which it had issues with in the past.

## Valuation

Using a relative valuation approach, Brady Corp. appears to be undervalued in comparison to competitors in the AIDC and safety space. DCF analysis implies that the stock is worth $63. A combination of the approaches suggests that Bray Corp. is undervalued, as the stock's value is about $62 and the shares trade at $52.25.

## Risks

- Fluctuations in foreign currencies could impact sales and margins.
- Increased competition in the AIDC market could cause my growth forecasts to not materialize.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## Company Overview

Brady Corporation (BRC) is a global manufacturer and provider of identification solutions and workplace safety products. Headquartered in Milwaukee, WI, and getting its start in 1914, Brady now has roughly 5,400 employees with locations in Africa, Asia, Australia, Europe, and the Americas. BRC's history of prioritizing customer service and providing quality solutions in a wide range of diverse, proprietary and individual products has helped the company position itself as a global leader in niche markets.

With a focus on specialty business-to-business sales, the firm's products are mainly used inside manufacturing facilities, public buildings, and electrical applications. One of the main legacy products includes printing systems that allow customers to print safety signs, labels, and other safety identification needs on-site. Additional legacy products include barcode printers and scanners, accompanied by software that enable customers to automatically identify and collect data. Over time, the product portfolio has grown as BRC acquired more than 30 businesses between 2003 and 2010, leading it to triple in size.

Brady Corporation operates with two segments, Identification Solutions (IDS), and Work Place Safety (WPS).

The ID Solutions segment focuses on providing identification solutions that help track people and products while protecting/securing facilities. The segment makes up roughly 73% of BRC's overall revenue and caters to a wide range of industries including electrical and industrial manufacturing, healthcare, chemical, oil, gas, automotive, aerospace, governments, education, leisure and entertainment, and telecommunications. Brady manufacturers and distributes 69% of its IDS segment under the Brady brand which includes label printing materials, systems, and software. Other brands are industry and product specific. Utility products are marketed under the Electomark brand; security and identifications badgers under the IDenticard, PromoVision, Brady People ID, BIG, and MAGiCARD, brands; spill control products under the SPC brand; lockout/tagout products under the Scafftag brand; radio frequency identification (RFID) products under the Nordic ID brand; barcode scanners under the Code brand; and healthcare patient identification as well as custom wristbands for leisure events under the PDC brand. Competition for the segment is fragmented across each offering, ranging from small local firms to very large firms. However, Brady's focus on certain industries and its development of individual, proprietary products for customers has given it a unique advantage over its smaller competitors. Despite Covid-19's negative effects in the 2020 and 2021 financial period, sales have been relatively flat in recent years.

*BMP21: Portable Label Printer*

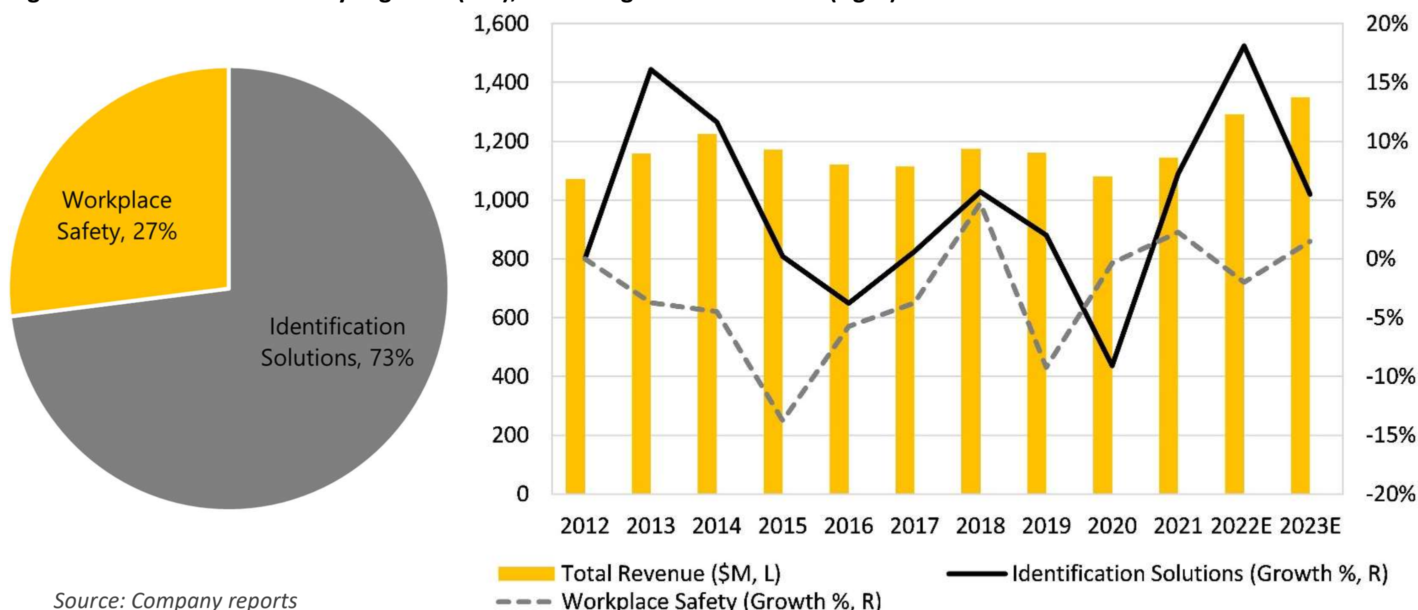
*S3100: Sign and Label Printer*

*Brady Workstation: Scanner, Printer, and Software.*

*Lockout Toolbox Kit with 3 Padlocks* *Covid-19 Floor Decal* *Tall Fire Extinguisher "V" Sign*

The WPS segment focuses on providing personal and facility safety products that meet compliance standards. The segment includes a range of stock, custom, and resale products of which 40% are internally manufactured and 60% are externally sourced. Sales are derived from maintenance, repair, and operations ("MRO") customers. Similar to the IDS segment, products are marketed under several brands dependent on their use case. The breakdown is as follows: safety facility identification products under the Seton, Emedco, Signals, Safety Signs, SafetyShop, Signs & Labels, and Pervaco brands; labor law and compliance posters under the Personnel Concepts and Clement Communications brands; first aid supplies under the Accidental Health and Safety, Trafalgar, and Securimed brands; and wire identification products marketed under the Carroll brand. Opposite of the IDS segment, Covid-19 provided a boost in WPS product sales. Prior to Covid-19, these sales were flat.

**Figures 1 & 2: 2021 revenue by segment (left); revenue growth since 2012 (right)**




*Source: Company reports*

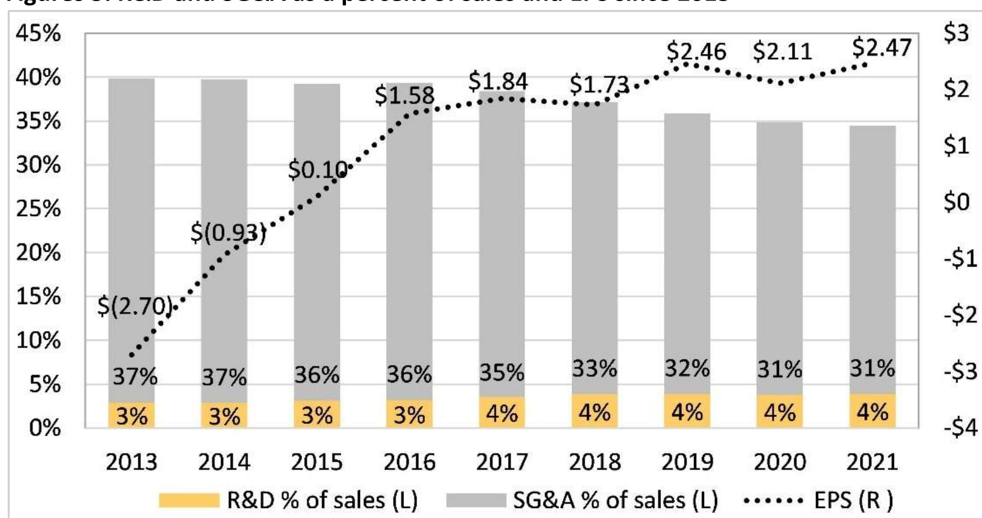
As mentioned earlier, Brady's historical growth strategy included the acquisition of existing companies. However, prior to 2021, the company had not made a single acquisition since 2013. During this extended period, in an attempt to drive organic sales growth, Brady increased R&D as a percent of sales to 4% from 3%. However, as seen in the graph above, the strategy has had nearly no effect. To further prove the point, when CFO, Aaron Pearce, was asked about top-line growth in relation to R&D, he could not guarantee that there had been any observable effects on sales. However, he did advise that, from a salesman perspective, customers enjoy knowing that they have innovative suppliers.

Despite seeing a rebound in sales for fiscal 2021, sales are still down 1% vs pre-pandemic levels.

The lack of success with R&D has caused demand for Brady's products to become stagnant over the past five years with sales down 6.6% from their peak in 2014. This lack of demand growth has to do with (1) the nature of Brady's products and (2) its customers. Products, do not require frequent repeat purchases, causing Brady to rely heavily on replacement demand. A prime example of this is its signage offerings, which, unlike subscription software, only require repurchases when they fall below compliance standards. On the other hand, Brady's focus on customer service and scale relative to its smaller competitors allows it to gain repeat business from customers who are expanding operations.

Brady's main customers segment are a very diverse group that operates in their own niche markets. Despite no single customer making up more than 10% of net sales, many of them are manufacturers. Manufacturing has been declining in the U.S. over the past few decades. Serving these customers required Brady to expand into international markets. However, after entering these new markets, I believe the same issue regarding replacement demand has continued.

**Figures 3: R&D and SG&A as a percent of sales and EPS since 2013**




Earnings are up 240% from 2015 due to decreasing SG&A to 31% of sales from 37%.

In an attempt to maintain shareholder value, Brady Corp has become more efficient and reduced costs as much as possible to increase earnings, which have risen nearly 240% since 2015. By automating in-house processes and reducing overhead, the firm has decreased SG&A as a percentage of sales from 37% to 31%. The ability to increase efficiency by this magnitude is impressive; however, cutting costs cannot last forever.

The combination of these factors has led Brady to revert to its former strategy of growth through acquisitions. By taking advantage of its strong cash position of $322 million (20% of total assets) going into the fiscal fourth quarter, the company made three technology-based acquisitions for a total of $244M (~21% of F21 sales) (~12% of '21 FYE market cap). All of the acquisitions are part of the IDS segment and include Code Corporation, Nordic ID, and MagiCard. This strategic move shifted part of the firm's portfolio to garner faster-growing applications, known broadly as the "automated identification and data collection" market, and is supposed to complete Brady's track and trace solution product offering.

## Business/Industry Drivers

Though several factors may contribute to Brady's future success, the following are the most important business drivers:

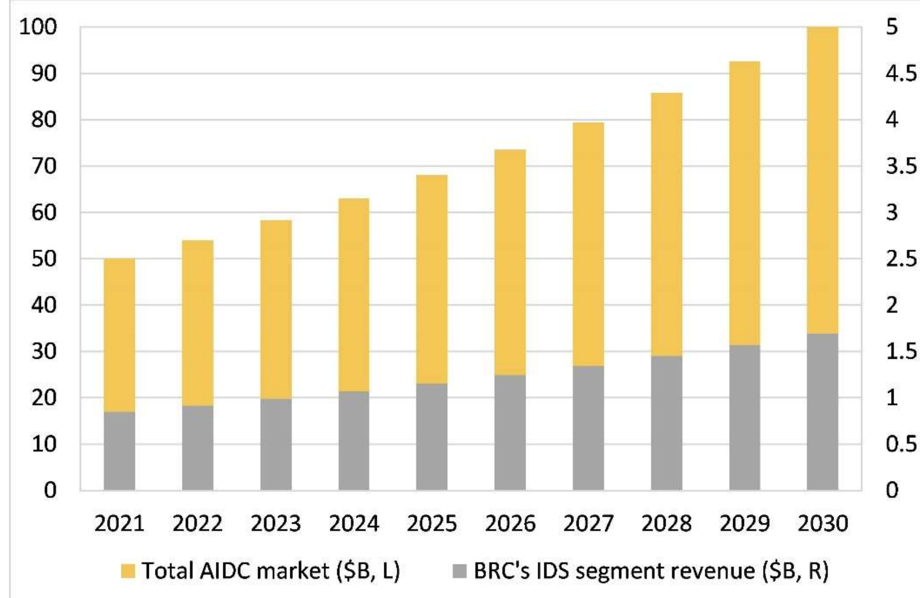
1) Secular Trends in the AIDC Space
2) Acquisitions of Faster Growing Applications
3) International Exposure Concerns
4) Competitors
5) Macroeconomic Trends
6) Online Presence and Expanding Sales Force

Secular Trends in AIDC Market

Automatic identification and data capture (AIDC) in business has greatly improved the way information is collected and used to manage logistics and supply chain management. Advancements in the ADIC space now include brand new ways to collect and analyze data. Technologies such as QR codes, biometrics such as iris and facial recognition systems, magnetic strips, radio frequency identification (RFID), smart cards, optical character recognition, and voice recognition fall under the domain of AIDC. According to Meticulous Research ®, the market may be worth $100 billion by 2030, representing an 8% CAGR from its current worth of $50 billion. In addition, research anticipates that the developers of the hardware (vs software) will benefit most from future growth. The driving demand for AIDC includes the digitalization of business, expansions in e-Commence, and retailers' use of the technology to improve customer experiences. Most notably the manufacturing, healthcare, and retail industries have benefited the most as AIDC allows user access to real-time detection of assets, inventory, and people. Over the years, Brady has been a part of this market with its legacy barcode printers and scanners, accompanied by its software. The space could lead to solid growth opportunities pending the successful integration of Brady's existing offerings with its recent acquisitions.

The AIDC market is projected to grow 8% per year through 2030.

**Figures 4: AIDC market and IDS segment revenue if market share maintained (billion)**




The prospects for growth provided by the AIDC market are limited by Brady's portfolio of products and market share. Currently, the AIDC space is worth $50 billion while Brady's 2021 IDS sales were only $842 million. Assuming that all of Brady's IDS sales are true AIDC products, Brady has 1.7% of the total market share. If Brady were to maintain this market share, annual sales for the IDS segment would be $1.7 billion

by 2030. However, it is unclear what the true break down of Brady's IDS sales are and I assume most products sold are not considered part of the AIDC space. If Brady plans to achieve the full benefit of secular trends in the AIDC, space it will need to continue to develop products in house and most likely make further acquisitions.

Acquisitions of Faster Growing Applications

Code Corporation ("Code") is the largest ($173M net of cash received), and' the most relevant, of the three acquisitions. Code specializes in high-performance barcode scanners with 100+ patents and holds a strong presence in the U.S. healthcare systems. The scanners are used to track drugs and patients within healthcare facilities. I believe the strategic rationale for the acquisition is Code's proprietary software. This is because the strong presence in the healthcare sector is a result of Code's software, allowing users to easily access and read data. The software is licensed in yearly increments which allows Brady to benefit from recurring revenue. This reduces the need for repeat purchases of scanners.

*Code Corp. handheld and hands-free barcode scanners*

Management anticipates revenue of ~$50 million and EBITDA, net of integration costs, of ~$10 million for fiscal 2022. This implies a P/S of 3.5x and an EV/EBITDA of 17.3x compared to 2.4x and 14.2x for all of Brady Corp. Thinking about the long-term possibilities, I believe that introducing Code's technology to Brady's existing IDS industrial customers provides an attractive opportunity for future growth. However, management has not made it clear if the integration costs of Code Corp will continue beyond 2022 which could negatively affect Brady's bottom line.

Nordic ID, a Finland-based company, is said to complete Brady's track and trace product offerings. Despite the smaller purchase price (~$13 million), it provides Brady with radio frequency identification (RFID) readers, scanners, and their associated software. By utilizing a cloud platform, these products digitize the asset tracking experience by allowing manufacturers to analyze their workflow in real-time.

Outside of manufacturers, the products have already been used onsite in the retail industry. The offering is referred to as "S/Mart" with the 'S' standing for smart. S/Mart utilizes the properties of RFID tags and scanners to allow registered customers entry, self-checkout, and exit on the condition that all items leaving the store have been paid for. According to Verified Market Research, the retail automation market is currently worth $14 billion and is expected to reach $32 billion by 2028 (11% CAGR). While it is unclear what current S/Mart sales are, the growth prospects make the space highly competitive and lucrative for first movers. Additionally, while Amazon's Go stores offer a similar service to the S/Mart it is difficult to replicate due to higher start-up costs from its dependence on high-tech cameras, which Bloomberg estimated to be over one million dollars.

*Nordic RFID Handheld Readers* *Nordic S/Mart Shopping Process*

It is anticipated that Nordic ID will provide ~$11 million in revenue (1.2x P/S) and a break-even of EBITDA, net of integration costs, for the fiscal year-end of July 31, 2022. The combining Nordic ID and Code's technology along with Brady's market position in niche application of industrial printers and materials could accelerate growth in industrial track-and-trace applications in the long-run. However, it is hard to determine how long it will take for this to materialize.

The three acquisitions add $96M (11%) in IDS revenue and increase BRC's AIDC market share to 1.9% from 1.7%.

Magicard Holdings Limited ("Magicard"), the second-largest acquisition with a price of ~$59 million, offers full-color, high-resolution ID card printers with built-in security protocols and the ability to encode smart cards. Also referred to as rigid cards, they are the IDs one would need to gain access to office buildings and other spaces that are restricted to non-authorized personnel. Furthermore, the desktop devices of Magicard satisfy the requirements of those facilities that utilize security ID cards as they provide on-demand and onsite printing capabilities. Despite Brady's diverse IDS offerings in the credential and access control space, the printing and encoding capabilities that Magicard possesses fills a gap that is needed to continue competing in the industry. Management anticipates revenue of ~ $35 million (1.7x P/S) and EBITDA, net of integration costs, of ~$4 million (14.8x EV/EBITDA) for the fiscal year 2022. Plans to expand Magicard's addressable market through Brady's presence in Europe, Asia, and the Americas, could provide great growth opportunities for Magicard offerings. However, Brady's secure access offerings are not as sought after as its other products and most of Magicard's revenue comes from the UK. Another factor that could make this difficult is that there are already existing competitors with a larger global presence.

*Magicard onsite ID Printers*

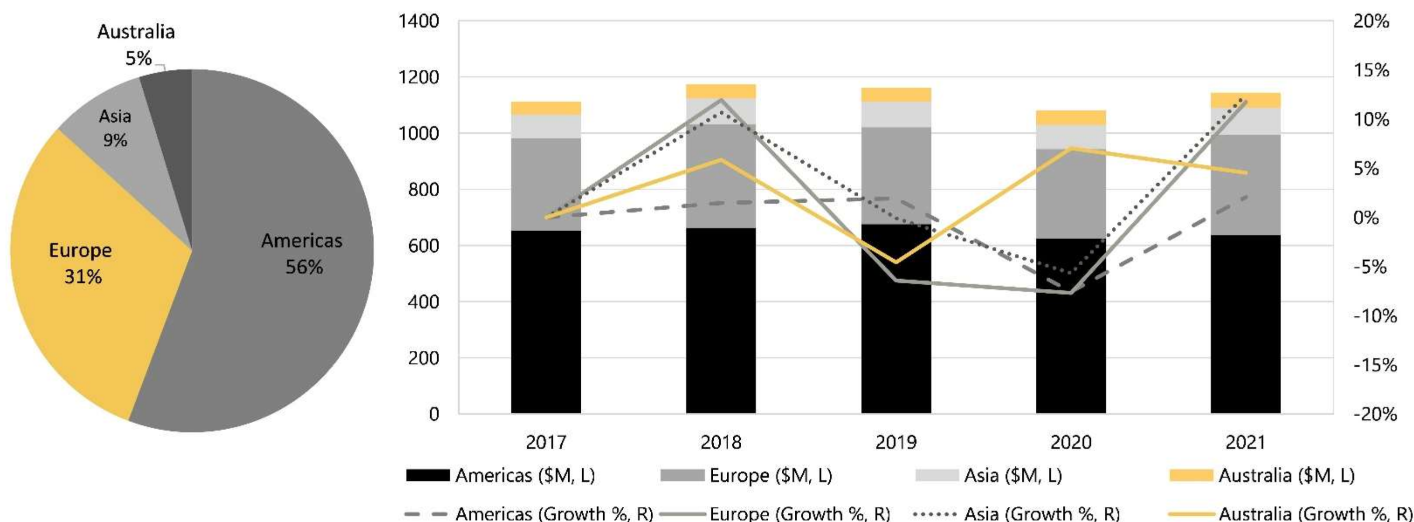
<u>International Exposure Concerns</u>

As noted previously, Brady has resorted to global expansion to continue growing its sales. Being a global operator is a huge advantage for the firm as it is able to weather economic cycles better than companies that operate solely in one country. Recently, management has noted its plans for further expansion in Asia. However, the details have not yet been made public.

- In 2017, 59% of the firm's revenue was generated from customers in the Americas. Over the past four years, sales growth has ranged from negative 7.5% to positive 2%, resulting in the America's only accounting for 56% of total revenue during fiscal 2021.
- Europe accounted for 30% of total revenue in 2017. Since, total sales in the continent have increased 8% resulting in Europe now accounting for 31% of revenue.
- Operations in Australia, which are made up of solely Work Place Safety products, have grown from 4% of sales in 2017 to 5% in 2021 representing a CAGR of 3% during the period.
- The fastest-growing geography for Brady is Asia. Contrary to Australia, operations in are solely part of the ID Solutions segment. Since 2017, the segment has grown 17%, and now makes up approximately 8% of Brady's total sales.

While international provides growth opportunities, it also exposes Brady to the risks of international political, economic, and other risks. Fluctuations in foreign currencies either benefit or hurt sales figures to the tune of 1-3%. Currency translation adjustments for fiscal years 2021, 2020, and 2019 were favorable by $10.3 million, favorable by $6.6 million, and unfavorable by $13.2 million, respectively. Each $10 million adjustment results in a ~$0.15 change in EPS. Going forward, increased strength in the U.S. dollar will increase the price of products in foreign counties making it more expensive for customers to work with Brady. Conversely, a declining U.S. dollar could increase material costs and hurt margins. Additionally, due to the threat of competition, Brady may not be able to pass on these costs to customers as it could risk losing their business.

**Figures 5 & 6: 2021 Revenue concentration by geography (left); revenue vs YoY revenue growth rate since 2017 (right)**




*Source: Company reports*

Competitors

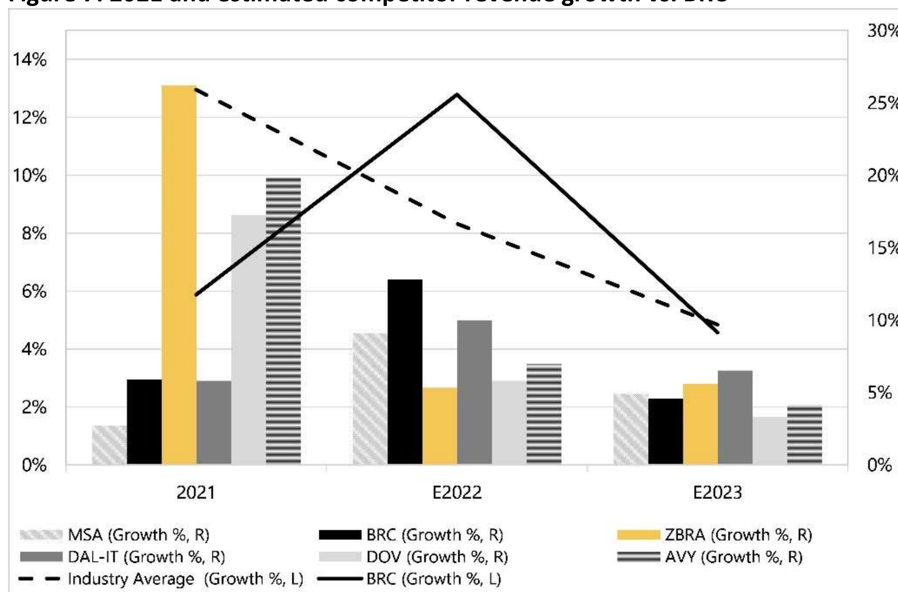
Despite management stating that many of its competitors are small, local firms, the larger competitors are similar to Brady with diversified product offerings and international operations. Brady's diverse products is an advantage as it provides protection against larger competitors stealing market share. This is true for the WPS and ID Solutions segments. However, Brady's recent shift to focus more on AIDC has opened it up to competitors who are also pursing the space. Brady's fragmented competition also makes comparative analysis difficult. None of the analysts who cover Brady have the same peer groups and often compare the company to paper packaging manufacturers.

- Zebra Technologies Corp. (ZBRA) is Brady's largest competitor. Zebra organizes itself into two segments, Asset Intelligence & Tracking (AIT) and Enterprise Visibility & Mobility (EVM). AIT

products include barcode and card printing, location solutions, supplies, and services. EVM focuses on mobile computing, data capture, and RFID.

- MSA Safety, Inc. (MSA) is the largest competitor with a focus similar to BRC's WPS segment. MSA engages in the development and sale of innovative products, which enhances the safety and health of workers and protects facility infrastructure.
- Datalogic S.p.A (DAL-IT) engages in manufacturing and the provision of automatic data capture and industrial automation, including bar code scanners, mobile computers, measurement and security sensors, vision and laser markings and RFID systems.
- Dover Corp (DOV) engages in the manufacturing of equipment, components, and specialty systems. Like Brady, Dover's products end up in many diverse markets. Segments include Engineered Products, Fueling Solutions, Imaging and Identification, Pumps and Process Solutions, and Refrigeration Equipment.
- Avery Dennison Corp. (AVY) engages in the provision of labeling and packaging materials and solutions. It operates through the following segments: Label & Graphic Materials, Retail Branding & Information Solutions, and Industrial & Healthcare Materials. It is estimated that 24% of AVY revenue comes from Asia.

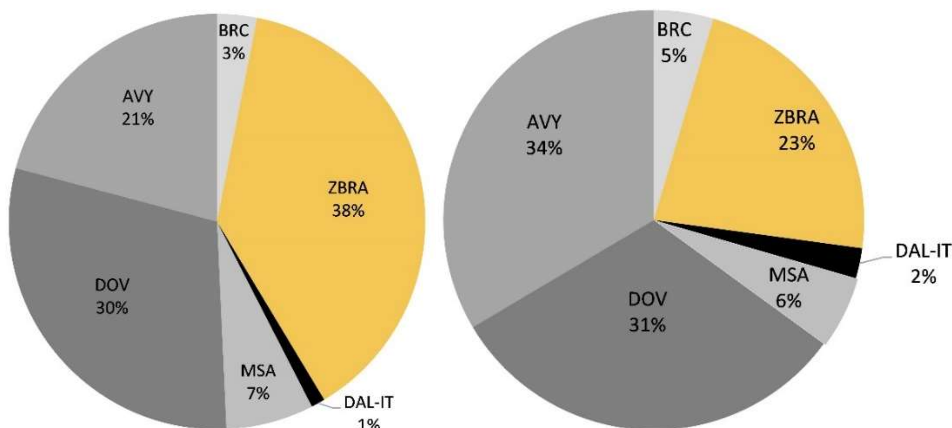
**Figure 7: 2021 and estimated competitor revenue growth vs. BRC**




I anticipate Brady's revenue growth to outpace the competition in 2022 before matching the consensus average growth in 2023. As time goes on, the expected growth in the AIDC space (8% CAGR), which is above GDP growth, will attract more competitors. This is especially true in countries where a majority of manufacturing takes place. As noted previously, Brady announced plans to further expand in Asia. While AVY is the only competitor with sales in Asia, larger competitors, like ZBRA, could enter the market and pose a threat to Brady's future success in the continent.

**Figures 8 & 9: Competitor concentration by market cap (left) vs. sales (right)**

BRC's share of market cap is lower than its share of sales which reflects more risk in its growth.




*Source: FactSet, Company Reports*

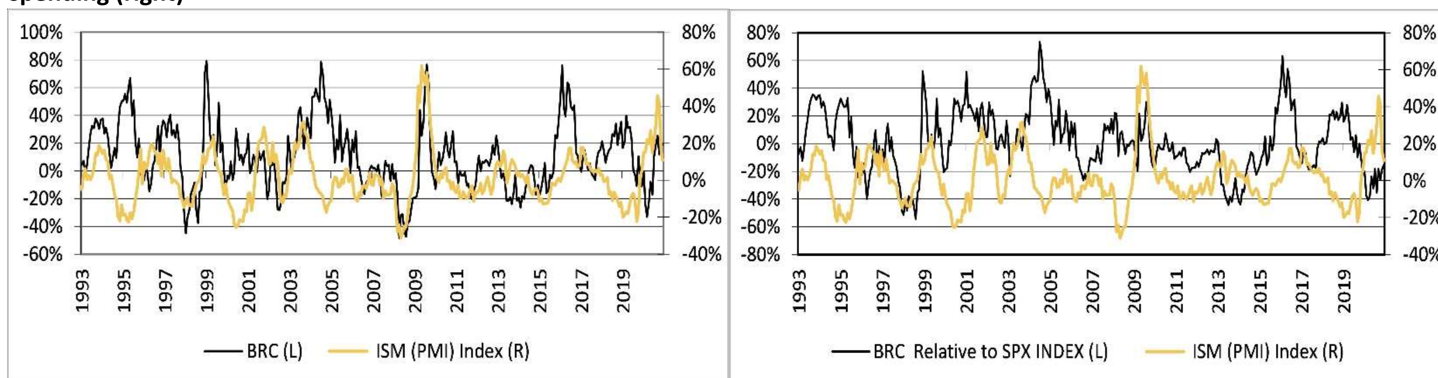
Since Brady's margin is above average (see figure 24) investors must believe it has more risk and/or lower growth than its competition.

Macroeconomic Trends

Brady Corp derives its sales internationally with majority of it coming from the Americas (56%). While the company does not clarify how much of sales is derived from the United States, I believe that is safe to say that at least half of revenue from the Americas are from the U.S. Like Brady, many ISM survey participants sell too foreign countries. As shown in figure 10, even though there are leads and lags in at times, Brady is positively correlated to the ISM index, which is a survey that tracks manufacturing and economic growth.

Conversely, figure 11 shows that relative to the S&P, Brady is less correlated to the ups and downs in the U.S. economy. Thus, Brady is more stable than the market. The main driver of this is Brady's international presence which provides the firm with 46% of its revenue. A secondary driver for its defensiveness is the firm's wide range of product offerings; however, it has much less of an effect. Finally, its offerings are needed to run the business, so if they break down customers still replace them during recessions.

**Figures 10 & 11: BRC absolutive performance vs industrial spending (left); BRC performance relative to the S&P vs industrial spending (right)**




*Source: Bloomberg, IMCP*

Online Presence and Expanding Sales Force

Brady markets its products through direct, catalog, and digital channels. However, Brady's digital presence has been weak. In fiscal 2021, one of Brady's key initiatives was expanding and enhancing its sales capabilities through an improved digital presence and the use of data-driven marketing automation tools. The detail of its digital strategy is unclear, but since the plan was announced I have seen advertisements on sites such as YouTube and Amazon as a result of algorithms picking up on my search patterns. On Brady's Q1F22 earnings call, the firm also noted it was increasing its sales force in fiscal 2022. It is unclear what historical and future spending on Brady's marketing strategy look like. However, it is important to consider whether increases in online spending and an expanding sales force will lead to a reversal in Brady's trend to increase margins, which grew from 2013 to 2021 as a result of lower SG&A as a percentage of sales.

## Financial Analysis

I am more pessimistic than consensus estimates for 2022 and 2023, particularly in terms of EPS. I believe that the acquired companies provide strong growth potential for Brady's goal to develop a complete suite of track and trace applications, but integration will take time and they will pay off more in later years. However, I anticipate stronger sales and EPS growth in 2023 driven by synergies from acquisitions and increased marketing spend.

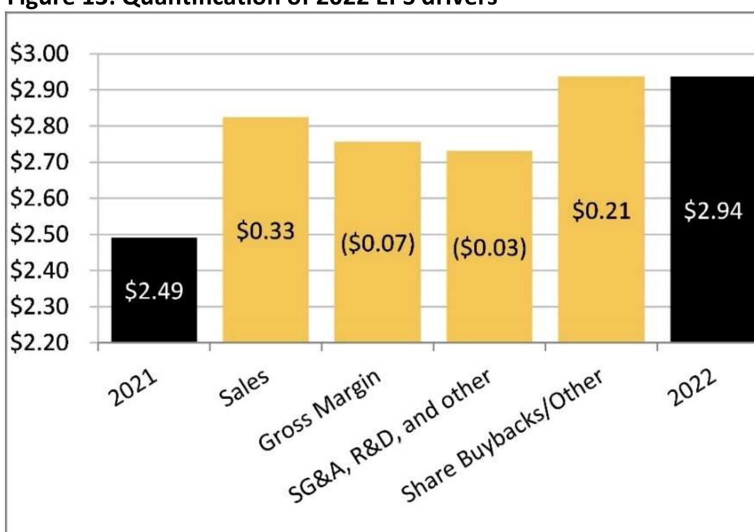
2022 EPS and revenue growth estimates below consensus.

**Figure 12: EPS and YoY growth estimates**

| | 2022E | 2023E |
|---|---|---|
| Sales | $ 1,291 | $ 1,350 |
| YoY Growth | 12.8% | 4.6% |
| Revenue Consensus | $ 1,294 | $ 1,333 |
| YoY Growth | 13.0% | 3.0% |
| EPS | $2.94 | $3.32 |
| YoY Growth | 18.9% | 12.9% |
| EPS Consensus | $3.05 | $3.45 |
| YoY Growth | 23.5% | 13.1% |

*Source: Factset, IMCP*

**Figure 13: Quantification of 2022 EPS drivers**




*Source: Company Reports, IMCP*

I anticipate EPS to grow to $2.94 in FY 2022. Higher revenues from acquisitions and organic growth should increase earnings by $0.33, offset by a $0.07 per share decrease in gross margins due to increases in raw materials and shipping costs. Increases in SG&A to sales from newly acquired headcount and increased marketing efforts, and higher R&D spend as a percentage of sales from Code Corp and Nordic ID, decrease EPS a further $0.03. I forecast $75 million in share buybacks for 2022 as the firm recently authorized $200 million. Share buybacks and other immaterial items increase EPS by $0.21.

Share buybacks are the largest contributor to 2023 EPS.

**Figure 14: Quantification of 2023 EPS drivers**

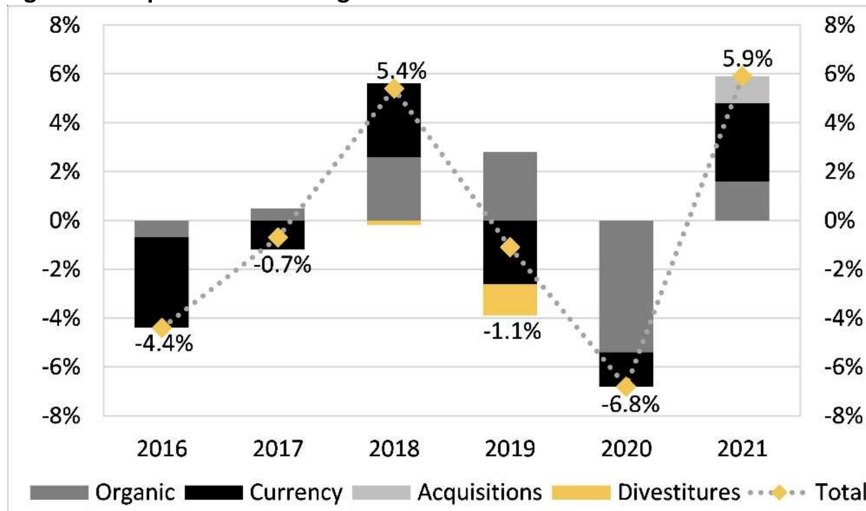
*Source: Company Reports, IMCP*

I expect 2023 EPS to increase $0.38 to $3.32. Brady will gain $0.14 of earnings from increased sales in both segments. I anticipate an expansion in gross margin from reduced raw material and shipping costs which will add $0.11 to EPS. SG&A expenses are forecasted to be a higher percent of sales due to efficiencies taking time to develop and will decrease EPS by $0.02. I expect another $75 million in share buybacks to take place in 2023 which will add $0.16 to EPS.

Revenues

Despite a bump in 2021, revenue has been flat since peaking in 2014. Unlike many industrial peers that suffered in 2021, Brady attributed its growth to increased demand for products that helped combat Covid-19. Quantitatively, the largest impact on 2021 revenue growth (5.9%) was foreign currency translations (3.8%), followed by organic growth (1.6%), and one quarter of revenue from acquisitions (1.1%). Not including the full year increase in 2022 sales from acquisitions, I expect its flat sales trend to reverse in 2022 and 2023.

**Figure 15: Aspects of revenue growth since 2016**

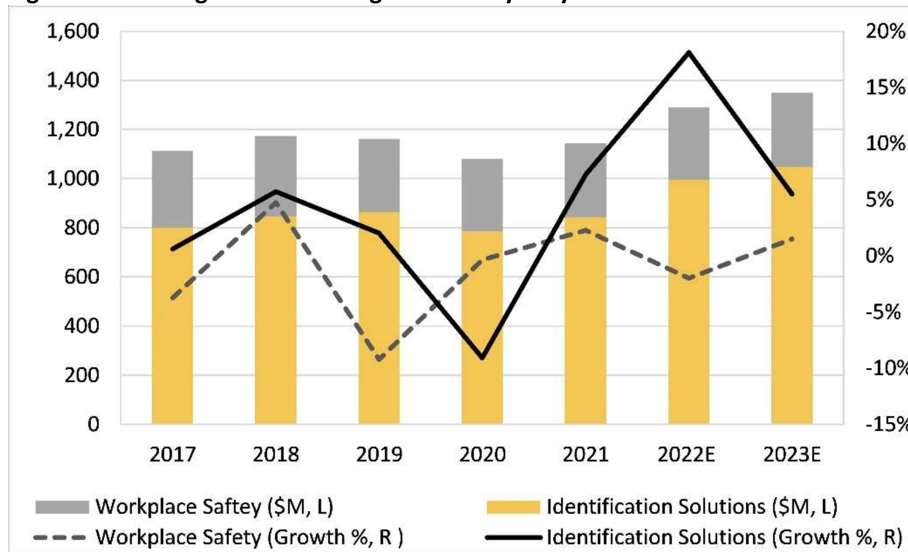



*Source: Company Reports*

Including foreign currency translations, in 2022, I expect IDS sales to have inorganic growth of 11% and organic growth 7%. Inorganic growth is a function of management's guidance on expected revenue for Code Corp ($50M), MagicCard ($35M), and Nordic ID ($11M). Organic growth is a result of increased marketing efforts, a larger customer base from Covid-19, and further development in Brady's complete track and trace product offering. Brady's complete track and trace offering does include products from acquisitions but I believe that existing products will gain from customers choosing to go through one supplier.

BRC will benefit from being the sole supplier to customers in need of a suite of track and trace solutions.

**Figure 16: YoY segment revenue growth and yearly total revenue since 2017**



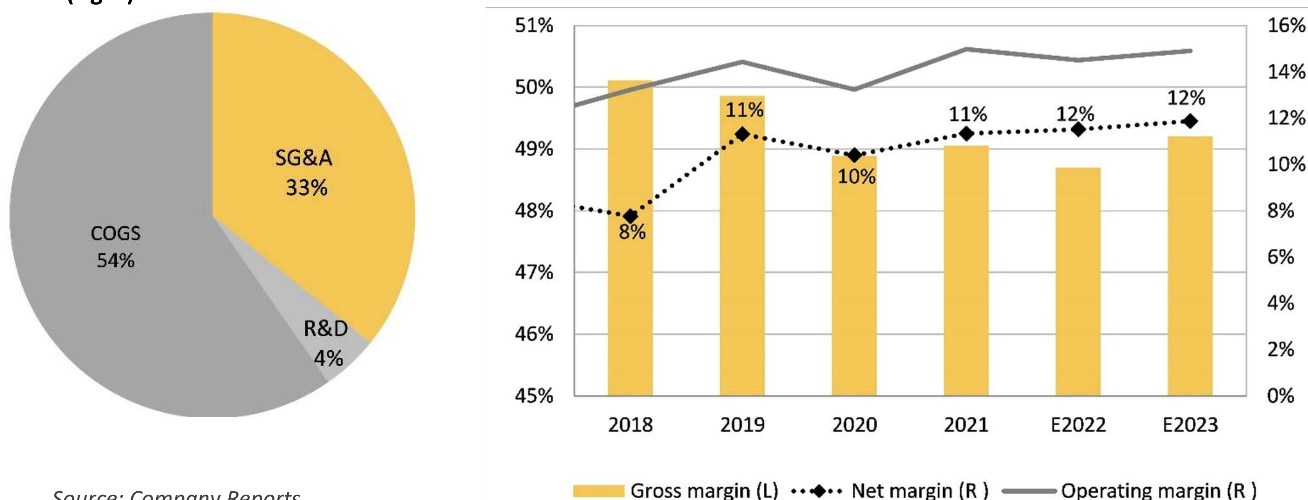

*Source: Company Reports*

In 2022, I expect WPS sales to decrease (-2%) due to tough comparable in 2021, which was a result of increased demand for personal and facility safety products. However, I expect WPS sales to be slightly higher than 2020 levels. In 2023, I expect both segments to have positive growth due the elimination of Covid-19 concerns and continued growth from marketing and R&D.

Operating Income and Margins

Operating expenses are primarily composed of Costs of Good Sold (COGS), selling general and administrative (SG&A), and research and development (R&D) expenses. Historically, COGS has trended between 49% and 50%, but has increased to 51% in fiscal 2020 and 2021. The higher COGS is a result of increases in WPS sales as percentage of total revenue, which has higher input costs than IDS, and supply chain issues. In 2022, I expect gross margin to be the lowest it has been in recent years primarily due to increased air shipping as a result of Brady's commitment to customer satisfaction.

**Figures 17 & 18: Composition of 2021 operating expenses (left); gross margin, operating margin, and net margin since 2018 (right)**




*Source: Company Reports*

Historically, decreasing SG&A expense as a percentage of sales, has been a key driver for Brady to create shareholder value (31% in F21 from 37% in F14). I expect that trend to continue as Brady works to integrate its acquisitions. However, efficiencies will take time to develop and I expect that increases in headcount, from its acquisitions and an expanding sales force, to negatively impact SG&A.

R&D has trended around 4% of sales in recent years, but I expect a slight increase due to Nordic's and Code's higher dependance on R&D.

**Figure 19: Operating margins, 2020 – 2023E**

| | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|
| **Sales** | $ 1,081 | $ 1,145 | $ 1,291 | $ 1,350 |
| **Cost of goods sold** | 553 | 583 | 662 | 686 |
| **Gross income** | 529 | 561 | 629 | 664 |
| *Gross margin* | 48.9% | 49.0% | 48.7% | 49.2% |
| **Operating expenses** | 385 | 390 | 442 | 463 |
| *Growth* | -6% | 1% | 13% | 5% |
| **Operating income** | 143 | 171 | 187 | 201 |
| *Operating margin* | 13.2% | 15.0% | 14.5% | 14.9% |

*Source: Company Reports*

Return on Equity

Brady Corp's 2021 ROE is down from its peak in 2019 due to higher taxes and lower asset turnover. The increase in assets was a result of its acquisitions, higher inventory, and higher receivables. I expect Brady

to return to 2019's levels of ROE in 2023 as sales continue to increase while inventory and receivables decrease to pre-pandemic levels. Also, leverage is expected to rise modestly while the tax rate falls to pre-Covid levels. Historically, Brady's level of debt has been low but increases in the ratio could boost ROE higher than my 2023 estimates.

Brady's debt to asset ratio was only 2.8% 2021.

**Figure 20: ROE breakdown, 2019 – 2023E**

| 5-stage DuPont | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|
| EBIT/Sales | 14.4% | 13.2% | 15.0% | 14.5% | 14.9% |
| Sales/avg assets | 1.05 | 0.94 | 0.91 | 0.91 | 0.95 |
| EBT/EBIT | 98.3% | 98.5% | 99.7% | 99.4% | 99.7% |
| Net income/EBT | 79.7% | 79.7% | 75.8% | 79.9% | 79.9% |
| ROA | 11.9% | 9.8% | 10.3% | 10.5% | 11.2% |
| Avg assets/avg equity | 1.38 | 1.34 | 1.38 | 1.45 | 1.45 |
| **ROE** | 16.4% | 13.1% | 14.2% | 15.2% | 16.3% |

*Source: Company Reports*

Free Cash Flow

**Figure 21: Free cash flow calculations**

| Free Cash Flow ($M) | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| NOPAT | $100 | $93 | $134 | $114 | $136 | $150 | $161 |
| *Growth* | | *-6.9%* | *43.6%* | *-14.4%* | *18.7%* | *10.2%* | *7.5%* |
| NWC* | 90 | 99 | 102 | 106 | 60 | 101 | 116 |
| Net fixed assets | 642 | 586 | 584 | 633 | 913 | 929 | 900 |
| Total net operating capital* | $732 | $685 | $686 | $739 | $973 | $1,030 | $1,016 |
| *Growth* | | *-6.5%* | *0.3%* | *7.6%* | *31.7%* | *5.8%* | *-1.3%* |
| - Change in NWC* | | 9 | 3 | 3 | (46) | 41 | 15 |
| - Change in NFA | | (57) | (2) | 49 | 280 | 16 | (29) |
| FCFF* | | $141 | $132 | $62 | ($98) | $93 | $174 |
| *Growth* | | | *-6.4%* | *-53.0%* | *-258.6%* | - | *87.5%* |
| - After-tax interest expense | 4 | 2 | 2 | 2 | 0 | 1 | 1 |
| FCFE** | | $139 | $129 | $60 | ($99) | $92 | $173 |
| *Growth* | | | *-6.8%* | *-53.5%* | *-263.8%* | *-193.3%* | *88.8%* |

* NWC excludes cash
** No adjustment is made for debt

*Source: Company Reports, IMCP*

Brady's free cash flow had decreased from positive ~$140 million to negative ~$100 million over the last two years due to acquisitions. Still, the firm had over $205 million of capital in cash and was able to pay down $50 million in debt in 2020. Over the next two years, I forecast that NOPAT will grow at a much faster pace than net operating capital (returns to normal levels), and FCF to rise to $174 million in 2023. BRC's term loan facility will provide the ability to meet any funding shortfalls that may arise. The firm recently authorized $200 million in share buybacks and I expect the firm to use most of it over the next two years, as the stock price has not reacted to Brady's new determination for growth.

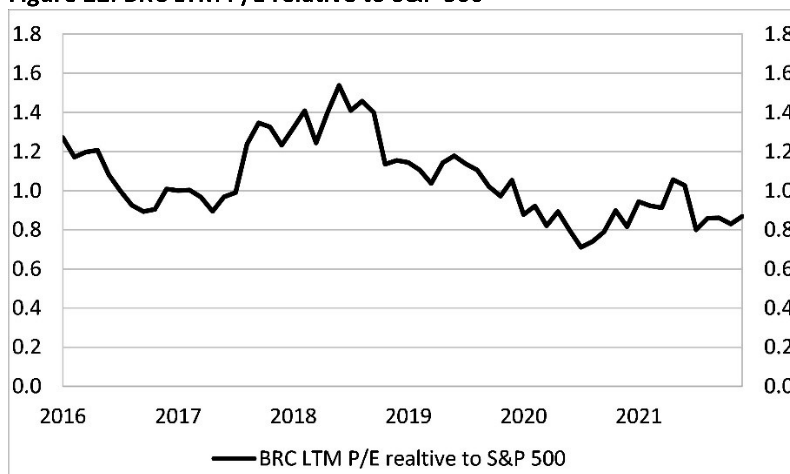
## Valuation

BRC was valued using multiples and a 3-stage discounted cash flow model. Based on earnings multiples, the stock is cheap and is worth $55.87; however, due to the growth of BRC's earnings over the past year, and higher relative risk to future growth, this metric may be unreliable. Relative valuation shows BRC to be slightly undervalued based on its fundamentals versus those of its peers in the AIDC and safety industry. A detailed DCF analysis values BRC at $64.02; I give this value more weight because it incorporates assumptions that reflect BRC's ongoing growth strategy. Finally, a bull and bear scenario analysis yield a price of $69.74 and $58.27, respectively. As a result of these valuations, I value the stock at $66.00.

Trading History

BRC is currently trading near its five-year low relative to the S&P 500. This is the result of recent earnings expansion and the fact that most analysts believe that that the risk related to future earnings growth is relatively high. BRC's current LTM P/E is at 21.0x compared to its five-year average of 22.17x. While I expect some regression towards that number in the future, I do not think that is likely to be the case in the near term.

**Figure 22: BRC LTM P/E relative to S&P 500**




*Source: FactSet*

Assuming the firm maintains a 21.0x TTM P/E at the end of fiscal 2022, it should trade at $61.74 by July 31, 2022:

- Price = P/E x EPS = 21.0 x $2.94 = $61.74.

Discounting $61.74 back to today at a 10.4% cost of equity (explained in Discounted Cash Flow section) yields a price of $55.92. Given my own analysis of BRC's potential for earnings growth, this seems to be an unusually low valuation. However, this makes sense because I am less bullish about near-term earnings than consensus.

Relative Valuation

BRC is undervalued relative to its peer group.

Brady Corp is currently trading at a P/E moderately lower than its peers, with a P/E TTM of 21.0x compared to an average of 25.4x. Despite Brady's potential for greater growth than many of its peers in the segment, I attribute three (3) reasons why investors are not willing to pay the same premium for Brady. (1) First, Brady has proven the ability to cut costs to increase earnings but has not proven its ability to create organic sales growth. Hence, investors are skeptical about Brady's potential for future growth

once its acquisitions are integrated. Additionally, as stated previously (2) the analyst who cover the company compare it to peers more similar to Brady's past than its future. These peers have multiples that reflect lower growth prospects**.** (3) Finally, Brady has a class A and B share structure, which gives all voting rights to the founder's decedents and limits institutions influence. Since Brady's executives have no voting rights, it's important to consider what drove management to pursue new growth opportunities.

Brady's executive compensation structure motivated management to pursue new growth opportunities in 2020 and 2021.

Mr. Michael Nauman (President, CEO, and Director since 2014) has several fiscal year objectives that he is still incentivized to achieve from before 2021, as well as annual organic sales and NOPAT growth. Mr. Aaron Pearce (CFO and Treasurer since 2015) is incentivized through fiscal year objectives from before 2021, as well as annual cash flow generation, reductions in SG&A expenses, and NOPAT growth. Figure 23 highlights changes in their executive compensation structure which I believe motivated management to focus more on increasing organic sales and NOPAT in 2020 and 2021.

**Figure 23: Executive Compensation Factor Weights**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| Total Organic Sales | 30% | 30% | 30% | 30% | 35% | 35% |
| NOPAT | 50% | 50% | 50% | 50% | 55% | 65% |
| Fiscal Year Objectives | 20% | 20% | 20% | 20% | 10% | 0% |

**Figure 24: BRC relative valuation vs peer group**

| Ticker | TTM P/E | P/S | NPM | P/B | ROE | P/Cf |
|---|---|---|---|---|---|---|
| **BRC** | **21.0** | **2.37** | **11.2%** | **2.82** | **15.7%** | **13.9** |
| **ZBRA** | 37.5 | 5.59 | 14.8% | 11.17 | 31.9% | 29.1 |
| **DAL-IT** | 19.7 | 1.44 | 7.0% | 2.06 | 12.1% | 13.4 |
| **MSA** | *60.6* | 4.03 | 8.8% | 6.81 | 22.4% | |
| **DOV** | 25.7 | 3.07 | 12.3% | 6.18 | 27.7% | 19.5 |
| **AVY** | 23.0 | 2.04 | 8.7% | 9.47 | 44.4% | 18.5 |
| **Average** | **25.4** | **3.09** | **10.5%** | **6.42** | **22.0%** | **18.9** |

Brady's P/S multiple also trades at a discount (2.37x vs. 3.09x average) even though its profit margin is slightly above average. If I used the same peer group as other analysts, the multiple would be more appropriate.

Brady's below average P/B multiple reflects its below average ROE (15.7% vs 22.0% average). However, it is important to note that Brady's ROE is lower than its peers due to its very low debt ratio (9.4% debt/equity vs 43.6% average), so it is a higher quality (lower risk) ROE.

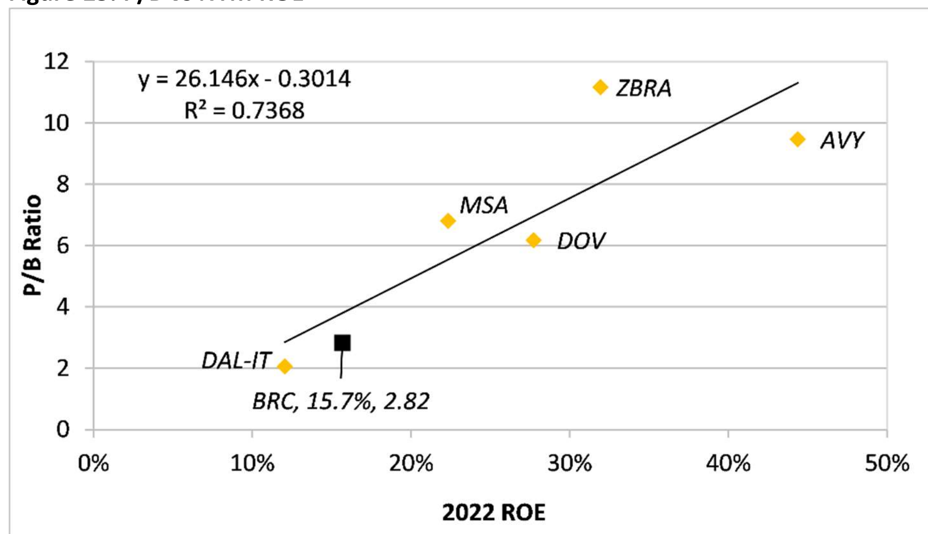
Brady's P/CF is also relatively lower (13.9x vs 18.5x average) which again suggests that investors are less confident in Brady's ability to grow future cash flows.

A more thorough analysis of P/B and ROE is shown in figure 29. The calculated R-squared of the regression indicates that over 74% of a sampled firm's P/B is explained by its NTM ROE. BRC has the second lowest P/B and ROE of this grouping, and according to this measure is undervalued. However, given the headwinds that the economy is dealing with, I believe that ROE will be more highly valued by investors in the coming months. I used the slope of the regression line to yield the below equation to find P/B.

- Estimated P/B = Estimated 2022 ROE (15.7%) x 26.146 - .3014 = 3.80
- Target Price = Estimated P/B (3.80) x 2022E BVPS (19.57) = $74.37

Discounting back to the present at a 10.43% cost of equity leads to a target price of $67.0535 using this metric.

**Figure 25: P/B vs NTM ROE**



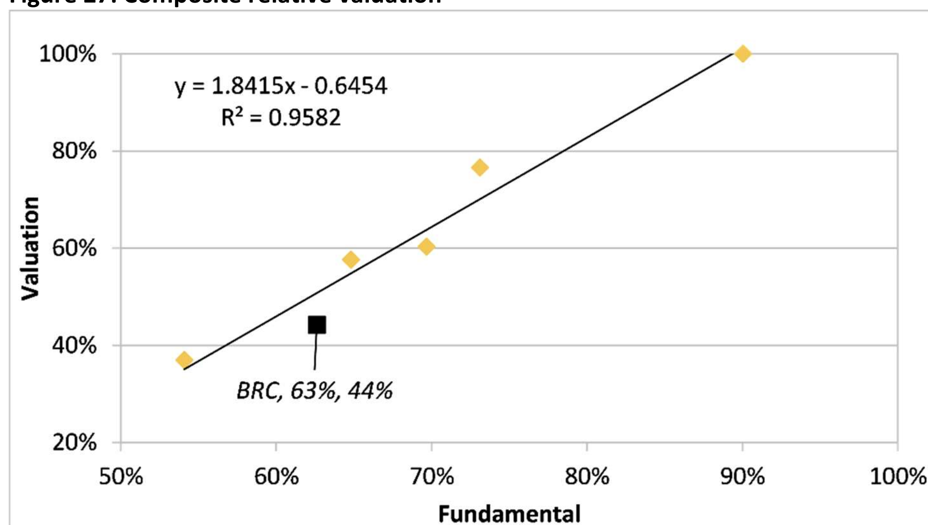

*Source: IMCP*

**Figure 26: Composite valuation, % of max**

| | | Fundamentals | | | | Valuation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Weight | 30% | 20% | 30% | 20% | 40% | 15% | 30% | 15% | | |
| Ticker | Name | 2023 EPS Growth | 2022 ROE | NPM | STM Sales Growth | 2022 P/E | P/B | P/S | P/CF | Fund | Value |
| BRC | BRADY CORP | 75% | 35% | 76% | 52% | 51% | 25% | 42% | 48% | 63% | 44% |
| ZBRA | ZEBRA TECHNOLOGIES CP -CL A | 85% | 72% | 100% | 100% | 100% | 100% | 100% | 100% | 90% | 100% |
| DAL-IT | DATALOGIC SPA | 64% | 27% | 48% | 76% | 49% | 18% | 26% | 46% | 54% | 37% |
| MSA | MSA SAFETY INC | 100% | 50% | 59% | 76% | 87% | 61% | 72% | 73% | 73% | 77% |
| DOV | DOVER CORP | 56% | 63% | 83% | 78% | 64% | 55% | 55% | 67% | 70% | 60% |
| AVY | AVERY DENNISON CORP | 48% | 100% | 59% | 64% | 61% | 85% | 36% | 64% | 65% | 58% |

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. Fundamental weightings for 2023 earnings growth, 2022 ROE, 2021 NPM, and STM sales growth was compared to a valuation composite of 2022 P/E, P/B, P/S, and P/CF. The weights can be found above in figure 24. The regression line had an R-squared of 0.96. On the next page in figure 27, one can see that BRC is below the line, so it is inexpensive based on its fundamentals.

**Figure 27: Composite relative valuation**




*Source: FactSet, IMCP*

<u>Discounted Cash Flow Analysis</u>

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

For the purpose of 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 1.50%.
- A five-year peer group average beta of 1.05 was utilized since the group has higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 10.43% (1.50 + 1.05 (10.0 – 1.50)).

*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 $1.82 and $3.59, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $4.59 per share. Thus, stage one of this discounted cash flow analysis contributes $4.59 to 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 5% sales growth in 2024, declining to 2% through 2028. The ratio of sales to NWC to sales returns to historical levels and NFA turnover will rise from 1.39 to 1.60 in 2028 as a result of acquisitions being fully integrated. Also, the NOPAT margin is expected to rise to 13% in 2028 from 11.6% in 2022.

**Figure 28: FCFE and discounted FCFE, 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| FCFE | $1.82 | $3.59 | $2.91 | $3.40 | $3.21 | $3.63 | $4.16 |
| Discounted FCFE | $1.64 | $2.94 | $2.16 | $2.29 | $1.95 | $2.00 | $2.08 |

Added together, stage two discounted cash flows total $10.48.

*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 $3.63 in 2024 to $4.36 in 2024.

**Figure 29: EPS estimates for 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| EPS | $2.94 | $3.32 | $3.63 | $3.80 | $4.05 | $4.28 | $4.36 |

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. For the purpose of this analysis, it is generally assumed that the larger the growth prospects a company has the bigger premium, above the historical average of the S&P 500, that is applied to its P/E multiple. Therefore, a P/E ratio of 22x is assumed at the end of BRC's terminal year. While this may be a high multiple at the end of 2028, considering that growth will be slowing by then one must consider what the market will price in today. A lower multiple may be better to calculate a fair value, but the stock will likely trade above this value once the market begins to price in BRC's new found growth.

Given the assumed terminal earnings per share of $4.36 and a price-to-earnings ratio of 22x, a terminal value of $95.96 per share is calculated. Using the 10.4% cost of equity, this number is discounted back to a present value of $47.93.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $63.00 is calculated (4.59 + 10.48 + 47.93). Given BRC's current price of $52.25, this model indicates that the stock is modestly undervalued.

Scenario Analysis

Brady Corp is difficult to value with certainty because it is nearly impossible to predict with certainty how much of the AIDC market Brady will capture. Furthermore, the firm has mentioned that is willing to make further acquisitions if it has issues creating organic growth. I also valued Brady Corp. under a bull and bear case scenario by changing a combination of key factors.

*Bull Case* – Brady Corp. has mentioned making other acquisitions if R&D is not able to generate organic growth. Trying to factor in potential acquisitions into reasonable assumptions is not possible. However, a likely scenario is that Brady will continue to acquire new businesses while R&D and marketing efforts generate more sales than I anticipated.

**Figure 30: Bull case analysis**

| Bull Case Expectations | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Beta | 1.02 | | | | | | |
| Sales Growth | 12.8% | 4.6% | 5.0% | 4.0% | 12.0% | 5.0% | 4.0% |
| NOPAT/S | 11.6% | 11.9% | 12.4% | 12.8% | 12.8% | 13.0% | 13.0% |
| S/NFA | 1.39 | 1.50 | 1.52 | 1.54 | 1.56 | 1.58 | 1.60 |
| Terminal Year P/E | 22.00 | | | | | | |

Performing the same three-stage DCF analysis with my bull case assumption and decreasing Brady's beta to its five-year average of 1.02 result in a price of $68.39

*Bear Case* – Strong growth assumes that BRC's new growth strategy is able to benefit from growth in the AIDC space. Historically, Bady has had issues creating organic growth but I anticipate it being able to do so in the future. A likely scenario is that the company does not make any other acquisitions and only grows sales 3% a year. In addition, NOPAT margin may not return to my base case assumptions (13%).

**Figure 31: Bear Case analysis**

| Bear Case Expectations | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Beta | 1.10 | | | | | | |
| Sales Growth | 12.8% | 4.6% | 3.0% | 3.0% | 3.0% | 3.0% | 3.0% |
| NOPAT/S | 11.6% | 11.9% | 12.4% | 12.4% | 12.5% | 12.5% | 12.5% |
| S/NFA | 1.39 | 1.50 | 1.52 | 1.54 | 1.56 | 1.58 | 1.60 |
| Terminal Year P/E | 20.00 | | | | | | |

Performing the same three-stage DCF analysis with my bear case assumption, a higher beta of 1.10, and a terminal year P/E of only 20x result in a price of $54.08.

*Current Market Assumptions* – To determine what the market assumes about Brady's future; I used the same three-stage DCF to back into the current share price of $52.25. Knowing that other analysts predict sales to grow at similar rates to my own assumptions in 2022 and 2023, it is apparent that the market does not expect Brady have more than 1% sales growth following 2023. Additionally, the market does not expect margins to return to normal levels. I find this scenario very unlikely.

**Figure 32: Current market assumptions**

| Current Market Assumptions | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Beta | 1.06 | | | | | | |
| Sales Growth | 12.8% | 4.6% | 1.0% | 0.5% | 0.5% | 1.0% | 1.0% |
| NOPAT/S | 11.6% | 11.9% | 11.9% | 11.9% | 11.9% | 11.9% | 11.9% |
| S/NFA | 1.39 | 1.50 | 1.60 | 1.65 | 1.70 | 1.70 | 1.75 |
| Terminal Year P/E | 20.96 | | | | | | |

## Business Risks

Although I have many reasons to be optimistic about Brady Corp. there are several good reasons why the market is assuming higher levels of risk.

Exposure to currency fluctuations:

Nearly 50% of BRC's revenues are denominated in currencies other than the dollar. Continued strength of the dollar against the foreign currencies could seriously reduce gross margins.

Competitive marketplace:

Competition in the AIDC market is growing and Brady's strong focus on the space may not materialize to the extent that I forecasted.

New Technology:

Brady Corp recently made three technology-based acquisitions. Failure to integrate the new technology with its own could negatively impact sales. I anticipate customers will be attracted to Brady due to it providing all their AIDC needs.

Global Operating Risks:

Brady success depends on the global economy. Another global economic crisis or recession would impact my forecasts as Brady's sales tend to grow along with its customers.

## Appendix 1: Porter's 5 Forces

Threat of New Entries – Relatively High

While the barriers to entry into the AIDC are extensive, the prospects for growth are quite high. The most significant threat would be increased competition in the space, especially in Asia where Brady's competitor Avery Dennison Corp. (AVY) derives ~28% of its sales.

Threat of Substitutes – Moderate

Brady relies on its customer satisfaction in order to charge higher prices for products customers could buy cheaper from competitors. While there are some switching costs in terms of software, most products are easily substituted.

Supplier Power - Moderate

Brady's suppliers provide a mix of resale products and raw materials. Most suppliers do not depend on Brady's purchases due to its size, and Brady does not depend on just one supplier due to its global operations.

Buyer Power – Moderate

Brady's focus on customer satisfaction allows it to charge higher prices from the first sale and continues to do so throughout the relationship. Conversely, high customer satisfaction results from lowering prices for customers with a strong relationship with Brady.

Intensity of Competition – Relatively High

There are numerous national and international AIDC and safety product providers. It is assumed that AIDC competition will only increase in the future. However, Brady's diverse product offerings and global scale protects it against any one competitor taking all of its business.

## Appendix 2: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| High margins<br>Experienced internationally<br>Little need to reinvest in the business | Size of operations<br>Lack of organic growth<br>Dependent on external sources of growth |
| **Opportunities** | **Threats** |
| Online marketing<br>AIDC market trends<br>International expansion | International politics<br>Currency fluctuations<br>Increased competition |

## Appendix 3: Income Statement

| Income Statement ($M) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Items | 2017 | 2018 | 2019 | 2020 | 2021 | E2022 | E2023 |
| Revenue | $1,113 | $1,174 | $1,161 | $1,081 | $1,145 | $1,291 | $1,350 |
| Cost of goods sold | 555 | 586 | 582 | 553 | 583 | 662 | 686 |
| Gross Margin | 558 | 588 | 579 | 529 | 561 | 629 | 664 |
| | | | | | | | |
| SG&A, R&D, D&A, and other | 426 | 433 | 411 | 385 | 390 | 442 | 463 |
| Earnings before interest & tax | 132 | 155 | 167 | 143 | 171 | 187 | 201 |
| | | | | | | | |
| Interest | 6 | 3 | 3 | 2 | 0 | 1 | 1 |
| Earnings before tax | 127 | 152 | 165 | 141 | 171 | 186 | 201 |
| | | | | | | | |
| Taxes | 31 | 61 | 33 | 28 | 36 | 37 | 40 |
| Income | 96 | 91 | 131 | 113 | 135 | 149 | 160 |
| | | | | | | | |
| Other income (expense) | - | - | - | 0 | 6 | - | - |
| Net income | 96 | 91 | 131 | 112 | 130 | 149 | 160 |
| | | | | | | | |
| Basic Shares | 51.1 | 51.7 | 52.6 | 52.8 | 52.0 | 50.6 | 48.3 |
| Fully Diluted Shares | 52.0 | 52.5 | 53.3 | 53.2 | 52.4 | 51.0 | 48.7 |
| EPS | $1.87 | $1.76 | $2.50 | $2.13 | $2.49 | $2.94 | $3.32 |
| EPS Fully Diluted | $1.84 | $1.73 | $2.46 | $2.11 | $2.47 | $2.92 | $3.29 |
| Dividends per share | $0.82 | $0.83 | $0.85 | $0.87 | $0.88 | $0.92 | $0.97 |

## Appendix 4: Balance Sheet

| Balance Sheet ($M) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Items | 2017 | 2018 | 2019 | 2020 | 2021 | E2022 | E2023 |
| Cash | 134 | 181 | 279 | 218 | 147 | 150 | 117 |
| Operating assets ex cash | 274 | 290 | 294 | 292 | 318 | 368 | 389 |
| Operating assets | 408 | 471 | 573 | 509 | 465 | 518 | 506 |
| Operating liabilities | 184 | 191 | 192 | 186 | 258 | 267 | 273 |
| NOWC | 224 | 280 | 382 | 324 | 208 | 251 | 233 |
| NOWC ex cash (NWC) | 90 | 99 | 102 | 106 | 60 | 101 | 116 |
| NFA | 642 | 586 | 584 | 633 | 913 | 929 | 900 |
| Invested capital | $866 | $866 | $966 | $957 | $1,120 | $1,179 | $1,133 |
| | | | | | | | |
| Total assets | $1,050 | $1,057 | $1,157 | $1,142 | $1,378 | $1,447 | $1,406 |
| | | | | | | | |
| S-T and L-T debt and financing leases | $108 | $53 | $50 | $0 | $38 | $67 | $29 |
| Other liabilities | 58 | 61 | 65 | 94 | 119 | 122 | 125 |
| Equity | 700 | 752 | 851 | 863 | 963 | 990 | 979 |
| Total supplied capital | $866 | $866 | $966 | $957 | $1,120 | $1,179 | $1,133 |
| | | | | | | | |
| Total liabilities and equity | $1,050 | $1,057 | $1,157 | $1,142 | $1,378 | $1,447 | $1,406 |

## Appendix 5: Sales Forecast

| Sales ($M) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **E2022** | **E2023** |
| Sales | $1,113 | $1,174 | 1,161 | $1,081 | $1,145 | $1,291 | $1,350 |
| *Growth* | | *5.4%* | *-1.1%* | *-6.8%* | *5.9%* | *12.8%* | *4.6%* |
| | | | | | | | |
| ID Solutions | 800 | 846 | 863 | 785 | 842 | 994 | 1,049 |
| *Growth* | | *5.7%* | *2.0%* | *-9.1%* | *7.2%* | *18.1%* | *5.5%* |
| *% of sales* | *71.9%* | *72.1%* | *74.4%* | *72.6%* | *73.5%* | *77.0%* | *77.7%* |
| Work Place Saftey | 313 | 328 | 298 | 296 | 303 | 297 | 302 |
| *Growth* | | *4.7%* | *-9.2%* | *-0.4%* | *2.3%* | *-2.0%* | *1.5%* |
| *% of sales* | *28.1%* | *27.9%* | *25.6%* | *27.4%* | *26.5%* | *2.0%* | *22.3%* |

# Appendix 6: Ratios

| Ratios | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **E2022** | **E2023** |
| Profitability | | | | | | | |
| Gross margin | 50.1% | 50.1% | 49.9% | 48.9% | 49.0% | 48.7% | 49.2% |
| Operating (EBIT) margin | 11.9% | 13.2% | 14.4% | 13.2% | 15.0% | 14.5% | 14.9% |
| Net profit margin | 8.6% | 7.8% | 11.3% | 10.4% | 11.3% | 11.5% | 11.9% |
| Activity | | | | | | | |
| NFA (gross) turnover | | 1.91 | 1.98 | 1.78 | 1.48 | 1.40 | 1.48 |
| Total asset turnover | | 1.11 | 1.05 | 0.94 | 0.91 | 0.91 | 0.95 |
| Liquidity | | | | | | | |
| Op asset / op liab | 2.22 | 2.47 | 2.99 | 2.74 | 1.81 | 1.94 | 1.85 |
| NOWC Percent of sales | | 21.5% | 28.5% | 32.6% | 23.2% | 17.7% | 17.9% |
| Solvency | | | | | | | |
| Debt to assets | 10.3% | 5.0% | 4.3% | 0.0% | 2.8% | 4.6% | 2.1% |
| Debt to equity | 15.4% | 7.0% | 5.9% | 0.0% | 3.9% | 6.8% | 3.0% |
| Other liab to assets | 5.6% | 5.8% | 5.6% | 8.2% | 8.6% | 8.4% | 8.9% |
| Total debt to assets | 15.8% | 10.8% | 9.9% | 8.2% | 11.4% | 13.1% | 11.0% |
| Total liabilities to assets | 33.3% | 28.8% | 26.5% | 24.5% | 30.1% | 31.5% | 30.4% |
| Debt to EBIT | 0.82 | 0.34 | 0.30 | - | 0.22 | 0.36 | 0.14 |
| EBIT/interest | 24.01 | 48.98 | 59.18 | 66.07 | 392.36 | 155.03 | 301.60 |
| Debt to total net op capital | 12.4% | 6.1% | 5.2% | 0.0% | 3.4% | 5.7% | 2.6% |
| ROIC | | | | | | | |
| NOPAT to sales | 9.0% | 7.9% | 11.5% | 10.6% | 11.9% | 11.6% | 11.9% |
| Sales to NWC | | 12.43 | 11.53 | 10.38 | 13.78 | 16.04 | 12.44 |
| Sales to NFA | | 1.91 | 1.98 | 1.78 | 1.48 | 1.40 | 1.48 |
| Sales to IC ex cash | | 1.66 | 1.69 | 1.52 | 1.34 | 1.29 | 1.32 |
| Total ROIC ex cash | | 13.1% | 19.5% | 16.0% | 15.9% | 14.9% | 15.7% |
| NOPAT to sales | 9.0% | 7.9% | 11.5% | 10.6% | 11.9% | 11.6% | 11.9% |
| Sales to NOWC | | 4.66 | 3.51 | 3.07 | 4.31 | 5.64 | 5.58 |
| Sales to NFA | | 1.91 | 1.98 | 1.78 | 1.48 | 1.40 | 1.48 |
| Sales to IC | | 1.36 | 1.27 | 1.13 | 1.10 | 1.12 | 1.17 |
| Total ROIC | | 10.7% | 14.6% | 11.9% | 13.1% | 13.0% | 13.9% |
| NOPAT to sales | 9.0% | 7.9% | 11.5% | 10.6% | 11.9% | 11.6% | 11.9% |
| Sales to EOY NWC | 12.38 | 11.86 | 11.33 | 10.21 | 19.02 | 12.81 | 11.62 |
| Sales to EOY NFA | 1.73 | 2.00 | 1.99 | 1.71 | 1.25 | 1.39 | 1.50 |
| Sales to EOY IC ex cash | 1.52 | 1.71 | 1.69 | 1.46 | 1.18 | 1.25 | 1.33 |
| Total ROIC using EOY IC ex cash | 13.6% | 13.6% | 19.4% | 15.5% | 14.0% | 14.5% | 15.8% |
| NOPAT to sales | 9.0% | 7.9% | 11.5% | 10.6% | 11.9% | 11.6% | 11.9% |
| Sales to EOY NOWC | 4.97 | 4.19 | 3.04 | 3.34 | 5.52 | 5.15 | 5.80 |
| Sales to EOY NFA | 1.73 | 2.00 | 1.99 | 1.71 | 1.25 | 1.39 | 1.50 |
| Sales to EOY IC | 1.29 | 1.36 | 1.20 | 1.13 | 1.02 | 1.09 | 1.19 |
| Total ROIC using EOY IC | 11.5% | 10.7% | 13.8% | 12.0% | 12.1% | 12.7% | 14.2% |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 13.2% | 14.4% | 13.2% | 15.0% | 14.5% | 14.9% |
| Sales / avg assets | | 1.11 | 1.05 | 0.94 | 0.91 | 0.91 | 0.95 |
| EBT / EBIT | | 98.0% | 98.3% | 98.5% | 99.7% | 99.4% | 99.7% |
| Net income /EBT | | 59.9% | 79.7% | 79.7% | 75.8% | 79.9% | 79.9% |
| ROA | | 8.6% | 11.9% | 9.8% | 10.3% | 10.5% | 11.2% |
| Avg assets / avg equity | | 1.45 | 1.38 | 1.34 | 1.38 | 1.45 | 1.45 |
| ROE | | 12.5% | 16.4% | 13.1% | 14.2% | 15.2% | 16.3% |
| **3-stage** | | | | | | | |
| Net income / sales | | 7.8% | 11.3% | 10.4% | 11.3% | 11.5% | 11.9% |
| Sales / avg assets | | 1.11 | 1.05 | 0.94 | 0.91 | 0.91 | 0.95 |
| ROA | | 8.6% | 11.9% | 9.8% | 10.3% | 10.5% | 11.2% |
| Avg assets / avg equity | | 1.45 | 1.38 | 1.34 | 1.38 | 1.45 | 1.45 |
| ROE | | 12.5% | 16.4% | 13.1% | 14.2% | 15.2% | 16.3% |
| Payout Ratio | | 47.1% | 34.1% | 40.7% | 35.3% | 31.2% | 29.1% |
| Retention Ratio | | 52.9% | 65.9% | 59.3% | 64.7% | 68.8% | 70.9% |
| Sustainable Growth Rate | | 6.6% | 10.8% | 7.8% | 9.2% | 10.5% | 11.5% |

## Appendix 7: Cash Flow Statement

| Cash Flow Statement ($M) | | | | | | |
|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | 2021 | E2022 | E2023 |
| **Cash from Operatings (understated - depr'n added to net assets)** | | | | | | |
| Net income | 91 | 131 | 112 | 130 | 149 | 160 |
| Change in Net Working Capital ex cash | (9) | (3) | (3) | 46 | (41) | (15) |
| Cash from operations | 82 | 128 | 109 | 175 | 108 | 145 |
| | | | | | | |
| **Cash from Investing (understated - depr'n added to net assets)** | | | | | | |
| Change in NFA | 57 | 2 | (49) | (280) | (16) | 29 |
| Change in Marketable Securities | 0 | 0 | 0 | 0 | 0 | 0 |
| Cash from investing | 57 | 2 | (49) | (280) | (16) | 29 |
| | | | | | | |
| **Cash from Financing** | | | | | | |
| Change in Short-Term and Long-Term Debt | (55) | (2) | (50) | 38 | 29 | (38) |
| Change in Other liabilities | 3 | 3 | 29 | 26 | 3 | 3 |
| Change in Debt/Equity-Like Securities | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividends | (43) | (45) | (46) | (46) | (46) | (47) |
| Change in Equity ex NI and Dividends | 4 | 12 | (54) | 16 | (75) | (125) |
| Cash from financing | (91) | (32) | (121) | 34 | (89) | (207) |
| | | | | | | |
| **Change in Cash** | 47 | 98 | (61) | (70) | 2 | (33) |
| **Beginning Cash** | 134 | 181 | 279 | 218 | 147 | 150 |
| **Ending Cash** | 181 | 279 | 218 | 147 | 150 | 117 |

# Appendix 8: 3-stage DCF Model

| **3 Stage Discounted Cash Flow ($M)** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| *Sales Growth* | | *5.9%* | *12.8%* | *4.6%* | *5.0%* | *3.0%* | *5.0%* | *4.0%* | *2.0%* |
| *NOPAT / S* | | *11.9%* | *11.6%* | *11.9%* | *12.4%* | *12.6%* | *12.8%* | *13.0%* | *13.0%* |
| *S / NWC* | | *19.02* | *12.81* | *11.62* | *12.00* | *12.00* | *12.00* | *12.00* | *12.00* |
| *S / NFA (EOY)* | | *1.25* | *1.39* | *1.50* | *1.52* | *1.54* | *1.56* | *1.58* | *1.60* |
| *S / IC (EOY)* | | *1.18* | *1.25* | *1.33* | *1.35* | *1.36* | *1.38* | *1.40* | *1.41* |
| *ROIC (EOY)* | | *14.0%* | *14.5%* | *15.8%* | *16.7%* | *17.2%* | *17.7%* | *18.2%* | *18.4%* |
| *ROIC (BOY)* | | | *15.4%* | *15.6%* | *17.3%* | *17.5%* | *18.4%* | *18.7%* | *18.5%* |
| *Share Growth* | | *-1.4%* | *-2.8%* | *-4.5%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| | | | | | | **Year** | | | |
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | **First Stage** | | | | | **Second Stage** | | |
| | | **2021** | **E2022** | **E2023** | **E2024** | **E2025** | **E2026** | **E2027** | **E2028** |
| Sales | $1,081 | $1,145 | $1,291 | $1,350 | $1,418 | $1,460 | $1,533 | $1,595 | $1,626 |
| NOPAT | $114 | $136 | $150 | $161 | $176 | $184 | $196 | $207 | $211 |
| *Growth* | | *18.7%* | *10.2%* | *7.5%* | *9.4%* | *4.7%* | *6.7%* | *5.6%* | *2.0%* |
| - Change in NWC | | -46 | 41 | 15 | 2 | 4 | 6 | 5 | 3 |
| *NWC EOY* | *106* | *60* | *101* | *116* | *118* | *122* | *128* | *133* | *136* |
| *Growth NWC* | | *-43.2%* | *67.5%* | *15.3%* | *1.7%* | *3.0%* | *5.0%* | *4.0%* | *2.0%* |
| - Chg NFA | | 280 | 16 | -29 | 33 | 16 | 35 | 26 | 7 |
| *NFA EOY* | *633* | *913* | *929* | *900* | *933* | *948* | *983* | *1,009* | *1,016* |
| *Growth NFA* | | *44.2%* | *1.8%* | *-3.1%* | *3.6%* | *1.7%* | *3.7%* | *2.7%* | *0.7%* |
| Total inv in op cap | | 234 | 57 | -13 | 34 | 19 | 41 | 31 | 10 |
| Total net op cap | | 973 | 1030 | 1016 | 1051 | 1070 | 1111 | 1142 | 1152 |
| FCFF | | ($98) | $93 | $174 | $141 | $165 | $156 | $176 | $201 |
| *% of sales* | | *-8.6%* | *7.2%* | *12.9%* | *10.0%* | *11.3%* | *10.1%* | *11.0%* | *12.4%* |
| *Growth* | | | *-194.6%* | *87.5%* | *-18.8%* | *16.7%* | *-5.7%* | *13.0%* | *14.5%* |
| - Interest (1-tax rate) | | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *Growth* | | *-80.0%* | *178.9%* | *-44.8%* | *5.0%* | *3.0%* | *5.0%* | *4.0%* | *2.0%* |
| FCFE w/o debt | | ($99) | $92 | $173 | $141 | $164 | $155 | $175 | $201 |
| *% of sales* | | *-8.6%* | *7.1%* | *12.9%* | *9.9%* | *11.3%* | *10.1%* | *11.0%* | *12.3%* |
| *Growth* | | | *-193.3%* | *88.8%* | *-18.8%* | *16.8%* | *-5.7%* | *13.1%* | *14.6%* |
| / No Shares | 52.8 | 52.0 | 50.6 | 48.3 | 48.3 | 48.3 | 48.3 | 48.3 | 48.3 |
| FCFE | | ($1.89) | $1.82 | $3.59 | $2.91 | $3.40 | $3.21 | $3.63 | $4.16 |
| *Growth* | | | *-195.9%* | *97.7%* | *-18.8%* | *16.8%* | *-5.7%* | *13.1%* | *14.6%* |
| * Discount factor | | | 0.91 | 0.82 | 0.74 | 0.67 | 0.61 | 0.55 | 0.50 |
| Discounted FCFE | | | $1.64 | $2.94 | $2.16 | $2.29 | $1.95 | $2.00 | $2.08 |
| | | | | **Third Stage** | | | | | |
| **Terminal value P/E** | | | | | | | | | |
| Net income | | $130 | $149 | $160 | $175 | $183 | $196 | $207 | $211 |
| *% of sales* | | *11.3%* | *11.5%* | *11.9%* | *12.4%* | *12.6%* | *12.8%* | *13.0%* | *13.0%* |
| EPS | | $2.49 | $2.94 | $3.32 | $3.63 | $3.80 | $4.05 | $4.28 | $4.36 |
| *Growth* | | *17.0%* | *17.9%* | *12.9%* | *9.4%* | *4.7%* | *6.7%* | *5.6%* | *2.0%* |
| Terminal P/E | | | | | | | | | 22.00 |
| * Terminal EPS | | | | | | | | | $4.36 |
| Terminal value | | | | | | | | | $95.96 |
| * Discount factor | | | | | | | | | 0.50 |
| Discounted terminal value | | | | | | | | | $47.93 |

| **Summary (using P/E multiple for terminal value)** | | |
|---|---|---|
| First stage | $4.59 | Present value of first 2 year cash flow |
| Second stage | $10.48 | Present value of year 3-7 cash flow |
| Third stage | $47.93 | Present value of terminal value P/E |
| Value (P/E) | **$63.00** | |

# Appendix 9: Comp Sheet

Comp Sheet

| Ticker | Name | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Pst 5yr | Beta | LT Debt Equity | S&P Rating | LTM Dividend Yield | Payout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRC | BRADY CORP | $52.45 | $2,719 | 0.4 | (3.6) | 1.2 | (8.7) | 17.3 | (0.7) | 9.3 | 31.0% | -14.2% | 17.1% | 18.1% | 13.3% | | 0.80 | 9.4% | B- | 1.76% | 35.4% |
| ZBRA | ZEBRA TECHNOLOGIES CP -CL A | $588.29 | $31,439 | (1.5) | 1.7 | (0.4) | 16.3 | 58.0 | 53.1 | 20.1 | 19.0% | -6.2% | 66.3% | 8.2% | 15.2% | | 1.62 | 37.6% | C | 0.00% | 0.0% |
| DAL-IT | DATALOGIC SPA | $16.57 | $938 | (1.4) | (8.8) | (27.2) | (32.3) | 7.1 | 4.9 | | | -68.5% | 179.3% | 19.8% | 11.3% | | 1.33 | 15.3% | | 1.15% | |
| MSA | MSA SAFETY INC | $142.50 | $5,587 | (0.5) | (6.6) | (12.1) | (15.6) | (3.7) | (4.6) | 9.0 | 100.6% | -12.4% | 1.6% | 51.0% | 17.7% | | 1.04 | 77.2% | B+ | 1.22% | 74.0% |
| DOV | DOVER CORP | $167.01 | $24,047 | 0.3 | (1.8) | (4.5) | 9.8 | 37.9 | 32.3 | 13.2 | 21.9% | 2.0% | 42.3% | 12.1% | 9.9% | | 1.40 | 78.6% | B+ | 1.21% | 30.6% |
| AVY | AVERY DENNISON CORP | $205.66 | $17,028 | (1.7) | (5.3) | (8.9) | (6.2) | 37.2 | 32.6 | 7.0 | 5.1% | 85.2% | 32.8% | 9.8% | 8.5% | | 0.86 | 155.6% | B+ | 1.30% | 29.1% |
| Average | | | $13,626 | (0.7) | (4.1) | (8.7) | (6.1) | 25.6 | 19.6 | 11.7 | 35.5% | -2.4% | 32% | 19.8% | 12.6% | | 1.17 | 43.6% | | 1.11% | 33.8% |
| Median | | | $11,307 | (1.0) | (4.5) | (6.7) | (7.5) | 27.3 | 18.6 | 9.3 | 21.9% | -9.3% | 37.6% | 15.1% | 12.3% | | 1.18 | 57.4% | | 1.22% | 30.6% |
| SPX | S&P 500 INDEX | $4,538 | | (0.8) | (2.6) | 0.1 | 8.2 | 23.8 | 20.8 | | | -14.8% | 44.3% | 9.3% | 10.0% | | | | | | |

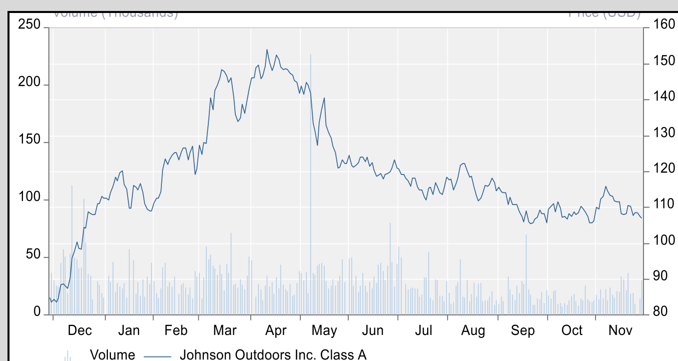
| Ticker | Website | ROE | P/B | 2019 | 2020 | 2021 | TTM P/E | NTM | 2022 | 2023 | NPM | P/S | NM | OM | ROIC | EBIT | P/Cf | NTM | STM Sales Growth | Pst 5yr | Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BRC | http://www.bradyid.com | 15.7% | 2.82 | 17.7 | 27.1 | 21.1 | 21.0 | 16.0 | 18.0 | 15.9 | 11.2% | 2.37 | 11.3% | 14.8% | 13.5% | 16.5 | 13.9 | 9.8% | 3.4% | | $18.61 |
| ZBRA | http://www.zebra.com | 31.9% | 11.17 | 16.0 | 27.3 | 24.7 | 37.5 | 31.5 | 35.0 | 30.4 | 14.8% | 5.59 | 11.3% | 15.5% | 16.3% | 31.7 | 29.1 | 6.7% | 6.6% | | $52.68 |
| DAL-IT | http://www.datalogic.com | 12.1% | 2.06 | 25.4 | 65.2 | 21.3 | 19.7 | | 17.1 | 15.3 | 7.0% | 1.44 | 2.8% | 5.3% | 2.8% | 31.9 | 13.4 | | | | $8.05 |
| MSA | http://www.msasafety.com | 22.4% | 6.81 | 27.1 | 41.4 | 48.0 | 60.6 | 30.2 | 30.4 | 25.9 | 8.8% | 4.03 | 8.9% | 15.1% | 10.8% | 29.4 | | 8.0% | | | $20.93 |
| DOV | http://www.dovercorporation.c | 27.7% | 6.18 | 15.4 | 24.5 | 18.6 | 25.7 | 21.1 | 22.3 | 20.3 | 12.3% | 3.07 | 10.2% | 14.7% | 10.7% | 21.5 | 19.5 | 5.9% | 5.1% | | $27.03 |
| AVY | http://www.averydennison.com | 44.4% | 9.47 | 25.2 | 19.8 | 17.6 | 23.0 | 21.9 | 21.3 | 19.7 | 8.7% | 2.04 | 8.0% | 12.6% | 17.2% | 17.2 | 18.5 | 8.5% | 4.2% | | $21.72 |
| Average | | 22.0% | 6.42 | 21.1 | 28.0 | 25.2 | 25.4 | 24.2 | 24.0 | 21.2 | 10.5% | 3.09 | 8.8% | 13.0% | 11.9% | 24.7 | 18.9 | 7.8% | 4.8% | | |
| Median | | 25.1% | 6.49 | 21.4 | 27.2 | 21.2 | 24.4 | 21.9 | 21.8 | 20.0 | 10.0% | 2.72 | 9.6% | 14.8% | 12.1% | 25.5 | 18.5 | 8.0% | 4.6% | | |
| SPX | S&P 500 INDEX | | | 15.6 | 23.6 | 18.9 | | | 21.0 | 19.1 | | | | | | | | | | | |

Consumer Discretionary, Durables

# Johnson Outdoors Inc.

| Recommendation: Buy | | | | |
|---|---|---|---|---|
| Current Price | **$101.17** | --- | Ticker | JOUT |
| 1 Year Bear | $118 | *17%* | Sh. Out. (M) | 10.0 |
| 1 Year Base | **$135** | ***33%*** | M.Cap. ($M) | 0.98 |
| 1 Year Bull | $158 | *56%* | EV ($M) | 998.44 |

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | 160.5% | 58.2% | 27.5% | 1.8% | -8.7% | -7.2% | -9.1% |

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($Thou) | **490.6** | **544.3** | **562.3** | **575.3** | **751.6** | **901.9** | **996.7** |
| *Gr. %* | 13.1% | 10.9% | 3.3% | 2.3% | 30.6% | 20.0% | 10.5% |
| *v. Cons.* | - | - | - | - | - | 18.3% | 1.4% |
| *Industry* | 4.3% | -1.4% | 4.1% | -1.4% | 15.3% | 14.6% | 7.2% |
| **EPS** | **$3.39** | **$4.04** | **$5.09** | **$5.14** | **$7.90** | **$10.36** | **$12.60** |
| *Gr. %* | 88.9% | 18.8% | 1.5% | 0.8% | 53.7% | 18.3% | 1.4% |
| *v. Cons.* | - | - | - | - | - | **-8.6%** | **13.9%** |
| *Industry* | 85.1% | -37.3% | -37.6% | -148.3% | 42.2% | 6.3% | 40.8% |

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **7.2%** | **7.5%** | **9.1%** | **9.3%** | **11.1%** | **11.3%** | **11.0%** |
| *Industry* | 10.5% | 9.9% | 8.6% | 7.5% | 7.8% | | |
| **ROE** | 15.6% | 15.6% | 17.0% | 15.7% | 19.9% | 15.8% | 17.5% |
| *Industry* | 19.2% | 21.6% | 12.1% | 11.1% | 11.9% | | |
| **ROA** | 10.6% | 10.9% | 12.4% | 11.2% | 13.7% | 12.5% | 11.9% |
| *Industry* | 9.0% | 9.1% | 7.3% | 6.9% | 7.3% | | |
| **A T/O** | 1.45 | 1.45 | 1.35 | 1.21 | 1.23 | 1.25 | 1.30 |
| **A/E** | 1.47 | 1.44 | 1.38 | 1.30 | 1.33 | 1.35 | 1.38 |

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 27.9 | 24.1 | 19.1 | 19.6 | 12.2 | 13.0 | 11.5 |
| *Industry* | 26.3 | 22.0 | 22.5 | 42.4 | 19.1 | 16.7 | 15.4 |
| P/S | 2.00 | 1.80 | 1.74 | 1.60 | 1.50 | 1.29 | 1.22 |
| P/B | 3.01 | 3.29 | 1.79 | 2.27 | 2.50 | | |
| P/CF | 15.7 | 14.4 | 12.8 | 14.1 | 19.1 | | |
| EV/EBITA | 10.6 | 10.2 | 5.2 | 7.5 | 6.9 | | |
| D/P | 10.5% | 11.6% | 11.5% | 13.1% | 11.3% | | |

## Summary

I recommend a buy rating with a target of $135. JOUT has an opportunity for significant earnings growth, from improving efficiency and increasing margins. However, I believe the market priced in the majority of these opportunities before the stock declined starting in April, as JOUT's growth slowed as the economy fully reopened. While the stock could fall if it misses estimates, I believe it is the right time to buy this stock now as it is undervalued based on the three- stage DCF model.

## Key Drivers

- Sustainable Innovation: Johnson Outdoors spent 4.14% of total net sales in 2020 on research and development to create new products
- JOUT operates in a highly competitive market and has successfully launched new products to boost sales in the past
- Market Growth: JOUT has tried to expand its products globally, but it seems to be hurting it more than helping. The firm has potential to grow profits significantly if its international efforts are successful.
- Trends in the Economy: Consumer confidence is correlated with the stock, and it has recently moderated.

## Valuation

Using a relative valuation approach, Johnson Outdoors appears to be undervalued in comparison to the outdoor leisure industry. DCF analysis implies that the stock is worth $138. A combination of the approaches suggests that JOUT is undervalued, as the stock's value is about $135 and the shares trade at $101.17.

## Risks

- Global tariffs continue to be unpredictable, increasing JOUT's cost of goods
- The firm is highly influenced by economic conditions

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## Company Overview

*The fishing segment makes up 75.6% of sales and has grown 6.7% annually since 2016.*

*However, growth slowed in 2019 before picking up in 2020.*

Johnson Outdoors Inc. (JOUT-US) is a manufacturer and marketer of seasonal, outdoor recreation products. The headquarters are located in Racine, WI. The company designs many of the world's best-known outdoor recreation brands across four segments include fishing, camping, watercraft recreation, diving, and other. The firm has brand specific stores located throughout the United States and in several other countries including Spain, Italy, Indonesia, China, Germany, France, Belgium, Australia, and more. For over a decade, its new products have represented a third or more of the total company revenue. JOUT sells its products through online retailers, the company's websites, and through various store locations. JOUT's reputation for creating value that goes beyond just creating great products but also creating the ultimate experience for outdoor enthusiasts has resulted in a portfolio of market-winning brands. The firm has attained leading market positions due to its continuous innovation, excellence, quality, and the performance of products.

Johnson Outdoors generates its revenue from making and selling outdoor recreational products across four main segments:

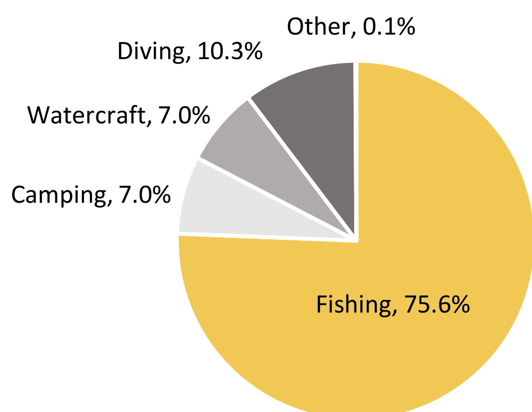
1) **Fishing**: This segment makes up 75.6% of sales. Since 2016, this segment has grown 6.7% compounded annually. Some key brands include *Minn Kota* electric motors, *Humminbird* sonar/GPS equipment, and *Cannon* down-riggers.

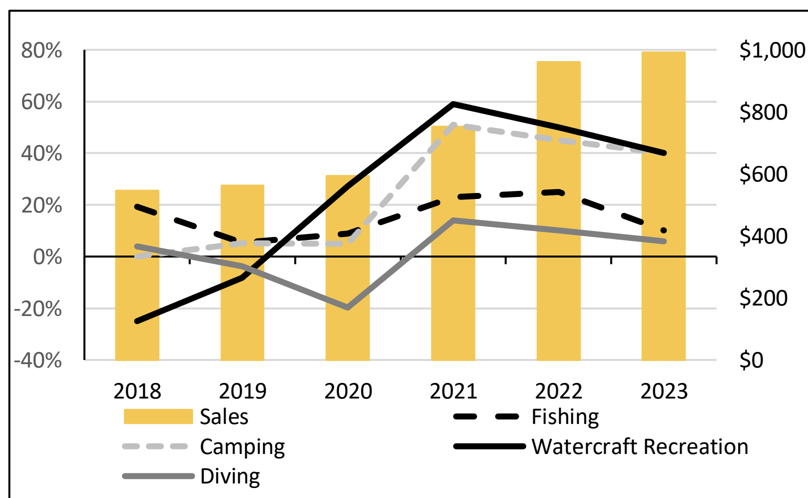
2) **Diving**: This includes the marketing and manufacturing of underwater diving products which sells and distributes under to SCUBAPRO brand name. The annual growth rate for diving is (1.8%) since 2016.

3) **Watercraft Recreation**: This segment of the company designs and markets several canoes and kayaks under Ocean Kayaks and Old Town brand names and had a (2.9%) compound annual growth rate since 2016.

4) **Camping**: Eureka! consumer, commercial and military tents, and recreational camping products along with Jetboil portable outdoor cooking systems are some key brands. It grew at a 0.8% annual rate since 2016.

**Figures 1 & 2: Revenue by segment in 2020 (left) and revenue history (in thousands) since 2016 (right)**




*Source: Company reports*

## Business/Industry Drivers

Though several factors may contribute to Johnson Outdoors's future success, the following are the most important business drivers:

1) Sustainable Innovation
2) Competitor Awareness
3) Market Growth (different countries)
4) Trends in the Economy

Sustainable Innovation

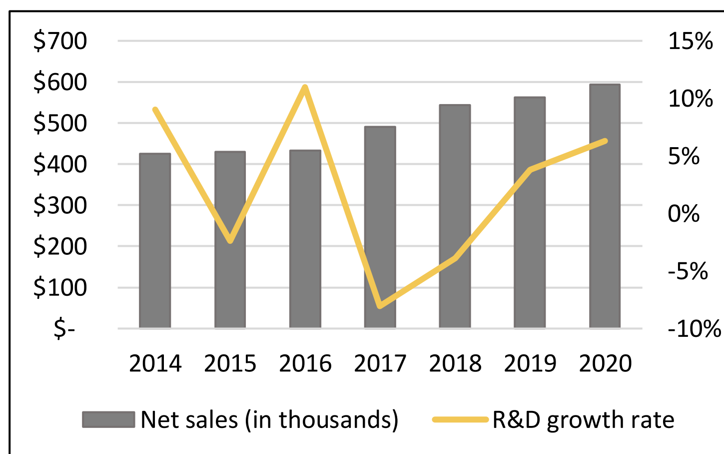
Being in a competitive market, it is crucial for JOUT to keep up with rapidly changing consumer preferences

Johnson Outdoors relies on its ability to create, design, and market new products. The company's value and culture support innovation in all areas, promoting and leveraging the best practices within all subsidiaries to advance its strategic vision. Outdoor recreation is a very competitive market, with quick changing demand. Rapidly changing consumer preferences makes it very difficult to know how long consumer demand for certain products will last or what new products will actually be successful. Failure to identify trends and develop new products on a timely basis could significantly reduce sales and profitability. Because of this, JOUT commits significant resources to new product research and development in each of its business segments.

JOUT's fishing segment is a leader in innovation and makes up 75.6% pf total revenue.

In 2020, Johnson Outdoors spent 4.14% of total net sales on research and development to create new products, and 20.5% on marketing. Previously, Figure 3 showed slowed sales in 2019 for three of the company's segments. This could have been largely driven by the decrease in R&D during 2017.

**Figures 3: R&D growth with net sales (left)**



For its fishing segment, JOUT combines consumer insights with technology innovations to reimagine and redefine its consumers ultimate fishing experience which includes trolling motors and underwater imaging.

One of the newest innovations for the fishing segments included a Bluetooth Trolling Motor.

**Minn Kota Terrova Bow Mount Bluetooth Trolling Motor with i-Pilot US2 and Foot Pedal**

**$1,599.99 - $2,149.99**

As for diving, the brand has been continuously committed to inspiring divers worldwide with innovations like the full color Galileo G2 wrist-mount computer in 2017, and the industry's first "green" wetsuit in 2018.

An innovative diving product from 2017 includes a full color wrist-mount computer.

**Scubapro G2 Dive Computer, Transmitter & Heart Rate Monitor**

**$1,520.00**

The camping segment had a turn of the century when Jetboil launched a stove that revolutionized outdoor cooking in 2001. Its brand's FluxRing technology has impressive boil times and drives new innovations as well, including the Jetboil Genesis which was released in 2016.

The Jetboil stove for outdoor cooking revolutionized the industry.

**Jetboil 1.5 L Ceramic FluxRing Cooking Pot**

**$64.95**

**Jetboil Genesis 2-Burner Backpacking Stove Cooking System**

**$379.95**

Watercraft Recreation has continuing innovations including the use of fiberglass in the 1960s and rotomolded plastic composites in the 1970s. Its brand Old Town® began making kayaks, launching the breakthrough Predator series in 2013. The fishing kayak segment continues to grow with innovations like the Old Town® Topwater pedal-powered fishing kayak.

JOUT's Old Town brand continues to release high quality kayaks, including some that are pedal powered.

**Old town Predator 13**

**$1449.99**

**Old Town Topwater 106 PDL Fishing Kyak**

**$1,999.99**

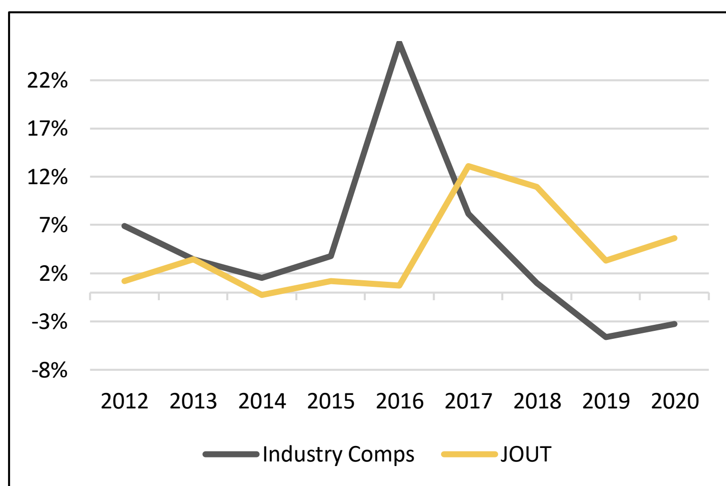
Competitor Awareness

JOUT must be strategic to stay on top in the competitive markets.

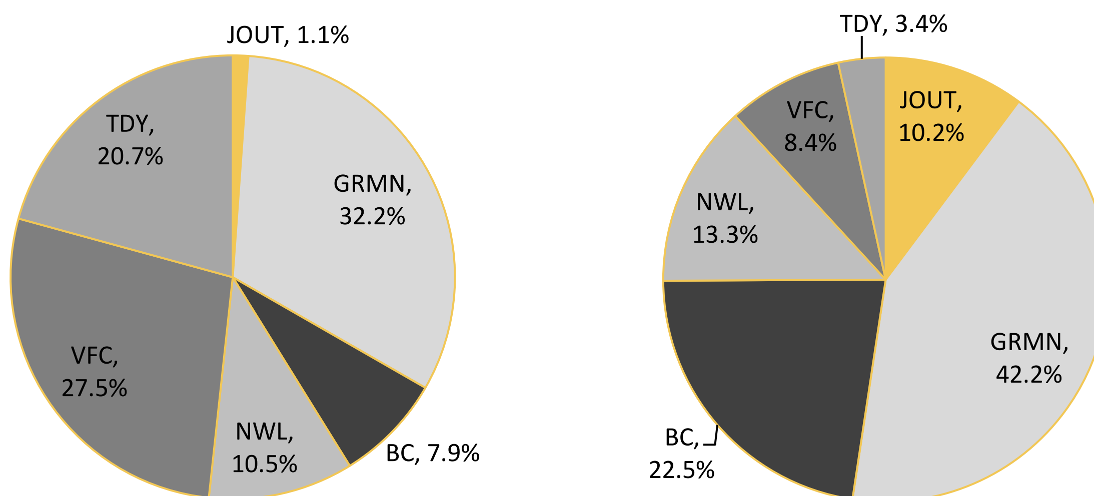
Johnson Outdoors is an outdoor leisure company which operates in highly competitive markets. Not only does it compete with large domestic companies, but also foreign brands. Several of these competitors have longer operating histories with stronger brand recognition and much larger financial, technical, and marketing resources. JOUT must be very convincing with its marketing and providing unique features to its products. Firms in the industry also compete on price, JOUT constantly competes against competitors for shelf space at retailers. Brunswick, Navico, Garmin, Confluence Outdoor, and Aqua Lung, other producers of outdoor recreation products sell to many of the same retail customers.

By branding itself as consumer friendly and providing superior products of the highest quality, JOUT has created a moat in this competitive sector. Figure 4 shows Johnson Outdoors's sales growth in comparison to some of its top industry competitors. As you can see the firm has outperformed its competitors since 2017 and grew sales in 2019 to 2020 when competitor's sales declined.

**Figure 4: JOUT annual sales growth (%) vs. Industry comps**




**Figures 5 and 6: Industry concentration by market cap (left) vs. sales (right)**




*Source: FactSet, Analyst Computations*

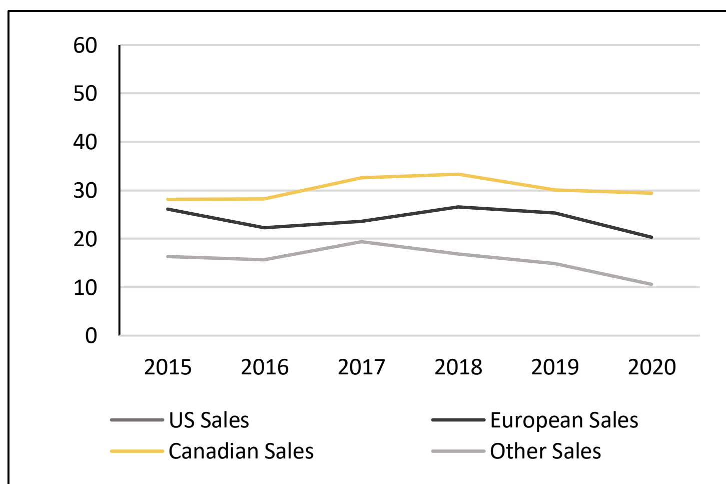
As shown in the above two figures, JOUT has a very small market cap (1.1%) compared to all of its competitors, but it has 10.2% of the sales, which is a decent sized chunk of the industry. Given its smaller market cap versus peers, this implies it has lower growth, higher risk, and/or lower profit margins. Later, in the valuation section (figure 25), I'll show that margins and long-term growth are at the median while beta is average, so it appears the stock is undervalued.

Market Growth

JOUT sells in multiple countries, through many retailers, and various distributors.

JOUT primarily markets to the United States, but since 2016 has grown its product internationally. Although, sales have been stagnant at just above $90 million since 2018. Fishing brands and related accessories are sold across the globe, with most sales coming from North America, including the US and Canada, through large outdoor specialty retailers, such as Bass Pro Shops and Cabela's, other large retail store chains, distributors that service independent marine, sporting goods and internet dealers, and original equipment manufacturers (OEM) of boat brands such as Tracker, Skeeter and Ranger. The company also sells direct to consumers via its Minn Kota, Humminbird, and Cannon websites. Markets outside of North America are accessed through a network of international distributors.

**Figure 7: JOUT Annual sales by country ($)**

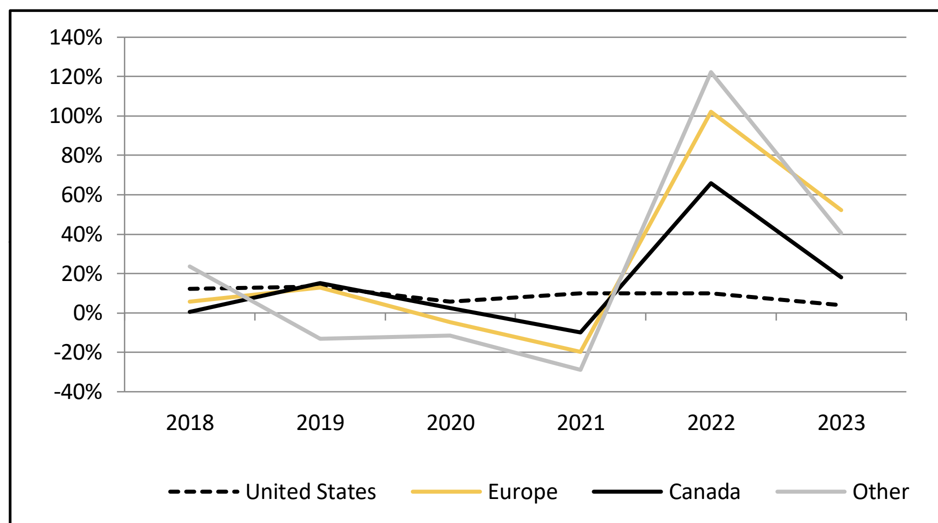



*Source: Company Reports*

Combined net sales for Europe, Canada, and the Pacific Basin were $93,478, $93,056, and $90,554.

Recently, risk has risen for international business as many countries in the European Union, as well as several other countries in the Organization for Economic Cooperation and Development, are actively considering changes to existing tax laws. Certain proposals could include recommendations that could increase JOUT's tax obligations in many countries. Although the company has presence in some international markets, it does not appear to be a top priority for JOUT at this time.

**Figure 8: Sales growth each year domestic vs. international (%)**




COVID-19 caused JOUT to implement strict restrictions causing it to temporarily close operations

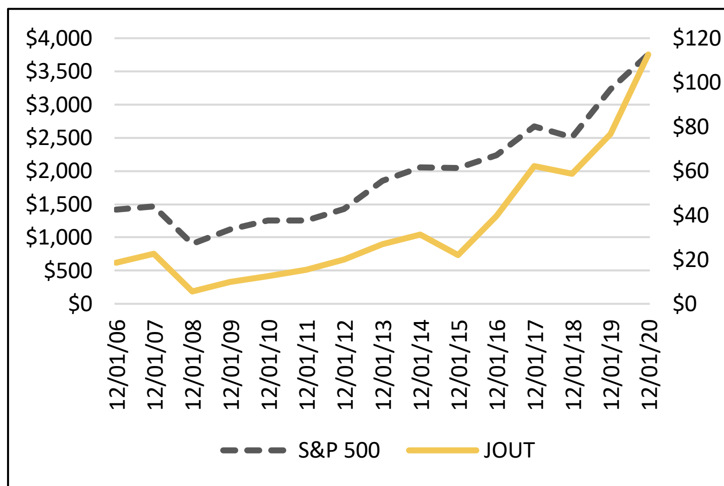
During the 2020-21 fiscal periods, COVID-19 has a positive impact due to increased participation in outdoor activities.

Trends in the Economy

JOUT's operations are exposed to several economic risks. It is especially susceptible to risks associated with pandemics, epidemics, and other health emergencies, such as the recent outbreak of COVID-19. Outbreaks such as these have resulted, and can continue to result, in governments around the world implementing stringent or restrictive measures to help control the spread of the virus, including quarantines, "shelter in place" and "stay at home" orders, travel restrictions, business curtailments, school closures, and other measures. In response to these measures, JOUT temporarily closed its manufacturing locations and warehouses for a portion of its 2020 fiscal year, for the protections of their own employees. The firm resumed business and production at the end of the 2020 fiscal year under appropriate safety protocols, but the period of suspended operations had a large impact on the pace of sales and operating profits between fiscal quarters.

However, as disclosed in its public filings, during the latter half of fiscal 2020, the firm saw favorable impact of COVID-19 on its results due to increased participation in fishing, camping and watercraft recreation and related demand for its products, largely driven by the consumer's desire to engage in socially distant and safe activities in the great outdoors. Sales rose from $594 million in the year ended September 2020 to $753 million this year. Consensus expects sales to be $762 million in the year that just ended, and I expect sales to be slightly lower at $752 million.

**Figure 9: JOUT price vs. S&P 500**

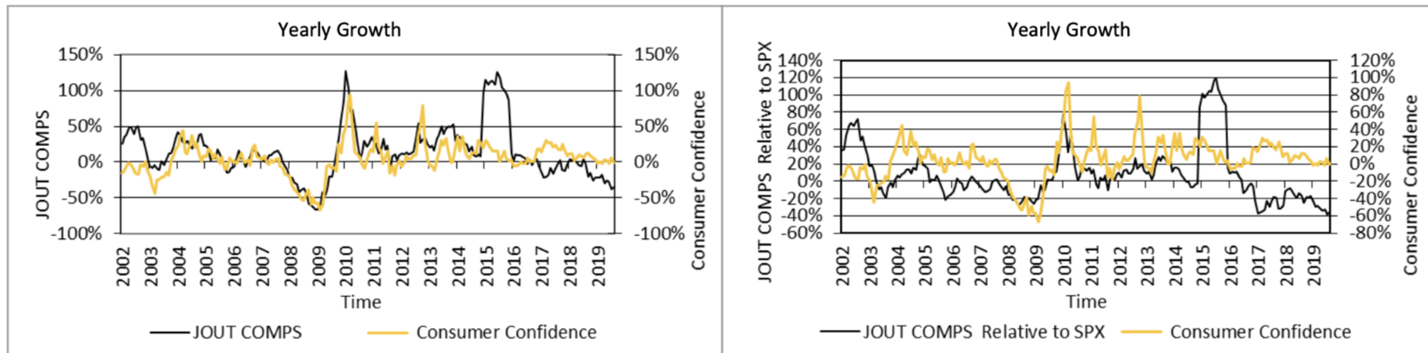



*Source: Company Reports*

Economic conditions highly effect the consumer discretionary sector.

JOUT's revenues are affected by economic conditions and consumer confidence worldwide, but especially in the United States and Europe. In times of economic uncertainty, its consumers tend to defer expenditures for discretionary items, which affects demand for its products. Figure 10 shows that the stock is somewhat positively correlated with change in consumer confidence. Figure 11 illustrates how the stock underperforms with the market when consumer confidence declines, and vice versa. JOUT focuses on highly costly leisure activities. Perhaps when economic conditions are weak people are less likely to invest in JOUT's more costly outdoor equipment and instead invest in less expensive activities.

**Figures 10 and 11: Consumer confidence compared to JOUT comps (left); consumer confidence compared to JOUT comps relative to the S&P 500 index (right)**



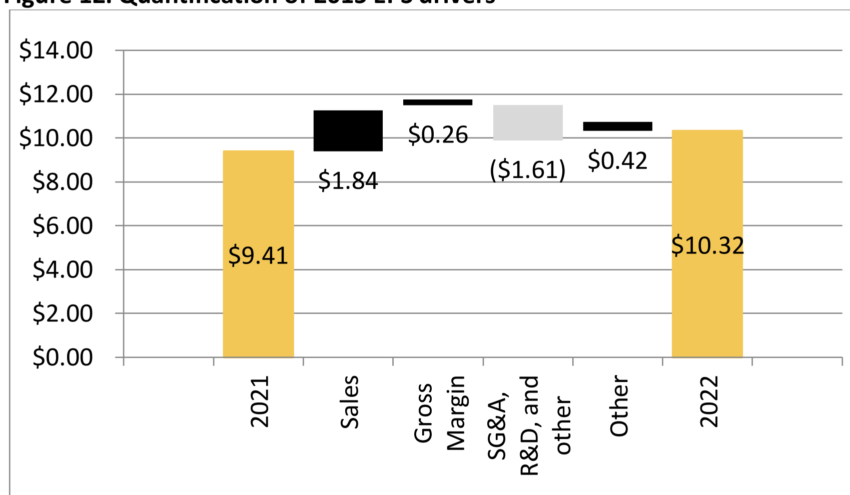

*Source: Bloomberg, IMCP*

## Financial Analysis

Sales should add $1.84 per share to 2022 EPS which is expected to grow by 9.7%

I expect EPS to increase by 9.7% from $9.41 to 10.32 in the 2022 fiscal year. Increasing sales in the United States and the expansion of its business segments should bring earnings up to $1.84 per share. With this, I also expect the gross margin to grow and add $0.26 per share. SG&A to sales is expected to increase causing EPS fall by $1.61. Lastly, I anticipate an increase of $0.42 per share of other, which is driven mostly by the decrease in tax rate.

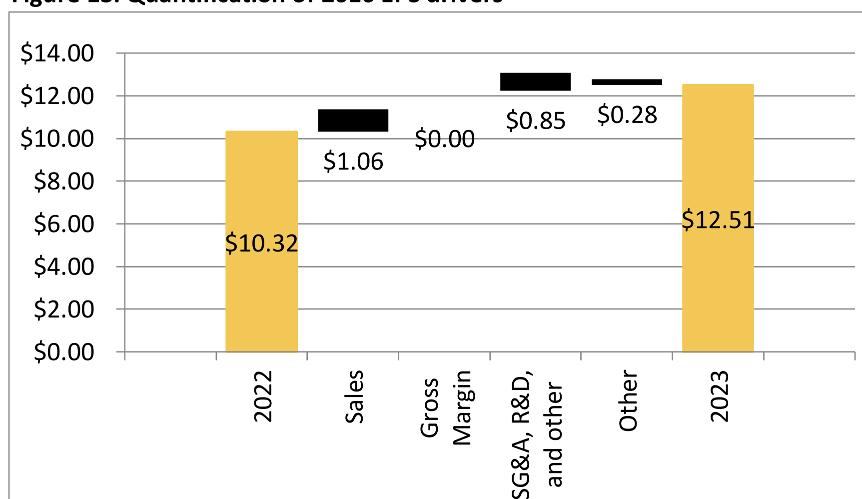
**Figure 12: Quantification of 2015 EPS drivers**




*Source: Company Reports, IMCP*

I expect 2023 EPS to increase $10.32 to $12.51. I predict sales to increase by at least 20% in 2022, boosting EPS by $1.06. I forecast gross margin to stay the same, therefore keeping EPS at the same rate. With this, there will be a decrease in SG&A to sales contributing $0.85 per share. With share buybacks rising, this will add another $0.28 onto EPS.

**Figure 13: Quantification of 2016 EPS drivers**



I am much more optimistic than consensus estimates for 2021 and 2022, particularly in the first two quarters. I anticipate stronger growth in 2021 driven primarily by JOUT's expanding markets and segments. The market must believe that the jump of sales JOUT's experienced is one time due to extra spending on recreational outdoor activities. My estimates suggest that people's lifestyles are changing and this is becoming permanent.

I am $2.86 more optimistic than consensus for 2022 EPS and $4.06 more optimistic in 2023

**Figure 14: EPS and YoY growth estimates by quarter**

| | FY 2022 | FY 2023 |
|---|---|---|
| Revenue - Estimate | $901,981 | $996,689 |
| *YoY Growth* | 20.0% | 10.5% |
| Revenue - Consensus | $749,500 | $759,700 |
| *YoY Growth* | 18.3% | 1.4% |
| EPS - Estimate | 10.36 | 12.60 |
| *YoY Growth* | 10.1% | 21.6% |
| EPS - Consesus | 7.50 | 8.54 |
| *YoY Growth* | -8.6% | 13.9% |

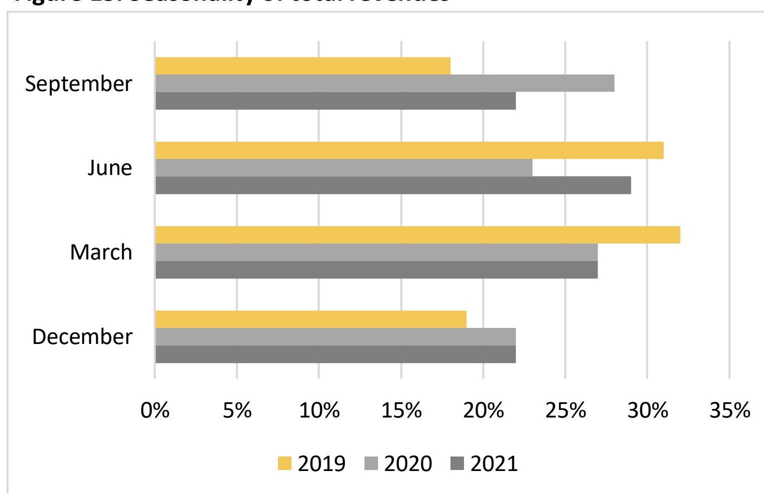
*Source: Factset, IMCP*

Revenues

Johnson Outdoors's revenue has been steadily rising since 2011. In 2021, its growth rate was higher than any previous years by almost 30%. I expect that growth will continue to reflect this year's number. The pandemic has made people more eager to get outdoors and practice new hobbies including fishing, camping, and watersports. Because most of these activities depend on favorable weather conditions, it is important to note, most of JOUT's sales have come from the first and second quarters (in 2021 this was 60% of revenue).

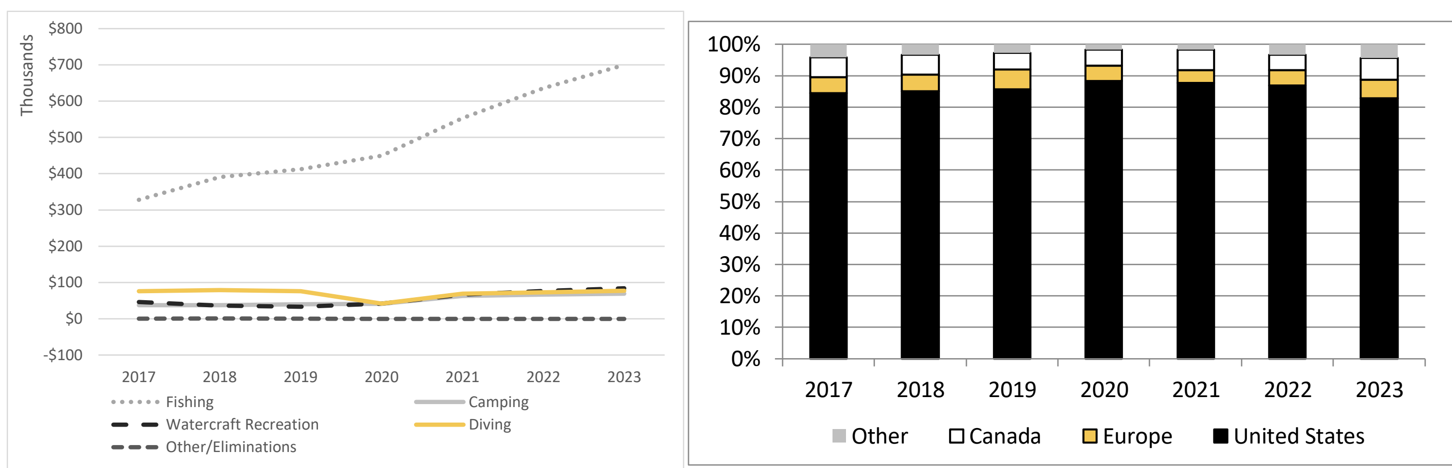
Recovering from the pandemic, I expect JOUT's revenue to continue growing.

**Figure 15: Seasonality of total revenues**




International store revenue has begun to grow again in 2021. Canadian sales grew by 66% since 2020, and now contributes to 6.5% of JOUT's overall revenue. I anticipate that within the next few years, the company will continue to focus on growing international sales and grow its market in Europe significantly.

**Figure 16 and 17: Johnson Outdoors's segment revenues (left); Geographical revenue Growth Rates (right)**

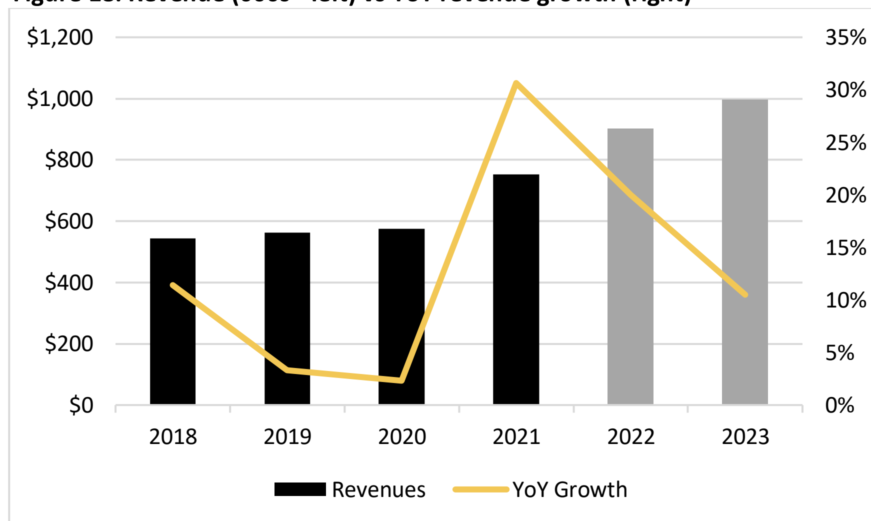



*Source: Company Reports, IMCP*

JOUT has constantly grown its fishing segment revenue. With this, it's contributing capital towards improving technology in each of its segments. I expected these trends to continue in FY 2022 and 2023. I estimate that fishing will eventually make up 75% of overall sales and watercraft recreation to make up almost 11% in 2022.

I expect JOUT's fishing to continue growing and growing as a percentage of sales.

**Figure 18: Revenue (000s - left) vs YoY revenue growth (right)**



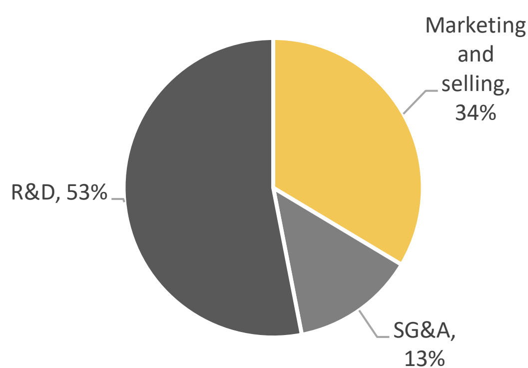

*Source: Company Reports*

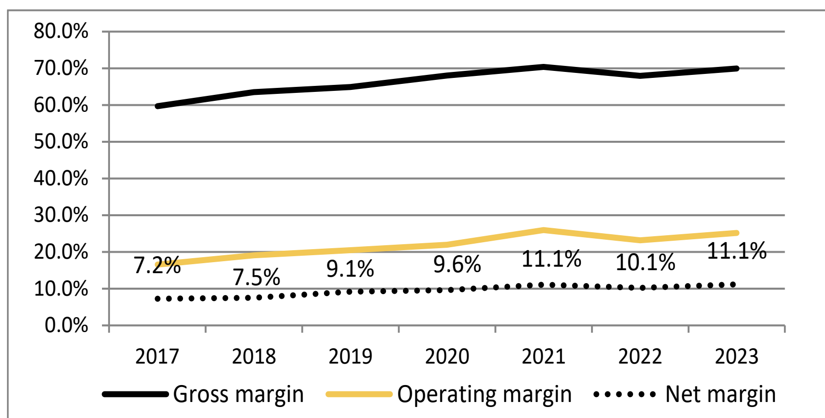
Operating Income and Margins

Tariffs have been a driver for the decrease in operating margin over the past few years.

Operating expenses are composed primarily of selling, general and administrative expenses. The company breaks out salaries, wages, and benefits from SG&A, and accrued warranties is also a contributor to AG&A. U.S. tariffs on Chinese goods and components impacted fiscal 2021 operating profit by approximately $12 million or 1.6% of sales. The firm continues to pursue possibilities to mitigate the impact of these tariffs on their future revenues.

**Figures 19 and 20: Composition of operating expenses (left) and Gross, operating, and net margin 2017- E2023 (right)**




*Source: Company Reports*

Besides the tariffs, I expect a steady operating margin mostly due to R&D.

Despite these tariffs, net margin rose from 9.6% to 11.1% in 2021. Net margin could also be down from where it has potential to be due to spending on R&D for leading innovations, but by focusing on innovative technology, high quality of products, and effective marketing, the company has achieved huge market share gains. Moving to the future years, I expect to see continued growth in R&D and steady gross and operating margin.

**Figure 21: JOUT operating margins, 2020 – 2023E**

| | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|
| **Sales** | $575,336 | $751,651 | $901,981 | $996,689 |
| **Direct costs** | $310,343 | $417,526 | $497,894 | $550,172 |
| **Net income** | $55,233 | $83,381 | $91,488 | $110,896 |
| ***Gross margin*** | *9.6%* | *11.1%* | *10.1%* | *11.1%* |
| **Operating Expenses** | | | | |
| **Marketing and selling** | $121,517 | $141,059 | $169,502 | $202,910 |
| ***Growth*** | *0.0%* | *16.1%* | *20.2%* | *19.7%* |
| **SG&A** | $47,785 | $56,083 | $69,709 | $72,835 |
| ***Growth*** | *12.2%* | *17.4%* | *24.3%* | *4.5%* |
| **R&D** | $24,621 | $25,700 | $29,579 | $31,235 |
| ***Growth*** | *12.3%* | *4.4%* | *15.1%* | *5.6%* |
| **Operating income** | $71,070 | $111,283 | $135,297 | $139,536 |
| ***Operating margin*** | *12.4%* | *14.8%* | *15.0%* | *14.0%* |

*Source: Company Reports*

Return on Equity

I expect to ROE to stay at a steady rate due to the steady rate of asset turnover.

ROE has gone up by almost 5% since 2018. Profit margins significantly increased to 14.8% in 2021 from 12.4% in 2020, and I predict that to come down to 14.0% in 2023. Asset turns declined in 2020 but has started to recover from the COVID-19 pandemic. ROE dropped during the pandemic, but has recovered in 2021, and I predict that it will stay at a steady percentage around 18%. DuPont analysis for JOUT reveals that ROE is driven mostly by profit margins. Besides 2020's pandemic, with the drop in asset turns dragging ROE down.

**Figure 22: ROE breakdown, 2018 – 2021E**

| 5-stage DuPont | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|
| EBIT / sales | 11.6% | 11.3% | 12.4% | 14.8% | 13.0% | 14.0% |
| Sales / avg assets | 1.45 | 1.35 | 1.17 | 1.23 | 1.23 | 1.16 |
| EBT / EBIT | 99.7% | 99.7% | 99.8% | 99.9% | 99.9% | 99.9% |
| Net income /EBT | 64.7% | 80.8% | 77.9% | 75.0% | 78.1% | 79.6% |
| ROA | 10.9% | 12.4% | 11.2% | 13.7% | 12.5% | 13.0% |
| Avg assets / avg equity | 1.44 | 1.38 | 1.40 | 1.46 | 1.45 | 1.41 |
| **ROE** | **15.6%** | **17.0%** | **15.7%** | **19.9%** | **18.1%** | **18.3%** |

*Source: Company Reports*

Free Cash Flow

As shown in Figure 22, Johnson Outdoors's free cash flow has been volatile over the last few years. This year, NOPAT grew by 55.4%. Although I do not think it will grow by this much in 2022, I expect it will still jump up by 9.1%, and eventually hit over $100 million in 2023. With the expansion on its markets and possible expansion to international areas, I expect NFA to continue growing at a steady rate into 2022 and 2023. I expect FCFF and FCFE to fully recover in 2022 back to pre-COVID rates, as we have seen its partial recovery this year.

**Figure 23: Free cash flow calculations**

| Free Cash Flow | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| NOPAT | $32,318 | $35,495 | $48,639 | $52,564 | $81,703 | $89,116 | $108,838 |
| *Growth* | | *9.8%* | *37.0%* | *8.1%* | *55.4%* | *9.1%* | *22.1%* |
| NWC* | 85,144 | 88,377 | 75,641 | 120,838 | 177,082 | 189,443 | 209,335 |
| Net fixed assets | 112,810 | 110,242 | 113,916 | 157,488 | 183,023 | 214,757 | 226,520 |
| Total net operating capital* | $197,954 | $198,619 | $189,557 | $278,326 | $360,105 | $404,201 | $435,855 |
| *Growth* | | *0.3%* | *-4.6%* | *46.8%* | *29.4%* | *12.2%* | *7.8%* |
| - Change in NWC* | | 3,233 | (12,736) | 45,197 | 56,244 | 12,361 | 19,892 |
| - Change in NFA | | (2,568) | 3,674 | 43,572 | 25,535 | 31,734 | 11,763 |
| FCFF* | | $34,830 | $57,701 | -$36,205 | -$76 | $45,020 | $77,184 |
| *Growth* | | | *65.7%* | *-162.7%* | *-99.8%* | *-59696.1%* | *71.4%* |
| - After-tax interest expense | 537 | 114 | 131 | 106 | 106 | 128 | 143 |
| FCFE** | | 34716 | 57570 | -36311 | -182 | $44,892 | $77,041 |
| *Growth* | | | *-222.1%* | *-235.0%* | *-103.8%* | *-252.7%* | *-110.1%* |
| FCFF per share | | $4.01 | $6.57 | ($4.10) | ($0.01) | $5.08 | $8.71 |
| *Growth* | | | *64.0%* | *-162.5%* | *-99.8%* | *-59696.1%* | *71.4%* |
| FCFE per share | | $3.99 | $6.56 | ($4.12) | ($0.02) | $5.06 | $8.69 |
| *Growth* | | | *64.1%* | *-162.8%* | *-99.5%* | *-24766.0%* | *71.6%* |

* NWC excludes cash
** No adjustment is made for debt

*Source: Company Reports, IMCP*

## Valuation

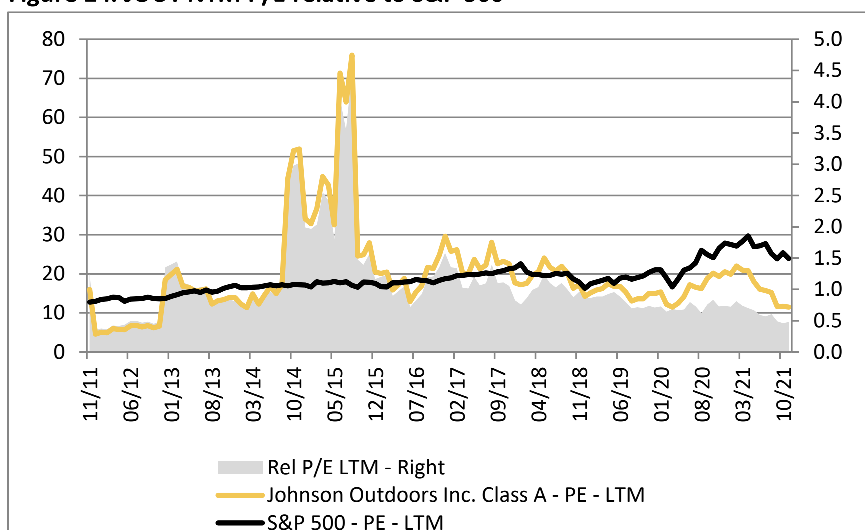
JOUT was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is very cheap and is worth $165 for the end of 2022; however, due to the volatility of JOUT's earnings the past few years, as well as the effect of recent nonrecurring expenses, this metric may be unreliable. Relative valuation shows JOUT to be significantly undervalued based on its fundamentals versus those of its peers in the outdoor leisure industry. A detailed DCF analysis values JOUT at $138. I give this value a bit more weight because it incorporates assumptions that reflect JOUT's innovation and expansion to new markets. As a result of these valuations, I value the stock at $135.

Trading History

JOUT's P/E has fallen relative to the S&P 500 since 2015. According to the market, JOUT's best growth rate is behind them. The firm's TTM P/E is at 11.3 while its current NTM P/E is at 13.1 compared to its five-year average of 19.5. I expect the P/E to rise in 2022 but stay below the 5-year average in 2021. The P/E is down because investors must believe the bump in EPS from boost in recreation spending during Covid is temporary. I believe it reflects a change in lifestyle and expect further growth in 2022 and 2023.

JOUT's P/E has fallen below the market, but I expect the P/E to reach market levels again.

**Figure 24: JOUT NTM P/E relative to S&P 500**




*Source: Company Reports, IMCP*

Using a 13.1 NTM P/E in 2021, JOUT should trade at $165 by the end of this year and into 2023:

- Price = P/E x EPS = 13.1 x $12.60 = $165

Relative Valuation

JOUT is trading at a discounted price relative to its peers with a TTM P/E of 11.9 compared to the industry average of around 20. Analysts expect the EPS of JOUT to fall 8.6% in 2022. JOUT's P/B (2.7) is much lower than the industry average of 4.0, but the firm's ROE is lower (16.6% vs. 22.7%). Its P/S (1.30) is lower than industry average of 2.62 which may mean JOUT is heavily undervalued.

**Figure 25: JOUT Comparable Companies**

| Ticker | Name | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Beta | LT Debt/ Equity | S&P Rating | LTM Dividend Yield | Payout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JOUT | JOHNSON OUTDOORS INC -CL A | $97.80 | $980 | (4.9) | (12.4) | (11.8) | (21.2) | 2.1 | (13.2) | 11.0 | -9.2% | 35.1% | 50.1% | -8.6% | 13.9% | 0.88 | 9.6% | B | 0.89% | 11.3% |
| GRMN | GARMIN LTD | $134.69 | $25,904 | (1.0) | (5.9) | (21.3) | (7.0) | 13.2 | 12.6 | 6.8 | -0.8% | 15.5% | 12.5% | 8.5% | 5.3% | 0.96 | 1.2% | | 1.92% | 43.7% |
| BC | BRUNSWICK CORP | $95.93 | $7,396 | (0.0) | (5.6) | (2.0) | (0.8) | 30.1 | 25.8 | | 18.9% | 17.1% | 61.1% | 12.9% | 9.5% | 1.65 | 100.3% | B | 1.36% | 16.2% |
| NWL | NEWELL BRANDS INC | $22.26 | $9,469 | (0.3) | (8.2) | (11.1) | (20.6) | 8.5 | 4.9 | 4.8 | 24.7% | 5.3% | -3.9% | 9.3% | 1.6% | 1.03 | 131.2% | B+ | 4.29% | 65.2% |
| VFC | VF CORP | $74.79 | $29,376 | (1.6) | (2.5) | 4.2 | (8.9) | (13.7) | (12.4) | 34.1 | 9.3% | -2.4% | -42.9% | 64.8% | 10.3% | 1.46 | 162.0% | A- | 2.73% | 63.0% |
| TDY | TELEDYNE TECHNOLOGIES INC | $432.54 | $20,180 | (0.7) | (2.7) | 1.0 | 2.0 | 11.6 | 10.3 | 18.9 | 67.9% | -1.0% | 55.1% | 6.7% | 1.2% | 1.07 | 61.6% | B | 0.00% | 0.0% |
| Average | | | $15,551 | (1.4) | (6.2) | (6.8) | (9.4) | 8.6 | 4.7 | 15.1 | 18.5% | 11.6% | 22.0% | 15.6% | 7.0% | 1.17 | 77.7% | | 1.86% | 33.2% |
| Median | | | $14,825 | (0.8) | (5.7) | (6.6) | (7.9) | 10.1 | 7.6 | 11.0 | 14.1% | 10.4% | 31.3% | 8.9% | 7.4% | 1.05 | 81.0% | | 1.64% | 29.9% |
| SPX | S&P 500 INDEX | $4,669 | | (0.9) | (0.3) | 4.5 | 9.9 | 27.4 | 24.3 | | | 2.7% | -15.3% | 46.5% | 9.6% | | | | | |

| Ticker | Website | 2022 ROE | P/B | P/E 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | 2021 NPM | 2021 P/S | NM | OM | ROIC | EV/ EBIT | P/CF Current | Sales Growth NTM | STM | Book Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| JOUT | http://www.johnsonoutdoors.com | 16.6% | 2.17 | 14.5 | 14.0 | 13.8 | 11.9 | 13.1 | 13.0 | 11.5 | 10.9% | 1.30 | 11.1% | 14.8% | 18.2% | 8.3 | | 1.4% | | $45.16 |
| GRMN | http://www.garmin.com | 20.6% | 4.42 | 14.2 | 19.0 | 20.7 | 23.0 | 23.2 | 21.5 | 20.4 | 22.4% | 5.23 | 23.7% | 25.2% | 19.0% | 20.2 | 22.8 | 4.6% | 7.9% | $30.44 |
| BC | http://www.brunswick.com | 38.4% | 4.00 | 10.7 | 11.8 | 9.6 | 12.9 | 10.8 | 10.4 | 9.5 | 10.9% | 1.28 | 8.6% | 12.4% | 15.2% | 12.1 | 9.6 | 13.7% | 3.3% | $23.98 |
| NWL | http://www.newellbrands.com | 19.7% | 2.34 | 10.9 | 10.7 | 12.3 | 15.8 | 12.7 | 11.8 | 11.7 | 7.0% | 0.91 | -8.2% | 9.6% | -7.6% | 15.7 | 8.5 | -0.8% | 1.0% | $9.53 |
| VFC | http://www.vfc.com | 29.7% | 8.16 | 22.7 | 34.5 | 52.2 | 24.0 | 22.0 | 27.5 | 24.9 | 5.7% | 2.60 | 3.8% | 7.8% | 4.2% | 51.4 | 18.4 | 13.8% | 8.6% | $9.16 |
| TDY | http://www.teledyne.com | 11.1% | 2.72 | 19.3 | 32.6 | 23.7 | 43.3 | 25.8 | 24.6 | 24.3 | 16.7% | 4.39 | 13.1% | 14.8% | 10.5% | 33.3 | 20.9 | 35.8% | | $158.97 |
| Average | | 22.7% | 3.97 | 15.4 | 20.4 | 22.0 | 21.8 | 17.9 | 18.1 | 17.0 | 12.3% | 2.62 | 8.7% | 14.1% | 9.9% | 23.5 | 16.0 | 11.4% | 5.2% | |
| Median | | 20.2% | 3.36 | 14.4 | 16.5 | 17.2 | 19.4 | 17.5 | 17.3 | 16.0 | 10.9% | 1.95 | 9.9% | 13.6% | 12.9% | 18.0 | 18.4 | 9.1% | 5.6% | |
| spx | S&P 500 INDEX | | | 15.8 | 19.8 | 27.0 | | | 23.1 | 21.1 | | | | | | | | | | |

*Source: Company Reports, IMCP*

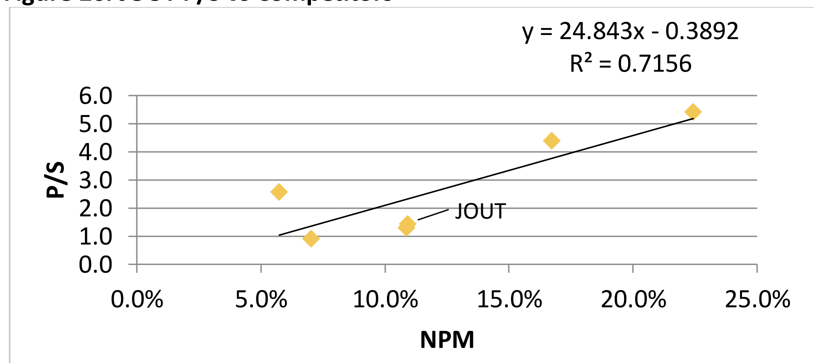
A more thorough analysis of P/S and NPM is shown in figure 25. The calculated R-squared of the regression indicates that over 71% of a sampled firm's P/S is explained by its net profit margin. JOUT's P/S is lower than average, and NPM is slightly lower than average. There is an opportunity for JOUT to increase its NPM by increasing operating efficiencies, however, I do expect an improvement in margins for 2022 and 2023.

- Estimated P/S = Estimated 2022 NPM (10.21%) x 24.843 - 0.3892 = $2.14
- Target Price = Estimated P/S x 2022E sales per share ($69) = $147.66

Based on this information, JOUT appears to be undervalued. The estimated price at the end of the 2022 FY is $147.66. Discounting back to the present at a 9.2% cost of equity leads to a target price of $135.10 using this metric. Currently the stock trades at $101.17.

JOUT is undervalued according to the NPM to P/S valuation framework.

**Figure 26: JOUT P/S vs Competitors**




*Source: Company Reports, IMCP*

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. Long-term growth rate and NTM EPS growth rates were weighted 25% each, and 50% weighting went to 2020 net profit margin. This was compared to a composite of 25% TTM P/E 25% NTM P/E, and

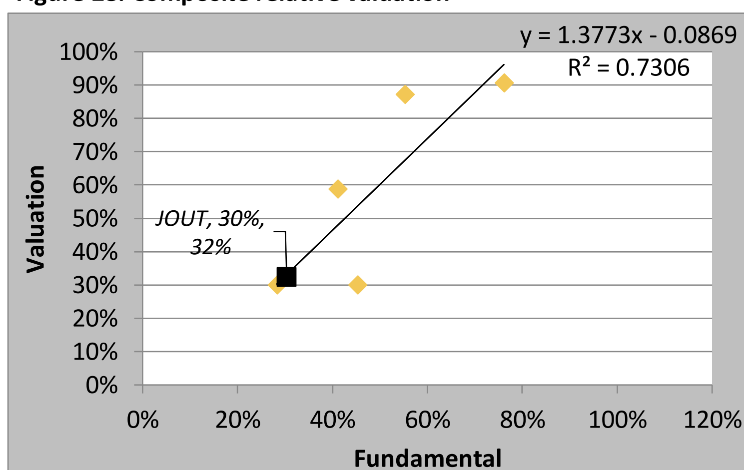
50% P/S. The regression line had an R-squared of 0.73. One can see that JOUT is on the line, so it is fairly valued based on its fundamentals.

**Figure 27: Composite valuation, % of range**

| | | | | Fundamental | | | Valuation | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Weight | 25.0% | 25.0% | 50.0% | 25.0% | 25.0% | 50.0% |
| | | | | Earnings Growth | | 2021 | P/E | | |
| Ticker | Name | Fund | Value | LTG | NTM | NPM | TTM | NTM | P/S |
| **JOUT** | JOHNSON OUTDOORS INC -CL A | 29% | 32% | 32% | -14% | 49% | 27% | 51% | 25% |
| **GRMN** | GARMIN LTD | 55% | 86% | 20% | -1% | 100% | 53% | 90% | 100% |
| **BC** | BRUNSWICK CORP | 45% | 30% | 57% | 28% | 48% | 30% | 42% | 24% |
| **NWL** | NEWELL BRANDS INC | 28% | 30% | 14% | 36% | 31% | 37% | 49% | 17% |
| **VFC** | VF CORP | 41% | 60% | 100% | 14% | 26% | 56% | 85% | 50% |
| **TDY** | TELEDYNE TECHNOLOGIES INC | 76% | 92% | 55% | 100% | 75% | 100% | 100% | 84% |

*Source: IMCP*

**Figure 28: Composite relative valuation**




*Source: IMCP*

<u>Discounted Cash Flow Analysis</u>

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

For the purpose of this analysis, the company's cost of equity was calculated to be 9.2% 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 1.90%.
- The 5-year beta is 0.88, and I believe the future is bright given trends in leisure activities.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 9.2% (1.90 + .90 (10.0 –1.90)).

*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 $5.80 and $8.75 respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $11.99 per share. Thus, stage one of this discounted cash flow analysis contributes $11.99 to 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 9.2% cost of equity. I assume 15% sales growth in 2024, rising to 30% through 2028. The ratio of NWC to sales will remain at 2024 levels, and NFA turnover will remain constant around 4.4. Also, the NOPAT margin growth is expected to fall in 2025 from 10.0% to 6.0% in 2028. Current margins of 10.9% reflect a cyclical peak. Finally, after-tax interest is expected to rise at the same pace as sales.

**Figure 29: FCFE and discounted FCFE, 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| **FCFE** | $5.08 | $8.75 | $21.02 | $5.75 | $8.01 | $5.73 | ($2.78) |
| **Discounted FCFE** | $4.65 | $7.34 | $16.14 | $4.05 | $5.16 | $3.38 | ($1.50) |

*Source: IMCP*

Added together, these discounted cash flows total $27.23.

*Stage Three* – Net income for the years 2022-2028 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from $10.36 in 2022 to $12.60 in 2023, and then drop in 2024 to $10.40, but then continue to grow throughout 2028 to $18.36.

**Figure 30: EPS estimates for 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| **EPS** | $10.36 | $12.60 | $10.40 | $16.64 | $17.97 | $16.48 | $18.36 |

*Source: IMCP*

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. As sales growth slows from 20% in 2022 to 10.5% in 2023, and as margins fall slightly, I expect P/E ratio to remain lower and trade at a discount from peers. JOUT's current discount (11.9 TTM P/E vs. 17.9 for the industry) is understandable. A low P/E also reflects investors continued doubt that high growth is permanent. Thus, my robust sales growth estimates are somewhat offset by a low P/E.

Given the assumed terminal earnings per share of $18.36 and a price to earnings ratio of 10, a terminal value of $183.62 per share is calculated. Using the 9.2% cost of equity, this number is discounted back to a present value of $99.23.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $138.45 is calculated ($11.99 + $27.23 + $99.23). Given JOUT's current price of $101, this model indicates that the stock is very undervalued.

Scenario Analysis

Johnson Outdoors is difficult to value with certainty because it has a relatively small market cap in its industry, consumer preferences are constantly changing, and the firm is expanding to new markets. With this, the CEO Helen Johnson has a long tenure which could very likely lead the company to success just as much as it could lead to failure. To quantify these scenarios, a bull and bear case is provided. The bear value is $XX and bullish case is $YY.

**Figure 31: DCF Target Price Scenario analysis**

| Base Case Expectations | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Beta | 0.90 | | | | | | |
| Sales Growth | 20.0% | 10.5% | 15.0% | 28.0% | 20.0% | 18.0% | 30.0% |
| NOPAT / S | 9.9% | 10.9% | 8.0% | 10.0% | 9.0% | 7.0% | 6.0% |
| S / NFA (EOY) | 4.20 | 4.40 | 4.40 | 4.40 | 4.40 | 4.40 | 4.40 |
| Terminal Year P/E | 10.00 | | | | | | |
| **Bear Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.20 | | | | | | |
| Sales Growth | 20.0% | 10.0% | 14.5% | 27.0% | 17.0% | 17.0% | 28.0% |
| NOPAT / S | 9.5% | 11.0% | 11.0% | 11.0% | 11.0% | 11.0% | 11.0% |
| S / NFA (EOY) | 4.20 | 4.10 | 4.10 | 4.10 | 4.10 | 4.10 | 4.10 |
| Terminal Year P/E | 8 | | | | | | |
| **Bull Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.00 | | | | | | |
| Sales Growth | 20.0% | 11.5% | 16.0% | 29.5% | 21.0% | 19.0% | 31.0% |
| NOPAT / S | 10.0% | 11.5% | 11.5% | 11.5% | 11.5% | 11.5% | 11.5% |
| S / NFA (EOY) | 4.20 | 4.60 | 4.60 | 4.60 | 4.60 | 4.60 | 4.60 |
| Terminal Year P/E | 12.0 | | | | | | |

*Source: IMCP*

**Figure 32: Values at beginning of fiscal 2022**

| Base Case Expectations | |
|---|---|
| P/E | 10 |
| Target Price | $138.45 |
| **Bear Case Expectations** | |
| P/E | 8 |
| Target Price | $118.61 |
| **Bull Case Expectations** | |
| P/E | 12 |
| Target Price | $158.30 |

*Source: IMCP*

## Business Risks

Although I have many reasons to be optimistic about Johnson Outdoors, there are also several risks that the company faces.

Operational Risk Factors:

The company's profitability depends on its ability to create products that appeal to consumers. Failure to develop these products can reduce net sales. Along with this, there is risk of confidential information getting out, like trade secrets, and having attention diverted away from the business. Failure in technology may also lead to a loss of information and impair JOUT's competitive position in the market.

Regulatory Risk Factors:

Changes in global tariffs, or the impact of them could significantly impact the business in a detrimental way and in an unpredictable manner. Along with this, there are also threats of the changes in current tax laws globally in which JOUT operates in. Different environmental, and safety rights could also affect the firm negatively.

Market and Economic Risk Factors:

The COVID-19 pandemic along with any other pandemic, epidemic, or public health emergency has resulted and continues to impact operations, supply chain and multiple other factors of JOUT's business. The coronavirus pandemic resulted in JOUT's facilities closing during the 2020 FY. It is still difficult to say how this factor will affect the business in the future. Along with this, highly competitive markets are also a risk for the firm. Price competition and fighting for shelf space could cause the business much financial stress.

Other General Risk:

Cyber security vulnerabilities for the company could potential expose JOUT's networks. Along with this, natural disasters are always unpredictable, which in this market has a huge impact on business. Other catastrophic events beyond the firm's control can have a negative impact on business.

Coronavirus Boost is Temporary:

The Covid pandemic led to increased purchases of recreational items. These expenditures are non-recurring in nature. If the trend to outdoor activities is temporary, then JOUT's sales in the future years may have been pulled forward to the present. My DCF valuation assumes sales growth is robust the next seven years.

## Appendix 1: Porter's 5 Forces

Threat of New Entrants – Very High

JOUT has a lot of competition that includes large, established companies which have launched similar products directly competing with JOUT's brands. Some of these larger companies have a lot more resources and hold a larger share of the market which negatively affects Johnson Outdoors. With strong moats, these stronger brands have more access to capital than JOUT.

Threat of Substitutes – High

Being a leisure company, Johnson Outdoors's brands are discretionary expenses, and they qualify as higher end and more expensive. In this heavily competitive environment, it is easy for consumers to switch between brands, so Johnson Outdoors is disadvantaged.

Supplier Power - Moderate

Suppliers do not have a lot of bargaining power. There is a large pool of suppliers to choose from so switching suppliers' costs next to nothing.

Buyer Power – High

Consumers of leisure products tend to have a high degree of power over retailers. There are many substitutes at similar prices so it's easy to switch between brands. Consumers are willing to wait to get the right price because the products are not a necessity.

Intensity of Competition – Very High

Operating in a highly competitive market, Johnson Outdoors faces many domestic and international brands that conduct similar businesses. More established companies have a wider range of consumers, capabilities, and brand recognition. JOUT has a lot of pressure for new product launches and products that consumers with be attracted to in order to stay on top of its competition.

## Appendix 2: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| Innovative Products<br>Reliable Brands<br>Little Debt | Economic Sensitivity<br>Expensive Products<br>Low Brand Recognition |
| **Opportunities** | **Threats** |
| Market Exansion<br>Accquisitions<br>Global Markets | Innovation Deficiency<br>International Tariffs<br>Market Trends |

## Appendix 3: Income Statement

| Income Statement | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Sep-17** | **Sep-18** | **Sep-19** | **Sep-20** | **Sep-21** | **Sep-22** | **Sep-23** |
| Sales | $488,565 | $544,268 | $562,299 | $575,336 | $751,651 | $901,981 | $996,689 |
| Direct costs | 312,103 | 333,328 | 320,439 | 325,580 | 417,526 | 497,894 | 550,172 |
| Gross Margin | 176,462 | 210,940 | 241,860 | 249,756 | 334,125 | 404,088 | 446,517 |
| SG&A, R&D, D&A, and other | 153,568 | 165,349 | 178,839 | 185,982 | 222,842 | 286,830 | 306,980 |
| EBIT | 22,894 | 45,591 | 63,021 | 63,774 | 111,283 | 117,258 | 139,536 |
| Interest | 727 | 757 | 203 | 172 | 145 | 168 | 183 |
| EBT | 22,167 | 44,834 | 62,818 | 63,602 | 111,138 | 117,089 | 139,354 |
| Taxes | 10,154 | 13,053 | 27,437 | 15,094 | 29,541 | 28,101 | 30,658 |
| Income | 12,013 | 31,781 | 35,381 | 48,508 | 81,597 | 88,988 | 108,696 |
| Other | (1,488) | (3,376) | (5,288) | (2,905) | (1,784) | (2,500) | (2,200) |
| Net income | 13,501 | 35,157 | 40,669 | 51,413 | 83,381 | 91,488 | 110,896 |
| Basic Shares | 9,839.0 | 9,887.0 | 9,942.0 | 9,994.0 | 8,864.0 | 8,834.0 | 8,804.0 |
| Fully Diluted Shares | 9,855.0 | 9,920.0 | 9,996.0 | 10,021.0 | 10,021.0 | 9,991.0 | 9,961.0 |
| EPS | $1.37 | $3.56 | $4.09 | $5.14 | $9.41 | $10.36 | $12.60 |
| EPS Fully Diluted | $1.37 | $3.54 | $4.07 | $5.13 | $8.32 | $9.16 | $11.13 |
| DPS | $0.10 | $0.14 | $0.14 | $0.17 | $0.24 | $0.03 | $0.05 |
| | | | | | | | |
| *Growth Statistics* | | | | | | | |
| *Sales* | | *11.4%* | *3.3%* | *2.3%* | *30.6%* | *20.0%* | *10.5%* |
| *Direct Costs* | | *6.8%* | *-3.9%* | *1.6%* | *28.2%* | *19.2%* | *10.5%* |
| *Gross Margin* | | *19.5%* | *14.7%* | *3.3%* | *33.8%* | *20.9%* | *10.5%* |
| *SG&A, R&D, and other* | | *7.7%* | *8.2%* | *4.0%* | *19.8%* | *28.7%* | *7.0%* |
| *EBIT* | | *99.1%* | *38.2%* | *1.2%* | *74.5%* | *5.4%* | *19.0%* |
| *Interest* | | *4.1%* | *-73.2%* | *-15.3%* | *-15.7%* | *16.0%* | *8.7%* |
| *EBT* | | *102.3%* | *40.1%* | *1.2%* | *74.7%* | *5.4%* | *19.0%* |
| *Taxes* | | *28.6%* | *110.2%* | *-45.0%* | *95.7%* | *-4.9%* | *9.1%* |
| *Continuing income* | | *164.6%* | *11.3%* | *37.1%* | *68.2%* | *9.1%* | *22.1%* |
| *Other* | | *126.9%* | *56.6%* | *-45.1%* | *-38.6%* | *40.1%* | *-12.0%* |
| *Net income* | | *160.4%* | *15.7%* | *26.4%* | *62.2%* | *9.7%* | *21.2%* |
| *Basic Shares* | | *0.5%* | *0.6%* | *0.5%* | *-11.3%* | *-0.3%* | *-0.3%* |
| *EPS* | | *159.1%* | *15.0%* | *25.8%* | *82.9%* | *10.1%* | *21.6%* |
| *EPS Fully Diluted* | | *158.7%* | *14.8%* | *26.1%* | *62.2%* | *10.1%* | *21.6%* |
| *DPS* | | *39.3%* | *0.4%* | *21.1%* | *39.3%* | *-85.7%* | *41.5%* |
| | | | | | | | |
| *Common Size* | | | | | | | |
| *Sales* | *100.0%* | *100.0%* | *100.0%* | *100.0%* | *100.0%* | *100.0%* | *100.0%* |
| *Direct Costs* | *63.9%* | *61.2%* | *57.0%* | *56.6%* | *55.5%* | *55.2%* | *55.2%* |
| *Gross Margin* | *36.1%* | *38.8%* | *43.0%* | *43.4%* | *44.5%* | *44.8%* | *44.8%* |
| *SG&A, R&D, and other* | *31.4%* | *30.4%* | *31.8%* | *32.3%* | *29.6%* | *31.8%* | *30.8%* |
| *EBIT* | *4.7%* | *8.4%* | *11.2%* | *11.1%* | *14.8%* | *13.0%* | *14.0%* |
| *Interest* | *0.1%* | *0.1%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| *EBT* | *4.5%* | *8.2%* | *11.2%* | *11.1%* | *14.8%* | *13.0%* | *14.0%* |
| *Taxes* | *2.1%* | *2.4%* | *4.9%* | *2.6%* | *3.9%* | *3.1%* | *3.1%* |
| *Continuing income* | *2.5%* | *5.8%* | *6.3%* | *8.4%* | *10.9%* | *9.9%* | *10.9%* |
| *Other* | *-0.3%* | *-0.6%* | *-0.9%* | *-0.5%* | *-0.2%* | *-0.3%* | *-0.2%* |
| *Net income* | *2.8%* | *6.5%* | *7.2%* | *8.9%* | *11.1%* | *10.1%* | *11.1%* |

## Appendix 4: Balance Sheets

| Balance Sheet (in thousands) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Sep-17** | **Sep-18** | **Sep-19** | **Sep-20** | **Sep-21** | **Sep-22** | **Sep-23** |
| Cash | 63,810 | 121,877 | 172,382 | 212,437 | 240,448 | 294,540 | 383,359 |
| Operating assets ex cash | 130,432 | 135,103 | 114,308 | 176,101 | 250,816 | 276,082 | 305,070 |
| Operating assets | 194,242 | 256,980 | 286,690 | 388,538 | 491,264 | 570,622 | 688,429 |
| Operating liabilities | 45,288 | 46,726 | 38,667 | 55,263 | 73,734 | 86,638 | 95,735 |
| NOWC | 148,954 | 210,254 | 248,023 | 333,275 | 417,530 | 483,983 | 592,694 |
| NOWC ex cash (NWC) | 85,144 | 88,377 | 75,641 | 120,838 | 177,082 | 189,443 | 209,335 |
| NFA | 112,810 | 110,242 | 113,916 | 157,488 | 183,023 | 214,757 | 226,520 |
| *Invested capital* | *$261,764* | *$320,496* | *$361,939* | *$490,763* | *$600,553* | *$698,741* | *$819,214* |
| | | | | | | | |
| Marketable securities | 46,607 | 28,714 | 35,838 | - | - | - | 2,000 |
| *Total assets* | *$353,659* | *$395,936* | *$436,444* | *$546,026* | *$674,287* | *$785,379* | *$916,949* |
| | | | | | | | |
| S-T and L-T debt and financing | $49,478 | $49,718 | $70,871 | $109,131 | $138,765 | $148,765 | $163,765 |
| Other liabilities | 15,889 | 20,295 | 2,372 | 3,532 | 3,283 | 3,283 | 3,283 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 243,004 | 279,197 | 324,534 | 378,100 | 458,505 | 546,693 | 654,166 |
| *Total supplied capital* | *$308,371* | *$349,210* | *$397,777* | *$490,763* | *$600,553* | *$698,741* | *$821,214* |
| | | | | | | | |
| *Total liabilities and equity* | *$353,659* | *$395,936* | *$436,444* | *$546,026* | *$674,287* | *$785,379* | *$916,949* |
| | | | | | | | |
| *Growth Statistics* | | | | | | | |
| *Cash* | | *91.0%* | *41.4%* | *23.2%* | *13.2%* | *22.5%* | *30.2%* |
| *Operating assets ex cash* | | *3.6%* | *-15.4%* | *54.1%* | *42.4%* | *10.1%* | *10.5%* |
| *Operating assets* | | *32.3%* | *11.6%* | *35.5%* | *26.4%* | *16.2%* | *20.6%* |
| *Operating liabilities* | | *3.2%* | *-17.2%* | *42.9%* | *33.4%* | *17.5%* | *10.5%* |
| *NOWC* | | *41.2%* | *18.0%* | *34.4%* | *25.3%* | *15.9%* | *22.5%* |
| *NOWC ex cash (NWC)* | | *3.8%* | *-14.4%* | *59.8%* | *46.5%* | *7.0%* | *10.5%* |
| *NFA* | | *-2.3%* | *3.3%* | *38.2%* | *16.2%* | *17.3%* | *5.5%* |
| *Invested capital* | | *22.4%* | *12.9%* | *35.6%* | *22.4%* | *16.3%* | *17.2%* |
| *Marketable securities* | | *-38.4%* | *24.8%* | *-100.0%* | | | |
| *Total assets* | | *12.0%* | *10.2%* | *25.1%* | *23.5%* | *16.5%* | *16.8%* |
| | | | | | | | |
| *Short-term and long-term debt* | | *0.5%* | *42.5%* | *54.0%* | *27.2%* | *7.2%* | *10.1%* |
| *Other liabilities* | | *27.7%* | *-88.3%* | *48.9%* | *-7.0%* | *0.0%* | *0.0%* |
| *Debt/equity-like securities* | | | | | | | |
| *Equity* | | *14.9%* | *16.2%* | *16.5%* | *21.3%* | *19.2%* | *19.7%* |
| *Total supplied capital* | | *13.2%* | *13.9%* | *23.4%* | *22.4%* | *16.3%* | *17.5%* |
| *Total liabilities and equity* | | *12.0%* | *10.2%* | *25.1%* | *23.5%* | *16.5%* | *16.8%* |

## Appendix 5: Sales Forecast

| Sales (in thousands) | | | | | | BaseCase | |
|---|---|---|---|---|---|---|---|
| Sales | 488,565 | $544,268 | 562,299 | $575,336 | 751,651 | 852,095 | $930,392 |
| *Growth* | | *11.4%* | *3.3%* | *2.3%* | *30.6%* | *13.4%* | *9.2%* |
| Fishing | 327,796 | 390,679 | 412,121 | 449,878 | 553,000 | 635,950 | 699,545 |
| *Growth* | | *19.2%* | *5.5%* | *9.2%* | *22.9%* | *15.0%* | *10.0%* |
| *% of sales* | *67.1%* | *71.8%* | *73.3%* | *78.2%* | *73.6%* | *74.6%* | *75.2%* |
| Camping | 37,887 | 37,732 | 40,379 | 41,592 | 62,921 | 66,696 | 69,364 |
| *Growth* | | *-0.4%* | *7.0%* | *3.0%* | *51.3%* | *6.0%* | *4.0%* |
| *% of sales* | *7.8%* | *6.9%* | *7.2%* | *7.2%* | *8.4%* | *2.0%* | *7.5%* |
| Watercraft Recreation | 46,126 | 36,120 | 33,405 | 41,857 | 66,603 | 76,593 | 84,253 |
| *Growth* | | *-21.7%* | *-7.5%* | *25.3%* | *59.1%* | *15.0%* | *10.0%* |
| *% of sales* | *9.4%* | *6.6%* | *5.9%* | *7.3%* | *8.9%* | *9.0%* | *6.0%* |
| Diving | 76,080 | 78,907 | 76,279 | 42,000 | 69,447 | 72,919 | 77,295 |
| *Growth* | | *3.7%* | *-3.3%* | *-44.9%* | *65.4%* | *5.0%* | *6.0%* |
| *% of sales* | *15.6%* | *14.5%* | *13.6%* | *7.3%* | *9.2%* | *8.6%* | *8.3%* |
| Other/Corporate | 676 | 830 | 115 | 9 | (320) | (64) | (64) |
| *Growth* | | *22.8%* | *-86.1%* | *-92.2%* | *-3655.6%* | *-80.0%* | *0.0%* |
| *% of sales* | *0.1%* | *0.2%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Total | 89.3% | 91.0% | 97.4% | 101.4% | 98.3% | 103.5% | 102.5% |
| United States | 384,348 | 435,930 | 482,326 | 525,204 | 659,330 | 766,886 | 790,834 |
| *Growth* | | *13.4%* | *10.6%* | *8.9%* | *25.5%* | *16.3%* | *3.1%* |
| *% of sales* | *78.7%* | *80.1%* | *85.8%* | *91.3%* | *87.7%* | *90.0%* | *85.0%* |
| Europe | 23,538 | 26,576 | 35,114 | 28,880 | 30,509 | 42,605 | 55,824 |
| *Growth* | | *12.9%* | *32.1%* | *-17.8%* | *5.6%* | *39.6%* | *31.0%* |
| *% of sales* | *4.8%* | *4.9%* | *6.2%* | *5.0%* | *4.1%* | *5.0%* | *6.0%* |
| Canada | 28,292 | 32,551 | 30,039 | 29,512 | 48,867 | 42,605 | 65,127 |
| *Growth* | | *15.1%* | *-7.7%* | *-1.8%* | *65.6%* | *-12.8%* | *52.9%* |
| *% of sales* | *5.8%* | *6.0%* | *5.3%* | *5.1%* | *6.5%* | *5.0%* | *7.0%* |
| Other | 19,396 | 16,849 | 14,940 | 10,613 | 12,945 | 29,823 | 41,868 |
| *Growth* | | *-13.1%* | *-11.3%* | *-29.0%* | *22.0%* | *130.4%* | *40.4%* |
| *% of sales* | *4.0%* | *3.1%* | *2.7%* | *1.8%* | *1.7%* | *3.5%* | *4.5%* |

# Appendix 6: Ratios

| Ratios | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Sep-17** | **Sep-18** | **Sep-19** | **Sep-20** | **Sep-21** | **Sep-22** | **Sep-23** |
| Profitability | | | | | | | |
| Gross margin | 36.1% | 38.8% | 43.0% | 43.4% | 44.5% | 44.8% | 44.8% |
| Operating (EBIT) margin | 4.7% | 8.4% | 11.2% | 11.1% | 14.8% | 13.0% | 14.0% |
| Net profit margin | 2.8% | 6.5% | 7.2% | 8.9% | 11.1% | 10.1% | 11.1% |
| Activity | | | | | | | |
| NFA (gross) turnover | | 4.88 | 5.02 | 4.24 | 4.41 | 4.54 | 4.52 |
| Total asset turnover | | 1.45 | 1.35 | 1.17 | 1.23 | 1.24 | 1.17 |
| Liquidity | | | | | | | |
| Op asset / op liab | 4.29 | 5.50 | 7.41 | 7.03 | 6.66 | 6.59 | 7.19 |
| NOWC Percent of sales | | 33.0% | 40.8% | 50.5% | 49.9% | 50.0% | 54.0% |
| Solvency | | | | | | | |
| Debt to assets | 14.0% | 12.6% | 16.2% | 20.0% | 20.6% | 18.9% | 17.9% |
| Debt to equity | 20.4% | 17.8% | 21.8% | 28.9% | 30.3% | 27.2% | 25.0% |
| Other liab to assets | 4.5% | 5.1% | 0.5% | 0.6% | 0.5% | 0.4% | 0.4% |
| Total debt to assets | 18.5% | 17.7% | 16.8% | 20.6% | 21.1% | 19.4% | 18.2% |
| Total liabilities to assets | 31.3% | 29.5% | 25.6% | 30.8% | 32.0% | 30.4% | 28.7% |
| Debt to EBIT | 2.16 | 1.09 | 1.12 | 1.71 | 1.25 | 1.27 | 1.17 |
| EBIT/interest | 31.49 | 60.23 | 310.45 | 370.78 | 767.47 | 697.20 | 763.30 |
| Debt to total net op capital | 18.9% | 15.5% | 19.6% | 22.2% | 23.1% | 21.3% | 20.0% |
| ROIC | | | | | | | |
| NOPAT to sales | 2.5% | 5.9% | 6.3% | 8.5% | 10.9% | 9.9% | 10.9% |
| Sales to NWC | | 6.27 | 6.86 | 5.86 | 5.05 | 4.92 | 5.00 |
| Sales to NFA | | 4.88 | 5.02 | 4.24 | 4.41 | 4.54 | 4.52 |
| Sales to IC ex cash | | 2.74 | 2.90 | 2.46 | 2.35 | 2.36 | 2.37 |
| Total ROIC ex cash | | 16.3% | 18.3% | 20.8% | 25.6% | 23.3% | 25.9% |
| NOPAT to sales | 2.5% | 5.9% | 6.3% | 8.5% | 10.9% | 9.9% | 10.9% |
| Sales to NOWC | | 3.03 | 2.45 | 1.98 | 2.00 | 2.00 | 1.85 |
| Sales to NFA | | 4.88 | 5.02 | 4.24 | 4.41 | 4.54 | 4.52 |
| Sales to IC | | 1.87 | 1.65 | 1.35 | 1.38 | 1.39 | 1.31 |
| Total ROIC | | 11.1% | 10.4% | 11.4% | 15.0% | 13.7% | 14.3% |
| NOPAT to sales | 2.5% | 5.9% | 6.3% | 8.5% | 10.9% | 9.9% | 10.9% |
| Sales to EOY NWC | 5.74 | 6.16 | 7.43 | 4.76 | 4.24 | 4.76 | 4.76 |
| Sales to EOY NFA | 4.33 | 4.94 | 4.94 | 3.65 | 4.11 | 4.20 | 4.40 |
| Sales to EOY IC ex cash | 2.47 | 2.74 | 2.97 | 2.07 | 2.09 | 2.23 | 2.29 |
| Total ROIC using EOY IC ex cash | 6.3% | 16.3% | 18.7% | 17.5% | 22.7% | 22.0% | 25.0% |
| NOPAT to sales | 2.5% | 5.9% | 6.3% | 8.5% | 10.9% | 9.9% | 10.9% |
| Sales to EOY NOWC | 3.28 | 2.59 | 2.27 | 1.73 | 1.80 | 1.86 | 1.68 |
| Sales to EOY NFA | 4.33 | 4.94 | 4.94 | 3.65 | 4.11 | 4.20 | 4.40 |
| Sales to EOY IC | 1.87 | 1.70 | 1.55 | 1.17 | 1.25 | 1.29 | 1.22 |
| Total ROIC using EOY IC | 4.7% | 10.1% | 9.8% | 9.9% | 13.6% | 12.8% | 13.3% |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 8.4% | 11.2% | 11.1% | 14.8% | 13.0% | 14.0% |
| Sales / avg assets | | 1.45 | 1.35 | 1.17 | 1.23 | 1.24 | 1.17 |
| EBT / EBIT | | 98.3% | 99.7% | 99.7% | 99.9% | 99.9% | 99.9% |
| Net income /EBT | | 78.4% | 64.7% | 80.8% | 75.0% | 78.1% | 79.6% |
| ROA | | 9.4% | 9.8% | 10.5% | 13.7% | 12.5% | 13.0% |
| Avg assets / avg equity | | 1.44 | 1.38 | 1.40 | 1.46 | 1.45 | 1.42 |
| ROE | | 13.5% | 13.5% | 14.6% | 19.9% | 18.2% | 18.5% |
| **3-stage** | | | | | | | |
| Net income / sales | | 6.5% | 7.2% | 8.9% | 11.1% | 10.1% | 11.1% |
| Sales / avg assets | | 1.45 | 1.35 | 1.17 | 1.23 | 1.24 | 1.17 |
| ROA | | 9.4% | 9.8% | 10.5% | 13.7% | 12.5% | 13.0% |
| Avg assets / avg equity | | 1.44 | 1.38 | 1.40 | 1.46 | 1.45 | 1.42 |
| ROE | | 13.5% | 13.5% | 14.6% | 19.9% | 18.2% | 18.5% |
| Payout Ratio | | 3.9% | 3.4% | 3.3% | 2.5% | 0.3% | 0.4% |
| Retention Ratio | | 96.1% | 96.6% | 96.7% | 97.5% | 99.7% | 99.6% |
| Sustainable Growth Rate | | 12.9% | 13.0% | 14.2% | 19.4% | 18.1% | 18.4% |

# Appendix 7: 3 Stage DCF Model

| | | First Stage | | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year ending January | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | | *30.6%* | *20.0%* | *10.5%* | *15.0%* | *28.0%* | *20.0%* | *18.0%* | *30.0%* |
| *NOPAT / S* | | *10.9%* | *9.9%* | *10.9%* | *8.0%* | *10.0%* | *9.0%* | *7.0%* | *6.0%* |
| *S / NWC* | | *4.24* | *4.76* | *4.76* | *14.00* | *14.00* | *14.00* | *14.00* | *14.00* |
| *S / NFA (EOY)* | | *4.11* | *4.20* | *4.40* | *4.40* | *4.40* | *4.40* | *4.40* | *4.40* |
| *S / IC (EOY)* | | *2.09* | *2.23* | *2.29* | *3.35* | *3.35* | *3.35* | *3.35* | *3.35* |
| *ROIC (EOY)* | | *22.7%* | *22.0%* | *25.0%* | *26.8%* | *33.5%* | *30.1%* | *23.4%* | *20.1%* |
| *ROIC (BOY)* | | | *24.7%* | *26.9%* | *21.0%* | *42.9%* | *36.2%* | *27.7%* | *26.1%* |
| *Share Growth* | | *-11.3%* | *-0.3%* | *-0.3%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $575,336 | $751,651 | $901,981 | $996,689 | $1,146,193 | $1,467,127 | $1,760,552 | $2,077,451 | $2,700,687 |
| NOPAT | $48,639 | $81,703 | $89,116 | $108,838 | $91,695 | $146,713 | $158,450 | $145,422 | $162,041 |
| *Growth* | | *68.0%* | *9.1%* | *22.1%* | *-15.8%* | *60.0%* | *8.0%* | *-8.2%* | *11.4%* |
| - Change in NWC | | 56244 | 12361 | 19892 | -127464 | 22924 | 20959 | 22636 | 44517 |
| *NWC EOY* | *120838* | *177082* | *189443* | *209335* | *81871* | *104795* | *125754* | *148389* | *192906* |
| *Growth NWC* | | *46.5%* | *7.0%* | *10.5%* | *-60.9%* | *28.0%* | *20.0%* | *18.0%* | *30.0%* |
| - Chg NFA | | 25535 | 31734 | 11763 | 33978 | 72940 | 66688 | 72023 | 141644 |
| *NFA EOY* | *157,488* | *183,023* | *214,757* | *226,520* | *260,498* | *333,438* | *400,125* | *472,148* | *613,792* |
| *Growth NFA* | | *16.2%* | *17.3%* | *5.5%* | *15.0%* | *28.0%* | *20.0%* | *18.0%* | *30.0%* |
| Total inv in op cap | | 81779 | 44096 | 31654 | -93486 | 95863 | 87647 | 94658 | 186161 |
| Total net op cap | | 360105 | 404201 | 435855 | 342369 | 438233 | 525879 | 620537 | 806699 |
| FCFF | | ($76) | $45,020 | $77,184 | $185,181 | $50,849 | $70,803 | $50,763 | ($24,120) |
| *% of sales* | | *0.0%* | *5.0%* | *7.7%* | *16.2%* | *3.5%* | *4.0%* | *2.4%* | *-0.9%* |
| *Growth* | | | *-59696.1%* | *71.4%* | *139.9%* | *-72.5%* | *39.2%* | *-28.3%* | *-147.5%* |
| - Interest (1-tax rate) | | 106 | 128 | 143 | 164 | 210 | 252 | 297 | 386 |
| *Growth* | | *-18.8%* | *20.1%* | *11.6%* | *15.0%* | *28.0%* | *20.0%* | *18.0%* | *30.0%* |
| FCFE w/o debt | | ($182) | $44,892 | $77,041 | $185,017 | $50,639 | $70,551 | $50,466 | ($24,506) |
| *% of sales* | | *0.0%* | *5.0%* | *7.7%* | *16.1%* | *3.5%* | *4.0%* | *2.4%* | *-0.9%* |
| *Growth* | | | *-24766.0%* | *71.6%* | *140.2%* | *-72.6%* | *39.3%* | *-28.5%* | *-148.6%* |
| / No Shares | 9994.0 | 8864.0 | 8834.0 | 8804.0 | 8,804.0 | 8,804.0 | 8,804.0 | 8,804.0 | 8,804.0 |
| FCFE | | ($0.02) | $5.08 | $8.75 | $21.02 | $5.75 | $8.01 | $5.73 | ($2.78) |
| *Growth* | | | *-24849.8%* | *72.2%* | *140.2%* | *-72.6%* | *39.3%* | *-28.5%* | *-148.6%* |
| * Discount factor | | | 0.92 | 0.84 | 0.77 | 0.70 | 0.64 | 0.59 | 0.54 |
| Discounted FCFE | | | $4.65 | $7.34 | $16.14 | $4.05 | $5.16 | $3.38 | ($1.50) |
| **Terminal value P/E** | | | | | | | | | |
| Net income | | $83,381 | $91,488 | $110,896 | $91,531 | $146,503 | $158,198 | $145,124 | $161,655 |
| *% of sales* | | *11.1%* | *10.1%* | *11.1%* | *8.0%* | *10.0%* | *9.0%* | *7.0%* | *6.0%* |
| EPS | | $9.41 | $10.36 | $12.60 | $10.40 | $16.64 | $17.97 | $16.48 | $18.36 |
| *Growth* | | *82.9%* | *10.1%* | *21.6%* | *-17.5%* | *60.1%* | *8.0%* | *-8.3%* | *11.4%* |
| Terminal P/E | | | | | | | | | 10.00 |
| * Terminal EPS | | | | | | | | | $18.36 |
| Terminal value | | | | | | | | | $183.62 |
| * Discount factor | | | | | | | | | 0.54 |
| Discounted terminal value | | | | | | | | | $99.23 |

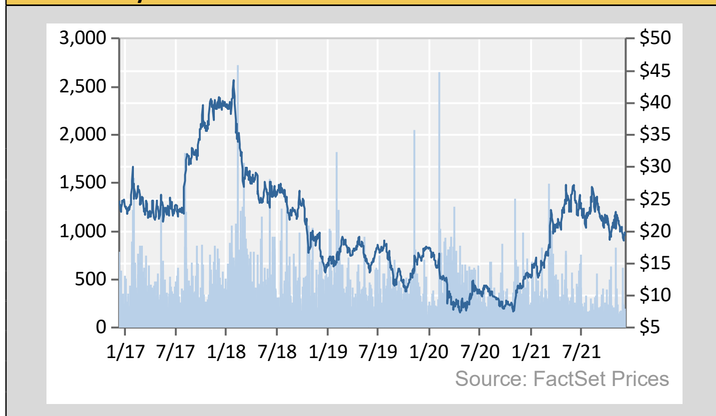
| | | |
|---|---|---|
| First stage | $11.99 | Present value of first 2 year cash flow |
| Second stage | $27.23 | Present value of year 3-7 cash flow |
| Third stage | $99.23 | Present value of terminal value P/E |
| Value (P/E) | **$138.45** | |

| Recommendation: Hold | | | | |
|---|---|---|---|---|
| Current Price | **$19.57** | --- | Ticker | MTW |
| 1 Year Bear | $16 | *-17%* | Sh. Out. (M) | 710.5 |
| 1 Year Base | **$21** | ***5%*** | M.Cap. ($M) | 685.8 |
| 1 Year Bull | $24 | *21%* | EV ($M) | 987.3 |

Industrial, Crane Construction

# Manitowoc Company, Inc.

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | -21% | 22% | 21% | 55% | 47% | -11% | -11% |

## Summary

I recommend a neutral rating with a target of $21. MTW's recent aqusitions mean the firm has potential to stabelize revenues and increase margins. Competiton is harsh and MTW has low market share. The firm earns over half its revenues from international business which provides opportunity if the us slows (the US is ahead of others' post pandemic recovery). The stock is slightly undervalued based on relative and DCF analysis.

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($B) | **1.58** | **1.85** | **1.83** | **1.44** | **1.70** | **1.97** | **2.08** |
| *Gr. %* | 16.8% | 27.9% | -0.7% | *-21.3%* | 18.0% | 15.5% | 5.5% |
| *v. Cons.* | - | - | - | - | - | 12.9% | 2.3% |
| *Industry* | -5.2% | 10.9% | 8.3% | -13.6% | 22.8% | 4.7% | 3.8% |
| **EPS** | **$0.27** | **-$1.89** | **$1.31** | **-$0.55** | **$0.44** | **$1.27** | **$1.99** |
| *Gr. %* | 103% | -806% | -169% | -142% | -181% | 189% | 56.8% |
| *v. Cons.* | - | - | - | - | - | -9.7% | 6.5% |
| *Industry* | -1.6% | 24.2% | 8.6% | -15.3% | 46.5% | 160.4% | 48.6% |

## Key Drivers

- International Business: Since the firm earns a large portion of its revenues from overseas its performance is linked to that of international economies. While it presents opportunities, this opens Manitowoc up to foreign exchange risks, political risks, and regulatory risks.
- Macroeconomic trends: MTW's performance has historically hinged on the performance of the economy from a macro standpoint. With a beta of 2.4, the firm is very cyclical. Recent acquisitions may improve this, but that has yet to be proven.
- Competition: Crane producers compete strongly for market share. Product differentiation is important so a firm must focus on technology and R&D investment.
- Cost of Raw Materials: Raw materials are the main input of MTW's production. Supply Chain issues have delayed deliveries that were ordered on lower cost estimates that have run up.

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **0.6%** | **-3.6%** | **2.5%** | **-1.3%** | **0.9%** | **18.0%** | **19.0%** |
| *hIndustry* | 4.3% | 2.8% | 3.2% | 0.7% | 2.6% | | |
| **ROE** | -1.4% | 3.6% | 10.8% | -1.9% | 7.6% | 5.5% | 8.1% |
| *Industry* | 7.1% | 9.3% | 11.0% | 4.3% | 15% | | |
| **ROA** | 0.6% | -4.3% | 2.9% | -1.2% | 0.9% | 2.3% | 3.7% |
| *Industry* | 3.9% | 2.6% | 3.6% | 0.7% | 0.3% | | |
| **A T/O** | 0.98 | 1.20 | 1.13 | 0.90 | 0.97 | 1.07 | 1.15 |
| **A/E** | 2.37 | 2.46 | 2.53 | 2.50 | 2.49 | 2.36 | 2.16 |

## Valuation

Using a relative valuation approach, Manitowoc is slightly overvalued in comparison to its competition. DCF analysis indicates that the stock is worth $21. A combination of the approaches suggests that Manitowoc is slightly undervalued. The stock's value is $21, and the shares are currently trading at $19.57.

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 150.0 | 30.58 | 9.26 | -37.80 | 28.36 | 13.88 | 10.47 |
| *Industry* | 14.48 | 20.28 | 12.80 | 53.64 | 14.27 | 11.01 | 10.21 |
| P/S | 0.43 | 0.37 | 0.37 | 0.76 | 0.48 | | |
| P/B | 1.04 | 1.16 | 1.07 | 2.81 | 1.06 | | |
| P/CF | 16.68 | 0.00 | 26.61 | 6.24 | 11.51 | | |
| EV/EBITDA | 776.9 | 5.6 | 7.37 | 14.03 | 14.88 | | |
| D/P | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | | |

## Risks

- Inability to appropriately integrate acquired firms
- Exposure to foreign exchange and international factors
- Raw material prices and supply

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## Company Overview

The growth of MTW's aftermarket parts and other sector shows a bright future for the company. This sector grew by 12.7% in 2020.

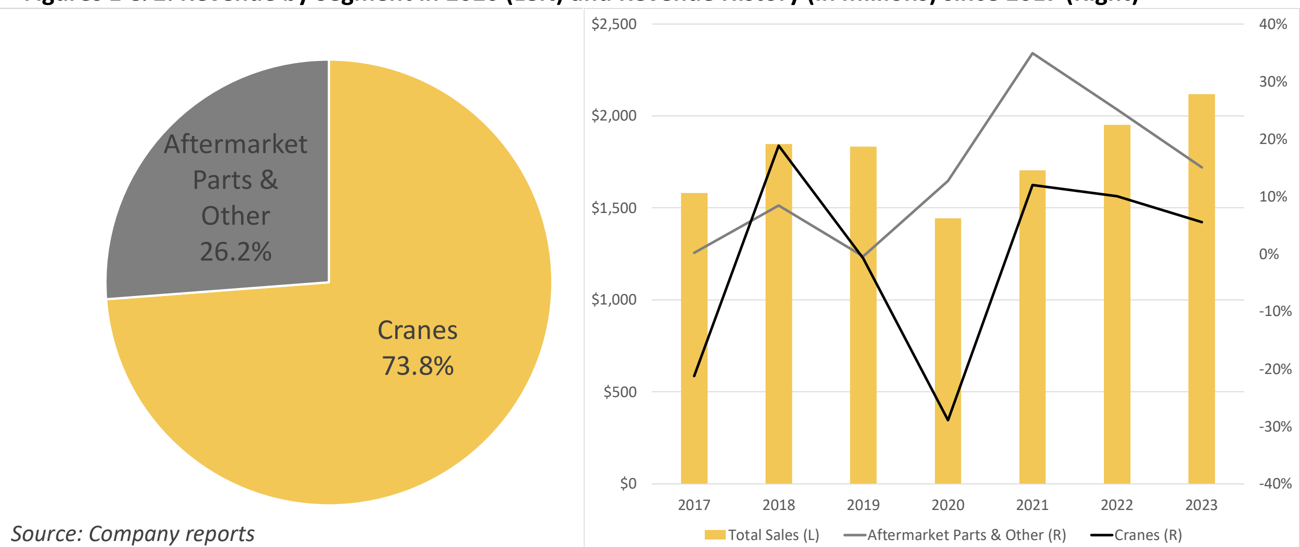
Manitowoc Company, MTW, was founded in 1902 in Manitowoc Wisconsin. MTW provides engineered lifting solutions and cranes internationally through its proprietary design, manufacturing, and distributions. MTW also supports its customers by offering parts, services, crane rebuilding and remanufacturing, training, and fleet rental. Manitowoc competes in an extremely competitive market and can be highly affected by what the competition does. Manitowoc has facilities in the US, Germany, Italy, France, Portugal, and China. These strategic manufacturing, warehouse, and office facilities allow Manitowoc to sell in the Middle East, Europe, Africa, the Americas, and Asia. MTW employs approximately 4,200 people globally and of that about 1,200 of those employees are in the US. Manitowoc is currently headquartered in Milwaukee, Wisconsin.

Manitowoc Company generates 73.8% of its revenue from the sale of cranes. The remaining 26.2% is attributed to aftermarket parts sales and other services Manitowoc provides. MTW has five main brands under which it does business. Grove, National Crane, and Shuttlelift all mainly sell mobile hydraulic cranes. Manitowoc sells crawler-mounted lattice boom cranes, and Potain sells top-slewing and self-erect tower cranes. Cranes have been the main revenue generator for MTW historically. But some recent acquisitions and increased percentage of sales attributed to the aftermarket parts and other segment shows this may be a fading trend.

MTW has one acquisition pending and another announced this year. These acquisitions offer a strategic advantage to the aftermarket parts and other sector specifically in the United States. H&E Equipment Services, Inc. specializes in rental equipment. It is believed this acquisition will help stabilize the business cycles currently associated with the revenue streams from the sale of cranes. MTW also recently announced acquisition of Aspen Equipment, Co. a crane distributor and work truck upfitter. Like H&E, I believe the acquisition will stabilize revenue streams.

Manitowoc Company is an international company. The Americas account for 43.4% of its revenue. In Europe, the company earns 40.6% of its revenue. Asian markets are the third most lucrative for MTW with 11.3% of revenue earned in this region. Africa and the Middle East combined account for only 4.7%. MTW has a wide variety of customers including end users, governments, distributors, and returning end users. The growth rate of crane sales was negative in 2019 and 2020. This was due to a slight decrease in sales in 2019 and a sharp decline in sales in 2020 due to the pandemic. Since 2020 growth in sales has been rising. This rise in growth is fueled by the increases in both aftermarkets and new crane sales. In 2021 a 30% growth rate is expected in aftermarkets with an over 10% growth rate in new crane sales.

**Figures 1 & 2: Revenue by Segment in 2020 (Left) and Revenue History (in millions) since 2017 (Right)**




*Source: Company reports*

## Business/Industry Drivers

Though many factors will contribute to Manitowoc Company's future success, the following are the most important business drivers:

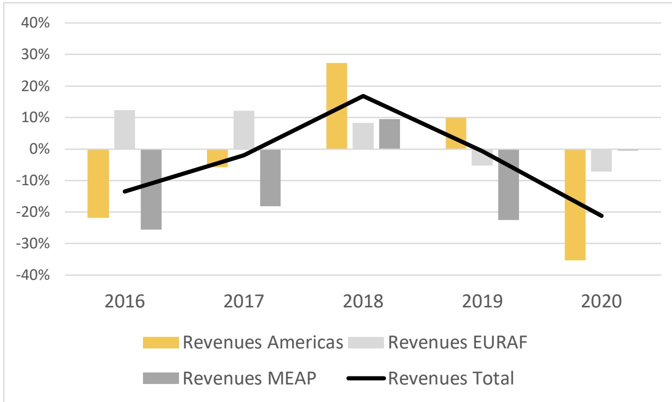
1) International business
2) Macroeconomic trends
3) Competition
4) Cost of raw materials

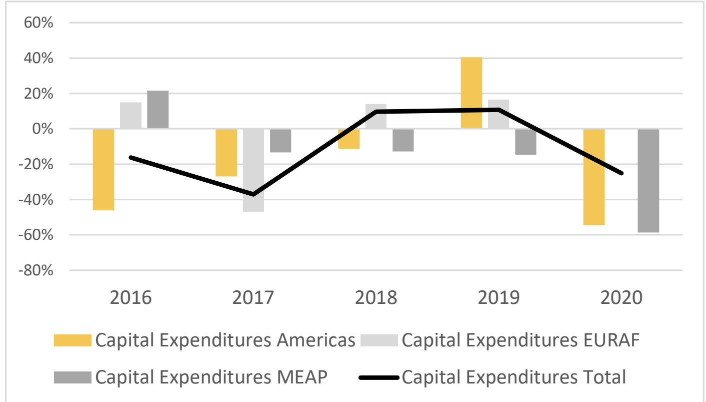
The EURAF (Europe and Africa) represents 51.48% of MTW's net sales in 2020

International Business

MTW derives a significant amount of its revenue from its international business. This trend will continue as emerging markets continue to grow and develop. Figure 3 shows how EURAF (Europe and Africa) has grown faster and been more stable than other regions. Net sales for the EURAF have increased from 26.7% overall in 2015 to 51.5% overall in 2020. Given Manitowoc's significant international operations, the firm is subject to risks including, but not limited to, tariffs, currency risks, and geopolitical tensions.

**Figures 3 & 4: YoY Revenues by Region (Left) YoY CapEx by Region (Right)**




*Source: Company reports*

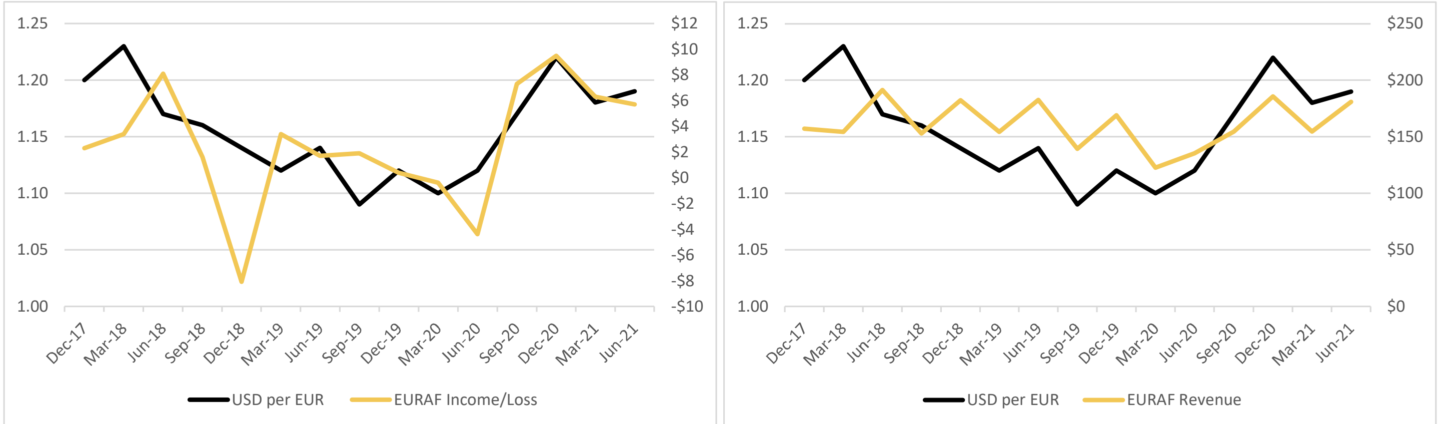
The firm is committed to growing its international business and will try to do so by expanding its rental fleet in Europe and its tower cranes in China

Growth in the EURAF has been the highest of the three regions in three of the five last five years with only a 7.2% decrease in 2020 compared to the 35.4% decrease in America. The 7.2% decrease may also be helped by favorable exchange rates in the EU market. Conversely, the steep decrease in 2019 was due, in part, to unfavorable exchange rates. MTW has only one manufacturing facility and one office facility in the US. Comparatively, they have six offices, five manufacturing facilities, and one warehouse in the EURAF region. The success of MTW's international business depends on currency exchange rates, infrastructure bills in various countries, MTW's ability to handle tariffs particularly on steel and aluminum, geopolitical risks, and strategic initiatives.

MTW has four strategic initiatives. The first two both relate to its international business. The first is to expand its rental fleet of tower cranes in Europe. The company is attracted to this market because the margins are much higher than the traditional crane sales business. The second initiative is to grow the tower crane market in China. The MEAP zone is a small portion of the company's current net sales, so if this initiative succeeds net sales should increase dramatically. The company believes it can grow its MEAP zone for two main reasons, one is its brand Potain is well-known to Chinese consumers as it has been in the country since the 1980's. Secondly, MTW has recently been redeveloping product lines to cater to Chinese consumers by creating a local team in China. This will help the company become more competitive on both its price and product offerings to its Chinese consumers.

The impact of exchange rates is charted below. The lowest recent exchange rate was a little less than 1.1 USD for each Euro in mid-2019. As the dollar appreciates MTW's revenue and earnings fall. Exchange timing and general operational practices can mitigate these swings in currency prices to some extent.

**Figures 5 & 6: Dollars per Euro & EURAF Income/Loss in Millions (Left) Dollars per Euro & EURAF Revenue in Millions (Right)**



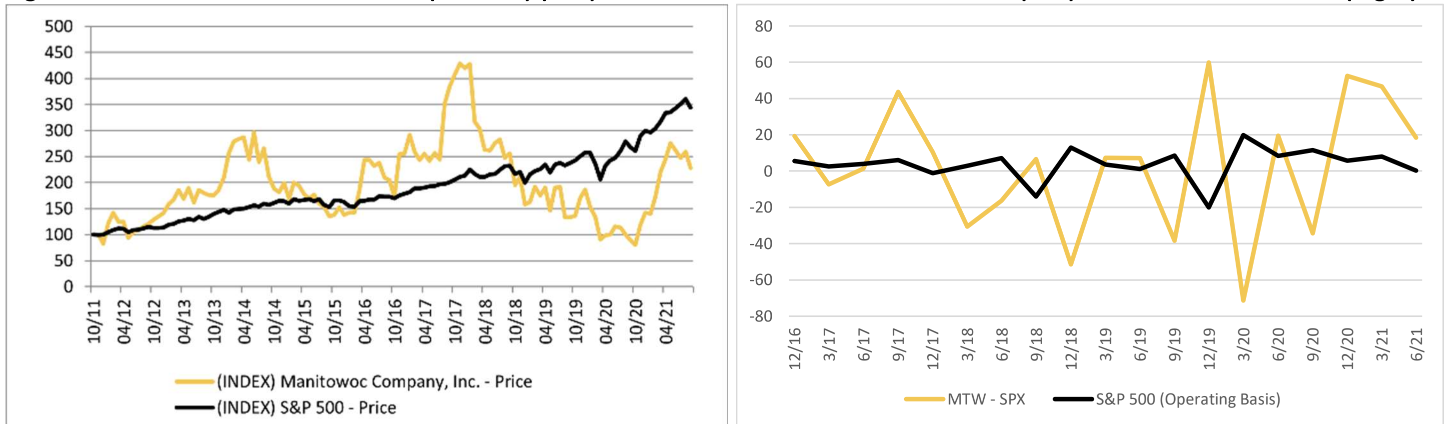

*Source: FactSet*

The exchange rate of US Dollar per Euro is a key metric to MTW's performance

<u>Macroeconomic trends</u>

Manitowoc is a highly cyclical firm. Figures 5 and 6 show that the stock is much more volatile than the market. Its beta is 2.4. While the relationship between US Dollar per Euro suggest currency is very important, a strong currency could also reflect strength in the European economy which would also positively impact Manitowoc. Looking at the last two quarters, the market has rebounded, and MTW has grown at nearly twice its rate.

**Figures 7 & 8: MTW Price vs SPX Price (Indexed) (Left) MTW Returns Relative to the Market (SPX) Returns vs SPX Returns (Right)**

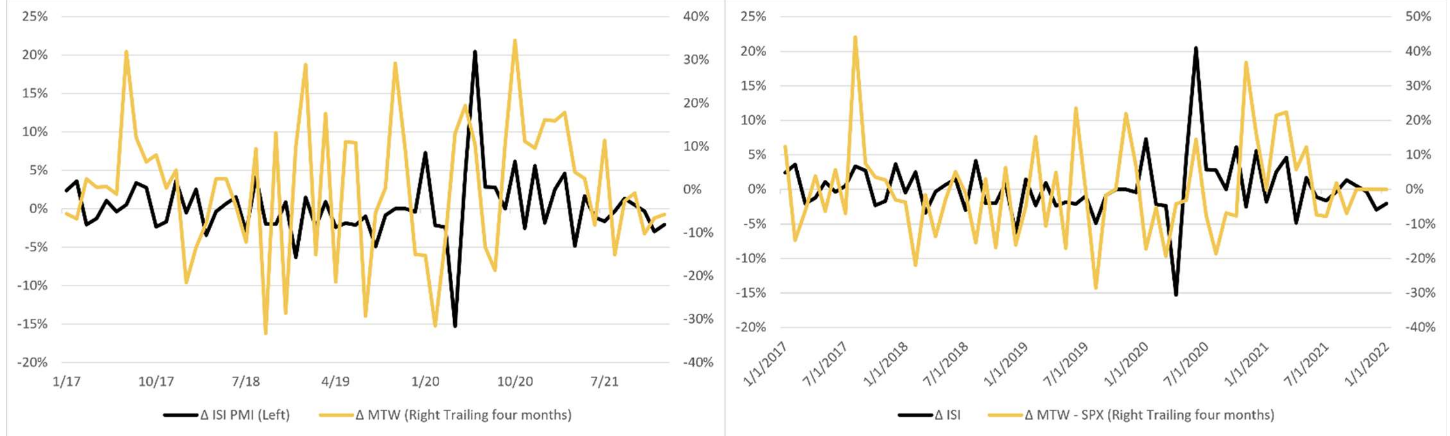



*Source: Company reports*

As an industrial manufacturer MTW is highly cyclical its beta is 2.4

The beta of 2.4 is unsurprising given the fact that MTW is an industrial manufacturer and depends on economic expansion to make sales. The common consensus is that the market will continue to grow, and we have not yet reached the peak of this business cycle. This should drive sales up and help mitigate some of the issues created by raw material pricing pressures. Conversely, if rising yields and the end of the quantitative easing slows the economy then MTW will be in trouble. We cannot downplay the relationship MTW has with the EU; the American business cycle correlates with MTW's performance, but Europe's does as well.

**Figures 9 & 10: Δ ISI PMI vs MTW Trailing four months (Left) Δ ISI PMI vs MTW Relative to SPX Trailing four months (Right)**




*Source: FactSet*

As the world economy continues to expand, so will MTW's sales due to its cyclical nature

MTW's competitive advantage is its deep breadth of cranes which accommodates consumers in all areas

Government spending in Asia, Europe, and the Americas is expected to increase, which should boost the firm's sales

Government spending is another key contributor of MTW's performance. Governments in Europe, China, and America plan to improve infrastructure. One of MTW's key customers is government agencies. But exactly what type of infrastructure spending will specifically call for Manitowoc's industrial machinery? MTW targets two key parts of government spending: infrastructure (like roads) and utilities. MTW has three brands which operate in these segments: Grove, National Crane, and the firm's Manitowoc brand. The America infrastructure bill focuses on going green and revitalizing the power grid. Manitowoc and Grove, which specialize in utilities and infrastructure, will benefit as of the 550 billion in new spending the bill requests 160 billion of it for roads alone. National Crane operates in many segments and will also benefit from government spending. The MEAP sector should continue to grow as Asian markets continue to expand faster than developed economies. China, the largest growing economy in the world, is responsible for most of the expected growth in Asian markets and has historically spent a lot to subsidize it businesses. China also recently passed a large infrastructure bill. This is great for MTW as it is working to improve market share specifically in China. Lastly, the Council of the European Union recently announced a massive infrastructure plan. All this proposed spending translates to increased revenues for MTW.

An improving economy will also benefit private industry and Manitowoc brands Potain, Shuttlelfit, and National Crane predominately. Private sector mainly includes, petroleum and natural gas energy, residential and commercial building, telecommunications, and the industrial manufacturing sector. While Potain focuses mainly on commercial construction, National Crane operates in all sectors. Given that the worldwide economy is positioned to continue expanding, MTW is also positioned to do the same.

## Competition

MTW has many competitors. The most notable are Konecranes, Hitachi, Ferreycorp, Terex, and Tadano. MTW has a distinct advantage over all of its competition, being that it operates in all segments of the crane market. MTW's products are lattice-boom crawlers, all-terrain cranes, carrydeck cranes, rough-terrain cranes, telescoping crawlers, truck mounted cranes, self-erecting cranes, top-slewing cranes, stand-up boom trucks, and swing seat boom trucks.

MTW recently expanded its operations by acquiring H&E's crane business and Aspen Equipment Company. At a price of 130 million the acquisition of H&E will represent about 9% of the firm's sales in 2020. H&E offers a unique advantage to the firm's growing aftermarket parts, services, and rental fleet industries. H&E conducts its business in the US and will help grow the Americas segment's revenues and the aftermarket parts and other segment's revenue. Adding aftermarket parts is crucial as many customers shop looking for not only product design but also a firm's ability to provide aftermarket parts and support for a said product. The second acquisition, Aspen, also expands MTW's aftermarket parts category in the US. The acquisition of Aspen should about 51 million which would represent about 3.5% of the firm's sales in 2020. The key advantage of Aspen is its upfitting business. Management believes it will

improve the boom truck business, under its National Crane brand. This should produce a sustained advantage for telecommunications and utility customers.

CEO Aaron Ravenscroft voiced concerns during a recent call with investors about:

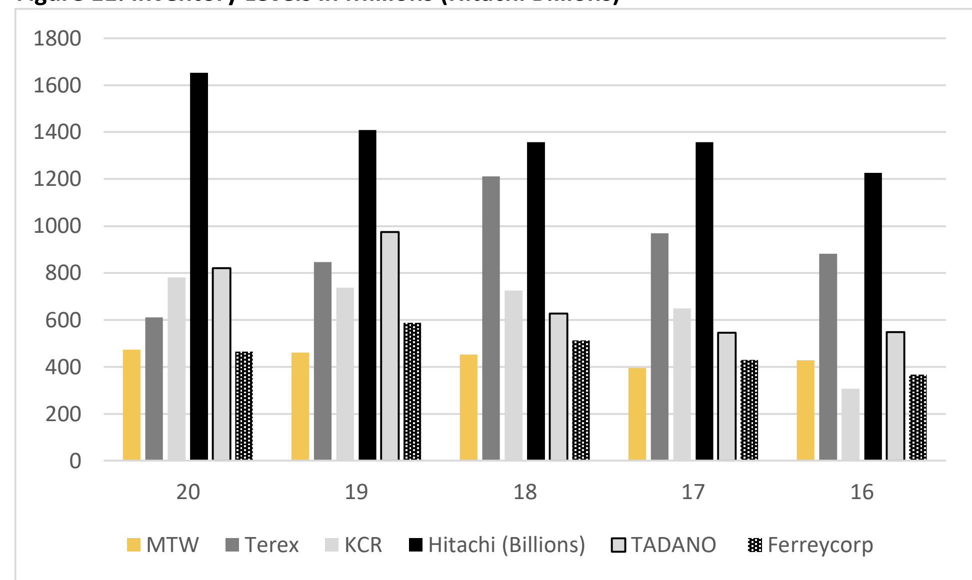
- Backorders - The concern about backorders is the way the industry writes contracts. He explained the large number of backorders that are accumulating due to supply issues, which are all generally priced out. This may become an issue as steel prices have risen and some believe will continue to rise.

- Inventory levels - Manitowoc's competition has more inventory than the firm. This plays into the backorders issue. When a conglomerate like Hitachi has backorders, it can more easily stock extra raw material. Conversely, Manitowoc just doesn't have the purchasing power or inventory infrastructure to handle the same amount of raw materials. The only listed competitor with less inventory is Ferreycorp, but it only accounts for 3.4% of total sales in the industry of consisting listed competitors. As a percent of sales, MTW has 31% inventory compared to the competition's average of 36% inventory and Ferreycorp's 34%. Ferreycorp also appears to have JIT inventory methods in place, as the last five years they have had no more than $9.9 million in raw materials and had an average of only $4.2 million in raw materials inventory. Not including Ferreycorp, MTW only has 47% of the inventory of its competition. ThE backorder issue exacerbates the issue of raw material prices which is discussed later.

With raw steel prices rising high and a large backorder, lower inventory levels compared to its competition puts MTW at a large disadvantage

- Technology - The last concern Mr. Ravenscroft expressed is becoming technologically obsolete. He explained that MTW's competition is larger than its operations. If they develop new technology that make MTW's current, or developing, technology obsolete then the firm will be in danger. This issue is made worse, according to Ravenscroft, by hiring and retaining talent. This risk is also noted in the company's 10K. Ravenscroft explained that developing technology to keep up with the competition has always been an issue, but with such a chaotic labor market this risk has intensified.

**Figure 11: Inventory Levels in Millions (Hitachi Billions)**



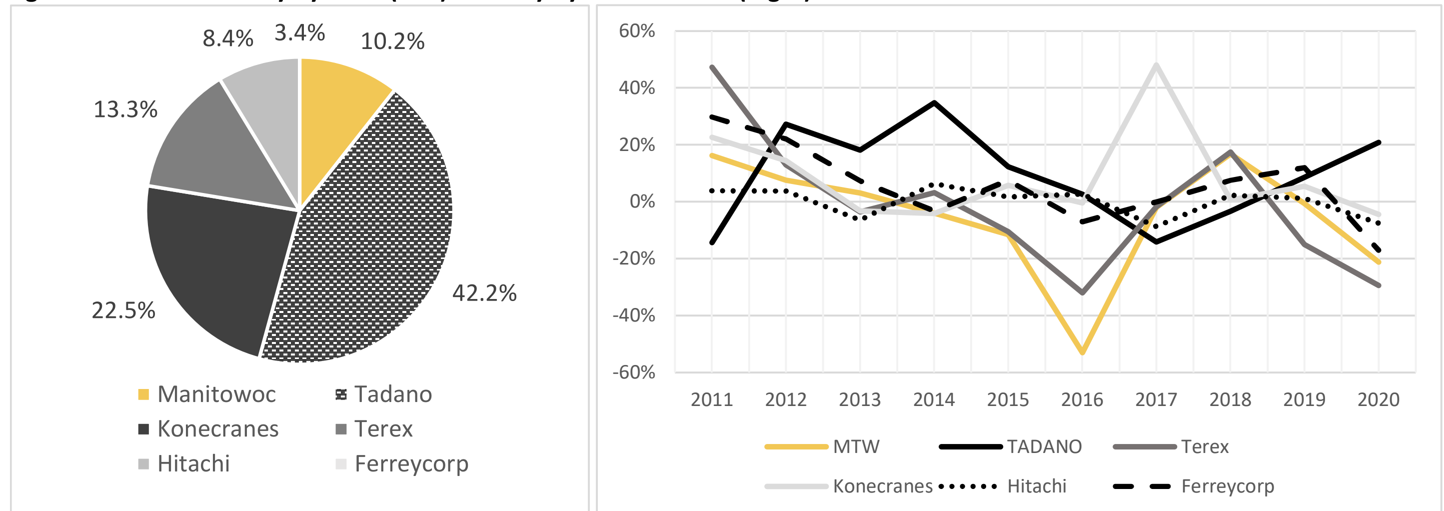

*Source: FactSet*

Sales growth for MTW has been rather typical of that of the industry, excluding its split of the foodservice business in 2015

Manitowoc only accounts for 10.2% of sales in its sector. This is both a good and bad thing. First, a larger portion of market share may lead to economies of scale; however, a lower market share offers the company room to grow. MTW has less than 1/4th of Tadano's 42.2% market share. MTW's growth in aftermarket parts will boost share and margins as margins are much more attractive in this segment.

MTW has recently grown sales faster than its competition. The huge loss in sales in 2015-2016 was due to a split of the business. In 2015, MTW's foodservice business was separated from its crane business causing what appears to be a huge loss in sales at this time, but that is misleading. From 2016 to 2018, MTW was growing at a considerable rate outpacing all its competition besides Konecranes. In 2020, Tadano has been leading the pack. Tadano is the only firm to sustain growth in 2020 as others sales declined. This can mainly be attributed to Tadano's presence in Asian markets. With China being the fastest growing market, this has undoubtedly driven much, if not all, of Tadano's success. Ravenscroft talks about MTW's interest in expanding activities in China and is hopeful that the changes in how MTW operates in China, discussed above, and Potain's notoriety in the region will be the key drivers to this expansion. MTW seems to be more cyclical than its competition. Remember, 51.5% of sales are in Europe and Africa, and Europe has more industrial exposure which may lead to extra cyclicality. Growing in China may mute this firm's economic volatility.

**Figures 12 & 13: Industry by Sales (Left) Industry by Sales Growth (Right)**




*Source: Company Reports*

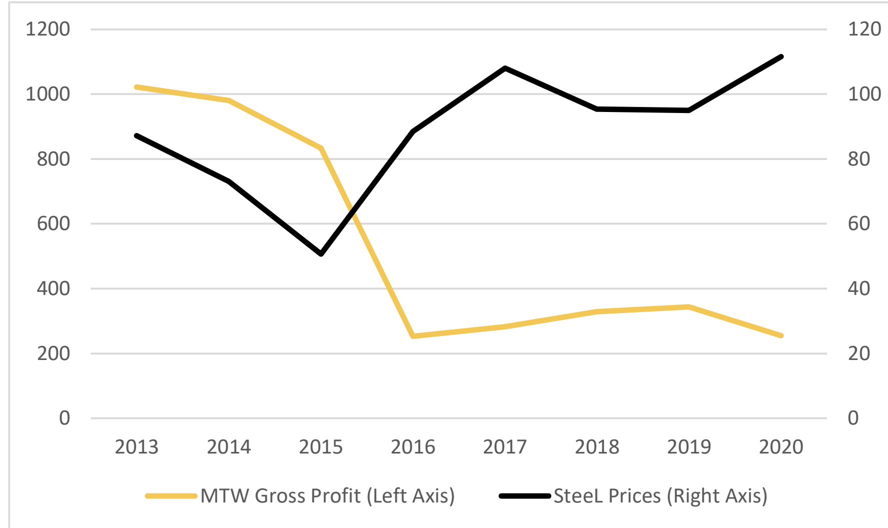
Cost of Raw Material and Labor

Gross profit for the firm seems to be indirectly linked to steel prices, unsurprisingly as it is the main input in crane construction

Manufacturing cranes uses a large amount of steel. Cranes, depending on the model and configuration, are designed to lift 6 - 60+ tons. Conversely the cranes themselves generally weigh close to their max lifting capacity. This means MTW's margins are closely related to the price of raw steel. The chart below shows MTW's gross profit margin in comparison to the price of steel over the last seven years. In the last year, steel prices have skyrocketed, due to shortage issues associated with Covid-19. According to the Federal Reserve Economic Division's PPI for cold rolled steel and strips, August 2021 steel prices were nearly three times the price of January 2021's prices. In 2015, steel prices started to rise and MTW's gross profit fell the next year. Then most recently increases in steel prices for 2020 seem to be a direct inverse correlated to MTW's gross profit.

Steel prices are inversely related to MTW's performance. If steel prices continue to rise MTW will suffer

**Figure 14: MTW Gross Profit vs Steel Prices**




*Source: Company Reports, IMCP*

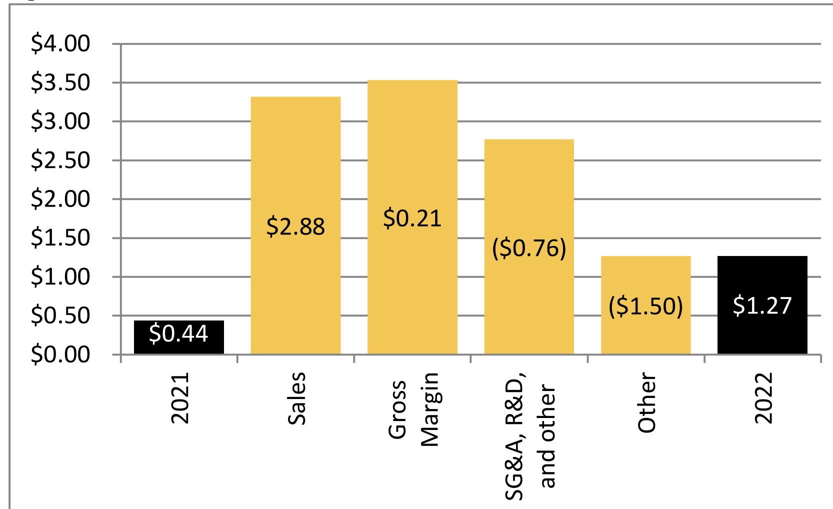
Investors should be cautious. Earnings will be directly affected by steel prices. CEO Ravenscroft, as mentioned above, noted that inventory levels and contract writing puts MTW at a distinct disadvantage. Without the ability to shift this cost onto the consumer, nor the ability to hold higher inventory levels to mitigate these price changes, this leaves MTW very susceptible to steel price increases. Currently, prices are being driven by higher demand. According to the American Iron and Steel Institute in August of 2021, the capacity utilization rate of raw steel was 84.8%, up 18.9% from 65.9% in the same month of last year. If the world continues to rise post Covid, expect this demand to stay high relative to its supply. Further, with the US's proposed infrastructure bill, China's large growth and infrastructure bill, and with the Council of the European Union recently agreeing on an infrastructure plan, there is reason to believe that demand may soon be even higher, relative to supply, than it is currently. Of course, MTW can offset this by pricing its product higher.

## Financial Analysis

I anticipate EPS to grow to $1.27 in 2022 from $0.44 in 2021. Manitowoc will gain $2.88 of earnings from sales increase mostly due to the rise in aftermarket parts and other sales. The increase in gross margin, for the same reason, will earn a further $0.21. SG&A and R&D will rise as a percentage of sales lowering earnings by $0.76 because of the work being done in developing markets. Lastly other income will decrease the EPS by $1.50. This is fueled by unfavorable currency rates and settling debts. My expectation of future earnings for 2022 is very similar to that of consensus.

I expect EPS to rise to $1.27 in 2022, fueled mainly by sales. In 2023 I expect EPS to increase to $1.99, fueled mainly by gross margins

**Figure 15: Quantification of 2021 EPS drivers**

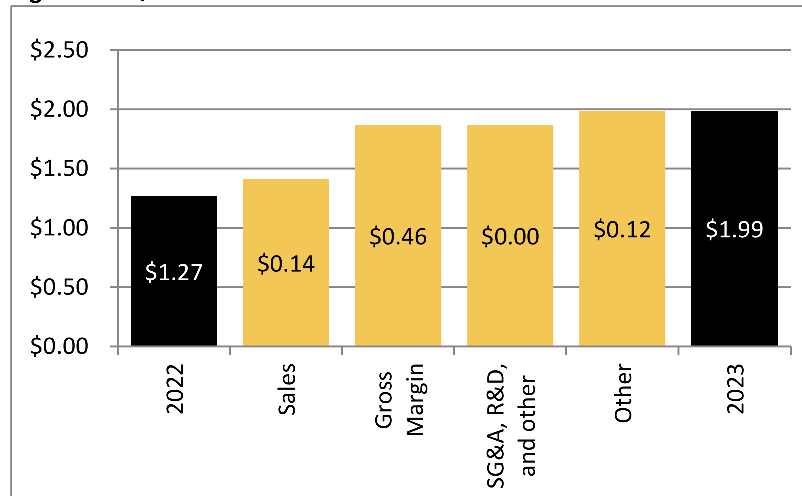



*Source: Company Reports, IMCP*

I expect 2023 EPS to increase to $1.99. Sales will rise creating $0.14 of earnings. The gross margin will increase raising the EPS by $0.46. SG&A and R&D to sales will be immaterial in 2023. Gross margin and sales increases are due, again, from the increase in aftermarket part sales, and additionally, higher sales in emerging markets. Gross margins will be even higher in 2023 than in 2022 as sales from aftermarket parts is larger in '23 than '22. Other will add $0.12. This is due to favorable exchange rates. My expectations for 2023 is again close to that of consensus.

Consensus expects better margins than I do for Q4 2021, but our EPS outcomes for '22 and '23 are very similar

**Figure 16: Quantification of 2022 EPS drivers**




*Source: Company Reports, IMCP*

I am slightly more optimistic than consensus EPS estimates for 2023, but my estimate for 2021 is more pessimistic, making my EPS prediction for '21 and '22 lower. I expect growth to be higher in '22 and '23 than consensus does. My expectations are based on the R&D paying off in emerging markets and on aftermarket parts sales increases. Consensus expects better margins in '21Q4 than I do. This is surprising as most of the sales in Q4 are priced out already, and therefore, margins should be lower than the year.

**Figure 17: EPS and YoY Growth**

| | 2021 | 2022 | 2023 |
|---|---|---|---|
| Revenue - Estimates | $1,704 | $1,968 | $2,076 |
| YoY Growth | 18% | 16% | 5% |
| Revenue - Consensus | $1,738 | $2,027 | $2,142 |
| YoY Growth | 20% | 17% | 6% |
| EPS - Estimates | $0.44 | $1.27 | $1.99 |
| YoY Growth | 181% | 188% | 57% |
| EPS - Consensus | $0.51 | $1.32 | $1.95 |
| YoY Growth | 246% | 159% | 48% |

*Source: Factset, IMCP*

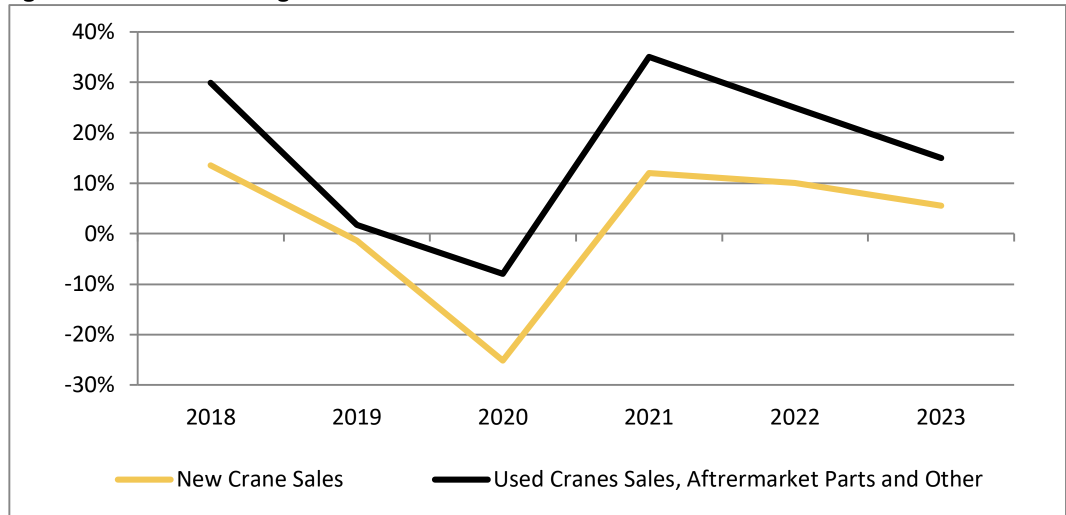
Revenues

Revenues have been rising in the last five years, excluding the effects of the pandemic. After splitting from the foodservice segment, MTW has increased revenue every year besides 2020. This trend should continue as the world economy continues growing. I estimate sales to grow 18% in 2021. That is slightly less than consensus's 21%. Aftermarket parts were 30% of total sales in 2020 compared to only 20% in 2017. The 2022 growth rate of revenue will be 16% fueled by a further increase in aftermarket parts. Growth rates in 2023 will stabilize as additional sales from newly acquired customers will stabilize and most of the additional growth will be from emerging markets.

Sales to current customers of H&E, Aspen, and new ones will drive up the 2022 growth rate of sales to higher rates than in the past. Emerging markets will be the predominant driver of the sales increase in 2023, but the growth rate of aftermarket parts will still be higher than that of new crane sales. This also means that in the future revenues will be less affected by business cycle swings as the aftermarket parts segment is more stable.

I expect sales to grow at 18% in 2021. That growth is fueled by an increase in sales in the aftermarket parts segment

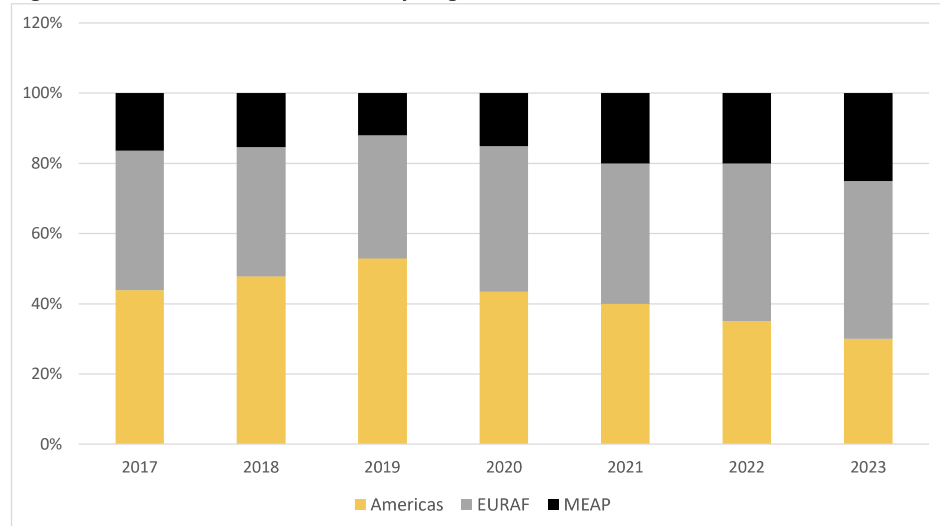
**Figure 18: Manitowoc Segment Revenues**




*Source: Company Reports, IMCP*

Revenues will slightly increase as a percentage of sales in the MEAP and in the EURAF even further. MEAP sales will be 5% higher because of the R&D work in the region. This is a slight increase, but in the future Asian markets will become an even larger portion of revenues. EURAF will continue to grow as it has been. In addition, having a larger footprint in the aftermarkets will boost sales in EURAF, particularly in rental fleets. Sales in America will decrease as a percentage of sales but will still generate low but stable growth.

**Figure 19: Revenues as % of Sales by Region**



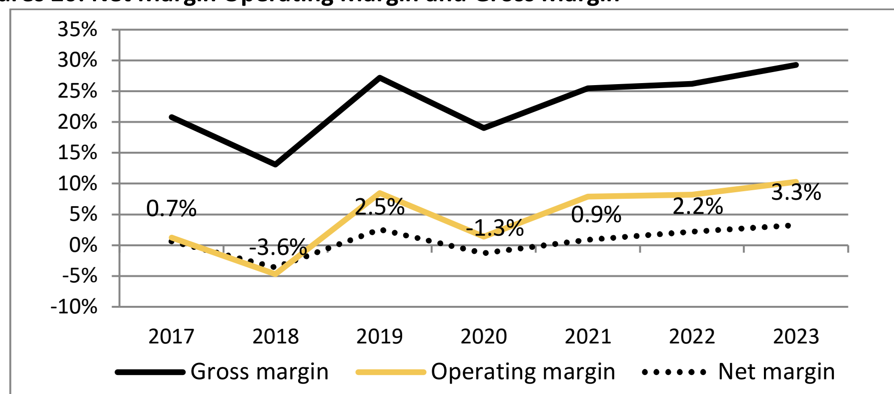

*Source: Company Reports*

Figure 20 shows the cost of sales is relatively high, but that is to be expected in a competitive industry

Operating Income and Margins

The operating expenses MTW incurs are the cost of packaging and freight, equipment rental, utilities, factory supplies, raw materials, deprecation, labor, and maintenance/repairs. SG&A and R&D expenses includes salaries, materials, and contractor fees. The cost of sales is relatively high as shown in figure 20, but that is to be expected in such a competitive and capital-intensive industry.

**Figures 20: Net Margin Operating Margin and Gross Margin**




*Source: Company Reports*

Margins are expected to increase through 2023+

Figure 20 illustrates how I expect net margin to rise from 1.3% in 2020 to 3.3% in 2023. Historically, MTW's net margin has fluctuated greatly due primarily to changes in the gross margin. Net margin is expected to rise through 2023 and beyond as gross margins grow. The increases and stability of margins is due to increases in aftermarket parts sales.

Return on Equity

The ROE shows MTW's cyclical nature. 2018 had a -10.5% ROE and the next year it was 7.5%, up 18%. Operating margins have swung widely. Looking forward, ROE is expected to rise to 8.1% in 2023 from 0.9% in 2021. ROA will increase because margins will improve with the new more stable revenues. the firm will be earning.

**Figure 21: ROE Breakdown,**

| 5-stage | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| EBIT / sales | -1.0% | 5.9% | 2.7% | 7.0% | 6.0% | 7.0% |
| Sales / avg assets | 1.17 | 1.16 | 0.90 | 0.97 | 1.07 | 1.15 |
| EBT / EBIT | 371.5% | 54.4% | -5.1% | 82.4% | 48.7% | 62.1% |
| Net income /EBT | 93.6% | 79.0% | 950.0% | 15.3% | 75.0% | 75.0% |
| ROA | -4.3% | 2.9% | -1.2% | 0.9% | 2.3% | 3.7% |
| Avg assets / avg equity | 2.46 | 2.53 | 2.50 | 2.49 | 2.36 | 2.16 |
| ROE | -10.5% | 7.5% | -2.9% | 2.1% | 5.5% | 8.1% |

*Source: IMCP*

Free Cash Flow

Expect 2021 FCFE to be negative due to the acquisitions completed this year

I predict 2021 FCF to the firm and equity will be negative because of the acquisitions. Moving forward, '22 and '23 FCF will grow and become positive. The NFA will remain relatively constant as will NWC.

**Figure 22: Free Cash Flow Calculations**

| Free Cash Flow | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| NOPAT | -$18 | $86 | $371 | $113 | $89 | $109 |
| *Growth* | *746.8%* | *-575.4%* | *332.7%* | *-69.4%* | *-21.8%* | *23.1%* |
| NWC* | 212 | 236 | 312 | 368 | 334 | 353 |
| Net fixed assets | 699 | 745 | 738 | 870 | 894 | 865 |
| Total net operating capital* | $911 | $981 | $1,050 | $1,239 | $1,229 | $1,218 |
| *Growth* | *-12.7%* | *7.7%* | *6.9%* | *18.0%* | *-0.8%* | *-0.9%* |
| - Change in NWC* | (23) | 24 | 76 | 56 | (34) | 18 |
| - Change in NFA | (110) | 46 | (8) | 133 | 24 | (29) |
| FCFF* | $114 | $16 | $302 | ($76) | $98 | $120 |
| *Growth* | | *-86.3%* | *1823.3%* | *-125.1%* | *-229.6%* | *22.0%* |
| - After-tax interest expense | 49 | 39 | 390 | 20 | 45 | 41 |
| FCFE** | $65 | ($23) | ($87) | ($96) | $53 | $79 |
| *Growth* | | *-135.6%* | *274.2%* | *9.9%* | *-169.8%* | *48.6%* |
| *FCFF per share* | $3.22 | $0.44 | $8.71 | ($2.23) | $2.89 | $3.53 |
| Growth | | -86.3% | 1867.7% | -125.6% | -229.6% | 22.0% |
| FCFE per share | $1.85 | ($0.66) | ($2.51) | ($2.82) | $1.56 | $2.31 |
| Growth | | -135.6% | 282.9% | 12.2% | -169.8% | 48.6% |

*Source: IMCP*

## Valuation

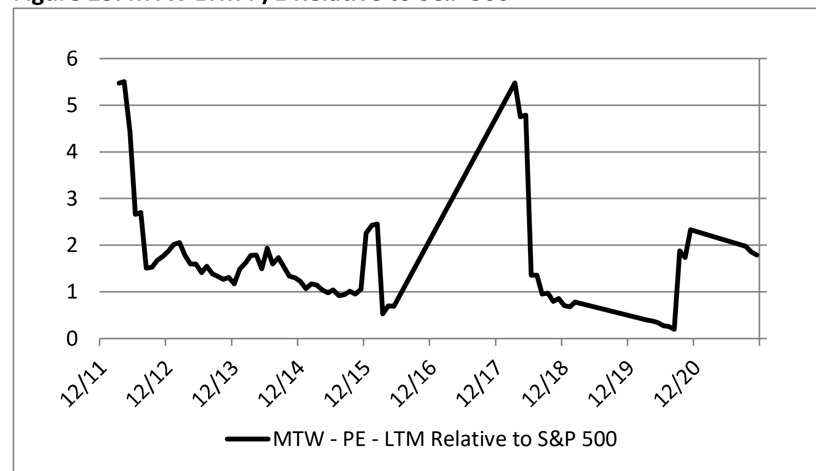
The DCF analysis values MTW at 20.52 a share, I value the stock at $21.00

I valued MTW using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the firm is overvalued relative to other firms in the industry and is worth $18. However, compared to its industry, MTW has a very high P/E. Relative valuation shows MTW to be valued fairly based on fundamentals in comparison to its industry. A detailed DCF analysis values Manitowoc at $20.52. This valuation is most accurate because it incorporates the effects the acquisition will have on the future and basis its terminal value on normalized earnings. My overall estimate is the stock is worth $21.00.

Trading History

MTW is currently trading around its average P/E over the last ten years relative to the S&P 500. The LTM P/E is currently 42.6 due to cyclically depressed EPS. MTW's five-year LTM average P/E is currently 33. This is also inflated considerably from what I would say is MTW's average. The P/E shows the volatility of MTW as EPS has often been negative. In the future, the P/E should decrease to 10-20 as EPS rises and becomes more stable.

**Figure 23: MTW LTM P/E Relative to S&P 500**




*Source: FactSet*

Assuming NTM P/E decreases to 10.5 at the end of 2022, it should trade at $20.90 by the end of the year:

- Price = P/E x EPS = 10.5 x $1.99 = 2023 EPS of $20.90.

Discounting $20.90 back to today at a rate of 14.3% the cost of equity (explained in Discounted Cash Flow section) yields a price of $18.29. Given MTW's recent moves to stabilize future revenues and increase margins, this seems to be a low valuation.

Relative Valuation

Manitowoc is currently trading at a P/E higher than its peers. The 2022 average of the industry is 11.3 and MTW's is 28.4. MTW's P/B and P/S, however, are below its competition. Manitowoc has 1.1 P/B and the industry has 1.6 P/B. P/S of the industry is 0.64 and MTW's is 0.45. since EPS is volatile, P/E is an unsuitable metric to evaluate MTW against its competition. The P/B and P/S are lower than its competition because net margin and ROE are also below average. The industry average beta of 1.6 is much lower than MTW's current 2.3. This shows the volatility the firm has faced, but this should be mitigated by the recent acquisitions.

**Figure 24: MTW Comparable Companies**

| Ticker | Name | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Pst 5yr | Beta | LT Debt/ Equity | S&P Rating | LTM Dividend Yield | Payout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTW | MANITOWOC CO | $19.57 | $686 | (2.0) | (11.2) | (10.7) | (21.0) | 55.2 | 47.0 | | 98.0% | -118.5% | -297.1% | 104.3% | 32.6% | | 2.31 | 65.2% | C | 0.00% | 0.0% |
| 6395 | TADANO LTD | $9.68 | $1,227 | (1.3) | (4.7) | (10.7) | (5.0) | 22.5 | 24.3 | 6.7 | | -28.4% | -262.1% | -181.9% | -14.3% | | 1.35 | 39.4% | | 0.60% | 78.7% |
| KCR-HEL | KONECRANES OYJ | $39.35 | $3,114 | 2.2 | (10.6) | (14.4) | (4.8) | 26.6 | 21.0 | | 70.2% | 45.3% | -2.3% | 24.9% | 14.0% | | 1.72 | 36.3% | | 2.57% | |
| TEX | TEREX CORP | $44.99 | $3,140 | (1.6) | (6.3) | (2.7) | (5.3) | 29.2 | 28.9 | 233.2 | 48.6% | -96.0% | 2061.5% | 47.7% | 24.6% | | 1.70 | 84.5% | B | 1.13% | 14.5% |
| 6501-JP | HITACHI | $57.66 | $55,771 | 2.2 | (6.8) | (0.4) | 7.7 | 55.5 | 60.9 | 7.4 | -7.0% | -59.2% | 467.9% | 11.7% | -6.9% | | 1.21 | 42.8% | | 1.72% | 19.4% |
| FERREYC1-PE | FERREYCORP S.A.A. | $0.45 | $443 | 0.0 | (2.6) | 10.1 | 16.4 | 5.1 | 6.3 | | | -57.1% | 133.3% | 14.3% | 12.5% | | 1.05 | 45.3% | | 10.41% | 56.1% |
| **Average** | | | $10,730 | (0.1) | (7.0) | (4.8) | (2.0) | 32.3 | 31.4 | 82.4 | 52.4% | -52.3% | 350.2% | 3.5% | 10.4% | | 1.56 | 52.2% | | 2.74% | 33.7% |
| **Median** | | | $2,171 | (0.6) | (6.5) | (6.7) | (4.9) | 27.9 | 26.6 | 7.4 | 59.4% | -58.2% | 65.5% | 19.6% | 13.3% | | 1.52 | 44.0% | | 1.43% | 19.4% |
| **SPX** | S&P 500 INDEX | $4,712 | | 1.0 | 1.4 | 5.7 | 11.2 | 28.5 | 25.5 | | | -15.3% | 46.5% | 9.6% | 7.4% | | | | | | |

| Ticker | Website | 2022 ROE | P/B | P/E 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | 2021 NPM | 2021 P/S | NM | OM | ROIC | EV/ EBIT | P/CF Current | Sales Growth NTM | STM | Pst 5yr | Book Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MTW** | http://www.manitowoc.com | 7.6% | 1.06 | 9.26 | -37.80 | 28.36 | 42.55 | 21.50 | 13.88 | 10.47 | 1.7% | 0.48 | -1.3% | 3.2% | -1.9% | 14.88 | 11.51 | 20.5% | 6.0% | | $18.52 |
| **6395** | http://www.tadano.co.jp | 7.1% | 0.89 | 11.3 | 14.7 | -10.3 | 136.5 | | 12.6 | 14.7 | -7.0% | 0.72 | -7.0% | -2.3% | -6.2% | -34.1 | | | | | $10.92 |
| **KCR-HEL** | http://www.konecranes.com | 18.4% | 2.26 | 17.0 | 13.5 | 15.3 | 20.6 | 12.1 | 12.3 | 10.8 | 5.7% | 0.87 | 3.8% | 6.8% | 5.9% | 13.2 | 11.0 | 4.0% | 5.3% | | $17.43 |
| **TEX** | http://www.terex.com | 27.3% | 2.96 | 9.2 | 268.5 | 16.0 | 18.2 | 12.2 | 10.8 | 8.7 | 5.1% | 0.82 | 0.3% | 2.5% | 0.4% | 39.4 | 9.5 | 16.5% | 9.6% | | $15.18 |
| **6501-JP** | http://www.hitachi.co.jp | 15.3% | 1.66 | 20.6 | 46.9 | 12.1 | 10.5 | 11.2 | 10.8 | 11.6 | 5.4% | 0.65 | 5.8% | 5.7% | 10.6% | 14.4 | 6.3 | -10.0% | | | $34.83 |
| **FERREYC1-PE** | http://www.ferreycorp.com.pe | 14.1% | 0.80 | 9.4 | 16.0 | 6.5 | 4.9 | | 5.7 | 5.0 | 4.7% | 0.31 | 3.0% | 8.4% | 4.6% | 8.1 | | | | | $0.57 |
| **Average** | | 15.0% | 1.60 | 12.80 | 53.64 | 11.33 | 38.86 | 14.27 | 11.01 | 10.21 | 2.6% | 0.64 | 0.8% | 4.1% | 2.2% | 9.3 | 9.6 | 7.7% | 6.9% | | |
| **Median** | | 14.7% | 1.36 | 10.4 | 15.4 | 13.7 | 19.4 | 12.2 | 11.5 | 10.6 | 4.9% | 0.68 | 1.6% | 4.4% | 2.5% | 13.8 | 10.2 | 10.2% | 6.0% | | |
| **spx** | S&P 500 INDEX | | | 19.8 | 27.0 | 23.3 | | | 21.3 | 19.8 | | | | | | | | | | | |

*Source: FactSet, IMCP*

Figure 25 shows a P/B and ROE analysis. The analysis has a R-squared of 82.2% meaning over 80% of the P/B is described by the ROE. This valuation shows MTW to be slightly overvalued. The small downside risk this valuation presents may be mitigated by the investments in the aftermarket sector and could be the market accounting for such.

**Figure 25: P/B vs ROE**



*Source: FactSet*

A composite ranking regression showed MTW to be just slightly overvalued compared to competition

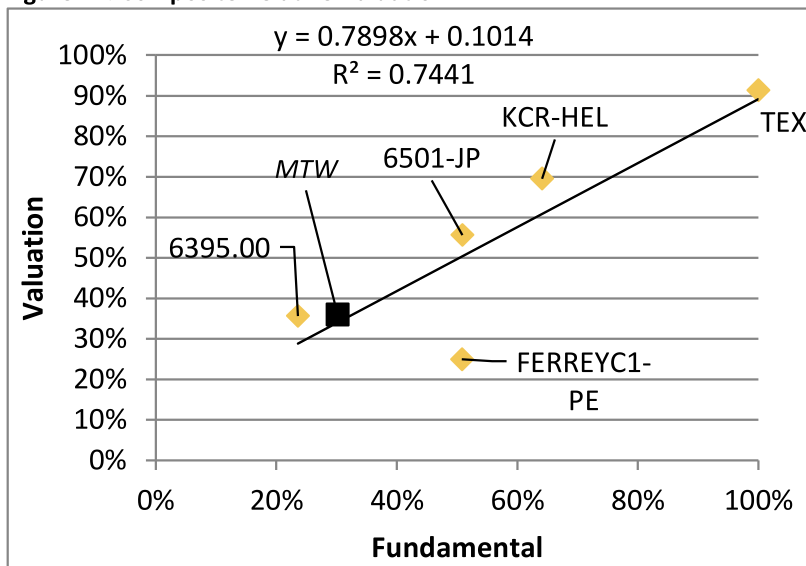
For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. A weighting of 10% was given to the long-term growth rate of earnings and the rest was allocated to 2022 ROE, they were then compared to the 10% weight on trailing twelve months P/E and 90% weight P/B. The regression line has an R-squared of 0.74, so it describes the data quite well. Since MTW is slightly above the line, it has slight downside, based on its fundamentals.

**Figure 26: Composite Valuation, % of Range**

| | | | | | Fundamental Percent of Max | | Valuation Percent of Max | |
|---|---|---|---|---|---|---|---|---|
| | | | | Weight | 10.0% | 90.0% | 10.0% | 90.0% |
| | | Rank | Weighted | | Earnings G | 2022 | P/E | |
| Ticker | Name | Diff | Fund | Value | LTG | ROE | TTM | P/B |
| **MTW** | MANITOWOC CO | 5 | 30% | 36% | 51% | 28% | 34% | 36% |
| **6395.00** | TADANO LTD | 6 | 24% | 36% | 3% | 26% | 100% | 28% |
| **KCR-HEL** | KONECRANES OYJ | 2 | 64% | 70% | 51% | 66% | 16% | 75% |
| **TEX** | TEREX CORP | 1 | 100% | 91% | 100% | 100% | 14% | 100% |
| **6501-JP** | HITACHI | 3 | 51% | 56% | 2% | 56% | 9% | 61% |
| **FERREYC1-PE** | FERREYCORP S.A.A. | 4 | 51% | 25% | 51% | 51% | 4% | 27% |

*Source: IMCP*

**Figure 27: Composite Relative Valuation**




*Source: IMCP*

<u>Discounted Cash Flow Analysis</u>

> The DCF was calculated using a beta of 1.5, a cost of equity of 14.3%, 6% sales growth in 2024 gradually declining and slight increase to nopat margins

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

For the purpose of this analysis, the company's cost of equity was calculated to be 14.3% 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 five-year industry average beta of 1.5 was utilized. This is because the industry average without MTW is 1.4. The slightly higher beta accounts for the fact that MTW is a bit riskier than the industry average.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 14.3% (1.5 + 1.5 (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 $0.73 and $1.11, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $1.49 per share. Thus, stage one of this discounted cash flow analysis contributes $1.49 to value.

*Stage Two* – The second part of the model computes PV of FCFE for 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 14.3% cost of equity. I assumed 6% sales growth in 2024, declining to 3.5% by 2028. The ratio of NWC to sales will slightly rise from 2023 levels of 5.88 to 6.5. NFA turnover will remain at 2.4. NOPAT margin is expected to rise to 6.0% in 2028 from 5.3% in 2023. Finally, after-tax interest is expected to be flat around $40 million.

**Figure 28: FCFE and Discounted FCFE, 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| FCFE | $0.73 | $1.11 | $0.28 | $0.40 | $0.71 | $2.55 | $1.97 |
| Discounted FCFE | $0.64 | $0.85 | $0.19 | $0.24 | $0.37 | $1.15 | $0.77 |

*Source: IMCP*

The sum of 2024 - 2028 discounted cash flows total $2.71.

*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 $1.99 in 2023 to $3.45 in 2028.

**Figure 29: EPS Estimates for 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| EPS | $1.27 | $1.99 | $2.36 | $2.57 | $2.76 | $3.30 | $3.45 |

*Source: IMCP*

Stage three of the model requires an assumption of the company's terminal price-to-earnings ratio. High P/E ratios in the US will come down to a normal level by 2028. Additionally, MTW's P/E will have reversion to the mean of the industry due to earnings rising without much price movement. Therefore, a P/E ratio of 12 is assumed at the end of MTW's terminal year. In the terminal year, 2028, one must consider what the market will price. All growth, margin improvement, and sustainability will have already occurred and be accounted for. This means the P/E will be much lower than its current inflated amount. That is not a surprise as a lower P/E is sustainable where the current high P/E mainly reflects quick rebound "post" pandemic effects.

Given the assumed terminal earnings per share of $3.45 and a price to earnings ratio of 12, a terminal value of $41.45 per share is calculated. Using the 14.3% cost of equity, this number is discounted back to a present value of $16.31.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $20.52 is calculated (1.49 + 2.72 + 16.31). Given MTW's current price of $19.57, this model indicates that the stock is slightly undervalued.

Scenario Analysis

Manitowoc is particularly difficult to value due to the recent acquisitions. Even when looking at MTW prior to the acquisitions, the cyclicality and its tough competition make it difficult to predict what will happen with any certainty. If the acquisitions do improve operations, sales will grow slightly faster and margins will be slightly better. If not, the opposite will be true. Since the results are ambiguous, I have also prepared a bear and bull scenario analysis. Given that much of the success or failure is predicated on sales growth and margins these same factors have been altered to reach the bear and bull scenarios.

The bear values MTW at $16.21. Lower sales growth and retracting margins due to a failure to implement the acquisitions correctly is to

**Figure 30: Bear Scenario**

| Summary | | |
|---|---|---|
| First stage | $1.49 | Present value of first 2 year cash flow |
| Second stage | $2.90 | Present value of year 3-7 cash flow |
| Third stage | $11.82 | Present value of terminal value P/E |
| Value (P/E) | **$16.21** | 2022 |

*Source: IMCP*

*Bear Case*: The bear case indicates that MTW is overvalued. This assumes the acquisitions do not improve the aftermarket parts sector. If this is true a value of $16.21 is very reasonable. Without the additional sales, MTW will still be highly subject to business cycle swings. Additionally, without improved margins MTW's earnings growth will be lower. Sales will grow at the same rate as the base by 2028, but it will start at only 4.5% growth opposed to 6%. NOPAT margins will remain the same as base for the first three years. In the last two years, the NOPAT margin will be 5%, a percentage lower than the base case. The price change for the bear case, $16.21, is 17.2% lower.

The bull values MTW at $23.66. Increased sales growth and further rising margins fueled by success integrating the acquired firms

**Figure 31: Bull Scenario**

| Summary | | |
|---|---|---|
| First stage | $1.49 | Present value of first 2 year cash flow |
| Second stage | $2.65 | Present value of year 3-7 cash flow |
| Third stage | $19.52 | Present value of terminal value P/E |
| Value (P/E) | **$23.66** | 2022 |

*Source: IMCP*

*Bull Case*: The bull case suggests that Manitowoc is undervalued. This assumes the acquisitions will improve the aftermarket parts sector more than my modest estimates. If this is true, a value of $23.66 is very reasonable. Without the additional risk of being susceptible to the business cycle, value will rise. Additionally, margins will be significantly improved with additional aftermarket part sales. Sales growth will start at 8.0% instead of 6.0% and decline to 4.0% by 2028 instead of 3.5%. NOPAT margins will remain the same as base for the first three years. In the last two years, the NOPAT margin will be 6.5%, 50 basis points higher than the base case. $23.66 is a 20.9% increase, so there is more upside than downside risk.

## Business Risks

Inability to Appropriately Integrate Acquisitions:

MTW's ability to appropriately integrate and manage recent acquisitions is crucial to its success. Maintaining and leveraging relationships from the acquired firms will allow MTW benefit. Newly hired and current employees are also an integral part of success. If Manitowoc fails to integrate the firms into its operations, it may lead to the bear scenario.

Competition:

The inability to appropriately integrate acquisitions is the largest concern an investor should have about MTW moving forward

The highly competitive nature of Manitowoc's industry is another risk. In order to remain relevant, MTW must continue to offer products that are innovative and reach customer's needs. If customers do not accept new designs or they fail to be innovative, new crane sales will decrease. MTW has less recognition and low market share in emerging markets where it is currently targeting growth. This makes it less able to quickly change direction to reach customer needs. The size of MTW's competition means they can allocate more resources to changes in demand and to research and development.

Exposure to Foreign Exchange and International factors:

Currency markets are hard to predict. Given Manitowoc has over 50% of sales coming from Europe alone, appreciation of the USD against currencies used in markets where MTW operates will be negative for earnings. Given the post pandemic era of low rates almost universally in emerging and developed markets alike, it is difficult to predict currency rates. This intensifies the risk inherent with doing business in foreign markets. These additional risks include but are not limited to political risk and regulatory risk.

Raw Material Prices and Supply:

As shown earlier, the price of raw materials such as steel is closely related to MTW's performance. If steel prices rise rapidly again or continue to rise faster than MTW can price into contracts, this will adversely effect earnings. A large jump in prices could occur for several reasons increasing tariffs or embargos. Manitowoc also has low raw material inventories so supply shortages will also adversely effect operations and earnings.

## Appendix 1: Porter's 5 Forces

Threat of New Entrants – Relatively Low

To enter MTW's market would take an extensive amount of capital, talent, and real estate. Also, industrial crane construction manufacturers must differentiate products and still achieve economies of scale which is difficult and costly to do. Given these two large barriers to entry, threats of new entries are very low.

Threat of Substitutes – Low

There are few effective substitutes for cranes. The ones that exist are prohibited and regulated in certain areas. Additionally, substitutes generally tend to be more expensive.

Supplier Power - Moderate

Suppliers have some control over raw material prices, but it is really driven by global markets. On the other hand, MTW can switch suppliers for products like steel, For other parts we can assume its not east for MTW to switch suppliers as its parts may have unique fits and specifications as safety is paramount in the crane business.

Buyer Power – Moderate

Crane manufacturers all have unique designs which offer benefits for certain applications. This slightly decreases buyers' power, but tight competition means there remains some pricing pressures.

Intensity of Competition – Very High

There are few crane producers but competition amongst them is fierce. Contract terms are similar to remain competitive. The capital-intensive operations of crane manufacturing means fixed costs and the cost of losing customers is high.

## Appendix 2: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| Product Development | Cyclical Nature of Revenues |
| Brand Loyalty | Retaining and Hiring Talent |
| International Business | Market Share |
| **Opportunities** | **Threats** |
| Expansion of Aftermarket Parts Segment | Large Competitors |
| China and Other Emerging Markets | International Exposure |
| Infrastructure Improvements | Regulatory Risk |

*Source: IMCP*

## Appendix 3: Income Statement

| Income Statement (Millions of dollars) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| Sales | $1,581 | $1,847 | $1,834 | $1,443 | $1,704 | $1,968 | $2,076 |
| Direct costs | 1,299 | 1,519 | 1,490 | 1,189 | 1,404 | 1,613 | 1,681 |
| Gross Margin | 282 | 328 | 344 | 255 | 300 | 354 | 394 |
| SG&A, R&D, D&A, and other | 274 | 347 | 236 | 216 | 181 | 236 | 249 |
| EBIT | 8 | (19) | 108 | 39 | 119 | 118 | 145 |
| Interest | 48 | 52 | 49 | 41 | 21 | 61 | 55 |
| EBT | (40) | (72) | 59 | (2) | 98 | 58 | 90 |
| Taxes | (50) | (5) | 12 | 17 | 85 | 14 | 23 |
| Income | 10 | (67) | 47 | (19) | 13 | 43 | 68 |
| Other | 0.6 | 0.2 | - | - | (2) | - | - |
| Net income | 9.4 | (67.1) | 47 | (19) | 15 | 43 | 68 |
| Basic Shares | 35.1 | 35.5 | 35.5 | 34.7 | 34.0 | 34.0 | 34.0 |
| Fully Diluted Shares | 35.9 | 35.5 | 35.6 | 34.7 | 34.0 | 34.0 | 34.0 |
| EPS | $0.27 | ($1.89) | $1.31 | ($0.55) | $0.44 | $1.27 | $1.99 |
| EPS Fully Diluted | $0.26 | ($1.89) | $1.31 | ($0.55) | $0.44 | $1.27 | $1.99 |

*Source: IMCP*

## Appendix 4: Balance Sheets

| Balance Sheet (Millions of Dollars) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| Cash | 119 | 140 | 199 | 129 | 152 | 177 | 187 |
| Operating assets ex cash | 680 | 703 | 673 | 737 | 870 | 728 | 768 |
| Operating assets | 799 | 843 | 872 | 866 | 1,022 | 905 | 955 |
| Operating liabilities | 445 | 490 | 437 | 425 | 502 | 394 | 415 |
| NOWC | 354 | 353 | 435 | 441 | 520 | 512 | 540 |
| NOWC ex cash (NWC) | 235 | 212 | 236 | 312 | 368 | 334 | 353 |
| NFA | 809 | 699 | 745 | 738 | 870 | 894 | 865 |
| *Invested capital* | *$1,163* | *$1,052* | *$1,181* | *$1,178* | *$1,391* | *$1,406* | *$1,405* |
| | | | | | | | |
| Marketable securities | - | - | - | - | - | - | - |
| *Total assets* | *$1,608* | *$1,542* | *$1,618* | *$1,604* | *$1,893* | *$1,799* | *$1,820* |
| | | | | | | | |
| S-T and L-T debt and financing leases | $275 | $273 | $350 | $339 | $400 | $372 | $331 |
| Other liabilities | 211 | 177 | 185 | 195 | 231 | 231 | 204 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 678 | 601 | 646 | 644 | 759 | 803 | 870 |
| *Total supplied capital* | *$1,163* | *$1,052* | *$1,181* | *$1,178* | *$1,391* | *$1,406* | *$1,405* |
| | | | | | | | |
| *Total liabilities and equity* | *$1,608* | *$1,542* | *$1,618* | *$1,604* | *$1,893* | *$1,799* | *$1,820* |

*Source: IMCP*

## Appendix 5: Cash Flow Statement

| Cash Flow Statement | | | | | | |
|---|---|---|---|---|---|---|
| **Items** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| **Cash from Operatings (understated - depr'n added to net assets)** | | | | | | |
| Net income | ($67) | $47 | ($19) | $15 | $43 | $68 |
| Change in Net Working Capital ex cash | 23 | (24) | (76) | (56) | 34 | (18) |
| Cash from operations | ($44) | $23 | ($95) | ($41) | $77 | $49 |
| | | | | | | |
| **Cash from Investing (understated - depr'n added to net assets)** | | | | | | |
| Change in NFA | $110 | ($46) | $8 | ($133) | ($24) | $29 |
| Change in Marketable Securities | 0 | $0 | $0 | $0 | $0 | $0 |
| Cash from investing | $110 | ($46) | $8 | ($133) | ($24) | $29 |
| | | | | | | |
| **Cash from Financing** | | | | | | |
| Change in Short-Term and Long-Term Debt | ($2) | $77 | ($11) | $61 | ($28) | ($41) |
| Change in Other liabilities | -33 | 8 | 10 | 35 | 0 | (27) |
| Change in Debt/Equity-Like Securities | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividends | 0 | 0 | 0 | 0 | 0 | 0 |
| Change in Equity ex NI and Dividends | -9 | (2) | 17 | 101 | 0 | 0 |
| Cash from financing | ($44) | $82 | $17 | $197 | ($28) | ($68) |
| | | | | | | |
| **Change in Cash** | 21 | 59 | (71) | 23 | 25 | 11 |
| **Beginning Cash** | 119 | 140 | 199 | 129 | 152 | 177 |
| **Ending Cash** | $140 | $199 | $129 | $152 | $177 | $188 |

*Source: IMCP*

## Appendix 6: Sales Forecast

| Sales (Millions of dollars) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** | **Dec-24** |
| Sales | $1,581 | $1,847 | 1,834 | $1,704 | $1,704 | $1,968 | 2,076 |
| *Growth* | | *16.8%* | *-0.7%* | *18.0%* | *0.0%* | *15.5%* | *5.5%* |
| | | | | | | | |
| New Crane Sales | 1,271 | 1,443 | 1,423 | 1,193 | 1,336 | 1,470 | 1,551 |
| *Growth* | | *13.6%* | *-1.4%* | *12.0%* | *12.0%* | *10.0%* | *5.5%* |
| *% of sales* | *80.3%* | *78.1%* | *77.6%* | *70.0%* | *78.4%* | *65.0%* | *60.0%* |
| Aftrermarket Parts | 311 | 404 | 411 | 510 | 689 | 861 | 991 |
| *Growth* | | *29.9%* | *1.8%* | *35.0%* | *35.0%* | *25.0%* | *15.0%* |
| *% of sales* | *19.7%* | *21.9%* | *22.4%* | *30.0%* | *40.4%* | 35.0% | *40.0%* |
| | | | | | | | |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Americas | 694 | 883 | 970 | 681 | 681 | 689 | 623 |
| *Growth* | | *27.3%* | *9.9%* | *8.8%* | *0.0%* | *1.1%* | *-9.6%* |
| *% of sales* | *43.9%* | *47.8%* | *52.9%* | *40.0%* | *40.0%* | *35.0%* | *30.0%* |
| EURAF | 629 | 681 | 645 | 681 | 681 | 886 | 934 |
| *Growth* | | *8.2%* | *-5.2%* | *13.8%* | *0.0%* | *30.0%* | *5.5%* |
| *% of sales* | *39.8%* | *36.9%* | *35.2%* | *40.0%* | *40.0%* | *45.0%* | *45.0%* |
| MEAP | 259 | 284 | 220 | 341 | 341 | 394 | 519 |
| *Growth* | | *9.5%* | *-22.6%* | *55.9%* | *0.0%* | *15.5%* | *31.9%* |
| *% of sales* | *16.4%* | *15.4%* | *12.0%* | *20.0%* | *20.0%* | *20.0%* | *25.0%* |

*Source: IMCP*

# Appendix 7: Ratios

| Ratios | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| Profitability | | | | | | | |
| Gross margin | 19.5% | 17.8% | 18.8% | 17.6% | 17.6% | 18.0% | 19.0% |
| Operating (EBIT) margin | 0.6% | -1.0% | 5.9% | 2.7% | 7.0% | 6.0% | 7.0% |
| Net profit margin | 0.7% | -3.6% | 2.5% | -1.3% | 0.9% | 2.2% | 3.3% |
| | | | | | | | |
| Activity | | | | | | | |
| NFA (gross) turnover | | 2.45 | 2.54 | 1.95 | 2.12 | 2.23 | 2.36 |
| Total asset turnover | | 1.17 | 1.16 | 0.90 | 0.97 | 1.07 | 1.15 |
| | | | | | | | |
| Liquidity | | | | | | | |
| Op asset / op liab | 1.80 | 1.72 | 2.00 | 2.04 | 2.04 | 2.30 | 2.30 |
| NOWC Percent of sales | | 19.1% | 21.5% | 30.3% | 28.2% | 26.2% | 25.3% |
| | | | | | | | |
| Solvency | | | | | | | |
| Debt to assets | 17.1% | 17.7% | 21.6% | 21.2% | 21.2% | 20.7% | 18.2% |
| Debt to equity | 40.6% | 45.4% | 54.2% | 52.7% | 52.7% | 46.4% | 38.1% |
| Other liab to assets | 13.1% | 11.5% | 11.4% | 12.2% | 12.2% | 12.8% | 11.2% |
| Total debt to assets | 30.2% | 29.2% | 33.1% | 33.3% | 33.3% | 33.5% | 29.4% |
| Total liabilities to assets | 57.9% | 61.0% | 60.1% | 59.9% | 59.9% | 55.4% | 52.2% |
| Debt to EBIT | 32.73 | (14.15) | 3.23 | 8.70 | 3.36 | 3.15 | 2.28 |
| EBIT/interest | 0.18 | (0.37) | 2.19 | 0.95 | 5.68 | 1.95 | 2.64 |
| Debt to total net op capital | 23.6% | 26.0% | 29.6% | 28.8% | 28.8% | 26.5% | 23.6% |
| | | | | | | | |
| ROIC | | | | | | | |
| NOPAT to sales | -0.1% | -1.0% | 4.7% | 25.7% | 6.7% | 4.5% | 5.3% |
| Sales to NWC | | 8.25 | 8.18 | 5.27 | 5.01 | 5.60 | 6.04 |
| Sales to NFA | | 2.45 | 2.54 | 1.95 | 2.12 | 2.23 | 2.36 |
| Sales to IC ex cash | | 1.89 | 1.94 | 1.42 | 1.49 | 1.59 | 1.70 |
| Total ROIC ex cash | | -1.8% | 9.0% | 36.5% | 9.9% | 7.2% | 8.9% |
| | | | | | | | |
| NOPAT to sales | -0.1% | -1.0% | 4.7% | 25.7% | 6.7% | 4.5% | 5.3% |
| Sales to NOWC | | 5.22 | 4.66 | 3.30 | 3.55 | 3.81 | 3.95 |
| Sales to NFA | | 2.45 | 2.54 | 1.95 | 2.12 | 2.23 | 2.36 |
| Sales to IC | | 1.67 | 1.64 | 1.22 | 1.33 | 1.41 | 1.48 |
| Total ROIC | | -1.6% | 7.7% | 31.4% | 8.8% | 6.3% | 7.8% |
| | | | | | | | |
| NOPAT to sales | -0.1% | -1.0% | 4.7% | 25.7% | 6.7% | 4.5% | 5.3% |
| Sales to EOY NWC | 6.14 | 8.69 | 7.77 | 4.63 | 4.63 | 5.88 | 5.88 |
| Sales to EOY NFA | 1.79 | 2.64 | 2.46 | 1.96 | 1.96 | 2.20 | 2.40 |
| Sales to EOY IC ex cash | 1.38 | 2.03 | 1.87 | 1.38 | 1.38 | 1.60 | 1.70 |
| Total ROIC using EOY IC ex cash | -0.2% | -2.0% | 8.7% | 35.3% | 9.1% | 7.2% | 8.9% |
| | | | | | | | |
| NOPAT to sales | -0.1% | -1.0% | 4.7% | 25.7% | 6.7% | 4.5% | 5.3% |
| Sales to EOY NOWC | 4.07 | 5.24 | 4.21 | 3.28 | 3.28 | 3.85 | 3.85 |
| Sales to EOY NFA | 1.79 | 2.64 | 2.46 | 1.96 | 1.96 | 2.20 | 2.40 |
| Sales to EOY IC | 1.24 | 1.76 | 1.55 | 1.23 | 1.23 | 1.40 | 1.48 |
| Total ROIC using EOY IC | -0.2% | -1.7% | 7.3% | 31.4% | 8.1% | 6.3% | 7.8% |
| | | | | | | | |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | -1.0% | 5.9% | 2.7% | 7.0% | 6.0% | 7.0% |
| Sales / avg assets | | 1.17 | 1.16 | 0.90 | 0.97 | 1.07 | 1.15 |
| EBT / EBIT | | 371.5% | 54.4% | -5.1% | 82.4% | 48.7% | 62.1% |
| Net income /EBT | | 93.6% | 79.0% | 950.0% | 15.3% | 75.0% | 75.0% |
| ROA | | -4.3% | 2.9% | -1.2% | 0.9% | 2.3% | 3.7% |
| Avg assets / avg equity | | 2.46 | 2.53 | 2.50 | 2.49 | 2.36 | 2.16 |
| ROE | | -10.5% | 7.5% | -2.9% | 2.1% | 5.5% | 8.1% |
| | | | | | | | |
| **3-stage** | | | | | | | |
| Net income / sales | | -3.6% | 2.5% | -1.3% | 0.9% | 2.2% | 3.3% |
| Sales / avg assets | | 1.17 | 1.16 | 0.90 | 0.97 | 1.07 | 1.15 |
| ROA | | -4.3% | 2.9% | -1.2% | 0.9% | 2.3% | 3.7% |
| Avg assets / avg equity | | 2.46 | 2.53 | 2.50 | 2.49 | 2.36 | 2.16 |
| ROE | | -10.5% | 7.5% | -2.9% | 2.1% | 5.5% | 8.1% |
| | | | | | | | |
| Payout Ratio | | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Retention Ratio | | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Sustainable Growth Rate | | -10.5% | 7.5% | -2.9% | 2.1% | 5.5% | 8.1% |

*Source: IMCP*

# Appendix 8: 3-stage DCF Model

| | | First Stage | | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Year ending December | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | | *18.0%* | *15.5%* | *5.5%* | *6.0%* | *5.5%* | *5.0%* | *4.0%* | *3.5%* |
| *NOPAT / S* | | *6.7%* | *4.5%* | *5.3%* | *5.5%* | *5.5%* | *5.5%* | *6.0%* | *6.0%* |
| *S / NWC* | | *4.63* | *5.88* | *5.88* | *6.00* | *6.00* | *6.00* | *6.50* | *6.50* |
| *S / NFA (EOY)* | | *1.96* | *2.20* | *2.40* | *2.40* | *2.40* | *2.40* | *2.40* | *2.40* |
| *S / IC (EOY)* | | *1.38* | *1.60* | *1.70* | *1.71* | *1.71* | *1.71* | *1.75* | *1.75* |
| *ROIC (EOY)* | | *9.1%* | *7.2%* | *8.9%* | *9.4%* | *9.4%* | *9.4%* | *10.5%* | *10.5%* |
| *ROIC (BOY)* | | | *7.1%* | *8.9%* | *9.9%* | *9.9%* | *9.9%* | *10.7%* | *10.9%* |
| *Share Growth* | | *-2.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $1,443 | $1,704 | $1,968 | $2,076 | $2,200 | $2,321 | $2,437 | $2,535 | $2,624 |
| NOPAT | $371 | $113 | $89 | $109 | $121 | $128 | $134 | $152 | $157 |
| *Growth* | | *-69.4%* | *-21.8%* | *23.1%* | *11.0%* | *5.5%* | *5.0%* | *13.5%* | *3.5%* |
| - Change in NWC | | 56 | -34 | 18 | 14 | 20 | 19 | -16 | 14 |
| *NWC EOY* | *312* | *368* | *334* | *353* | *367* | *387* | *406* | *390* | *404* |
| *Growth NWC* | | *18.0%* | *-9.2%* | *5.5%* | *3.9%* | *5.5%* | *5.0%* | *-4.0%* | *3.5%* |
| - Chg NFA | | 133 | 24 | -29 | 52 | 50 | 48 | 41 | 37 |
| *NFA EOY* | *738* | *870* | *894* | *865* | *917* | *967* | *1,016* | *1,056* | *1,093* |
| *Growth NFA* | | *18.0%* | *2.8%* | *-3.3%* | *6.0%* | *5.5%* | *5.0%* | *4.0%* | *3.5%* |
| Total inv in op cap | | 189 | -10 | -11 | 66 | 71 | 68 | 24 | 51 |
| Total net op cap | | 1239 | 1229 | 1218 | 1284 | 1354 | 1422 | 1446 | 1497 |
| FCFF | | ($76) | $98 | $120 | $55 | $57 | $66 | $128 | $107 |
| *% of sales* | | *-4.5%* | *5.0%* | *5.8%* | *2.5%* | *2.5%* | *2.7%* | *5.0%* | *4.1%* |
| *Growth* | | | *-229.6%* | *22.0%* | *-53.9%* | *3.2%* | *16.2%* | *92.5%* | *-16.4%* |
| - Interest (1-tax rate) | | 20 | 45 | 41 | 41 | 40 | 40 | 40 | 40 |
| *Growth* | | *-94.9%* | | *-8.9%* | *-1.5%* | *-0.9%* | *-0.6%* | *-0.3%* | *0.0%* |
| + Net new debt | | 61 | -28 | -41 | -5 | -3 | -2 | -1 | 0 |
| Debt | | 400 | 372 | 331 | 326 | 323 | 321 | 320 | 320 |
| *Debt / tot net op capital* | | *32.3%* | *30.3%* | *27.2%* | *25.4%* | *23.9%* | *22.6%* | *22.2%* | *21.4%* |
| FCFE w debt | | ($35) | $25 | $38 | $10 | $14 | $24 | $87 | $67 |
| *% of sales* | | *-2.0%* | *1.3%* | *1.8%* | *0.4%* | *0.6%* | *1.0%* | *3.4%* | *2.5%* |
| *Growth* | | | *-171.9%* | *51.1%* | *-74.6%* | *43.6%* | *76.7%* | *257.8%* | *-23.0%* |
| / No Shares | 34.7 | 34.0 | 34.0 | 34.0 | 34.0 | 34.0 | 34.0 | 34.0 | 34.0 |
| FCFE | | ($1.02) | $0.73 | $1.11 | $0.28 | $0.40 | $0.71 | $2.55 | $1.97 |
| *Growth* | | | *-171.9%* | *51.1%* | *-74.6%* | *43.6%* | *76.7%* | *257.8%* | *-23.0%* |
| * Discount factor | | | 0.88 | 0.77 | 0.67 | 0.59 | 0.51 | 0.45 | 0.39 |
| Discounted FCFE | | | $0.64 | $0.85 | $0.19 | $0.24 | $0.37 | $1.15 | $0.77 |
| **Third Stage** | | | | | | | | | |
| **Terminal value P/E** | | | | | | | | | |
| Net income | | $15 | $43 | $68 | $80 | $87 | $94 | $112 | $117 |
| *% of sales* | | *0.9%* | *2.2%* | *3.3%* | *3.6%* | *3.8%* | *3.9%* | *4.4%* | *4.5%* |
| EPS | | $0.44 | $1.27 | $1.99 | $2.36 | $2.57 | $2.76 | $3.30 | $3.45 |
| *Growth* | | *-180.6%* | *187.6%* | *56.8%* | *18.7%* | *8.8%* | *7.6%* | *19.3%* | *4.7%* |
| Terminal P/E | | | | | | | | | 12.00 |
| * Terminal EPS | | | | | | | | | $3.45 |
| Terminal value | | | | | | | | | $41.45 |
| * Discount factor | | | | | | | | | 0.39 |
| Discounted terminal value | | | | | | | | | $16.31 |

**Summary**

| | | |
|---|---|---|
| First stage | $1.49 | Present value of first 2 year cash flow |
| Second stage | $2.71 | Present value of year 3-7 cash flow |
| Third stage | $16.31 | Present value of terminal value P/E |
| Value (P/E) | **$20.52** | |

*Source: IMCP*

# Appendix 9: Comp Sheet

**Comp Sheet (5/4/2021)**

| Ticker | Name | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Pst 5yr | Beta | LT Debt/ Equity | S&P Rating | LTM Dividend Yield | Payout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTW | MANITOWOC CO | $19.57 | $686 | (2.0) | (11.2) | (10.7) | (21.0) | 55.2 | 47.0 | | 98.0% | -118.5% | -297.1% | 104.3% | 32.6% | | 2.31 | 65.2% | C | 0.00% | 0.0% |
| 6395 | TADANO LTD | $9.68 | $1,227 | (1.3) | (4.7) | (10.7) | (5.0) | 22.5 | 24.3 | 6.7 | | -28.4% | -262.1% | -181.9% | -14.3% | | 1.35 | 39.4% | | 0.60% | 78.7% |
| KCR-HEL | KONECRANES OYJ | $39.35 | $3,114 | 2.2 | (10.6) | (14.4) | (4.8) | 26.6 | 21.0 | | 70.2% | 45.3% | -2.3% | 24.9% | 14.0% | | 1.72 | 36.3% | | 2.57% | |
| TEX | TEREX CORP | $44.99 | $3,140 | (1.6) | (6.3) | (2.7) | (5.3) | 29.2 | 28.9 | 233.2 | 48.6% | -96.0% | 2061.5% | 47.7% | 24.6% | | 1.70 | 84.5% | B | 1.13% | 14.5% |
| 6501-JP | HITACHI | $57.66 | $55,771 | 2.2 | (6.8) | (0.4) | 7.7 | 55.5 | 60.9 | 7.4 | -7.0% | -59.2% | 467.9% | 11.7% | -6.9% | | 1.21 | 42.8% | | 1.72% | 19.4% |
| FERREYC1-PE | FERREYCORP S.A.A. | $0.45 | $443 | 0.0 | (2.6) | 10.1 | 16.4 | 5.1 | 6.3 | | | -57.1% | 133.3% | 14.3% | 12.5% | | 1.05 | 45.3% | | 10.41% | 56.1% |
| **Average** | | | $10,730 | (0.1) | (7.0) | (4.8) | (2.0) | 32.3 | 31.4 | 82.4 | 52.4% | -52.3% | 350.2% | 3.5% | 10.4% | | 1.56 | 52.2% | | 2.74% | 33.7% |
| **Median** | | | $2,171 | (0.6) | (6.5) | (6.7) | (4.9) | 27.9 | 26.6 | 7.4 | 59.4% | -58.2% | 65.5% | 19.6% | 13.3% | | 1.52 | 44.0% | | 1.43% | 19.4% |
| **SPX** | S&P 500 INDEX | $4,712 | | 1.0 | 1.4 | 5.7 | 11.2 | 28.5 | 25.5 | | | -15.3% | 46.5% | 9.6% | 7.4% | | | | | | |

| Ticker | Website | 2022 ROE | P/B | P/E 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | 2021 NPM | 2021 P/S | NM | OM | ROIC | EV/ EBIT | P/CF Current | Sales Growth NTM | STM | Pst 5yr | Book Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MTW** | http://www.manitowoc.com | 7.6% | 1.06 | 9.26 | -37.80 | 28.36 | 42.55 | 21.50 | 13.88 | 10.47 | 1.7% | 0.48 | -1.3% | 3.2% | -1.9% | 14.88 | 11.51 | 20.5% | 6.0% | | $18.52 |
| **6395** | http://www.tadano.co.jp | 7.1% | 0.89 | 11.3 | 14.7 | -10.3 | 136.5 | | 12.6 | 14.7 | -7.0% | 0.72 | -7.0% | -2.3% | -6.2% | -34.1 | | | | | $10.92 |
| **KCR-HEL** | http://www.konecranes.com | 18.4% | 2.26 | 17.0 | 13.5 | 15.3 | 20.6 | 12.1 | 12.3 | 10.8 | 5.7% | 0.87 | 3.8% | 6.8% | 5.9% | 13.2 | 11.0 | 4.0% | 5.3% | | $17.43 |
| **TEX** | http://www.terex.com | 27.3% | 2.96 | 9.2 | 268.5 | 16.0 | 18.2 | 12.2 | 10.8 | 8.7 | 5.1% | 0.82 | 0.3% | 2.5% | 0.4% | 39.4 | 9.5 | 16.5% | 9.6% | | $15.18 |
| **6501-JP** | http://www.hitachi.co.jp | 15.3% | 1.66 | 20.6 | 46.9 | 12.1 | 10.5 | 11.2 | 10.8 | 11.6 | 5.4% | 0.65 | 5.8% | 5.7% | 10.6% | 14.4 | 6.3 | -10.0% | | | $34.83 |
| **FERREYC1-PE** | http://www.ferreycorp.com.pe | 14.1% | 0.80 | 9.4 | 16.0 | 6.5 | 4.9 | | 5.7 | 5.0 | 4.7% | 0.31 | 3.0% | 8.4% | 4.6% | 8.1 | | | | | $0.57 |
| **Average** | | 15.0% | 1.60 | 12.80 | 53.64 | 11.33 | 38.86 | 14.27 | 11.01 | 10.21 | 2.6% | 0.64 | 0.8% | 4.1% | 2.2% | 9.3 | 9.6 | 7.7% | 6.9% | | |
| **Median** | | 14.7% | 1.36 | 10.4 | 15.4 | 13.7 | 19.4 | 12.2 | 11.5 | 10.6 | 4.9% | 0.68 | 1.6% | 4.4% | 2.5% | 13.8 | 10.2 | 10.2% | 6.0% | | |
| **spx** | S&P 500 INDEX | | | 19.8 | 27.0 | 23.3 | | | 21.3 | 19.8 | | | | | | | | | | | |

| Ticker | Name | Earnings (FY) 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | FY | Sales 2020 | 2021 | TTM | NTM | STM | 1/ Yield | 1/ Beta | 1/(LTD/ Equity) | 1/ Payout | End of Year Price 12/31/2019 | 12/30/2020 | 12/30/2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MTW | MANITOWOC CO | $1.89 | ($0.35) | $0.69 | $0.46 | $0.91 | $1.41 | $1.87 | 12/20 | $1,834 | $1,443 | $1,653 | $1,991 | $2,109 | | 0.4 | 1.5 | | $17.50 | $13.23 | $19.57 |
| 6395 | TADANO LTD | $0.81 | $0.58 | ($0.94) | $0.07 | | $0.77 | $0.66 | 03/21 | $2,138 | $1,708 | $1,801 | | | 168.0 | 0.7 | 2.5 | 1.3 | $9.18 | $8.55 | $9.68 |
| KCR-HEL | KONECRANES OYJ | $1.81 | $2.63 | $2.57 | $1.91 | $3.25 | $3.21 | $3.66 | 12/20 | $3,808 | $3,591 | $3,777 | $3,929 | $4,137 | 38.9 | 0.6 | 2.8 | | $30.70 | $35.40 | $39.35 |
| TEX | TEREX CORP | $3.25 | $0.13 | $2.81 | $2.48 | $3.68 | $4.15 | $5.17 | 12/20 | $3,076 | $3,853 | $3,683 | $4,290 | $4,702 | 88.3 | 0.6 | 1.2 | 6.9 | $29.78 | $34.91 | $44.99 |
| 6501-JP | HITACHI | $2.06 | $0.84 | $4.77 | $5.52 | $5.13 | $5.33 | $4.96 | 03/21 | $80,125 | $85,875 | $91,153 | $82,005 | | 58.2 | 0.8 | 2.3 | 5.2 | $42.45 | $39.37 | $57.66 |
| FERREYC1-PE | FERREYCORP S.A.A. | $0.07 | $0.03 | $0.07 | $0.09 | | $0.08 | $0.09 | 12/20 | $1,287 | $1,452 | $1,604 | | | 9.6 | 1.0 | 2.2 | 1.8 | $0.66 | $0.48 | $0.45 |
| **Average** | | $1.65 | $0.64 | $1.66 | $1.75 | $3.24 | $2.49 | $2.74 | | 15378.0 | 16320.3 | 17278.5 | 23053.8 | 3649.4 | 72.6 | 0.7 | 2.1 | 3.8 | 21.7 | 22.0 | 28.6 |
| **Median** | | | | | | | | | | | | | | | | | | | | | |
| **SPX** | S&P 500 INDEX | $162.91 | $138.00 | $202.17 | | | $221.50 | $237.79 | | | | | | | | | | | $3,230.78 | $3,732.04 | $4,712.02 |

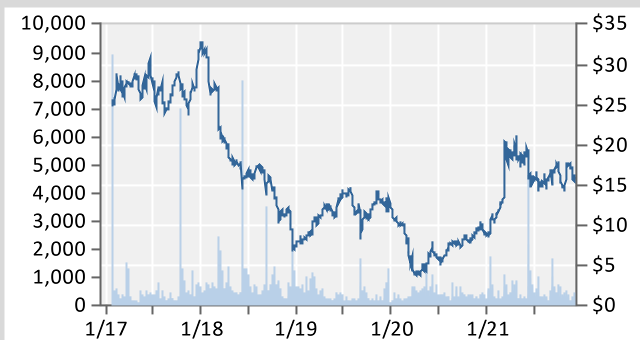
*Source: IMCP*

| Recommendation: Strong Buy | | | | |
|---|---|---|---|---|
| Current Price | **$16.42** | --- | Ticker | REVG |
| 1 Year Bear | $20.12 | *22.5%* | Sh. Out. (M) | 64.7 |
| 1 Year Base | **$21.24** | ***29.4%*** | M.Cap. ($M) | $1.06 |
| 1 Year Bull | $25.72 | *56.6%* | EV ($M) | $1.3 |

Industrials, Specialty Auto Manufacturer

# Rev Group, INC.

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | -34.3% | 38.4% | 26.4% | 55.9% | 84.9% | 6.5% | -7.9% |

## Summary

I recommend a Strong Buy rating with a target of $21.24. I believe moving forward with REVG's goal to increase EBITDA margins and its commitment to strategic capital allocation that the firm has significant upside. The stock is under valued based on relative analysis using 2022 estimated P/E and using a historical P/B multiple through a DCF analysis. The stock's current price is a reflection of the firms infancy in the public markets as well as historical disapointment to shareholders. With Rodney Rushing taking over as CEO, there is a good chance the firm takes these measures.

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($B) | **2.26** | **2.41** | **2.40** | **2.27** | **2.42** | **2.54** | **2.66** |
| *Gr. %* | - | 6.3% | -0.1% | -5.4% | 6.6% | 4.7% | 4.7% |
| *v. Cons.* | -0.9% | -1.9% | 0.8% | -0.4% | 4.1% | -2.3% | - |
| *Industry* | 24.6% | 12.6% | 2.5% | -7.2% | 17.5% | 9.7% | 12.1% |
| **EPS** | **$0.50** | **$0.19** | **$-0.20** | **$-0.48** | **$1.08** | **$1.42** | **$1.67** |
| *Gr. %* | - | -63.0% | -209% | -137% | 326% | 27.0% | 15.0% |
| *v. Cons.* | 2.1% | -11.9% | -9.0% | 44.0% | -15.7% | 13.7% | - |
| *Industry* | 107% | 13.0% | -40.0% | -90.0% | 159% | 283.0 | 48.0% |

## Key Drivers

- Economic uncertainty and school moving online resulted in low 2020 sales that are now rebounding.
- Increased government infrastructure spending: 58% of REVG revenue is derived from sales to government municipalities. Any form of infrastructure spending that benefits local governments could increase REVG's top line revenue growth.
- The growing interest in recreational vehicle ownership among all age demographics, especially among young people, could spur growth in the recreational segment.
- Cost cutting measures and emphasis on EBITDA margins means the firm will be more conscious of its spending and capital allocation.
- Acquisitions have fueled growth. This presents some risk as organic growth is negative.

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **1.4%** | **0.5%** | **-0.5%** | **-1.3%** | **2.9%** | **3.4%** | **3.9%** |
| *Industry* | 4.6% | 4.7% | 3.8% | 1.3% | 3.2% | 5.1% | 6.0% |
| **ROE** | 7.5% | 2.4% | -2.4% | -6.2% | -6.2% | 17.2% | 17.2% |
| *Industry* | 19.2 | 18.2% | 13.3% | 2.4% | 9.1% | 19.8% | 19.4% |
| **ROA** | 2.9% | 1.0% | -0.9% | -2.3% | -2.3% | 6.5% | 7.6% |
| *Industry* | 8.5% | 8.5% | 5.6% | 1.8% | 4.5% | 7.9% | 8.3% |
| **A T/O** | 2.12 | 1.79 | 1.74 | 1.71 | 1.71 | 1.92 | 1.95 |
| **A/E** | - | 2.41 | 2.66 | 2.72 | 2.54 | 2.28 | 2.19 |

## Valuation

Using a relative valuation approach, REV Group appears to be fairly valued in comparison to industry competitors. DCF analysis implies that the stock is worth $21.24 on a P/B basis. This gives an implied upside of 29.4%. A P/E based DCF analysis values REVG at $17.66, giving an implied upside of 7.6%.

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 1.7 | 8.5 | - | - | 32.1 | 10.7 | 9.2 |
| *Industry* | 18.5 | 9.6 | 18.5 | 31.0 | 51.1 | 13.7 | 9.6 |
| P/S | 1.00 | 0.20 | 0.32 | 0.24 | 0.45 | 0.41 | 0.40 |
| P/B | 3.79 | 0.84 | 1.47 | 1.16 | 2.04 | 1.72 | 1.51 |
| P/CF | 79.55 | 13.40 | 13.01 | 10.02 | 8.31 | 12.78 | 8.13 |
| EV/EBITDA | 20.85 | 15.90 | | 76.54 | 76.54 | 9.19 | 7.52 |
| D/P | - | 110% | 99.2% | 31.3% | 10.2% | 14.1% | 12.3% |

## Risks

- Rising raw material prices or inability to obtain materials
- Economic slowdown tied to increased Covid case counts or double dip recession
- Market saturation due to similar competitor products

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## Company Overview

REV Group, Inc. (REVG) is a holding company that manufactures, distributes, and designs specialty vehicles and related aftermarket parts and services. Originally founded in 2010, under the Allied Specialty Vehicles name, REV Group went public in Q1 of 2017. REVG operates through the following three segments: Fire and Emergency, Commercial, and Recreation. The Fire and Emergency segment offers fire apparatus and ambulance products. The Commercial segment manufacturers transit and shuttle buses, type A school buses, mobility vans, sweepers, and terminal trucks. The Recreation segment covers motorized recreational vehicles and application trailers. REVG operates primary in the United States and Canada with those sales accounting for 94.0% of the firm's total revenue. 58.0% of REVG sales (direct and indirect) are to government bodies and municipalities. REVG owns and operates twenty-one manufacturing hubs and eleven service and dealer centers across the United States. Manufacturing facilities amount to roughly four million square feet of owned operating capabilities. REVG is headquartered in Brookfield, WI, and employees roughly 7,600 individuals.

REV Group, Inc. generates revenue through three core business segments:

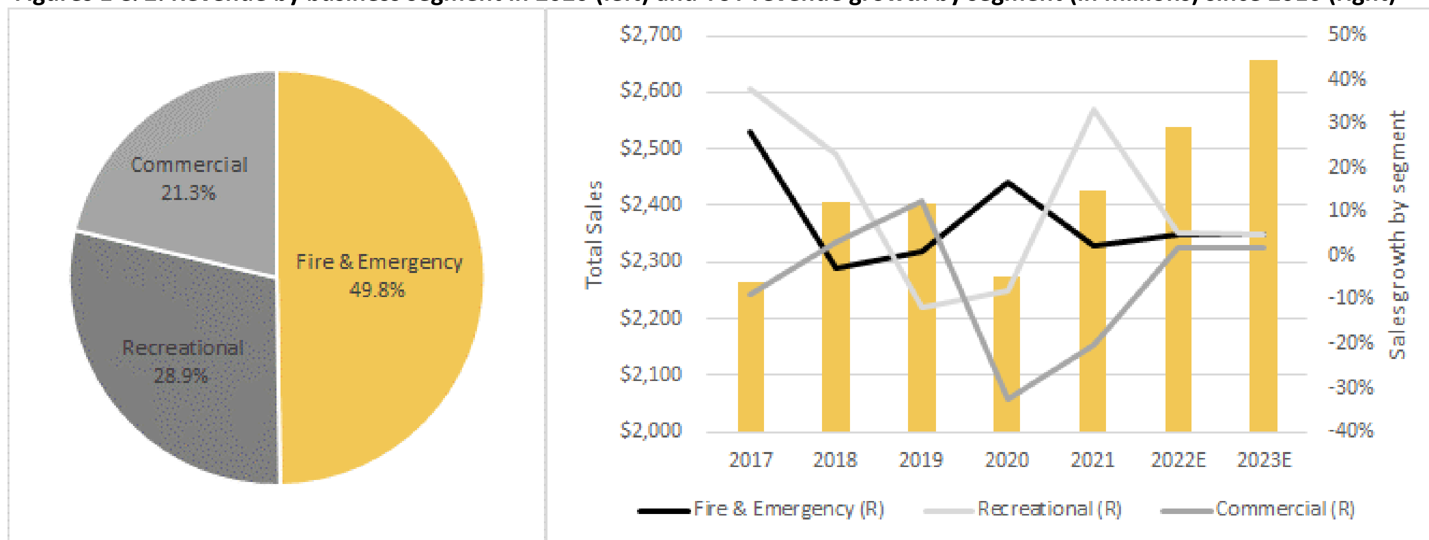
Revenue has grown at a CAGR of 4.7% and gross profits at 5.7% since 2014

**Fire and Emergency (49.7% of revenue):** Segment revenue has increased at a CAGR of 12.2% since 2014, and 8.4% organically. Products included in this segment include Type I, II, and III ambulances, pumpers, ladder trucks, tankers, rescue, as well as custom cabs and chassis. REVG sells fire apparatuses under the brands Emergency One, Kovatch Mobile Equipment, and Ferrara, and ambulances under American Emergency Vehicles, Horton Emergency Vehicles, Leader Emergency Vehicles, Marque, McCoy Miller, Road Rescue, Wheeled Coach and Frontline brands. During Q2 of 2020, REVG acquired Spartan Emergency Response.

**Recreational (28.9% of revenue):** Segment revenue has grown at a CAGR of 4.7% since 2014. Products included in this segment are Class A, B, C, and "super C" motorhomes. REVG sells RVs under the brand names American Coach, Fleetwood RV, Holiday Ramber, Renegade RV, Midwest, and Lance.

**Commercial (21.3% of revenue):** Segment revenue has declined at a CAGR of negative 4.9% since 2014. The municipal segment operates through Collins buses and ENC Brands. The terminal truck segment operates through Capacity Brands and the sweeper segment through the Lay-Mor Brands.

**Figures 1 & 2: Revenue by business segment in 2020 (left) and YoY revenue growth by segment (in millions) since 2016 (right)**




*Source: Company Reports, FactSet*

## Business/Industry Drivers

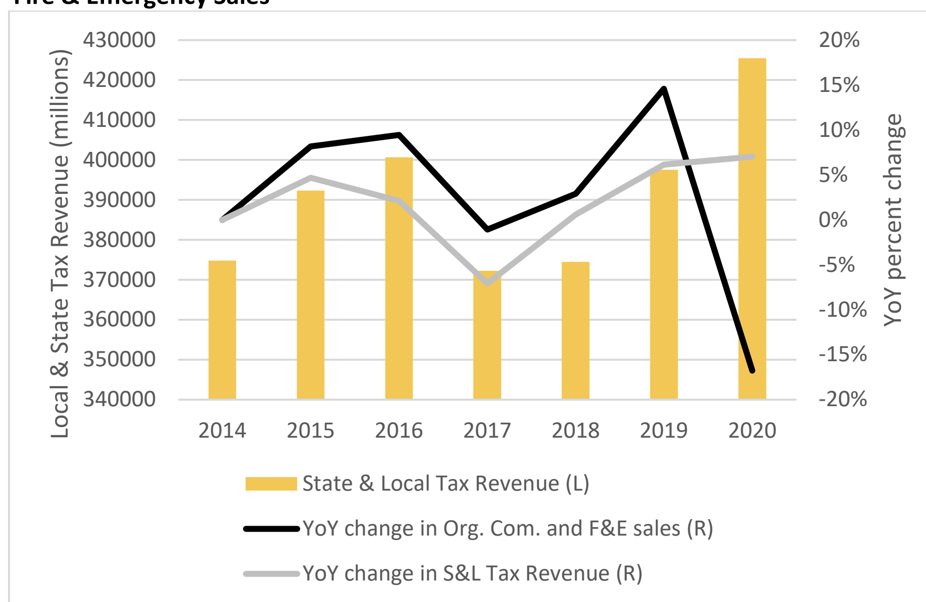
REV Group has a number of avenues to increase its top and bottom lines, some of the biggest include:

1) Tax Revenue and New Spending Initiatives
2) Acquisitions and strengthening portfolio
3) Recreational Vehicle Demographics and Sales Trends
4) Segment Competitor Analysis
5) Macroeconomic Trends

Tax Revenue and New Federal Spending Initiatives

REV Group derives roughly 58.0% of its revenue through sales to municipalities. Top line CAGR sales growth since 2014 has been roughly 4.8% for the firm, with organic CAGR closer to 3.1%. These sales primarily come from REVG's fire & emergency and commercial segments and are driven by replacement windows as well as tax revenue generated through state and local municipalities. As seen in the chart below, state and local tax revenue is somewhat cyclical growing at a CAGR of roughly 2.1%. You can see that REVG's sales correlate well with state and local revenues. The decline in commercial sales can be attributed to schools moving to an online format during fiscal year 2020, leading to lower demand for Class A school buses. Given rebounding tax revenues and school openings and low 2020 sales, this may mean that there is a growing pent-up demand for these vehicles in the coming years.

**Figure 3: Total State and Local Tax Revenue vs Change in REVG Commercial and Fire & Emergency Sales**




*Source: Company Reports, FactSet, Analyst Estimates, Bloomberg (SREVTOTL)*

Replacement windows for many of these products is fairly consistent, due to the fact that they are tied to state and federal spending initiatives. However, the Covid-19 pandemic caused many local municipalities to delay replacing equipment due to economic uncertainty.

**Figure 4: Average Life Span and Replacement Costs by Product type**

| Type | Average Life Span | Average Replacement Cost |
|---|---|---|
| Ambulances | 5-7 Years | $65,000 to $350,000 |
| Pumper Trucks | 10-12 Years | $200,000 to $650,000 |
| Aerial Trucks | 20-30 Years | $500,000 to $1,200,000 |
| Transit Buses | 10-12 Years | $200,000 to $600,000 |
| Type A School Buses | 8-10 Years | $45,000 to $80,000 |

*Source: Company Reports, Analyst Estimates*

Substantial amounts of economic stimulus were and are continuing to be injected into the economy, including large sums to state and local governments. Through the Cares Act and The American Rescue Plan, a total of $650 billion has been allocated to these local municipalities as well as an additional $200 billion worth of funding to public and private schools. That additional funding is roughly 15.5% of fiscal year 2020 state and local tax revenue. With REVG's large exposure to municipalities as mentioned above, these initiatives could drive further top line growth in the Fire & Emergency and Commercial segments.

The firm recently engaged in a partnership with Lightning eMotors to manufacturer EV ambulances

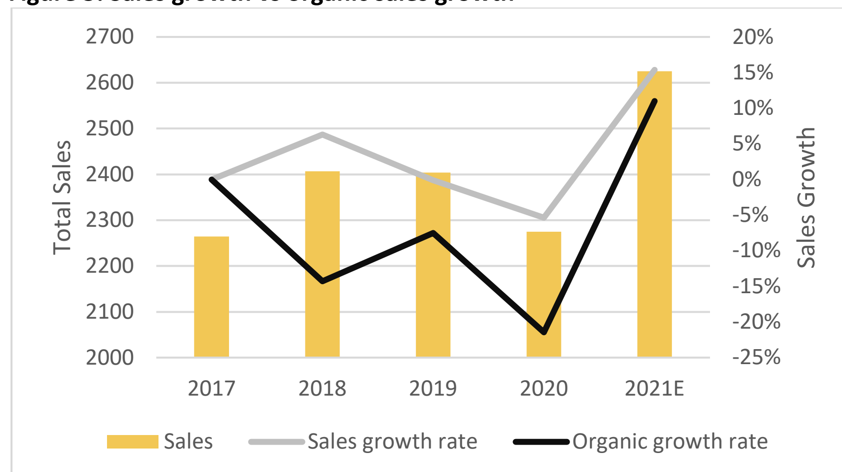
Other initiatives that could spur growth across both of these segments is the push for electrifying federally and state-funded municipalities. A proposal in the Infrastructure Bill currently being debated in Washington includes $5 billion ($1 billion for five fiscal years) in federal funding to public and private schools for an electric bus fleet. Through REVG's Collins Bus subsidiary, the firm has already begun taking orders for Type A electric school buses. This bill could lead to purchase demand of roughly 24,000 buses according to the White House. This won't have a significant effect of the company's overall revenue because buses only constitute roughly 20.0% of overall sales. This kind of policy proposal could have broader implications for other categories in the public sector, including REVG's fire & emergency brand portfolio offering, which REVG is in the early stages of offering select EV fire apparatuses and ambulances.

Acquisitions and Strengthening Portfolio

In fiscal year 2020, REVG divested from its shuttle bus line, which was sold to Forest River.

Since REV Group's formation in 2010, the firm has attempted to drive top-line revenue growth with acquisitions that enhanced one of REVG's three-core segments. The focus is on acquisitions in the fire & emergency and recreational segments. Both of these segments have grown to represent a total of roughly 80.0% of the firm's total revenue. Acquisitions spanning back to 2016 amount to a total value of $341 million. Sales acquired through these acquisitions amount to a total of $1024.8 million or close to 45.0% of sales. Both the fire & emergency and recreational vehicle are both non-fragmented industries. The top four producers in both industries make up roughly 80.0% of the total market share. REVG's market share in the fire & emergency industry is roughly 41.0%.

**Figure 5: Sales growth vs organic sales growth**




*Source: Company Reports, FactSet*

REVG's acquisitions have led to top line growth; however, organic growth has actually been negative. If the sales from these acquisitions are netted out, organic revenue CAGR since 2017 of -14.6%.

**Figures 6: Notable acquisitions since fiscal year 2016, price includes acquired cash**

| Closing Date | Firm Acquired | Segment | Price (millions) |
|---|---|---|---|
| 2/3/2020 | Spartan Emergency Response | Fire & Emergency | $55.0 |
| 1/15/2018 | Lance Camper | Recreational | $67.3 |
| 4/25/2017 | Ferrara Fire Apparatus | Fire & Emergency | $97.8 |
| 4/13/2017 | Midwest Automotive Designs LLC | Recreational | $34.9 |
| 4/22/2016 | Kovatch Mobile Equipment Corp. | Fire & Emergency | $39.6 |
| 12/30/2016 | Renegade RV | Recreational | $22.5 |

*Source: Company Reports, FactSet, Press Releases*

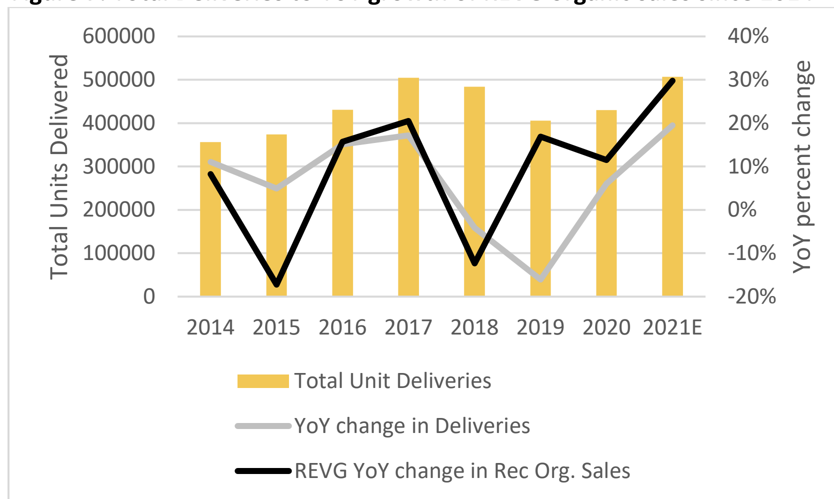
In 2020, REVG appointed a new CEO Rod Rushing (formerly of Johnson Controls) and has begun to reevaluate some prior acquisitions. Many of these acquisitions, particularly in the fire & emergency segment, were based on the philosophy of economies of scale. The firm may be taking a different approach by divesting some businesses (a loss of $11 million). Now management is focused on the six-sigma lean production philosophy. One major initiative is the closure of several KME production plants in the coming years, and concentration production into other like product plants. Another initiative is integrating all fire apparatus doors into one type of door model. The firm believes this will help drive gross profit margins and EBITDA margins which stayed stagnant at roughly 10.0% and 7.0% respectively since 2014.

Recreational Vehicle Owner Demographics and Sales Trends

Millennials and Gen-Z buyers primary stick to Class B and smaller pull-behind options.

REVG's second largest product segment is recreational, consisting of primary motorized RV's as well as two pull-behind trailer offerings. This business segment's CAGR was roughly 5.2% since 2013, while overall RV unit deliveries over this time have grown at a CAGR of about 4.3%. According to RVIA (RV Industry Association), RV deliveries are projected to grow 19.5% in 2021 over 2020. RV deliveries in 2021 are projected to hit roughly 507,200 units. Baring supply chain hick-ups, this would be the largest recorded delivery total ever. REVG could see recreational revenue of $854 million and YoY growth of roughly 29.8%. This is a substantial increase that can be attributed to both the injection of stimulus into the economy, an aging population demographic, and trips that don't require flights as people's fear of Covid are at the forefront.

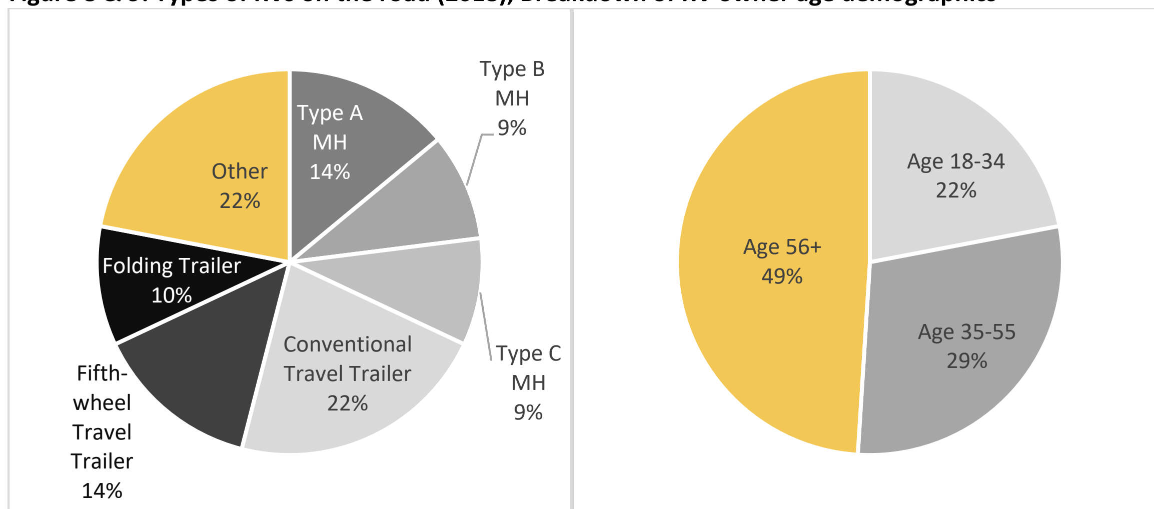
**Figure 7: Total Deliveries to YoY growth of REVG organic sales since 2014**




*Source: Company Reports, FactSet, RVIA*

Demand for recreational vehicles has begun to spread more evenly across all age demographics. There are many factors that can be attributed to this including the van-life movement that has spread across social media. The average age of an RV owner is now around 48 years old. More than 11% of U.S. households headed by 35-54-year-olds own an RV, exceeding the 9.3% ownership rates of those 55 and over. However, REV Groups main offering of Class A and C motorhomes are primary sold to the 55-70-year-old age group. This is due to the high cost of these offerings, which can range from the low end of $50,000 to high end models selling for $200,000 and up. Persons above the age of 55 make up 60.0% of Class A ownership in the United States. With new buyers coming into the market, REVG has seen its backlog significantly increase. REVG's recreational backlog at the end of Q3 of 2021 sat at $1.57 billion, a 252% increase from Q3 of 2020. This constitutes roughly 8 months of revenue.

**Figure 8 & 9: Types of RVs on the road (2018), Breakdown of RV owner age demographics**




*Source: FactSet, Company Reports, Analyst Estimates, RVDA*

There is an increased interest in RV ownership among younger age groups, particularly among Millennial and Gen Z adult age consumers (18-32 years old). According to a RVIA survey, 84.0% of individuals from this demographic who already own an RV plan to buy another within the next five years. 78.0% of that group say they prefer to buy a new model. This can again be tied back to the van life movement mentioned above. With younger generations preferring experiences over possessions, an RV allows these individuals the freedom to do these things. It also can lead to future demand for better RV models or larger more expensive offerings. These consumers' move from a Class B model into a Class A or C would allow REVG to drive top-line growth as Class A and C models are the firm's main offerings. It would lower the reliance on what has been an industry catalyst for years, that being an aging population. This will still be an important market, but overall, more interest from young consumers will create a more diversified consumer base.

Segment Competitor Analysis

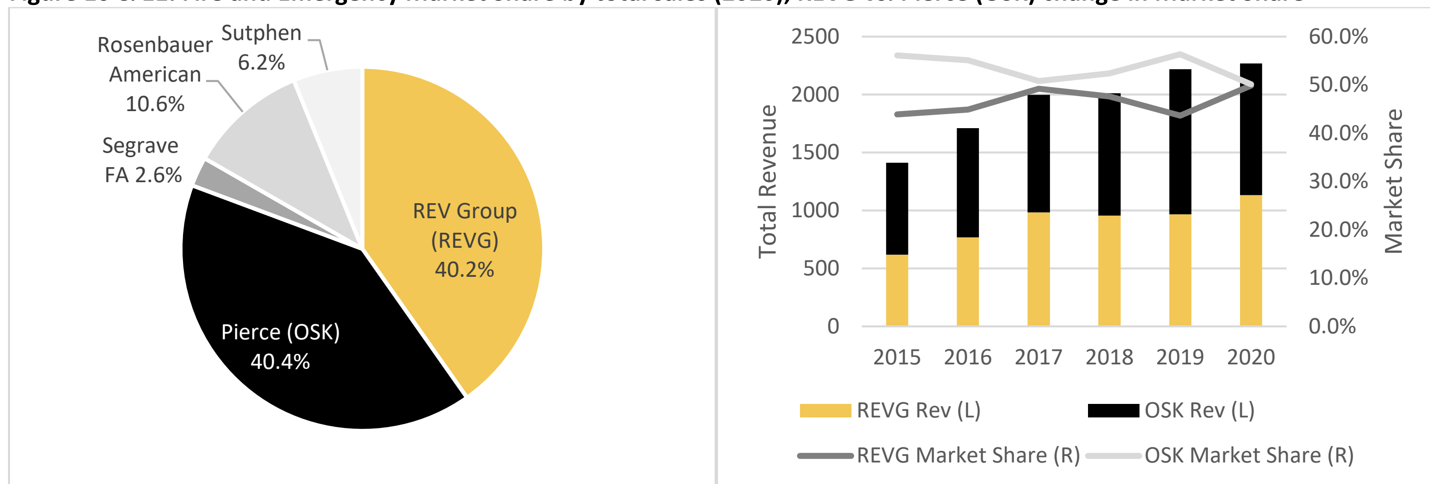
REVG holds the number one market position in ambulance sales in the United States.

REVG operates primarily in two business segments, Recreational and Fire & Emergency, with these segments accounting for 80.0% of fiscal year 2020 sales. Fire apparatus and ambulances are projected to grow at a low single-digit CAGR of between 3.0% to 5.0%. In 2020 sales figures, REVG and Pierce, a division of Oshkosh Corporation, hold a 40.2% and 40.4% market share respectively. To a lesser extent Seagraves, Sutphen, and Rosenbauer America LLC (a subsidiary of Rosenbauer International) hold roughly a 17.0% combined market share. The reason for this concentration is that many fire apparatuses, pumper, aerial, and ambulance manufacturers work in regional areas in the country.

Pierce (Oshkosh Corporations' fire and emergency segment) has significantly higher margins than REVG in this segment. Pierce holds an operating margin of 13.0% in comparison to REVG's (fire and emergency segment) 7.8%. This could be explained by REVG's heavy M&A which has hurt margins in the short run.

Further, the majority of REVG's M&A has been in this segment (accounting for 57.5% of the firm's acquisitions since 2015).

**Figure 10 & 11: Fire and Emergency Market Share by total sales (2020), REVG vs. Pierce (OSK) change in Market Share**

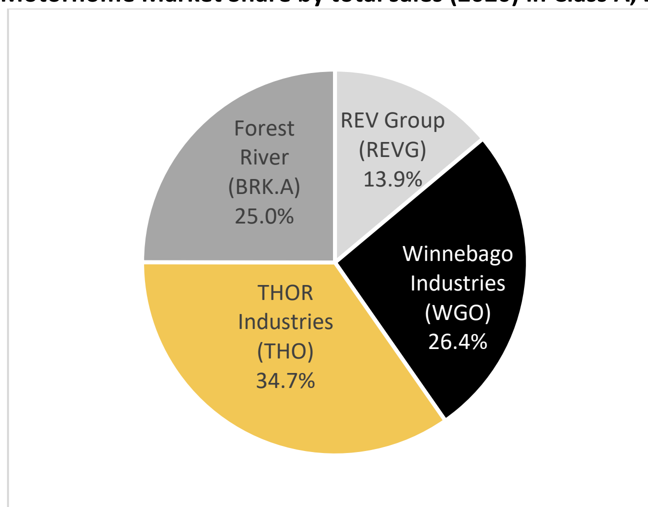



*Source: FactSet, Company Reports, Analyst Estimates*

REVG's second largest segment is recreational. It has similar market characteristics to the fire & emergency industry. The industry is highly consolidated; however, the product offerings are different as certain manufacturers leverage more resources into specific product offerings. In REVG's case, this would be Class A and C motorhomes. Overall, REVG does not hold a competitive market share in this industry. The major players in this industry include Thor Industries, Winnebago, and Forest River (Berkshire Hathaway subsidiary), with these companies holding a combined market share of 86.1% in motorhomes sales. Companies like Thor Industries have scaled through M&A activity, and large commercial retailers like Camping World working close with Forest River and Thor Industries. In the long run, REVG can achieve top and bottom-line growth as demand rises for Class A RVs by Gen X and Baby Boomers.

Another thing to note about the industry is operating margins relative to REVG. The two large industry players, Winnebago (WGO) and Thor Industries (THO), hold average operating margins of 14.9% and 13.5% over the past 5-years. REVG in contrast sits at 5.52%. This may be a sign of low pricing power or high fixed costs, with the latter being a focus of the firm moving forward. If successful, it is very possible that REVG could expand these margins significantly.

**Figure 12: Motorhome Market Share by total sales (2020) in Class A, B, and C RV's**



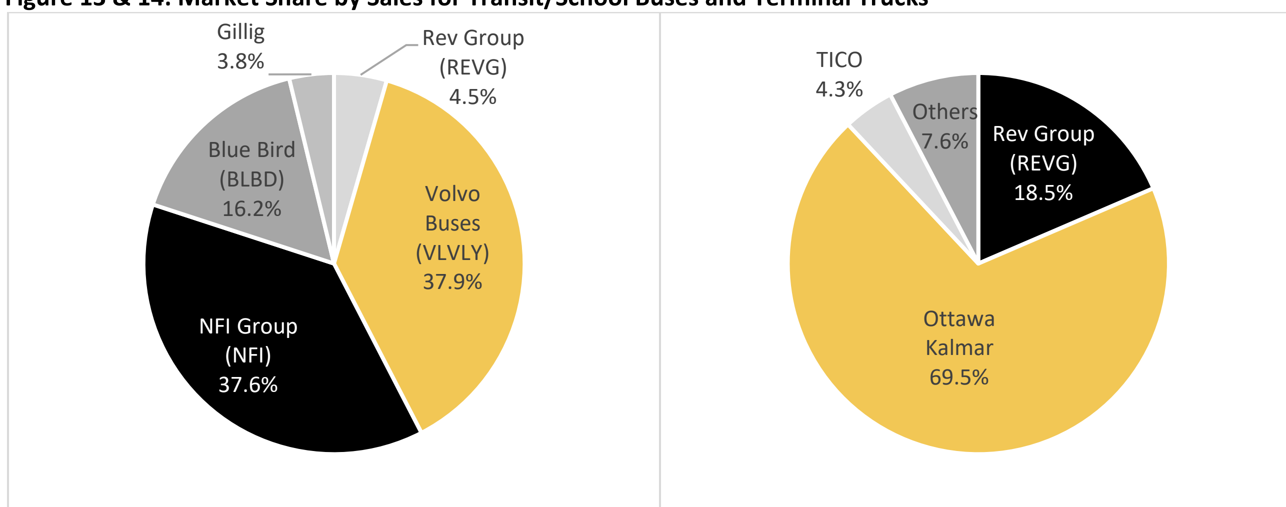

*Source: Company Reports, RVDA, Company Estimates, Analyst Estimates*

Many companies compete with REVG's commercial segment. No one competitor competes directly with all of REVG's product offerings. REVGs main offerings are transit and Class A school buses and terminal trucks. Competitors in the commercial and transit bus industry include Blue Bird Corporation, NFI Group, Volvo Buses, and Gillig. Rev Group holds a relatively small market share as it only has one transit bus and one Class A school bus offering.

Operating margins among REVG's competitors in this space sit at a 5-year average of roughly 10.7%. In comparison, REVG sits at 7.4%. However, this number could be slightly distorted due to the fact that REVG divested from its line of shuttle buses in 2020. From the firm's reporting, it can be implied that this business had little to no earnings.

In the terminal truck industry, REVG holds an approximate market share of 18.5%. The market is dominated by Ottawa Kalmar, which is a merger between Ottawa and Kalmar companies. The terminal truck industry is heavily consolidated with very few main players. Considering REVG's relatively small market share, it can be assumed that margins and pricing power is significantly lower than Ottawa Kalmar.

**Figure 13 & 14: Market Share by Sales for Transit/School Buses and Terminal Trucks**



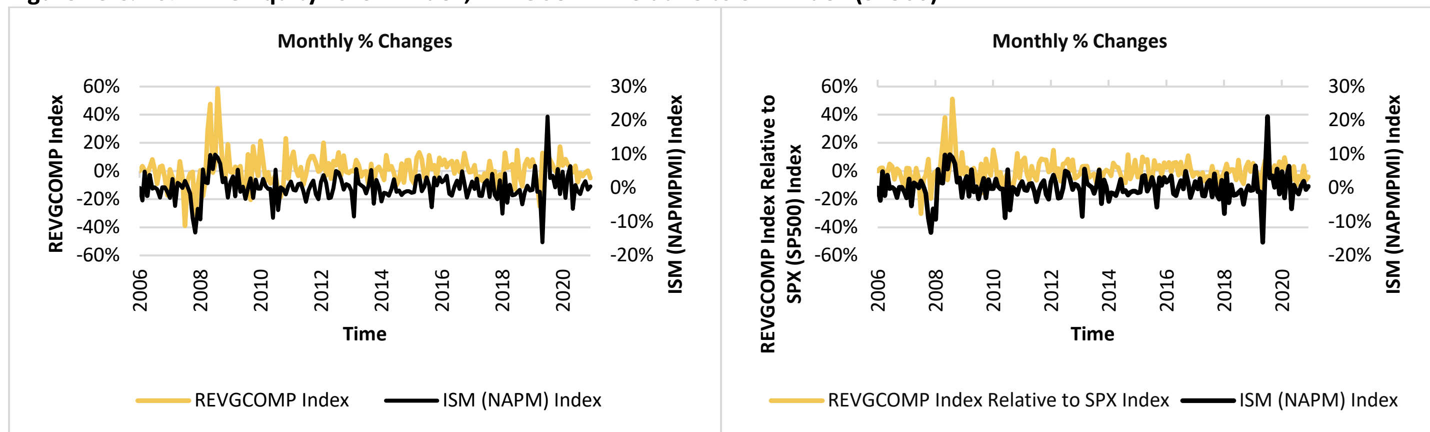

*Source: Company Reports, FactSet, Analyst Estimates, Company Estimates*

<u>Macroeconomic Trends</u>

REVG's business model makes the firm highly susceptible to economic conditions, both good and bad. The recreational and commercial segments are highly exposed to economic turndowns, as experienced in 2020 when sales fell dramatically. Since then, both of these segments have grown significant backlogs. The fire & emergency segment is relatively defensive as it's able to hold firm during downturns as sales are tied to the government and are for necessities. Top line revenue actually increased during fiscal year 2020. Assuming the recovery continues, revenue growth should rebound.

Figure 15 shows relevant competitors of REVG trade relatively in line with the ISM Index (NAPM). However as seen coming out of the 2008 crash this index outperformed and slightly led the ISM. The main reason for this can be tied to the cyclical nature of the firms in this industry (e.g., recreational vehicles, commercial trucking equipment, school, and transit buses). If investors feel more optimistic about the economy it can assumed that these stocks, including REVG become more attractive.

**Figure 15 & 16: REVG Equity vs ISM Index, REVGCOMP Relative to SPX Index (SP500)**




*Source: FactSet*

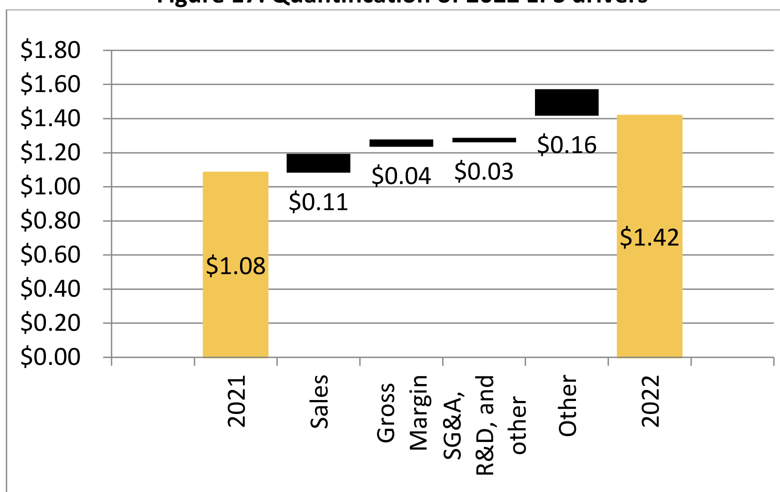
Figure 15 &16 shows that REVG's comps are more volatile than the SPX index. This can be explained again due to the cyclical nature of many of these firms. I believe '08 gives a great indicator of how these firms may perform moving forward based on economic conditions. Assuming the recovery continues, it can be implied that these firms including REVG should outperform the SPX index for the next two years.

## Financial Analysis

I anticipate EPS to grow to $1.42 in FY 2022. The firm will grow revenue, primarily from the fire & emergency and recreational segments spurred from economic reopening. This will contribute $0.11 to EPS. I expect gross margin to expand due to more efficient operations, one example being the consolidation of manufacturing hubs, this will add $0.04 to EPS. I anticipate that SG&A will fall slightly as a percent of sales, adding $0.03 to earnings. Finally, I forecast that the authorized share buyback program of $150 million worth of shares over the next 24 months will result in an increase of $0.16 of EPS.

I anticipate the firm's buyback program to fall more in the $100 million range, due to the significant amount of new debt needed to reach that goal.

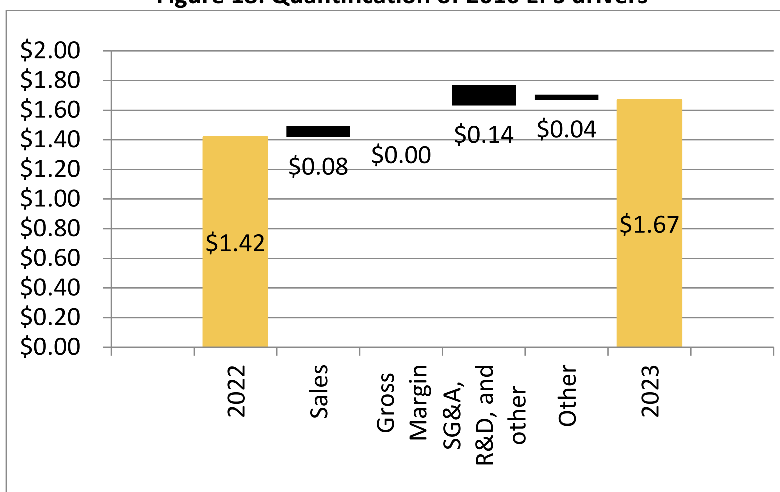
**Figure 17: Quantification of 2022 EPS drivers**




*Source: IMCP, Analyst Estimates*

I expect 2023 EPS to increase $0.25 to $1.67. Sales growth will add $0.08. I anticipate that by 2023 the economy should be fully open and back to pre-pandemic levels. I also anticipate there will be increased government spending towards municipalities due to delayed spending during 2020. I also expect consumer demand for recreational vehicles to continue to grow in the foreseeable future. Gross margins will see no change, thus having no effect on EPS. I predict REVG will cut SG&A and R&D as a percentage of sales, resulting in an increase in EPS of $0.14. A slight reduction in interest will increase EPS by $0.04.

**Figure 18: Quantification of 2016 EPS drivers**




*Source: IMCP, Analyst Estimates*

I am more pessimistic than consensus estimates for 2022; I believe raw material costs may increase due to inflation. However, I believe that with the company's cost cutting programs and goal to increase EBITDA margins to 6.0% to 7.0% by 2023, that earnings have a significant chance of increasing heading into 2023. As mentioned previously; I believe by 2023 the economy will be fully open. I anticipate the stars will align for REVG in 2023 due these conditions as well as the firm's commitment to improving efficiency.

There are currently no analyst estimates for 2023 revenue and EPS.

**Figure 19: Revenue and EPS and YoY growth and estimates**

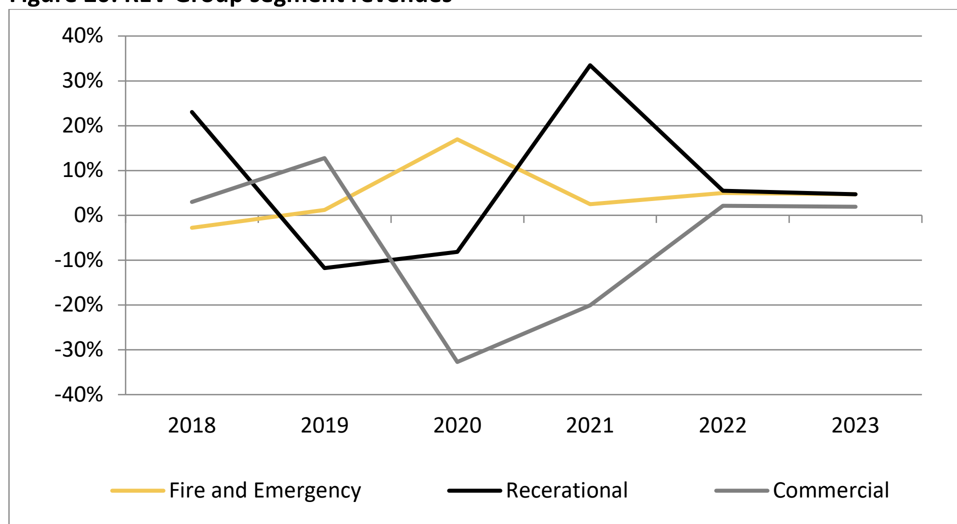
| | FY 2022E | FY 2023E |
|---|---|---|
| Revenue - Estimate | $2,539 | $2,659 |
| YoY Growth | 4.7% | 4.7% |
| Revenue - Consensus | $2,591 | - |
| YoY Growth | 6.8% | - |
| EPS - Estimate | $1.42 | $1.67 |
| YoY Growth | 30.9% | 17.7% |
| EPS - Consensus | $1.57 | - |
| YoY Growth | 45.1% | - |

*Source: IMCP, FactSet, Analysis Estimates*

Revenues

REV Group's revenue has been relatively flat since 2018. I expect there to be a slight pick-up moving into 2022 and 2023. I anticipate revenue to increase throughout each of the firm's segments, driven by U.S. economic reopening and pent-up consumer demand for recreational vehicles. REVG as a firm is somewhat handcuffed on the top-line growth it can achieve. This is due to the fact that fire & emergency sales (49.8% of total revenue) grow fairly consistently year to year, usually around 4.9%. The recreational segment on the other hand is poised to maintain its growth in 2021. RV sales have hit historic levels in 2021, with deliveries growing 40.0% from the previous year. RV deliveries are expected to increase roughly 2.0% moving into 2022, given REVG's high growth in 2021 and still record backlog. The firm should be poised to capture this increased consumer demand.

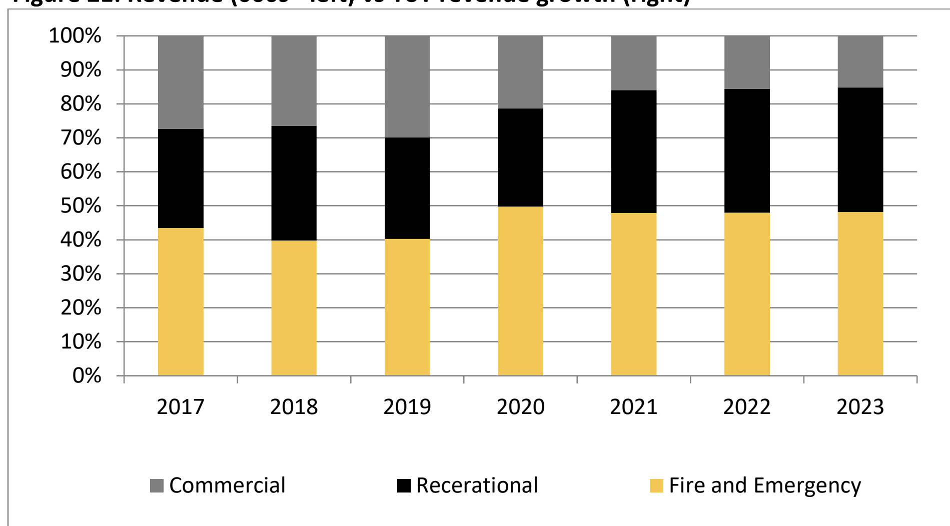
**Figure 20: REV Group segment revenues**




*Source: Company Reports, IMCP*

The chart below shows how the divestiture from REVG's shuttle bus products resulted in the commercial segment revenue decreasing significantly (as a proportion of total revenue) in 2020 and moving forward. REVG will rely on its fire & emergency and recreational offerings for the vast majority of sales moving forward.

**Figure 21: Revenue (000s - left) vs YoY revenue growth (right)**

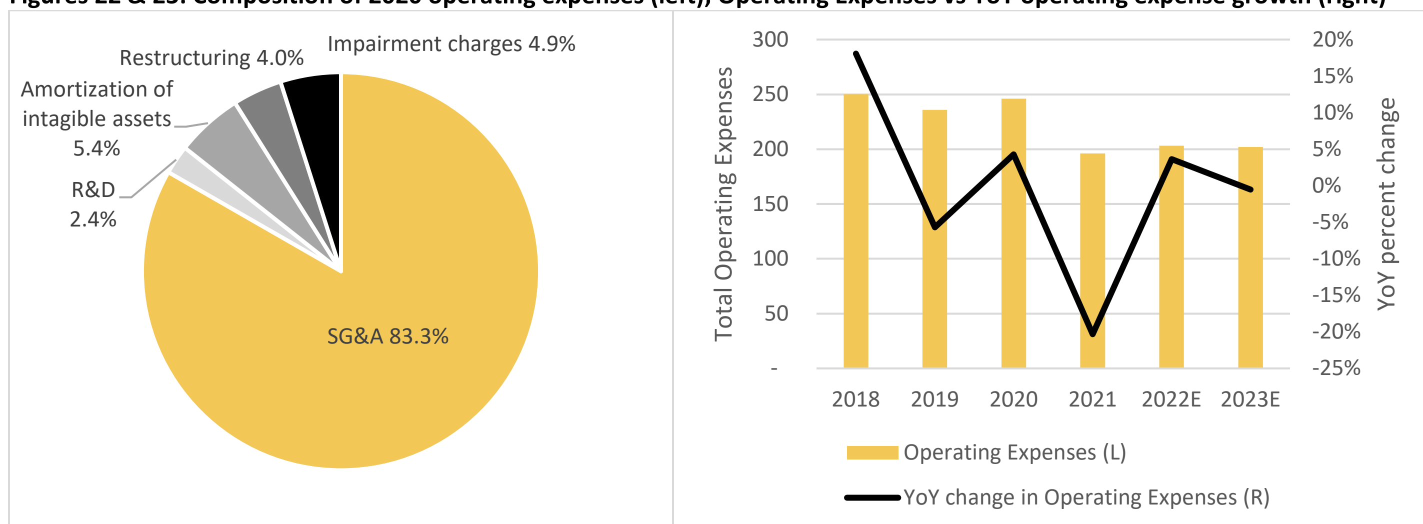



*Source: Company Reports, IMCP*

Operating Income and Margins

Operating expenses are composed primarily of selling, general and administrative expenses with other expenses being evenly distributed. Restructuring expenses are primarily due to the firm's large M&A activity. Moving forward, I anticipate these expenses to decrease due to less erratic acquisition behavior. However, I expect most of the savings to come out of SG&A because I believe sales will grow at a higher rate than SG&A. REVG has proven to be capable of this as SG&A decreased 20.0% in 2021, while sales grew 6.6%.

**Figures 22 & 23: Composition of 2020 operating expenses (left); Operating Expenses vs YoY operating expense growth (right)**




*Source: IMCP, Analyst Estimates, Company Reports*

REV Group plans to consolidate production of its different lines of fire & emergency equipment into a centralized manufacturing process. The firm is also creating a uniformed door that will be used for all its

fire pumpers. This will allow for possibly automating production more moving forward. This initiative will help cut back on overhead and maximize operating margins of what is been typically a lower margin business. The only hindrance to this plan is if material costs from suppliers increase due to persistent inflation. If this is the case, operating margins will suffer regardless of any of these cost-cutting plans.

**Figure 24: REVG 2020 Operating margins, 2017 – 2023E**

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| Sales | $2,264 | $2,407 | $2,404 | $2,274 | $2,425 | $2,539 | $2,659 |
| COGS | $1,969 | $2,129 | $2,152 | $2,046 | $2,113 | $2,209 | $2,313 |
| Gross Income | $295 | $278 | $252 | $228 | $312 | $330 | $346 |
| *Gross Profit* | 13.0% | 11.5% | 10.5% | 10.0% | 12.9% | 13.0% | 13.0% |
| Operating Expenses | $212 | $250 | $236 | $246 | $196 | $203 | $202 |
| *Growth* | - | 18.1% | -5.7% | 4.3% | -20.3% | 3.6% | -0.5% |
| Operating Income | $83 | $28 | $16 | -$18 | $116 | $127 | $144 |
| *Operating Margin* | 3.7% | 1.2% | 0.7% | -0.8% | 4.8% | 5.0% | 5.4% |

*Source: IMCP, Analyst Estimates, FactSet*

The chart above illustrates the effect of both increased top line revenue but also conscious cost cutting resulting in operating margin expansion. It should be noted that REV Group has only been a public company since 2017 and was initially formed in 2012. Throughout that time, it participated in aggressive M&A activity. This led to neglect towards margins, as the business tried to scale market share. With much of this activity in the rearview, the company can begin to look internally and begin to truly focus on margins expansion. This is one of the primary goals of newly appointed CEO Rodney Rushing.

Return on Equity

REV Group has had a low or negative ROE over the past three years but saw a substantial rebound in 2021. Over the coming two years, I expect ROE to continue to increase to 15.9% to 16.9% respectfully. A 5-stage DuPont analysis for REVG reveals that ROE is driven primarily by EBIT margins, as margins rise ROE rises. Asset turns is also a key driver, which fell between 2018 and 2020 before rebounding in 2021. The ROA rise in the coming years is primarily due to efficiency measures and manufacturing consolidation. Overall, the DuPont model below indicates that REVG has good prospects moving forward into 2022 and 2023.

**Figure 25: ROE breakdown, 2017 – 2023E**

| 5-stage DuPont | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|
| EBIT/Sales | 1.2% | 0.7% | -0.8% | 4.8% | 5.0% | 5.4% |
| Sales/avg assets | 180.8% | 174.5% | 171.0% | 189.1% | 194.1% | 187.9% |
| EBT/EBIT | 7.9% | -104.4% | 257.5% | 78.4% | 86.3% | 85.6% |
| Net income/EBT | 527.3% | 75.9% | 66.2% | 76.9% | 80.0% | 80.0% |
| ROA | 0.9% | -0.9% | -2.3% | 5.5% | 6.7% | 7.0% |
| Avg assets/avg equity | 241.0% | 265.5% | 272.1% | 253.9% | 237.6% | 243.5% |
| **ROE** | 2.1% | -2.4% | -6.2% | 13.9% | 15.9% | 16.9% |

*Source: IMCP, Analyst Estimates, FactSet*

I expect ROE growth in the next two years to be affected by financial leverage, as REVG is expected to increase short/long-term borrowing to help fund their share buyback program. This additional debt will have a material impact on REVG's solvency, as the debt/equity will increase from 48.5% in 2021 to 57.0%

in 2022, and again increase to 61.1% in 2023. Granted this is still significantly lower than previous years where debt/equity had risen to levels of 87.0% in 2019. Nonetheless, this increase is primarily driven by the firms share buyback program. On the other hand, asset/equity should fall modestly so the higher debt/equity ratio is not driving up ROE.

Free Cash Flow

**Figure 26: Free cash flow calculations (2017-2023E)**

| Free Cash Flow | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| NOPAT | $52 | $164 | $13 | -$12 | $93 | $102 | $115 |
| *Growth* | | *216.9%* | *-92.4%* | *-194.4%* | *-883.6%* | *9.5%* | *13.1%* |
| NOWC | 318 | 427 | 377 | 366 | 340 | 396 | 425 |
| Net fixed assets | 528 | 565 | 538 | 500 | 479 | 508 | 560 |
| Total net operating capital | $845 | $992 | $915 | $867 | $819 | $904 | $985 |
| *Growth* | | *17.4%* | *-7.8%* | *-5.2%* | *-5.5%* | *10.4%* | *8.9%* |
| - Change in NOWC | | 110 | (51) | (10) | (26) | 56 | 29 |
| - Change in NFA | | 37 | (27) | (38) | (22) | 29 | 52 |
| FCFF | | $17 | $90 | $36 | $141 | $16 | $34 |
| *Growth* | | | *421.3%* | *-59.8%* | *288.9%* | *-88.3%* | *106.4%* |
| - After-tax interest expense | | 151 | 26 | 19 | 20 | 14 | 16 |
| + Net new short-term and long-term debt | | 192 | 18 | (81) | (98) | 60 | 45 |
| FCFE | | $58 | $82 | -$63 | $22 | $63 | $63 |
| *Growth* | | | *42.8%* | *-176.5%* | *-135.6%* | *179.0%* | *0.0%* |
| FCFF per share | | $0.28 | $1.44 | $0.57 | $2.17 | $0.27 | $0.58 |
| *Growth* | | | *424.4%* | *-60.7%* | *282.3%* | *-87.7%* | *116.4%* |
| FCFE per share | | $0.92 | $1.32 | -$0.99 | $0.35 | $1.01 | $1.06 |
| *Growth* | | | *43.6%* | *-174.9%* | *-135.0%* | *191.9%* | *4.8%* |

*Source: Company Reports, IMCP*

REVG's free cash flow has been quite volatile over the last several years. The firm paid off $98 million in debt in 2021, which was mostly incurred during the Covid pandemic. I forecast that NOPAT will grow slightly quicker than net operating capital over the next two years, and REVG's term loan facility gives it the ability to meet any funding shortfalls that may arise. The firm plans to repurchase $150 million worth of shares in the next two years. I'm hesitant to say if this goal can be meet without taping into the debt markets to fund part of this plan as FCFE without debt is barely positive. I expect both FCFF and FCFE per share to increase in 2022 and 2023 as the result of $105 million in new debt.

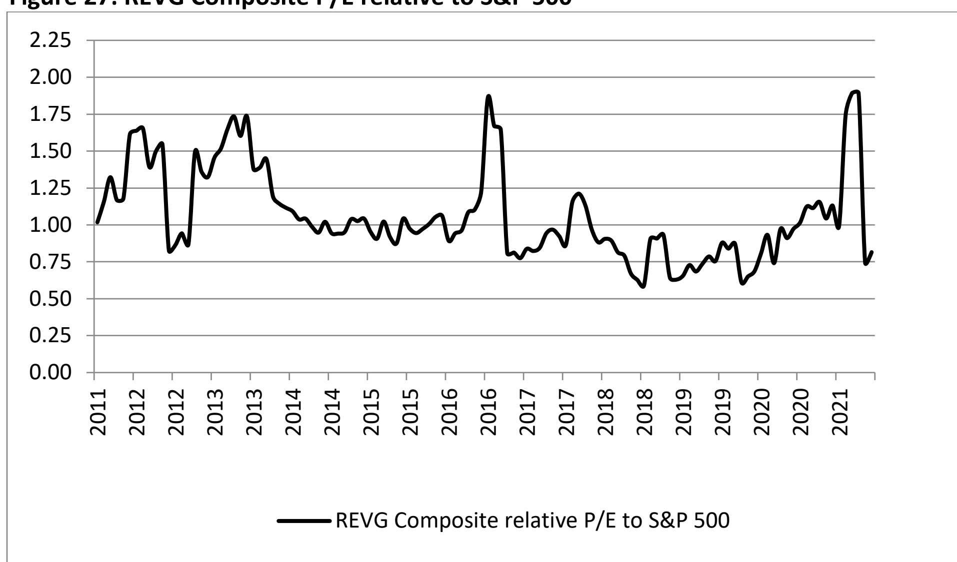
## Valuation

REVG was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is fairly valued relative and is worth $20.37; however, due to the volatility of REVG's earnings the past few years, as well as possible M&A opportunities moving forward, this metric may be unreliable. Relative valuation shows REVG to be significantly undervalued based on its fundamentals versus those of its peers in the specialty vehicle industry. Price to book valuation yielded a price of $18.76. A detailed DCF analysis using P/B values REVG slightly lower, at $21.24; I give this value a bit more weight because it incorporates assumptions that reflect REVG's ongoing structural changes. Applying P/E to the DCF model a price of $17.66 is yielded. As a result of these valuations, I value the stock at $21.24.

Trading History

REVG is currently trading below its historical average relative to the S&P 500. This is the result of recent earnings depression due to Covid and its cyclical nature. REVG's future outlook regarding its ambitious cost cutting program, has left some investor leery on the possibility of substantial future growth. REVG's current NTM P/E is at 11.5 compared to its five-year average of 12.3. I expect that this multiple should grow above the five-year average to 13.5 due to a more optimistic business outlook. As mentioned before, the firm relied heavily on M&A to drive sales in the past. With a more focused business model with less M&A, the company should become viewed by investors as more stable.

**Figure 27: REVG Composite P/E relative to S&P 500**




*Source: IMCP, FactSet*

Assuming the P/E rises to 13.5 NTM P/E at the end of 2022, it should trade at $16.72 by the end of the year:

- Estimated Price (2022) = P/E x EPS = 13.5 x $1.67 = $22.55.

Which this assumption and the stock's current trading price today, there is possibility of 37.3% appreciation in the stock price.

Discounting $22.55 back to today at a 10.70% cost of equity (explained in Discounted Cash Flow section) yields a price of $20.37. Given REVG's potential for earnings growth and increased profitability, this seems to be quite a bullish estimate. This could indicate investors are not factoring in risks associated with the economic health, inflation, or Covid resurfacing.

Relative Valuation

REV Group is currently trading at a P/B right in line with its peers, with a P/B of 2.02 compared to a median of 2.02. It would appear that investors are neutral on REVG because of the economic uncertainty still moving forward, questions about the firm's cost cutting plan, and firm maturity (has only existed for 10 years, 5 years public). This is also a reflection of REVG's relatively modest ROE compared to competitors in the space. On a P/E basis, REVG is trading a relatively rich valuation compared to competitors. This can be explained by the high earnings growth the firm is expected to have in 2022. Along with earnings compression due to economic shutdowns.

**Figure 28: REVG comparable companies**

| | | Current | Market | Price Change | | | | | | Earnings Growth | | | | | | | | LT Debt/ | S&P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Name | Price | Value | 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | LTG | NTM | 2020 | 2021 | 2022 | 2023 | Pst 5yr | Beta | Equity | Rating |
| REVG | REV GROUP INC | $16.29 | $1,055 | (0.4) | (7.9) | 6.5 | (16.1) | 55.9 | 84.9 | | 177.0% | -21.4% | 278.8% | 25.6% | 3.2% | | 2.36 | 50.0% | |
| OSK | OSHKOSH CORP | $111.89 | $7,551 | (1.0) | (2.8) | 2.3 | (13.5) | 30.8 | 30.0 | 18.9 | -17.6% | -31.0% | 9.3% | -6.2% | 71.4% | | 1.41 | 30.6% | B |
| THO | THOR INDUSTRIES INC | $102.66 | $5,710 | (1.6) | (4.7) | (8.3) | (11.7) | 9.1 | 10.4 | | 0.8% | 52.9% | 68.7% | 6.4% | 3.0% | | 2.11 | 73.3% | A- |
| WGO | WINNEBAGO INDUSTRIES | $69.33 | $2,320 | (2.7) | (2.5) | (0.9) | 1.6 | 24.9 | 15.7 | | 17.6% | 42.2% | 93.4% | 1.6% | 0.0% | | 1.96 | 53.0% | B |
| NFI-CA | NFI GROUP INC | $16.41 | $1,165 | (3.2) | (19.3) | (29.8) | (22.5) | (8.9) | (13.4) | | 299.1% | -141.9% | -92.6% | -1528.6% | 139.0% | | 1.89 | 140.8% | |
| VLVLY | VOLVO AB | $22.34 | $35,493 | (0.4) | (6.6) | 1.8 | (18.3) | (2.3) | (5.3) | 16.5 | 2.4% | -38.3% | 57.5% | 11.8% | 6.5% | | | | |
| **Average** | | | $3,560 | (1.6) | (7.3) | (4.7) | (13.4) | 18.2 | 25.5 | 18.9 | 95.4% | -19.8% | 71.5% | -300.2% | 43.3% | | 1.95 | 69.5% | |
| **Median** | | | $2,320 | (1.3) | (5.7) | 0.4 | (14.8) | 17.0 | 15.7 | 18.9 | 17.6% | -21.4% | 68.7% | 1.6% | 3.2% | | 1.96 | 53.0% | |
| **SPX** | S&P 500 INDEX | $4,667 | | (0.7) | (0.4) | 3.9 | 10.6 | 27.1 | 24.3 | | | -15.3% | 46.5% | 9.6% | 7.4% | | | | |

| | | 2021 | | P/E | | | | | | | 2021 | 2021 | | | | EV/ | P/CF | Sales Growth | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Website | ROE | P/B | 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | NPM | P/S | NM | OM | ROIC | EBIT | Current | NTM | STM |
| **REVG** | http://www.revgroup.com | 15.5% | 2.02 | 29.1 | 27.0 | 13.0 | 31.8 | 11.5 | 10.4 | 10.1 | 3.4% | 0.44 | -1.3% | 0.5% | -3.6% | 78.8 | 9.2 | 5.5% | 9.9% |
| **OSK** | http://www.oshkoshcorp.com | 11.8% | 2.34 | 12.7 | 16.6 | 20.0 | 16.4 | 19.9 | 21.2 | 12.4 | 5.1% | 1.01 | 6.1% | 7.1% | 11.8% | 12.2 | 14.8 | 3.9% | 9.7% |
| **THO** | http://www.thorindustries.com | 23.4% | 1.95 | 15.5 | 13.3 | 8.1 | 7.3 | 7.2 | 7.8 | 7.6 | 5.2% | 0.44 | 5.4% | 7.4% | 15.4% | 8.6 | 5.7 | 9.4% | |
| **WGO** | http://www.winnebagoind.com | 27.7% | 2.17 | 16.5 | 13.7 | 7.6 | 8.4 | 7.2 | 7.7 | 7.7 | 7.7% | 0.60 | 7.8% | 11.1% | 18.9% | 6.5 | | 17.8% | 1.0% |
| **NFI-CA** | http://www.nfigroup.com | -0.6% | 1.50 | 9.1 | -19.8 | -231.5 | 245.7 | 61.6 | 16.4 | 6.9 | -0.2% | 0.40 | -6.5% | -0.4% | -8.5% | -253.0 | 15.0 | 7.6% | 20.0% |
| **VLVLY** | http://www.volvogroup.com | 20.5% | 2.57 | 9.2 | 21.0 | 12.4 | 11.4 | 11.1 | 11.2 | 10.5 | 6.7% | 0.84 | 5.7% | 8.7% | 7.6% | 17.7 | 9.4 | | |
| **Average** | | 16.4% | 2.09 | 15.3 | 12.0 | -28.4 | 53.5 | 19.7 | 12.5 | 9.2 | 4.7% | 0.62 | 2.8% | 5.7% | 6.9% | -21.5 | 10.8 | 8.9% | 10.2% |
| **Median** | | 18.0% | 2.10 | 14.1 | 15.2 | 10.3 | 13.9 | 11.3 | 10.8 | 8.9 | 5.2% | 0.52 | 5.5% | 7.3% | 9.7% | 10.4 | 9.4 | 7.6% | 9.8% |

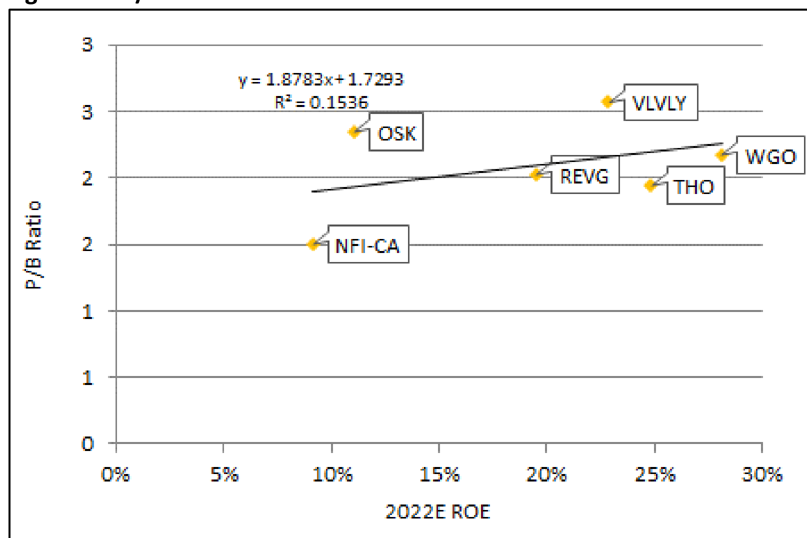
*Source: IMCP, FactSet*

A more thorough analysis of P/B and ROE is shown in figure 29. The calculated R-squared of the regression indicates that over 15% of a sampled firm's P/B is explained by its 2022E ROE. REVG has the median P/B and ROE among this group which would indicate that the stock is fairly valued. However, with the economic growth predicted as a result of the United States emerging from the Covid pandemic, I believe that ROE will be more highly valued by investors in the coming years.

- Estimated P/B = Estimated 2022 ROE (16.9%) x 1.878 + 1.729 = 2.046
- Estimated 2022 BVPS = Estimated 2022 Equity (599) / shares outstanding (59.0) = 10.152
- Target Price = Estimated P/B (2.046) x 2022E BVPS (10.152) = $20.77

Discounting back to the present at a 10.70% cost of equity leads to a target price of $18.76 using this metric. This gives the current stock 14.25% upside.

**Figure 29: P/B Ratio vs. 2022E ROE**




*Source: IMCP, FactSet*

For a final comparison, I created a composite that ranked several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. The comparisons used in this composite include 2021 ROE (100%), 2021 P/E (50%), as well as current P/B (50%).

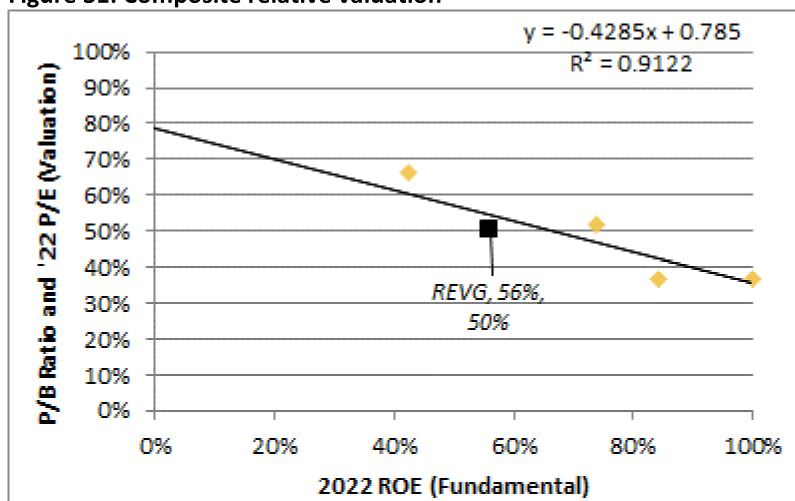
**Figure 30: Composite valuation, % of range**

| | | | | Fundamentals | Valuation | |
|---|---|---|---|---|---|---|
| | | | Weighted | 100.0% | 50.0% | 50.0% |
| Ticker | Name | Fund | Value | 2021 ROE | 2021 P/E | P/B |
| REVG | REV GROUP INC | 56% | 50% | 56% | 19% | 81% |
| OSK | OSHKOSH CORP | 43% | 66% | 43% | 32% | 100% |
| THO | THOR INDUSTRIES INC | 84% | 37% | 84% | 12% | 61% |
| WGO | WINNEBAGO INDUSTRIES | 100% | 37% | 100% | 12% | 62% |
| NFI-CA | NFI GROUP INC | -2% | 78% | -2% | 100% | 56% |
| VLVLY | VOLVO AB | 74% | 52% | 74% | 18% | 85% |

*Source: IMCP, FactSet*

As seen in the graph below the resulting distribution shows that REVG is fairly valued at the moment based on future fundamentals. I have confidence in this valuation because of the high R-squared value of 91.2%. From running similar models to the one below, it can be concluded that ROE can help explain P/B as well as P/E. P/E was used due to REVG's erratic financial history.

**Figure 31: Composite relative valuation**




*Source: IMCP, FactSet*

<u>Discounted Cash Flow Analysis</u>

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

For the purpose of this analysis, the company's cost of equity was calculated to be 12.10% 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 1.50%.
- A ten-year beta of 1.25 was utilized since the company has a higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 12.10% (1.00 + 1.25 (10.0 – 1.50)).

*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 $0.94 and $1.24, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $0.83 and $0.95 per share. Thus, stage one of this discounted cash flow analysis contributes $1.78 to 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 14.3% cost of equity. I assume 4.1% sales growth in 2024 through 2028. The ratio of NWC to sales will remain at 2023 levels as well as NFA turnover. Also, the NOPAT margin is expected to rise to 4.3% in 2024 and then stay at about this level. Finally, after-tax interest is expected to remain consistent at 4.1% per year as the result of a small increase in borrowing.

**Figure 32: FCFE and discounted FCFE, 2022-2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| FCFE | $0.94 | $1.24 | $1.27 | $1.31 | $1.37 | $1.42 | $1.48 |
| Discounted FCFE | $0.83 | $0.95 | $0.85 | $0.77 | $0.70 | $0.64 | $0.58 |

Added together, these discounted cash flows total $5.32.

*Stage Three* – Net income for the years 2022 – 2028 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from $1.42 in 2022 to $1.97 in 2028. BVPS should grow from $9.11 to $18.21.

**Figure 33: EPS estimates for 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| EPS | $1.42 | $1.67 | $1.68 | $1.75 | $1.82 | $1.90 | $1.97 |
| BVPS | $9.11 | $10.15 | $11.62 | $13.16 | $14.77 | $16.45 | $18.21 |

Stage three of the model requires an assumption regarding the company's terminal P/E and P/B ratios. For the purpose of this analysis, because of REVG's low margin business, their P/E would most likely be below the S&P historical average of 15. Therefore, a P/E ratio of 13.5 is assumed at the end of REVG's terminal year. This P/E is in-line with REVG's forward P/E over the past 5 years. A lower than market multiple to calculate a fair value in this situation is justified by REVG and its competitor's average five-year beta staying around 1.1. REVG will trade above this multiple in the short-term as the market prices in earnings growth potential along with elevated risk surrounding unstable economic conditions.

My 2028 EPS estimates do not reflect a recession through 2028, but I am also assuming moderate growth from today. Assuming today's EPS is "normal", then so it 2028's. Thus, we need a normal terminal P/B. The 5-year average P/B is 1.9 for REVG, which seems appropriate as it is a sufficient discount to the S&P 500's 2.9 P/B for this still young firm.

Given the assumed terminal earnings per share of $1.97 and a P/E ratio of 13.5, a terminal value of $26.63 per share is calculated. Using the 12.10% cost of equity, this number is discounted back to a present value of $11.95.

Given the assumed terminal BVPS of $18.21 and a P/B ratio of 1.9, a terminal value of $34.60 per share is calculated. Using the 12.10% cost of equity, this number is discounted back to a present value of $15.53.

*Total Present Value(P/E)* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $17.66 is calculated (1.83 + 3.88 + 11.95). Given REVG's current price of $16.42, this model indicates that the stock is slightly undervalued.

*Total Present Value(P/B)* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $21.24 is calculated (1.83 + 3.88 + 15.53). Given REVG's current price of $16.42, this model indicates that the stock is significantly undervalued.

REV Group can be difficult to value with certainty because over the past five years free cash flow has suffered due to aggressive M&A activity. Furthermore, the company has put forth an ambitious cost-cutting program, that is hoped to increase EBITDA margins moving forward. Due to the firm's relative infancy in the public markets (five years), investors don't have information about the firm's long-term performance.

Scenario Analysis

The value of the stock is difficult to predict because of its cyclicality. Thus, bull and bear scenarios are considered.

**Figure 34: REVG Base Case**

| Base Case Expectations | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Beta | 1.25 | | | | | | |
| Sales Growth | 6.6% | 4.7% | 4.3% | 4.1% | 4.1% | 4.1% | 4.1% |
| NOPAT/S | 3.8% | 4.0% | 4.2% | 4.2% | 4.2% | 4.2% | 4.2% |
| S/NFA | 7.32 | 6.49 | 6.49 | 6.50 | 6.50 | 6.50 | 6.50 |
| Terminal Year P/B | 1.90 | | | | | | |
| **Bear Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.25 | | | | | | |
| Sales Growth | 6.6% | 3.8% | 3.8% | 3.8% | 3.8% | 3.8% | 3.8% |
| NOPAT/S | 3.8% | 4.0% | 4.3% | 4.3% | 4.3% | 4.3% | 4.3% |
| S/NFA | 7.32 | 6.49 | 6.49 | 6.25 | 6.25 | 6.25 | 6.25 |
| Terminal Year P/B | 1.75 | | | | | | |
| **Bull Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.10 | | | | | | |
| Sales Growth | 6.6% | 5.4% | 4.4% | 4.4% | 4.4% | 4.4% | 4.4% |
| NOPAT/S | 3.8% | 4.0% | 4.3% | 4.0% | 4.0% | 4.0% | 4.0% |
| S/NFA | 7.32 | 6.49 | 6.49 | 6.75 | 6.75 | 6.75 | 6.75 |
| Terminal Year P/B | 2.25 | | | | | | |

*Source: IMCP, Analyst Estimates*

**Figure 35: Bear, base, and bull price targets**

| Expectations | P/B | Beta | Target Price |
|---|---|---|---|
| Base | 1.90 | 1.25 | $21.24 |
| Bear | 1.75 | 1.25 | $20.12 |
| Bull | 2.25 | 1.10 | $25.72 |

*Source: IMCP, Analyst Estimates, FactSet*

In a bullish scenario REVG's P/B would rise to 2.25 if some of its growth initiatives materialize and the economy continues without a recession. Sales growth ticks up to 4.4% and beta falls to 1.1. I would also anticipate sales as a proportion to NFA to increase to 6.75. All things considered this, would result in a value of $25.72.

In a bearish scenario, REVG's P/B could fall as low as 1.9, if investors believe either the cost cutting program is not yielding better margins or if Covid resurfaces. Beta remains at 1.25. These changes, plus slower sales growth of 3.8%, and lower S/NFA and NOPAT/S would result in a value of $20.12.

## Business Risks

Although I have many reasons to be optimistic about REV Group, there are several good reasons why I find the stock could hold some added risk moving forward.

Margin compression:

REV Group operates on razor-thin margins, could fall to loses, which depending on material costs (inflation) and/or decreased sales due to economic downturns, 2020 is a good example.

Short-track record:

REVG has only been a public company since 2017, which gives investors only a short window to evaluate management's ability to make smart and strategic business decisions. Plus, a new CEO was named in 2020. Investors may be cautious about guidance and expectations given by the firm.

Inability to obtain raw materials:

REV Group relies on vendors like Ford, GM, and other OEMs to supply chassis and other important components. With supply chain issues heading into 2022 and a significant backlog, this can begin to become an issue.

Loss of brand identity:

In an industry that is somewhat uniform, products offered by other firms are very similar to that of REVG. This is especially true with the fire & emergency segment of the business. Competitors could pull current customers away by offering better deals or packages.

Overpriced M&A activity:

In the past five years, REVG has participated in aggressive M&A activity, which has yielded inorganic growth in sales. However, some of these acquisitions have hurt margins and resulted in divestitures. One example is REVG's decision to divest from there line of shuttle buses.

## Appendix 1: Porter's 5 Forces

Threat of New Entrants – Relatively Low

The barriers to entry into the industrial segment, specifically the specialty vehicle industry, is extremely capital intense. It would require significant starting capital for materials, manufacturing hubs, and labor. Not to say that a small operation couldn't be successful, but in both the fire & emergency and recreational industries there has been heavy consolidation through M&A activity.

Threat of Substitutes – High

REVG relies on its dealer and customer relationships to sell its products. With a company like Pierce (Oshkosh Corp.) neck and neck with REVG in the fire & emergency segment based on market share, it can be concluded substitutes are possible. This is the same case with the recreational segment with industry leaders like Forest River (Berkshire Hathaway), Thor Industries, and Winnebago.

Supplier Power - Low

REV Group relies heavily of auto manufacturers such as Ford and General Motors to supply it with its vehicle chassis. Sales would be negatively impacted if these suppliers are unable to supply REVG with adequate materials.

Buyer Power – Very High

The primary buyers of the firm's products are government and local municipalities. These consumers usually use a bid process to decide on which company. This gives these municipalities a great deal of power over fire & emergency vehicle manufacturers. As far as for the recreational segment, as mentioned previously consumers have the ability to dictate prices due to market saturation. This may lead to some customers/consumers delaying the purchase of these products.

Intensity of Competition – Very High

REVG operates in a highly competitive industry. Companies like Pierce compete head on with REVG in the fire & emergency industry. The only true way to grow market share is through M&A of smaller companies which boosts EPS through economies of scale. In the recreational space, certain companies have established themselves with a stronger retail and brand presence. For example, Forest River and Thor Industries both have deals with Camping World to supply their showrooms and dealerships with recreational vehicles.

## Appendix 2: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| Reliable government funding | Weak margins |
| Strong brand identity | Overexpansion |
| New product development | Low sales growth |
| **Opportunities** | **Threats** |
| Increasing margins | Market saturation |
| Attractive M&A opportunities | Rising material costs |
| Restructuring | Supplier sourcing |

## Appendix 3: Income Statement

| Income Statement (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022E** | **2023E** |
| Sales | $2,264 | $2,407 | $2,404 | $2,274 | $2,425 | $2,539 | $2,659 |
| Direct costs | 1,969 | 2,129 | 2,152 | 2,046 | 2,113 | 2,209 | 2,313 |
| Gross Margin | 295 | 278 | 252 | 228 | 312 | 330 | 346 |
| SG&A, R&D, D&A, and other | 212 | 250 | 236 | 246 | 196 | 203 | 202 |
| EBIT | 83 | 28 | 16 | (18) | 116 | 127 | 144 |
| Interest | 33 | 26 | 33 | 28 | 25 | 17 | 21 |
| EBT | 50 | 2 | (17) | (46) | 91 | 110 | 123 |
| Taxes | 19 | (11) | (4) | (16) | 21 | 22 | 25 |
| Income | 31 | 13 | (13) | (31) | 70 | 88 | 98 |
| Other | - | 1 | (1) | - | - | - | - |
| Net income | 31 | 12 | (13) | (31) | 70 | 88 | 98 |
| Basic Shares | 62.7 | 62.7 | 62.3 | 63.6 | 64.7 | 61.8 | 59.0 |
| Fully Diluted Shares | 62.2 | 62.7 | 62.3 | 63.6 | 64.7 | 61.8 | 59.0 |
| EPS | $0.50 | $0.19 | ($0.20) | ($0.48) | $1.08 | $1.42 | $1.67 |
| EPS Fully Diluted | $0.50 | $0.19 | ($0.20) | ($0.48) | $1.08 | $1.42 | $1.67 |
| DPS | $0.10 | $0.20 | $0.20 | $0.15 | $0.11 | $0.20 | $0.21 |

## Appendix 4: Balance Sheets

| Capital (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022E** | **2023E** |
| Cash | 18 | 12 | 3 | 11 | 9 | 5 | 16 |
| Operating assets ex cash | 709 | 831 | 806 | 801 | 765 | 851 | 891 |
| Operating assets | 727 | 843 | 809 | 812 | 774 | 856 | 906 |
| Operating liabilities | 409 | 416 | 432 | 446 | 434 | 460 | 481 |
| NOWC | 318 | 427 | 377 | 366 | 340 | 396 | 425 |
| NOWC ex cash (NWC) | 300 | 415 | 373 | 355 | 331 | 391 | 409 |
| NFA | 528 | 565 | 538 | 500 | 479 | 508 | 560 |
| *Invested capital* | *$845* | *$992* | *$915* | *$867* | *$819* | *$904* | *$985* |
| | | | | | | | |
| Marketable securities | - | - | - | - | - | - | - |
| *Total assets* | *$1,254* | *$1,408* | *$1,347* | *$1,312* | *$1,253* | *$1,364* | *$1,466* |
| | | | | | | | |
| S-T and L-T debt and financing lease: | $230 | $422 | $440 | $359 | $261 | $321 | $366 |
| Other liabilities | 43 | 38 | (30) | 35 | 37 | 37 | 37 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 573 | 532 | 505 | 472 | 538 | 563 | 599 |
| *Total supplied capital* | *$845* | *$992* | *$915* | *$867* | *$835* | *$921* | *$1,001* |
| | | | | | | | |
| *Total liabilities and equity* | *$1,254* | *$1,408* | *$1,347* | *$1,312* | *$1,269* | *$1,380* | *$1,483* |

## Appendix 5: Sales Forecast

| Sales (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022E** | **2023E** |
| Sales | $2,264 | $2,407 | 2,404 | $2,274 | $2,425 | $2,539 | $2,648 |
| *Growth* | | *6.3%* | *-0.1%* | *-5.4%* | *6.6%* | *4.7%* | *4.3%* |
| | | | | | | | |
| Fire and Emergency | 984 | 957 | 968 | 1,132 | 1,160 | 1,218 | 1,275 |
| *Growth* | | *-2.8%* | *1.2%* | *17.0%* | *2.5%* | *5.0%* | *4.7%* |
| *% of sales* | *43.5%* | *39.7%* | *40.3%* | *49.8%* | *47.8%* | *48.0%* | *48.2%* |
| Recerational | 660 | 812 | 716 | 658 | 878 | 926 | 970 |
| *Growth* | | *23.1%* | *-11.8%* | *-8.2%* | *33.5%* | *5.5%* | *4.7%* |
| *% of sales* | *29.1%* | *33.7%* | *29.8%* | *28.9%* | *36.2%* | *36.5%* | *36.6%* |
| Commercial | 620 | 639 | 720 | 484 | 387 | 395 | 403 |
| *Growth* | | *3.0%* | *12.8%* | *-32.7%* | *-20.1%* | *2.1%* | *1.9%* |
| *% of sales* | *27.4%* | *26.5%* | *29.9%* | *21.3%* | *16.0%* | *15.6%* | *15.2%* |

# Appendix 6: Ratios

| Ratios | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022E** | **2023E** |
| Profitability | | | | | | | |
| Gross margin | 13.0% | 11.5% | 10.5% | 10.0% | 12.9% | 13.0% | 13.0% |
| Operating (EBIT) margin | 3.7% | 1.2% | 0.7% | -0.8% | 4.8% | 5.0% | 5.4% |
| Net profit margin | 1.4% | 0.5% | -0.5% | -1.3% | 2.9% | 3.5% | 3.7% |
| | | | | | | | |
| Activity | | | | | | | |
| NFA (gross) turnover | | 4.41 | 4.36 | 4.38 | 4.95 | 5.15 | 4.98 |
| Total asset turnover | | 1.81 | 1.75 | 1.71 | 1.89 | 1.94 | 1.88 |
| | | | | | | | |
| Liquidity | | | | | | | |
| Op asset / op liab | 1.78 | 2.03 | 1.87 | 1.82 | 1.78 | 1.86 | 1.88 |
| NOWC Percent of sales | | 15.5% | 16.7% | 16.3% | 14.6% | 14.5% | 15.4% |
| | | | | | | | |
| Solvency | | | | | | | |
| Debt to assets | 18.3% | 29.9% | 32.6% | 27.4% | 20.8% | 23.5% | 25.0% |
| Debt to equity | 40.2% | 79.2% | 87.0% | 76.0% | 48.5% | 57.0% | 61.1% |
| Other liab to assets | 3.4% | 2.7% | -2.2% | 2.7% | 2.9% | 2.7% | 2.5% |
| Total debt to assets | 21.7% | 32.7% | 30.4% | 30.1% | 23.7% | 26.2% | 27.4% |
| Total liabilities to assets | 54.4% | 62.2% | 62.5% | 64.0% | 58.4% | 59.9% | 60.3% |
| Debt to EBIT | 2.78 | 15.17 | 27.65 | (20.06) | 2.25 | 2.53 | 2.55 |
| EBIT/interest | 2.54 | 1.09 | 0.49 | (0.63) | 4.64 | 7.27 | 6.97 |
| Debt to total net op capital | 27.2% | 42.5% | 48.1% | 41.4% | 31.9% | 35.5% | 37.2% |
| | | | | | | | |
| ROIC | | | | | | | |
| NOPAT to sales | 2.3% | 6.8% | 0.5% | -0.5% | 3.8% | 4.0% | 4.3% |
| Sales to NWC | | 6.73 | 6.10 | 6.24 | 7.07 | 7.03 | 6.64 |
| Sales to NFA | | 4.41 | 4.36 | 4.38 | 4.95 | 5.15 | 4.98 |
| Sales to IC ex cash | | 2.66 | 2.54 | 2.57 | 2.91 | 2.97 | 2.85 |
| Total ROIC ex cash | | 18.2% | 1.3% | -1.3% | 11.1% | 11.9% | 12.3% |
| | | | | | | | |
| NOPAT to sales | 2.3% | 6.8% | 0.5% | -0.5% | 3.8% | 4.0% | 4.3% |
| Sales to NOWC | | 6.46 | 5.98 | 6.12 | 6.86 | 6.90 | 6.47 |
| Sales to NFA | | 4.41 | 4.36 | 4.38 | 4.95 | 5.15 | 4.98 |
| Sales to IC | | 2.62 | 2.52 | 2.55 | 2.88 | 2.95 | 2.82 |
| Total ROIC | | 17.9% | 1.3% | -1.3% | 11.0% | 11.8% | 12.2% |
| | | | | | | | |
| NOPAT to sales | 2.3% | 6.8% | 0.5% | -0.5% | 3.8% | 4.0% | 4.3% |
| Sales to EOY NWC | 7.55 | 5.80 | 6.44 | 6.41 | 7.32 | 6.49 | 6.49 |
| Sales to EOY NFA | 4.29 | 4.26 | 4.47 | 4.55 | 5.07 | 5.00 | 4.75 |
| Sales to EOY IC ex cash | 2.74 | 2.46 | 2.64 | 2.66 | 2.99 | 2.82 | 2.74 |
| Total ROIC using EOY IC ex cas | 6.3% | 16.8% | 1.4% | -1.4% | 11.5% | 11.3% | 11.9% |
| | | | | | | | |
| NOPAT to sales | 2.3% | 6.8% | 0.5% | -0.5% | 3.8% | 4.0% | 4.3% |
| Sales to EOY NOWC | 7.13 | 5.63 | 6.38 | 6.21 | 7.13 | 6.41 | 6.25 |
| Sales to EOY NFA | 4.29 | 4.26 | 4.47 | 4.55 | 5.07 | 5.00 | 4.75 |
| Sales to EOY IC | 2.68 | 2.43 | 2.63 | 2.62 | 2.96 | 2.81 | 2.70 |
| Total ROIC using EOY IC | 6.1% | 16.6% | 1.4% | -1.4% | 11.3% | 11.2% | 11.7% |
| | | | | | | | |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 1.2% | 0.7% | -0.8% | 4.8% | 5.0% | 5.4% |
| Sales / avg assets | | 1.81 | 1.75 | 1.71 | 1.89 | 1.94 | 1.88 |
| EBT / EBIT | | 7.9% | -104.4% | 257.5% | 78.4% | 86.3% | 85.6% |
| Net income /EBT | | 527.3% | 75.9% | 66.2% | 76.9% | 80.0% | 80.0% |
| ROA | | 0.9% | -0.9% | -2.3% | 5.5% | 6.7% | 7.0% |
| Avg assets / avg equity | | 2.41 | 2.66 | 2.72 | 2.54 | 2.38 | 2.44 |
| ROE | | 2.1% | -2.4% | -6.2% | 13.9% | 15.9% | 16.9% |
| | | | | | | | |
| **3-stage** | | | | | | | |
| Net income / sales | | 0.5% | -0.5% | -1.3% | 2.9% | 3.5% | 3.7% |
| Sales / avg assets | | 1.81 | 1.75 | 1.71 | 1.89 | 1.94 | 1.88 |
| ROA | | 0.9% | -0.9% | -2.3% | 5.5% | 6.7% | 7.0% |
| Avg assets / avg equity | | 2.41 | 2.66 | 2.72 | 2.54 | 2.38 | 2.44 |
| ROE | | 2.1% | -2.4% | -6.2% | 13.9% | 15.9% | 16.9% |
| | | | | | | | |
| Payout Ratio | | 110.3% | -99.2% | -31.1% | 10.2% | 14.3% | 12.7% |
| Retention Ratio | | -10.3% | 199.2% | 131.1% | 89.8% | 85.7% | 87.3% |
| Sustainable Growth Rate | | -0.2% | -4.8% | -8.2% | 12.4% | 13.6% | 14.8% |

## Appendix 7: Cash Flow Statement

| Cash Flow Statement (in millions) | | | | | | |
|---|---|---|---|---|---|---|
| **Items** | **2018** | **2019** | **2020** | **2021** | **2022E** | **2023E** |
| **Cash from Operatings (understated - depr'n added to net assets)** | | | | | | |
| Net income | $12 | ($13) | ($31) | $70 | $88 | $98 |
| Change in Net Working Capital ex cash | (116) | 42 | 18 | 24 | (60) | (18) |
| Cash from operations | ($104) | $29 | ($12) | $94 | $28 | $80 |
| **Cash from Investing (understated - depr'n added to net assets)** | | | | | | |
| Change in NFA | ($37) | $27 | $38 | $22 | ($29) | ($52) |
| Change in Marketable Securities | $0 | $0 | $0 | $0 | $0 | $0 |
| Cash from investing | ($37) | $27 | $38 | $22 | ($29) | ($52) |
| **Cash from Financing** | | | | | | |
| Change in Short-Term and Long-Term Debt | $192 | $18 | ($81) | ($98) | $60 | $45 |
| Change in Other liabilities | (5) | (68) | 65 | 1 | 0 | 0 |
| Change in Debt/Equity-Like Securities | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividends | (13) | (13) | (10) | (7) | (13) | (13) |
| Change in Equity ex NI and Dividends | (39) | (2) | 7 | 3 | (50) | (50) |
| Cash from financing | $135 | ($65) | ($18) | ($101) | ($3) | ($18) |
| **Change in Cash** | (6) | (9) | 8 | 14 | (4) | 11 |
| **Beginning Cash** | 18 | 12 | 3 | 11 | 9 | 5 |
| **Ending Cash** | $12 | $3 | $11 | $26 | $5 | $16 |

# Appendix 8: 3-stage DCF Model (P/B)

| Year ending January | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|
| *Sales Growth* | | *6.6%* | *4.7%* | *4.3%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| *NOPAT / S* | | *3.8%* | *4.0%* | *4.3%* | *4.2%* | *4.2%* | *4.2%* | *4.2%* | *4.2%* |
| *S / NWC* | | *7.32* | *6.49* | *6.49* | *6.50* | *6.50* | *6.50* | *6.50* | *6.50* |
| *S / NFA (EOY)* | | *5.07* | *5.00* | *4.75* | *4.75* | *4.75* | *4.75* | *4.75* | *4.75* |
| *S / IC (EOY)* | | *2.99* | *2.82* | *2.74* | *2.74* | *2.74* | *2.74* | *2.74* | *2.74* |
| *ROIC (EOY)* | | *11.5%* | *11.3%* | *11.9%* | *11.5%* | *11.5%* | *11.5%* | *11.5%* | *11.5%* |
| *ROIC (BOY)* | | | *12.5%* | *12.8%* | *12.0%* | *12.0%* | *12.0%* | *12.0%* | *12.0%* |
| *Share Growth* | | *1.7%* | *-4.4%* | *-4.6%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $2,274 | $2,425 | $2,539 | $2,659 | $2,768 | $2,881 | $2,999 | $3,122 | $3,250 |
| NOPAT | ($12) | $93 | $102 | $115 | $116 | $121 | $126 | $131 | $137 |
| *Growth* | | *-883.6%* | *9.5%* | *13.1%* | *1.2%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| - Change in NWC | | -24 | 60 | 18 | 16 | 17 | 18 | 19 | 20 |
| *NWC EOY* | *355* | *331* | *391* | *409* | *426* | *443* | *461* | *480* | *500* |
| *Growth NWC* | | *-6.7%* | *18.1%* | *4.7%* | *4.0%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| - Chg NFA | | -22 | 29 | 52 | 23 | 24 | 25 | 26 | 27 |
| *NFA EOY* | *500* | *479* | *508* | *560* | *583* | *607* | *631* | *657* | *684* |
| *Growth NFA* | | *-4.3%* | *6.1%* | *10.2%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| Total inv in op cap | | -46 | 89 | 70 | 39 | 41 | 43 | 45 | 47 |
| Total net op cap | | 810 | 899 | 969 | 1009 | 1050 | 1093 | 1138 | 1184 |
| FCFF | | $138 | $12 | $45 | $77 | $80 | $83 | $86 | $90 |
| *% of sales* | | *5.7%* | *0.5%* | *1.7%* | *2.8%* | *2.8%* | *2.8%* | *2.8%* | *2.8%* |
| *Growth* | | | *-91.1%* | *262.1%* | *72.4%* | *3.5%* | *4.1%* | *4.1%* | *4.1%* |
| - Interest (1-tax rate) | | 20 | 14 | 16 | 17 | 18 | 19 | 19 | 20 |
| *Growth* | | *7.2%* | *-30.2%* | *18.0%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| + Net new debt | | -98 | 60 | 45 | 15 | 16 | 16 | 17 | 18 |
| Debt | | 261 | 321 | 366 | 381 | 397 | 413 | 430 | 447 |
| *Debt / tot net op capital* | | *32.2%* | *35.7%* | *37.8%* | *37.8%* | *37.8%* | *37.8%* | *37.8%* | *37.8%* |
| FCFE w debt | | $20 | $58 | $73 | $75 | $77 | $81 | $84 | $87 |
| *% of sales* | | *0.8%* | *2.3%* | *2.8%* | *2.7%* | *2.7%* | *2.7%* | *2.7%* | *2.7%* |
| *Growth* | | | *188.9%* | *25.3%* | *2.2%* | *3.5%* | *4.1%* | *4.1%* | *4.1%* |
| / No Shares | 63.6 | 64.7 | 61.8 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 |
| FCFE | | $0.31 | $0.94 | $1.24 | $1.27 | $1.31 | $1.37 | $1.42 | $1.48 |
| *Growth* | | | *202.3%* | *31.4%* | *2.2%* | *3.5%* | *4.1%* | *4.1%* | *4.1%* |
| * Discount factor | | | 0.89 | 0.80 | 0.71 | 0.63 | 0.56 | 0.50 | 0.45 |
| Discounted FCFE | | | $0.84 | $0.99 | $0.90 | $0.83 | $0.77 | $0.72 | $0.66 |
| **Terminal value P/B** | | | | | | | | | |
| Book value | | $538 | $563 | $599 | $686 | $776 | $871 | $970 | $1,074 |
| *Growth* | | *13.9%* | *4.7%* | *6.4%* | *14.5%* | *13.2%* | *12.2%* | *11.4%* | *10.7%* |
| *ROE (EOY book)* | | *13.0%* | *15.6%* | *16.4%* | *14.5%* | *13.3%* | *12.3%* | *11.5%* | *10.8%* |
| Net income | | $70 | $88 | $98 | $99 | $103 | $107 | $112 | $116 |
| Dividends | $10 | $7 | $13 | $13 | $13 | $13 | $13 | $13 | $13 |
| *Growth* | | *-24.9%* | *75.3%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Shares | | 64.7 | 61.8 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 |
| Price | | $17.50 | $17.50 | $17.50 | $17.63 | $18.35 | $19.10 | $19.88 | $20.70 |
| *Growth* | | | *0.0%* | *0.0%* | *0.7%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| Net issuance | | | -$50 | -$50 | $0 | $0 | $0 | $0 | $0 |
| Terminal P/B | | | | | | | | | 1.90 |
| * Terminal BPS | | $8.32 | $9.11 | $10.15 | $11.62 | $13.16 | $14.77 | $16.45 | $18.21 |
| Terminal value | | | | | | | | | $34.60 |
| * Discount factor | | | | | | | | | 0.45 |
| Discounted terminal value | | | | | | | | | $15.53 |

| Summary (using P/B multiple for terminal value) | | |
|---|---|---|
| First stage | $1.83 | Present value of first 2 year cash flow |
| Second stage | $3.88 | Present value of year 3-7 cash flow |
| Third stage | $15.53 | Present value of terminal value P/B |
| Value (P/B) | **$21.24** | |

# Appendix 8: 3-stage DCF Model (P/E)

| Year ending January | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|---|
| *Sales Growth* | | *6.6%* | *4.7%* | *4.3%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| *NOPAT / S* | | *3.8%* | *4.0%* | *4.3%* | *4.2%* | *4.2%* | *4.2%* | *4.2%* | *4.2%* |
| *S / NWC* | | *7.32* | *6.49* | *6.49* | *6.50* | *6.50* | *6.50* | *6.50* | *6.50* |
| *S / NFA (EOY)* | | *5.07* | *5.00* | *4.75* | *4.75* | *4.75* | *4.75* | *4.75* | *4.75* |
| *S / IC (EOY)* | | *2.99* | *2.82* | *2.74* | *2.74* | *2.74* | *2.74* | *2.74* | *2.74* |
| *ROIC (EOY)* | | *11.5%* | *11.3%* | *11.9%* | *11.5%* | *11.5%* | *11.5%* | *11.5%* | *11.5%* |
| *ROIC (BOY)* | | | *12.5%* | *12.8%* | *12.0%* | *12.0%* | *12.0%* | *12.0%* | *12.0%* |
| *Share Growth* | | *1.7%* | *-4.4%* | *-4.6%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $2,274 | $2,425 | $2,539 | $2,659 | $2,768 | $2,881 | $2,999 | $3,122 | $3,250 |
| NOPAT | ($12) | $93 | $102 | $115 | $116 | $121 | $126 | $131 | $137 |
| *Growth* | | *-883.6%* | *9.5%* | *13.1%* | *1.2%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| - Change in NWC | | -24 | 60 | 18 | 16 | 17 | 18 | 19 | 20 |
| *NWC EOY* | *355* | *331* | *391* | *409* | *426* | *443* | *461* | *480* | *500* |
| *Growth NWC* | | *-6.7%* | *18.1%* | *4.7%* | *4.0%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| - Chg NFA | | -22 | 29 | 52 | 23 | 24 | 25 | 26 | 27 |
| *NFA EOY* | *500* | *479* | *508* | *560* | *583* | *607* | *631* | *657* | *684* |
| *Growth NFA* | | *-4.3%* | *6.1%* | *10.2%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| Total inv in op cap | | -46 | 89 | 70 | 39 | 41 | 43 | 45 | 47 |
| Total net op cap | | 810 | 899 | 969 | 1009 | 1050 | 1093 | 1138 | 1184 |
| FCFF | | $138 | $12 | $45 | $77 | $80 | $83 | $86 | $90 |
| *% of sales* | | *5.7%* | *0.5%* | *1.7%* | *2.8%* | *2.8%* | *2.8%* | *2.8%* | *2.8%* |
| *Growth* | | | *-91.1%* | *262.1%* | *72.4%* | *3.5%* | *4.1%* | *4.1%* | *4.1%* |
| - Interest (1-tax rate) | | 20 | 14 | 16 | 17 | 18 | 19 | 19 | 20 |
| *Growth* | | *7.2%* | *-30.2%* | *18.0%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| + Net new debt | | -98 | 60 | 45 | 15 | 16 | 16 | 17 | 18 |
| Debt | | 261 | 321 | 366 | 381 | 397 | 413 | 430 | 447 |
| *Debt / tot net op capital* | | *32.2%* | *35.7%* | *37.8%* | *37.8%* | *37.8%* | *37.8%* | *37.8%* | *37.8%* |
| FCFE w debt | | $20 | $58 | $73 | $75 | $77 | $81 | $84 | $87 |
| *% of sales* | | *0.8%* | *2.3%* | *2.8%* | *2.7%* | *2.7%* | *2.7%* | *2.7%* | *2.7%* |
| *Growth* | | | *188.9%* | *25.3%* | *2.2%* | *3.5%* | *4.1%* | *4.1%* | *4.1%* |
| / No Shares | 63.6 | 64.7 | 61.8 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 | 59.0 |
| FCFE | | $0.31 | $0.94 | $1.24 | $1.27 | $1.31 | $1.37 | $1.42 | $1.48 |
| *Growth* | | | *202.3%* | *31.4%* | *2.2%* | *3.5%* | *4.1%* | *4.1%* | *4.1%* |
| * Discount factor | | | 0.89 | 0.80 | 0.71 | 0.63 | 0.56 | 0.50 | 0.45 |
| Discounted FCFE | | | $0.84 | $0.99 | $0.90 | $0.83 | $0.77 | $0.72 | $0.66 |
| **Terminal value P/E** | | | | | | | | | |
| Net income | | $70 | $88 | $98 | $99 | $103 | $107 | $112 | $116 |
| *% of sales* | | *2.9%* | *3.5%* | *3.7%* | *3.6%* | *3.6%* | *3.6%* | *3.6%* | *3.6%* |
| EPS | | $1.08 | $1.42 | $1.67 | $1.68 | $1.75 | $1.82 | $1.90 | $1.97 |
| *Growth* | | *-325.6%* | *30.9%* | *17.7%* | *0.7%* | *4.1%* | *4.1%* | *4.1%* | *4.1%* |
| Terminal P/E | | | | | | | | | 13.50 |
| * Terminal EPS | | | | | | | | | $1.97 |
| Terminal value | | | | | | | | | $26.63 |
| * Discount factor | | | | | | | | | 0.45 |
| Discounted terminal value | | | | | | | | | $11.95 |

**Summary (using P/E multiple for terminal value)**

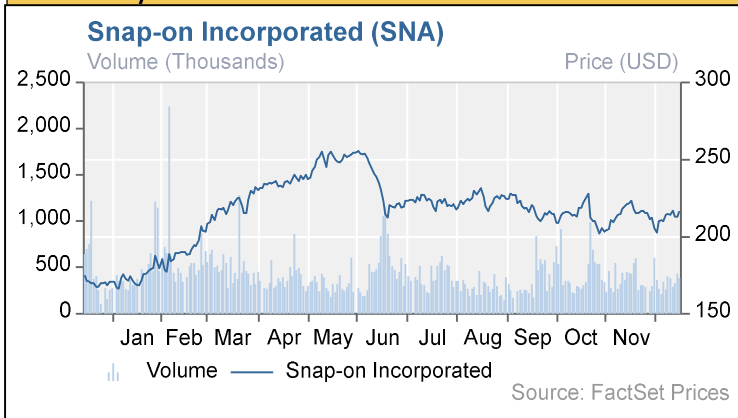
| | | |
|---|---|---|
| First stage | $1.83 | Present value of first 2 year cash flow |
| Second stage | $3.88 | Present value of year 3-7 cash flow |
| Third stage | $11.95 | Present value of terminal value P/E |
| Value (P/E) | **$17.66** | |

| Recommendation: Hold | | | | |
|---|---|---|---|---|
| Current Price | **$216.88** | --- | Ticker | SNA |
| 1 Year Bear | $189 | *-12.9%* | Sh. Out. (M) | 53.5 |
| 1 Year Base | **$227** | ***4.5%*** | M.Cap. ($M) | 11.6 |
| 1 Year Bull | $311 | *43%* | EV ($M) | 12.4 |

Consumer Discretionary, Apparel Retail

# Snap-On Inc.

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | 25.1% | 47.1% | 27.2% | 23.9% | 26.6% | -2% | -2% |

## Summary

I recommend a neutral rating with a target of $227. Snap-On has extremely high margins and has a postive sales growth outlook going into the 2022 fiscal year. SNA has been capturing growth in international markets and critical markets, growing its Commercial & Industrial Group while maintaining current sales in its Tools Group. Relative valuation compared to peers shows that Snap-On is currently under-valued, but the firm has a solid growth plan that supports investors' hopes. Relative to the industry, SNA has a low P/E that should increase in the coming years.

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($M) | **4,000** | **4,070** | **4,068** | **3,942** | **4,242** | **4,458** | **4,641** |
| *Gr. %* | -7.2% | 1.8% | 0.1% | -3.1% | 7.6% | 5.1% | 4.1% |
| *v. Cons.* | - | - | - | - | - | -0.5% | 3.8% |
| *Industry* | 7.9% | 8.6% | 4.7% | -4.1% | 7.8% | 5.9% | 6.4% |
| **EPS** | **$9.86** | **$11.94** | **$12.40** | **$12.60** | **$14.47** | **$15.35** | **$16.81** |
| *Gr. %* | 3.6% | 21.1% | 3.9% | 4.3% | 14.9% | 6.1% | 9.5% |
| *v. Cons.* | - | - | - | - | - | 4.6% | 4.8% |
| *Industry* | 15.7% | 3.7% | 4.8% | 6.9% | 15.1% | 6.3% | 7.3% |

## Key Drivers

- Expansion into critical industries: Snap-On's Commercial & Industrial Group is penetrating many new markets. These new sales produce extremely high margins and have foreign growth opportunities.
- Increased automobile sales: As the re-opening has continued to flourish, many consumers have purchased used or new cars with their extra savings and stimulus money. More cars on the road means more repairs and sales for Snap-On's Tools Group.
- Electric vehicles: SNA may see lower sales if the EV crave continues forward at the same pace. Snap-On has the Repair Systems & Information Group, but it is not clear if it will be able to leverage that business unit enough to maintain the current sales levels.
- Economic trends: Snap-On is extremely susceptible to upward or downward swings in the market. With its high-priced tools and niche market, it can be seen following the macro-economic trends.

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **15.1%** | **18.2%** | **17.0%** | **15.9%** | **15.9%** | **18.6%** | **18.5%** |
| *Industry* | 13.0% | 12.4% | 8.7% | 8.9% | 8.9% | | |
| **ROE** | 10.2% | 22.4% | 21.3% | 17.3% | 17.3% | 18.6% | 18.0% |
| *Industry* | 14.3% | 13.7% | 15.1% | 13.4% | 13.4% | | |
| **ROA** | 11.2% | 12.8% | 12.5% | 10.2% | 10.2% | 11.4% | 11.9% |
| *Industry* | 7.3% | 7.4% | 7.4% | 6.8% | 6.8% | | |
| **A T/O** | 0.75 | 0.73 | 0.74 | 0.64 | 0.64 | 0.61 | 0.64 |
| **A/E** | 1.79 | 1.75 | 1.78 | 1.73 | 1.68 | 1.65 | 1.64 |

## Valuation

Using a relative valuation approach, Snap-On appears to be relatively under-valued in comparison to the industry. A combination of the approaches suggests that Snap-On's value is $227, with the shares currently trading at $212.30.

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 17.2 | 12.3 | 13.9 | 16.0 | 14.8 | 14.3 | 13.7 |
| *Industry* | 18.7 | 18.6 | 17.9 | 26.9 | 27.4 | 17.1 | 15.7 |
| P/S | 2.55 | 1.43 | 1.67 | 2.46 | 2.60 | | |
| P/B | 3.35 | 2.70 | 3.20 | 2.60 | 2.90 | | |
| P/CF | 16.79 | 19.90 | 16.00 | 10.50 | 11.20 | | |
| V/EBITDAA | 11.30 | 15.90 | 12.00 | 10.90 | 11.10 | | |
| D/P | 30.4% | 28.2% | 29.7% | 30.1% | 30.8% | | |

## Risks

- Electric vehicles causing Tools Group sales to decrease
- Economic downturns
- High prices may slow growth in critical industries and emerging markets

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Phone: 608-852-0908

## Company Overview

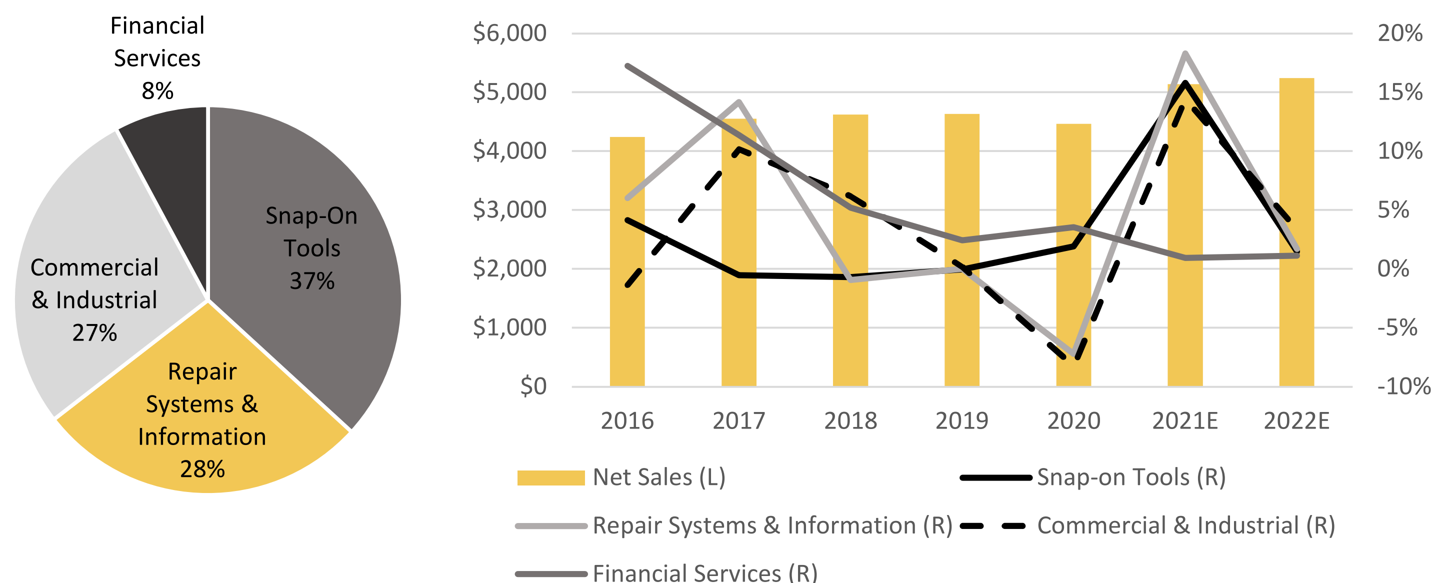
The Financial Services Group grew revenue by 24.6% since 2016, while the Repair Systems & Information Group grew 4.9%. The CAGR for net sales since 2016 is 1.21%.

Snap-On is an innovator, manufacturer and marketer of tools, equipment, diagnostics, and repair information and systems solutions for professionals around the world. Snap-On offers a wide range of products and services such as hand and power tools, tool storage, diagnostics software, handheld and PC-based diagnostic products, information and management systems, and shop equipment and custom solutions for vehicle dealerships and repair centers. The firm has expanded its products and services into industries such as aviation, aerospace, agriculture, construction, government and military, mining, natural resources, power generation and technical education. Snap-On also produces income through its various financing programs that are designed to facilitate the sales of its products and support its franchise business. The firm undergoes business in the United States, Europe, Canada, and Asia Pacific. In these regions, SNA reaches its customers through the company's franchised, company-direct, distributor and internet channels. Snap-On was founded in 1920 with the development of its original Snap-on interchangeable socket set and is headquartered in Kenosha, Wisconsin.

Snap-On generates its revenue from four business segments. These four segments are primarily distributed through Snap-on's franchised fleet of vans that deliver directly to customers; the fleet undertook 4,775 routes in 2020, which included 3,425 routes in the United States. The four segments include:

1) **Commercial & Industrial Customers (27%):** Business operations serving a broad range of industrial and commercial customers, including customers in aerospace, natural resources, government, power generation, transportation, and technical education.
2) **Snap-on Tools (37%):** Serves vehicle service and repair technicians through the company's worldwide mobile tool distribution channel.
3) **Repair Systems & Information (28%):** Operations serve owners and managers of independent repair shops and OEM dealerships, through direct and distributor channels.
4) **Financial Services (8%):** Includes the Snap-On Credit LLC and other financial services subsidiaries in international markets where Snap-on has franchise operations.

**Figures 1 & 2: Revenue (in millions) by brand in 2020 (left) and YoY revenue growth by segment (in millions) since 2016 (right)**




*Source: Company reports*

## Business/Industry Drivers

Though several factors may contribute to Snap-on's future success, the following are the most important business drivers:

1) Expansion into critical industries
2) Increased new/used automobile sales and vehicle age
3) Foreign market growth
4) Economic trends

Expansion into Critical Industries

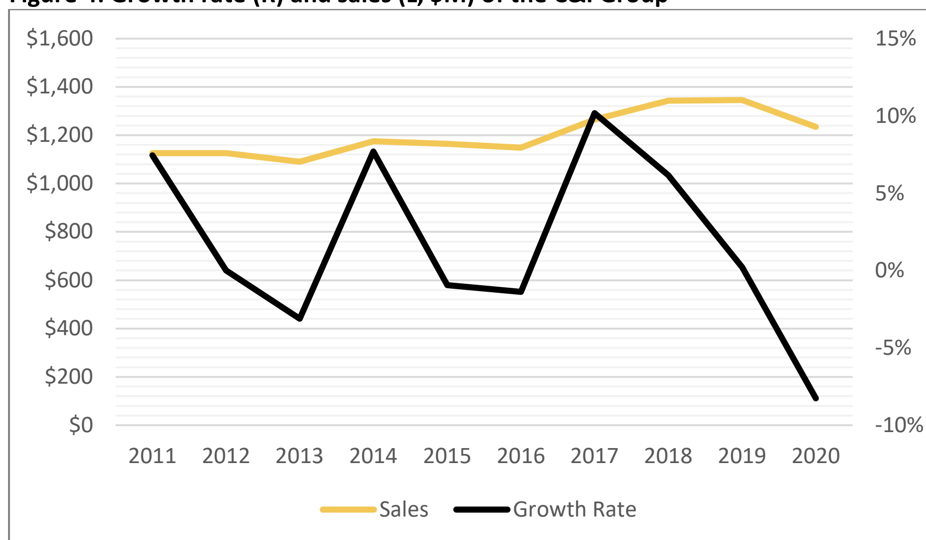
The C&I Group saw an operating income of $55.5 million in Q2.

Snap-On's Commercial & Industrial (C&I) group primarily operates through critical industries. The critical industries customers range from military, government entities, fire and rescue, emergency operations, and its recently acquired industries in oil, gas, and aviation in Southeast Asia and India. The C&I group is Snap-On's most international operation, and unfortunately, where customers have had the largest impact of the virus and seen slower economic recoveries. However, Snap-On has experienced growth in critical industries and expects substantial new entry opportunities. With power generation and continuous growth in critical industries, the C&I group has several upcoming tailwinds, even though we've seen sales in military markets decrease. With students back to campus, vehicle repair programs are purchasing more power generation tools. Clean energy has resulted in an escalated demand for the powerful, high-performance tools Snap-On provides.

Given the company's innovation and reliability, SNA has created a strong hold on mission critical tasks in such as aerospace, defense, agriculture, oil, and gas. Regulation and the need for products to be installed in a precise way makes Snap-On's tools a critical input in various end markets. Snap-On continues to create and innovate new products that help solve the most challenging tasks in critical industries which makes it very difficult for customers to switch to alternative products, resulting in high gross margins for SNA. Snap-On has a net profit margin of 18.3%, while the industry average is 11.8%.

Snap-On's sales and growth rate can be seen following similar trend lines to the ISM PMI.

**Figure 4: Growth rate (R) and sales (L, $M) of the C&I Group**




*Source: Company reports*

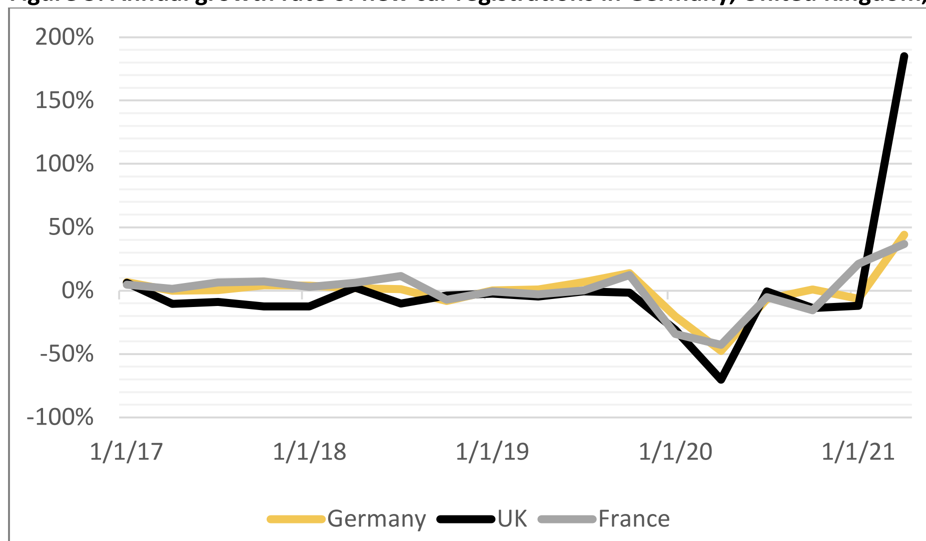
Snap-On also offers many package deals and custom tool kits that make the process in critical industries even more efficient and streamlined. While continuing to create more technologically advanced and precise tools, Snap-On's custom kits offer customers a tool kit that provides all the necessary tools for a specific task. Many critical industries are extremely time sensitive, and Snap-On offers a one-stop-shop solution for many of their needs. SNA has a clear path to grow in these critical industries, where the cost and penalties for failure may be high.

Increased New/Used Automobile Sales and Vehicle Age

With the gradual reopening post-pandemic, the U.S. has experienced a drastic increase in inflation, a booming economy, and bottlenecked supply chains. Vehicle sales initially fell but have made a strong recovery. With an increase in working from home and/or hybrid work, migration to suburban areas could spark further vehicle demand. Not only has buying increased, but the average age of vehicles in the U.S. is nearly 12 years and it's 11.5 years in Europe. With vehicle ages averaging about 8 years old 5-10 years ago, now nearing a near all-time high relative to the past two decades, an upturn in maintenance and repairs on older vehicles will prove to be a tailwind for the Tools Group.

Three of Snap-on's top five international regions have seen tremendous growth in new car registrations over the past year.

**Figure 5: Annual growth rate of new car registrations in Germany, United Kingdom, and France**




*Source: Factset*

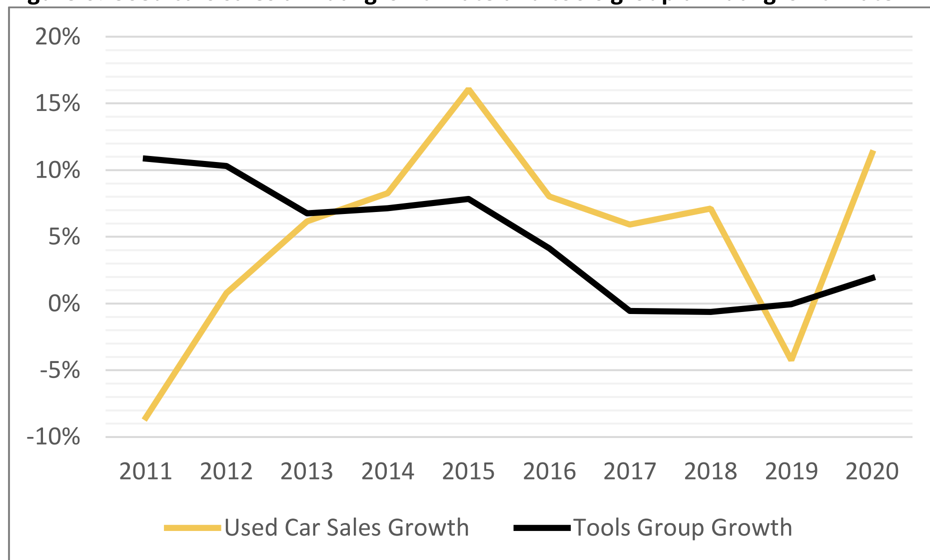
In April, U.S. new vehicle sales grew 110% YoY.

New car registrations have drastically increased in many international regions, due to fast growing economies and massive economic stimulus. With more vehicles being driven and miles logged returning to 2019 levels, Snap-On's Tools Group may get a boost in sales over the long term as more vehicles must be serviced.

Although new car sales play a key role in Snap-On's long-term growth, used car sales impacts near term growth as well. As used cars age, there is an exponential increase in the number of fixes and repairs that are needed to keep them on the road. The U.S. has also seen a substantial increase in used car sales in 2020 and even more significant in 2021. More repairs drive a rise in customer flow for the local technicians that the mobile van fleet caters to.

The sale of used cars has drastically increased in 2020 and I expect the same trend for 2021.

**Figure 6: Used cars sales annual growth rate and tools group annual growth rate**




*Source: Company reports and BTS*

Used car sales were up over 10% in 2020 and the Tools Group's growth bottomed in 2021. With the high demand for new vehicles and the shortage of semiconductors to manufacture new cars, I expect a further increase in growth for used cars through 2022. As the used cars accumulate more mileage, the Tools Group will organically inherit a growth in sales as well. While cars sat idle during the pandemic and this reduced wear and tear, an idle car can also develop issues.

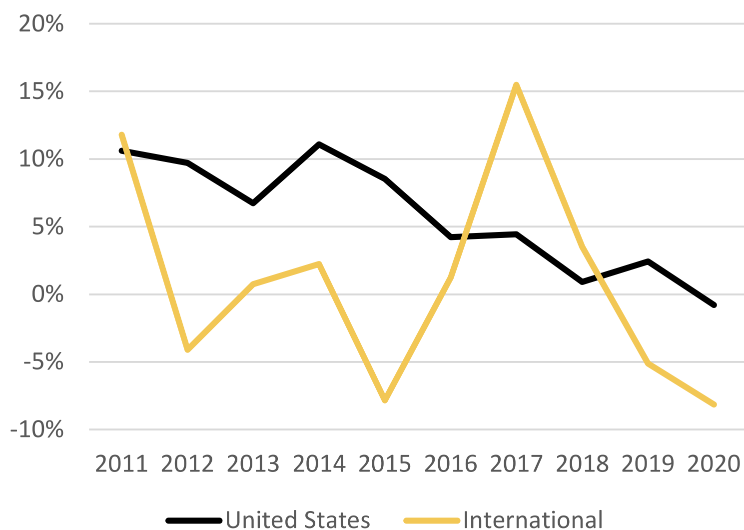
Foreign Market Growth

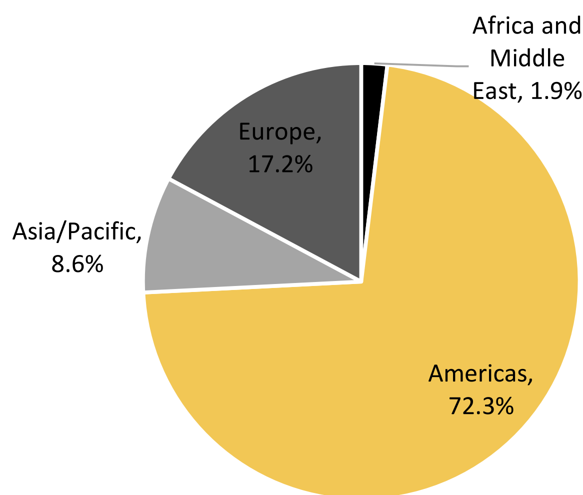
72.3% of Snap-on's revenue comes from the United States. The firm has experienced declines in foreign markets and slowed growth in the U.S. The Commercial & Industrial Group is the "golden ticket" to successfully penetrate these foreign markets. The markets for oil, gas, aviation, and aerospace are growing, versus U.S. autos which will slow in the coming years. Snap-On plans to develop specialty tools for the growing industries, securing a relatively large market share.

Snap-on expects capital expenditures to reach $90-100 million in 2021, showing an increase of 1.4% of total assets.

Snap-On has an opportunity to develop the Tools Group, as car fleets continue to rise in many of its top foreign markets. Europe saw an almost 14% increase in its car fleet since 2011, and China, Snap-On's second largest market, experienced an increase to 270 million automobiles as of June 2020. These large markets, with the potential to grow to 1.22 billion vehicles, are an open door to Snap-On's successful mobile van fleet if current production and distribution channels are maintained. Snap-On has seen a fairly stagnant number of routes the fleet tends to. However, with increased sales in used/new cars and its push to penetrate critical industries, SNA should see higher revenue in 2022 and 2023.

**Figure 7: Annual growth rates of revenue in the U.S. and international markets (left) and revenue exposure by super-region (right)**



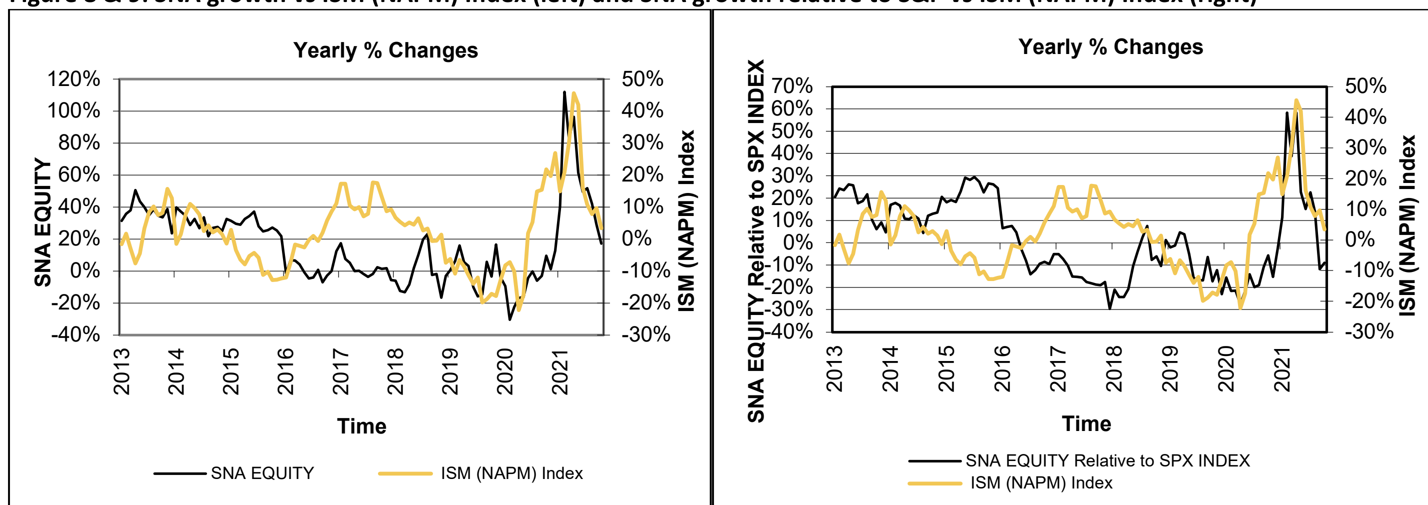

*Source: Company reports and BTS*

*Source: Factset*

<u>Economic Trends</u>

Snap-On is an industrial company that tends to follow the economic ups and downs. In 2020, the pandemic took its toll on SNA as sales fell in two of its primary groups and for total sales of the firm. Snap-On is susceptible to swings in the economy since most of its business relies on consumer spending and industrial behavior. A downturn may make consumers less willing to repair small vehicle fixes and purchase new or used vehicles. The gradual reopening of the U.S. and foreign countries has led to an increase in spending, vehicle purchases, and miles driven returning to the levels before the pandemic. These factors are a tailwind for Snap-On's Tools Group and its international markets. Although, during a recession, people keep their cars longer and older cars need more repairs. Economic stimulus in the United States has allowed consumers to increase their savings, giving them the ability to spend more on repairs, fixes, and vehicle purchases. Snap-On has a high correlation with the ups and downs of the economy (figure 8), but it has proven to be more resilient than the overall market when the economy turns for the worst (figure 9).

**Figure 8 & 9: SNA growth vs ISM (NAPM) Index (left) and SNA growth relative to S&P vs ISM (NAPM) Index (right)**



Snap-On has increased its cash and cash equivalents by over 400% to $923.4 million, allowing it to invest more back into the company.

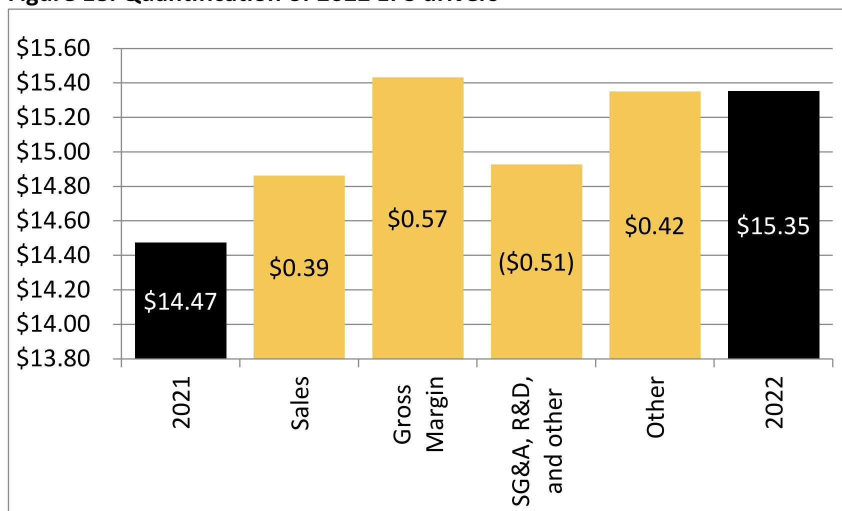
Right now, many of Snap-On customers such as technicians, repair professionals, and dealerships have extra cash to grow their businesses. Repair shops and technicians have seen an influx of customers after the reopening, enticing them to reinvest and purchase more or new tools for their businesses.

However, even in economic downturn, the Financial Services Group allows Snap-On's customers to make purchases. Even when Snap-On's customers don't have excess cash, SNA provides alternatives to finance their purchases. The Financial Services Group works as a "barrier" during economic turns, allowing Snap-On to be more stable than other firms.

## Financial Analysis

I anticipate EPS to grow to $15.35 in FY 2022 from $14.47 in FY 2021, with solid sales growth estimated at 5.1% contributing $0.39. Gross margin is estimated to climb by 6.8% due to rising pricing power and increased sales in high margin product areas, raising EPS by $0.57. I expect to see a decrease in EPS by $0.51 due to the upsurge in labor costs and critical markets product development which will drive SG&A, R&D, and other to a higher percent of sales. I also estimate that $0.42 will be added by the added share buybacks, at $210 million in buybacks, due to the substantial increase in cash.

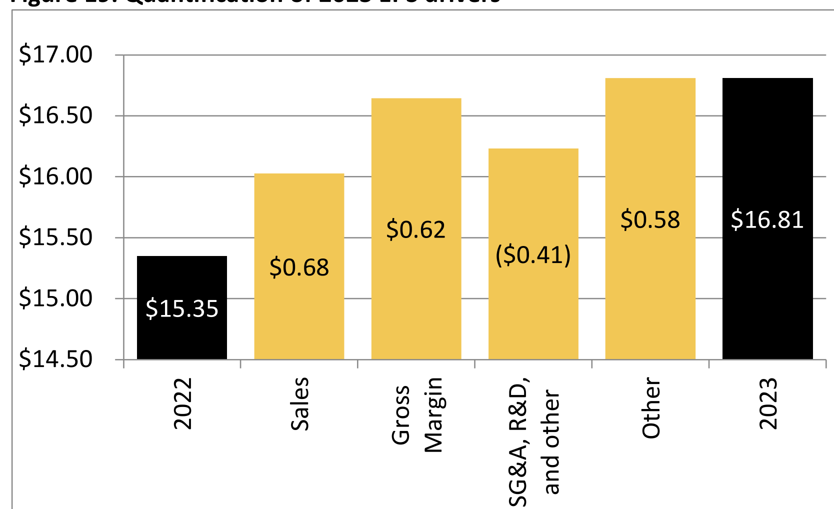
**Figure 18: Quantification of 2022 EPS drivers**




*Source: Company Reports, IMCP*

I expect 2023 EPS to increase $1.46 to $16.81. Snap-on will gain $0.68 based on the 4.1% sales increase expectation. Gross margin will contribute another hefty $0.62, based on the 5.8% increase due to a future decrease in input costs and continued pricing power. In 2023, I expect to see a decrease of $0.41 from continued development of its Tools Group and continued rising labor costs. Again, I expect a $0.58 increase from the increase in share buybacks of nearly 4%.

**Figure 19: Quantification of 2023 EPS drivers**




*Source: Company Reports, IMCP*

I am slightly more optimistic than consensus estimates for both 2022 and 2023, although, I'm not the highest estimate. However, I anticipate stronger growth in 2022 driven primarily by SNA's commitment to improving efficiency, particularly in its Commercial & Industrial Group and continued growth of its Tools Group.

**Figure 20: EPS and YoY growth estimates by year**

| Items | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| **Sales** | $4,000 | $4,070 | $4,068 | $3,942 | $4,242 | **$4,458** | **$4,641** |
| ***Growth*** | | 1.8% | 0.0% | -3.1% | 7.6% | 5.1% | 4.1% |
| **Sales - Consensus** | | | | | | **$4,381** | **$4,540** |
| ***Growth*** | | | | | | 3.3% | 3.6% |
| **EPS** | $9.86 | $11.94 | $12.40 | $12.60 | $14.47 | **$15.35** | **$16.81** |
| ***Growth*** | | 21.1% | 3.9% | 1.6% | 14.8% | 7.2% | 12.6% |
| **EPS - Consensus** | | | | | | **$15.14** | **$15.87** |
| ***Growth*** | | | | | | 4.6% | 4.8% |

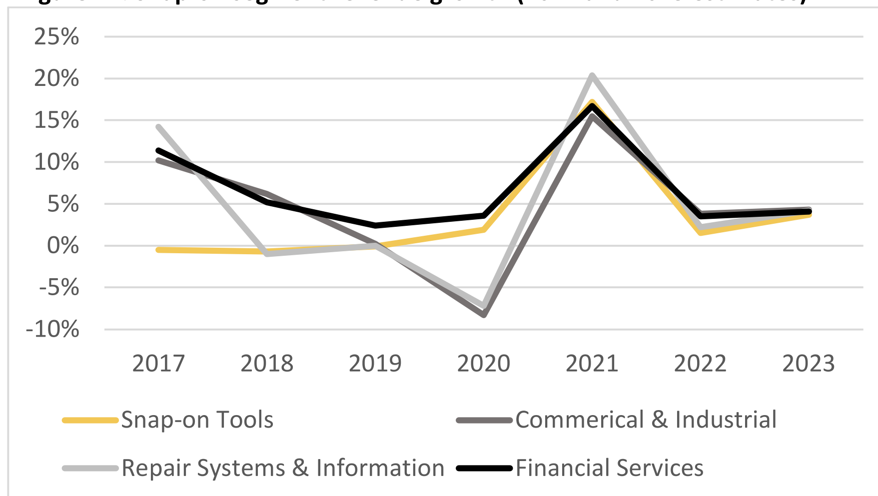
*Source: Factset, IMCP*

Revenues

SNA has showed consistent sales growth over the past 10 years, with the pandemic having a slight affect in the 2019 and 2020 sales. SNA is well-positioned to grow its Commercial and Industrial Group over the next two years. Due to the rapidly growing economy, infrastructure activity has increased in 2021. The Repair Systems and Information group will also prove to be beneficial due to the increased demand in EV repair and I expect to see growth of 4%. The Tools Group will experience an increase in sales due to people returning to work (commuting), overdue repairs, and an increase in new/used car sales. I expect Snap-on to increase sales in its international regions as well, with the Commercial and Industrial Group paving the way.

SNA follows macro-economic trends, as seen in the jump from 2020 to 2021.

**Figure 21: Snap-on segment revenue growth (2022 and 2023 estimates)**



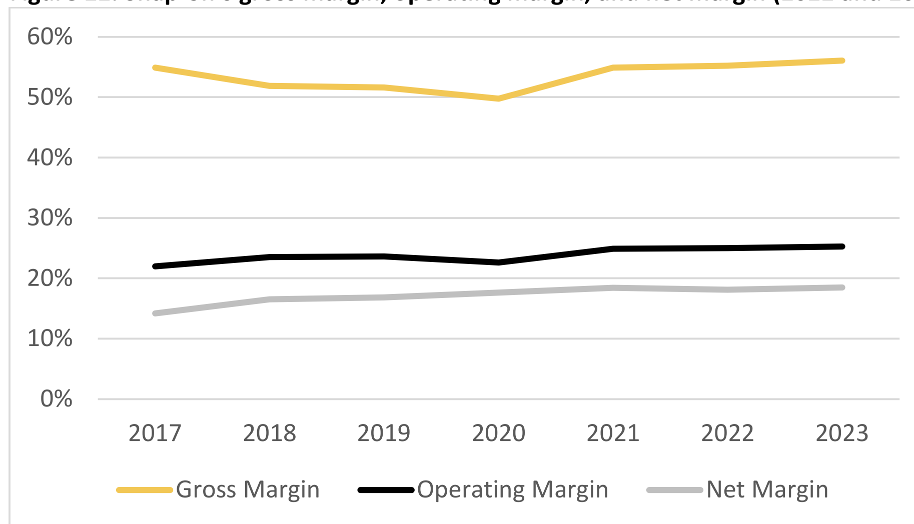

*Source: Company Reports*

Operating Income and Margins

SNA's operating and net margins have been stable to rising even when gross margin dipped from 2014 to 2020. With rising labor costs, I expect to see SG&A to rise as a percent of sales. The operating expenses also include all the costs associated with the financial division as well.
In the past five years, Snap-on has seen an average gross margin of about 53% and an EBIT margin averaging about 23%. SNA is well positioned with its relatively high margins; I expect to see both stay fairly consistent in 2022 and 2023. With SNA's pricing power, I believe this will offset the increased labor costs that we are experiencing coming into 2022.

SNA's net profit margin is 18.3%, while the industry average lies at 11.8%

**Figure 22: Snap-on's gross margin, operating margin, and net margin (2022 and 2023 estimates)**




*Source: Company Reports*

Snap-On has had steady margins over the past few years, with gross margin rising significantly in 2021 as the economy recovered nicely. Operating margin and net margin have both seen slow, but steady growth and I expect that to continue into 2022 and 2023. As SNA moves into higher margin markets, such as critical industries, commercial, and industrial, the firm will reap the benefits through higher margins yet. Snap-on is also implementing its proven RCI (Rapid Continuous Improvement) strategies to increase

efficiency, productivity, and to restrict the amount of waste. With a steady number of van routes, SNA can now focus on how to make the current routes more efficient to maintain margins in the face of rising labor costs.

**Figures 23 & 24: Composition of 2014 operating expenses (left); Operating expenses vs YoY operating expense growth (right)**

| Items | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|
| **Sales** | $4,000 | $4,070 | $4,068 | $3,942 | $4,242 | $4,458 | $4,641 |
| **Direct Costs** | 1,803 | 1,958 | 1,970 | 1,978 | 1,938 | 1,997 | 2,037 |
| **Gross Margin** | 2,197 | 2,112 | 2,098 | 1,964 | 2,304 | 2,461 | 2,604 |
| **Gross Margin %** | 54.9% | 51.9% | 51.6% | 49.8% | 54.9% | 55.2% | 56.1% |
| **SG&A, R&D, D&A, and Other** | 1,316 | 1,154 | 1,139 | 1,072 | 1,248 | 1,346 | 1,429 |
| ***Growth*** | | -12.3% | -1.3% | -5.9% | 11.5% | 7.9% | 6.2% |
| **Operating Margin** | 22.0% | 23.5% | 23.6% | 22.6% | 24.9% | 25.0% | 25.3% |

*Source: Company Reports*

<u>Return on Equity</u>

Snap-On is in line with the industry for ROE, with the average being 22.3%. Snap-On has had a stable ROE over the past four years, and I don't expect it to change considerably. The large rise in SNA's cash balance in 2020, caused SNA's sales to average assets to drop, pushing down ROE. This cash was likely raised with debt as a safety net during the worst of Covid. Snap-on has found ways to utilize the surplus of cash through share buybacks, expanding into critical markets, and extending into more emerging markets. I do expect to see a drop in ROE in 2022 and 2023, but this is a result of falling leverage which also reduces risk.

**Figure 25: 3-Stage ROE breakdown (2022 and 2023 estimates)**

| 3-Stage | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|
| **Net income / sales** | 16.5% | 16.8% | 17.6% | 18.4% | 18.1% | 18.5% |
| **Sales / avg assets** | 0.77 | 0.74 | 0.64 | 0.63 | 0.64 | 0.65 |
| **ROA** | 12.7% | 12.3% | 12.5% | 11.6% | 11.6% | 12.1% |
| **Avg assets / avg equity** | 1.74 | 1.69 | 1.68 | 1.73 | 1.72 | 1.63 |
| **ROE** | 22.1% | 20.9% | 21.2% | 20.2% | 19.9% | 19.6% |

*Source: Company Reports*

Free Cash Flow

SNA has maintained an ROE that's in line with the industry average.

**Figure 26: Free cash flow calculations**

| Items | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|
| NOPAT | $613 | $730 | $735 | $691 | $821 | $866 | $915 |
| *Growth* | | *19.1%* | *0.6%* | *-5.9%* | *27.6%* | *5.5%* | *5.6%* |
| NWC* | 1,270 | 1,313 | 1,473 | 1,286 | 1,306 | 1,311 | 1,364 |
| Net fixed assets | 3,130 | 3,156 | 3,313 | 3,474 | 3,598 | 3,877 | 4,144 |
| Total net operating capital* | $4,400 | $4,469 | $4,786 | $4,760 | $4,904 | $5,188 | $5,508 |
| *Growth* | | *1.6%* | *7.1%* | *-0.5%* | *3.0%* | *5.8%* | *6.2%* |
| - Change in NWC* | | 43 | 160 | (187) | 20 | 5 | 54 |
| - Change in NFA | | 26 | 157 | 161 | 124 | 279 | 267 |
| FCFF* | | $661 | $418 | $717 | $677 | $582 | $594 |
| *Growth* | | | *-36.9%* | *71.7%* | *2.9%* | *-13.9%* | *2.0%* |
| - After-tax interest expense | 38 | 43 | 41 | 41 | 47 | 42 | 36 |
| FCFE** | | $618 | $377 | $676 | $630 | $541 | $558 |
| *Growth* | | | *-39.0%* | *79.3%* | *2.1%* | *-14.2%* | *3.2%* |
| + Net new debt/other cap | | (56) | 72 | 296 | 172 | - | (350) |
| Sources of cash | | $562 | $449 | $972 | $802 | $541 | $208 |
| Uses of cash | | | | | | | |
| Other expense | | 15 | 11 | (44) | 16 | 18 | 19 |
| Increase cash and mkt sec | | 49 | 44 | 738 | 80 | 33 | (316) |
| Dividends | | 192 | 217 | 243 | 280 | 280 | 287 |
| Change in other equity | | 334 | 153 | 165 | 459 | 210 | 218 |
| | | $590 | $425 | $382 | $835 | $541 | $208 |
| FCFF per share | | $11.75 | $7.58 | $13.21 | $12.57 | $11.09 | $11.61 |
| *Growth* | | | *-35.5%* | *74.2%* | *3.8%* | *-11.8%* | *4.7%* |
| FCFE per share | | $10.98 | $6.84 | $12.45 | $11.71 | $10.29 | $10.91 |
| *Growth* | | | *-37.7%* | *82.0%* | *3.0%* | *-12.1%* | *6.0%* |

*Source: Company Reports, IMCP, * ex cash*

SNA's free cash flow saw a huge jump in 2020 despite the drop in NOPAT (-5.9%) as the firm reduced working capital ex cash. I expect modest increases in net working capital ex cash in 2022-2023 with a return to net fixed asset investments above prior levels as it grows in emerging markets and build distribution centers. However, NOPAT will also rise 5-6% so FCFF will be close to $600 million each year. I expect that Snap-on will use the cash for significant share buybacks and to increase its dividend to distribute the surplus of cash.

## Valuation

Based on a combination of 3-stage DCF, historic multiples, and relative valuation; Snap-On's value is $227.

SNA was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is fairly valued and is worth $225. Relative valuation shows SNA to be slightly undervalued based on its fundamentals versus those of its peers in the industry. A detailed DCF analysis values SNA at $227; I give this value a bit more weight because it incorporates the increased margins and critical industry growth. As a result of these valuations, I value the stock at $227.

Trading History

SNA is currently trading moderately lower relative to the S&P 500. This is the result of recent lockdown scares, the fact that another COVID-19 lockdown would stunt SNA's current growth, and concerns about SNA's sales growth slowing due to the rise in electric vehicles. SNA's current NTM P/E is at 14.1 compared to its five-year average of 15.5. As SNA continues to grow into new markets and expand its current product line, I expect SNA to move closer to a P/E closer to 15 in year-end 2022 or start of 2023.

**Figure 27: SNA NTM P/E relative to S&P 500**

*Source: FactSet*

Assuming the firm maintains a 15 NTM P/E at the end of 2022, it should trade at $252.15 by the end of the year:

- Price = P/E x EPS = 14.1 x $16.81 = $252.15.

Discounting $252.15 back to today at a 11.8% cost of equity (explained in Discounted Cash Flow section) yields a price of $225.54. Given SNA's potential for earnings growth and continued profitability during this unprecedented economic growth period, this seems to be an unusually low valuation.

Relative Valuation

Snap-on is currently trading at a P/E much lower than its peers, with a 2021 P/E of 14.2 compared to an average of 21.9. Investors see SNA as a steady, low growth company and prefer the larger, more attractive companies such as Stanley Black & Decker and Makita which may be benefiting from the housing boom. While the S&P P/E has risen over the last 5-6 years with lower rates, SNA's has declined with its slowing growth and concerns about its transition away from a focus on the combustion automobile business. With its current growth plan, SNA is in a solid position to continue earnings growth in the double or high single digits and recover some of the lost P/E.

**Figure 28: SNA comparable companies**

| | | | | P/E | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ticker** | **Name** | **Price** | **Value** | **2021** | **TTM** | **NTM** | **2022** | **2023** | **P/S** | **ROE** | **NM** | **P/B** |
| **SNA** | SNAP-ON INC | $212.89 | $11,397 | 15.0 | 14.5 | 14.2 | 14.1 | 13.4 | 2.69 | 20.1% | 15.9% | 2.83 |
| **SWK** | STANLEY BLACK & DECKER INC | $191.38 | $31,201 | 17.7 | 17.1 | 18.0 | 16.3 | 14.8 | 1.82 | 17.9% | 8.5% | 2.91 |
| **6586-JP** | MAKITA CORP | $63.25 | $77,082 | 19.4 | 17.9 | | 18.3 | 17.1 | 2.16 | 11.0% | 10.2% | 2.01 |
| **LECO** | LINCOLN ELECTRIC HLDGS INC | $132.74 | $7,838 | 21.7 | 29.9 | 19.4 | 18.8 | 17.3 | 2.44 | 48.5% | 7.8% | 9.14 |
| **CFX** | COLFAX CORP | $44.50 | $6,888 | 21.1 | 56.6 | 18.1 | 17.5 | 15.5 | 1.80 | 8.6% | 2.0% | 1.50 |
| **Average** | | | $24,415 | 22.6 | 28.9 | 20.5 | 20.7 | 18.3 | 9.58 | 22.5% | 9.9% | 4.95 |
| **Median** | | | $11,741 | 20.3 | 23.9 | 18.1 | 17.9 | 16.3 | 2.30 | 19.0% | 9.3% | 2.87 |

*Source: FactSet, IMCP*

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 valuation, I gave 2022 ROE a 100% allocation. On fundamentals, I allocated 100% to P/B. The

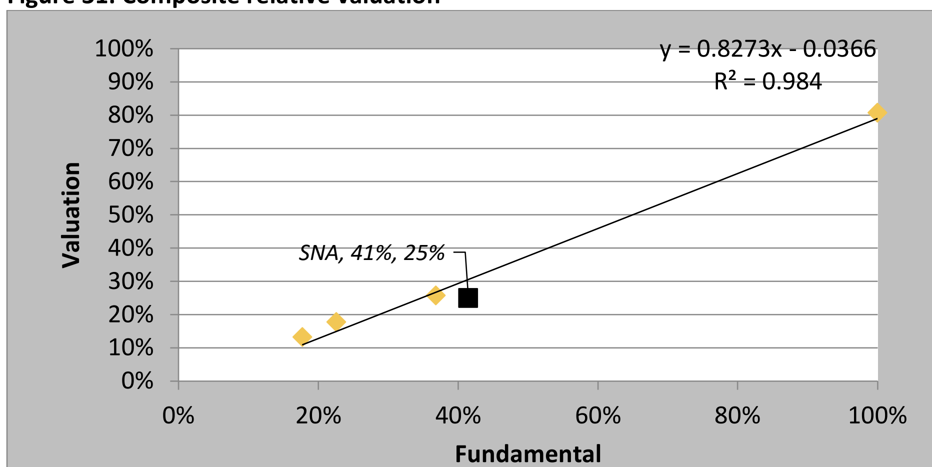
regression line had an R-squared of 0.984, with SNA below on the line, it shows that it is under-valued at this time.

**Figure 30: Composite valuation, % of range**

| | | Fundamental | Valuation |
|---|---|---|---|
| | Weight | 100.0% | 100.0% |
| | | 2022 | |
| Ticker | Name | ROE | P/B |
| **SNA** | SNAP-ON INC | 41% | 25% |
| **SWK** | STANLEY BLACK & DECKER INC | 37% | 26% |
| **6586-JP** | MAKITA CORP | 23% | 18% |
| **LECO** | LINCOLN ELECTRIC HLDGS INC | 100% | 81% |
| **CFX** | COLFAX CORP | 18% | 13% |

*Source: IMCP*

**Figure 31: Composite relative valuation**




*Source: IMCP*

<u>Discounted Cash Flow Analysis</u>

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

For the purpose of this analysis, the company's cost of equity was calculated to be 11.8% 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 1.49%.
- A ten-year beta of 1.37 was utilized since the company has higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 11.8% (1.49 + 1.37 (10.0 – 1.49)).

*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 $10.29 and $10.91, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $17.94 per share. Thus, stage one of this discounted cash flow analysis contributes $17.94 to 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 11.8% cost of equity. I assume 6.5% sales growth in 2024, rising to 7.3% through 2028. The ratio of NWC to sales will remain at 2023 levels, as well as NFA turnover. Also, the NOPAT margin is expected to rise 0.9% to 20.6% in 2028 from 19.7% in 2023. Finally, after-tax interest is expected to rise 6-7% per year as the result of moderate increases in borrowing at the same rate of sales.

**Figure 32: FCFE and discounted FCFE, 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| FCFE | $10.29 | $10.91 | $10.99 | $11.82 | $12.84 | $13.62 | $14.86 |
| Discounted FCFE | $9.21 | $8.73 | $7.86 | $7.57 | $7.35 | $6.97 | $6.80 |

Added together, these discounted cash flows total $54.49, and the second stage is $36.56.

*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 $16.81 in 2023 to $25.07 in 2028.

**Figure 33: EPS estimates for 2021 – 2028**

| | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|---|
| EPS | $14.47 | $15.35 | $16.81 | $18.00 | $19.39 | $21.15 | $22.89 | $25.07 |

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. A P/E ratio of 15 is assumed at the end of SNA's terminal year, which is also closer to the industry average P/E. While this may be a low multiple at the end of 2028, given the accelerating growth, one must consider what the market may price in today. A higher multiple may be better to calculate a fair value, but the stock will likely trade below this value because the market will be moderately slow to price in SNA's higher growth.

The 3-stage DCF model returned the highest present value of all the valuations at $226.72

Given the assumed terminal earnings per share of $25.07 and a price to earnings ratio of 15, a terminal value of $376.01 per share is calculated. Using the 11.8% cost of equity, this number is discounted back to a present value of $172.23.

*Total Present Value* – given the above assumptions and utilizing a three-stage discounted cash flow model, an intrinsic value of $226.72 is calculated (17.94 + 36.56 + 172.23). Given SNA's current price of $216.23, this model indicates that the stock is slightly undervalued.

Scenario Analysis

On top of the three-stage analysis above, I conducted a bull and bear case below. I increased and decreased the margins, sales, and the terminal P/E to reflect positive business flows or negative business risks.

**Bull Case:** In this case, I increased the margin to 22%-23.6% through years 2024 and 2028. I also increased the P/E to 18 to reflect a positive jump towards the S&P 500 average and industry average, and increased sales by 1% each year to reflect an increase in growth for international business groups and critical markets.

The new current valuation based on a 3-stage DCF model is $310.66.

**Bear Case:** In this case, I decreased the margin to 18.1%-18.5% through years 2024 and 2028 if we assume the firm is unsuccessful in emerging markets and moving away from auto. I also decreased the P/E to 14 for the decrease in earnings. Lastly, I lowered sales by 1% each year to reflect slower than expected growth.

The new current valuation based on a 3-stage DCF model is $188.81.

## Business Risks

Although the market may not be as optimistic as I am about Snap-On, there are a few factors that could lower growth over the next few years.

Economic risks:

SNA is heavily dependent on a healthy, stable, and growing economy. A great example is when Covid-19 struck the world's economies. Snap-On struggled to find new ways to continue growth and relied on the substantial recovery that ensued.

EV adaption:

Although Snap-On has the Repair Systems & Information group, it is still susceptible to the growing adaption of electric vehicles. Electric vehicles require fewer tools and repair shop maintenance than regular combustion engines. Snap-On may lose substantial sales in its Tools group if this trend continues to grow exponentially.

Labor issues:

With Snap-On relying on manufacturing plants and its fleet of mobile vans, lower labor supply or increase in labor costs could negatively affect growth opportunities.

Commodity risk:

SNA purchases large amounts of steel, natural gas, and electricity, so it is susceptible to increases in prices that could dent margins.

## Appendix 1: Porter's 5 Forces

Threat of New Entrants – Moderate

With Snap-On tools being a premium brand and established business, it would be difficult for new companies to gain sufficient capital and market share to compete with such a company. However, existing businesses that have such qualities could encroach on Snap-On's customer base.

Threat of Substitutes – Moderate

Snap-On is known for its quality and reliability in the tools industry. Snap-On tools are hard to substitute in the critical industries it currently serves. However, if other established businesses develop similar tools, SNA could find it hard to justify its premium prices.

Supplier Power - Low

Most of Snap-On's tools are made in its own manufacturing facilities and require the purchasing of raw materials. In SNA's favor, there are multiple sources of raw materials that would be adequate.

Buyer Power – High

Snap-On has done a good job justifying its higher prices to its current customer base, but it would be simple for repair shops and other end markets to switch to competitors if the prices are too steep. End markets are constantly being marketed to, so SNA must find a way to keep its current customers pleased while maintaining a path for solid growth rate.

Intensity of Competition – High

SNA's competition is full of established companies that have a high market share. They have an established niche with their current offerings, but as competitors continue to innovate, it would be easy for consumers to switch.

## Appendix 2: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| High brand recognition<br>High margins<br>Financial services group | Slowing growth of mobile van fleet<br>Highly competitive market |
| **Opportunities** | **Threats** |
| International markets<br>Critical industries | Electric vehicles<br>Economic downturns |

## Appendix 3: Income Statement

| Items | Dec-17 | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
|---|---|---|---|---|---|---|---|
| Sales | $4,000 | $4,070 | $4,068 | $3,942 | $4,242 | $4,458 | $4,641 |
| Direct costs | 1,803 | 1,958 | 1,970 | 1,978 | 1,938 | 1,997 | 2,037 |
| | | | | | | | |
| Gross Margin | 2,197 | 2,112 | 2,098 | 1,964 | 2,304 | 2,461 | 2,604 |
| SG&A, R&D, D&A, and other | 1,316 | 1,154 | 1,139 | 1,072 | 1,248 | 1,346 | 1,429 |
| EBIT | 881 | 958 | 959 | 892 | 1,056 | 1,115 | 1,174 |
| Interest | 55 | 57 | 53 | 53 | 60 | 54 | 46 |
| EBT | 826 | 901 | 906 | 839 | 996 | 1,061 | 1,128 |
| Taxes | 251 | 214 | 212 | 189 | 215 | 237 | 249 |
| Income | 575 | 687 | 694 | 650 | 781 | 824 | 879 |
| Other | 9 | 15 | 11 | (44) | 16 | 18 | 19 |
| Net income | 566 | 672 | 683 | 694 | 779 | 806 | 860 |
| Basic Shares | 57.4 | 56.3 | 55.1 | 54.3 | 53.8 | 52.5 | 51.1 |
| Fully Diluted Shares | 58.6 | 57.3 | 55.9 | 54.8 | 54.9 | 53.6 | 52.2 |
| EPS | $9.86 | $11.94 | $12.40 | $12.60 | $14.47 | $15.35 | $16.81 |
| EPS Fully Diluted | $9.66 | $11.73 | $12.22 | $12.42 | $14.19 | $15.05 | $16.47 |
| DPS | $2.95 | $3.41 | $3.93 | $4.48 | $5.20 | $5.33 | $5.61 |

## Appendix 4: Balance Sheets

| Items | Dec-17 | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
|---|---|---|---|---|---|---|---|
| Cash | 92 | 141 | 185 | 923 | 1,003 | 1,036 | 719 |
| Operating assets ex cash | 2,027 | 2,076 | 2,196 | 2,160 | 2,230 | 2,189 | 2,288 |
| Operating assets | 2,119 | 2,217 | 2,381 | 3,083 | 3,233 | 3,225 | 3,008 |
| Operating liabilities | 757 | 763 | 723 | 874 | 924 | 878 | 924 |
| NOWC | 1,362 | 1,454 | 1,658 | 2,209 | 2,309 | 2,346 | 2,084 |
| NOWC ex cash (NWC) | 1,270 | 1,313 | 1,473 | 1,286 | 1,306 | 1,311 | 1,364 |
| NFA | 3,130 | 3,156 | 3,313 | 3,474 | 3,598 | 3,877 | 4,144 |
| *Invested capital* | *$4,492* | *$4,610* | *$4,971* | *$5,683* | *$5,907* | *$6,223* | *$6,228* |
| Marketable securities | - | - | - | - | - | - | - |
| *Total assets* | *$5,249* | *$5,373* | *$5,694* | *$6,557* | *$6,831* | *$7,101* | *$7,151* |
| S-T and L-T debt and financing leases | $1,203 | $1,147 | $1,219 | $1,515 | $1,687 | $1,687 | $1,337 |
| Other liabilities | 317 | 345 | 321 | 322 | 334 | 334 | 334 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 2,972 | 3,118 | 3,431 | 3,846 | 3,886 | 4,202 | 4,557 |
| *Total supplied capital* | *$4,492* | *$4,610* | *$4,971* | *$5,683* | *$5,907* | *$6,223* | *$6,228* |
| *Total liabilities and equity* | *$5,249* | *$5,373* | *$5,694* | *$6,557* | *$6,831* | *$7,101* | *$7,151* |

## Appendix 5: Sales Forecast

| Items | Dec-17 | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
|---|---|---|---|---|---|---|---|
| Sales | 4,243 | $4,550 | 4,621 | $4,632 | $4,467 | $4,685 | $4,933 |
| *Growth* | | *7.2%* | *1.6%* | *0.2%* | *-3.6%* | *4.9%* | *5.3%* |
| Snap-on Tools | 1,634 | 1,625 | 1,614 | 1,613 | 1,644 | 1,703 | 1,768 |
| *Growth* | | *-0.6%* | *-0.7%* | *-0.1%* | *1.9%* | *3.6%* | *3.8%* |
| *% of sales* | *38.5%* | *35.7%* | *34.9%* | *34.8%* | *36.8%* | *36.4%* | *35.8%* |
| Repair Systems and Information | 1,180 | 1,347 | 1,334 | 1,335 | 1,238 | 1,279 | 1,329 |
| *Growth* | | *14.2%* | *-1.0%* | *0.1%* | *-7.3%* | *3.3%* | *3.9%* |
| *% of sales* | *27.8%* | *29.6%* | *28.9%* | *28.8%* | *27.7%* | *2.0%* | *26.9%* |
| Commercial and Industrial | 1,148 | 1,265 | 1,343 | 1,346 | 1,235 | 1,339 | 1,455 |
| *Growth* | | *10.2%* | *6.2%* | *0.2%* | *-8.2%* | *8.4%* | *8.7%* |
| *% of sales* | *27.1%* | *27.8%* | *29.1%* | *29.1%* | *27.6%* | *28.6%* | *6.0%* |
| Financial Services | 281 | 313 | 330 | 338 | 350 | 365 | 381 |
| *Growth* | | *11.4%* | *5.4%* | *2.4%* | *3.6%* | *4.2%* | *4.4%* |
| *% of sales* | *6.6%* | *6.9%* | *7.1%* | *7.3%* | *7.8%* | *7.8%* | *7.7%* |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| United States | 2,589 | 2,703 | 2,592 | 2,655 | 2,596 | 2,694 | 2,807 |
| *Growth* | | *4.4%* | *-4.1%* | *2.4%* | *-2.2%* | *3.8%* | *4.2%* |
| *% of sales* | *61.0%* | *59.4%* | *56.1%* | *57.3%* | *58.1%* | *57.5%* | *56.9%* |
| Europe | 654 | 749 | 718 | 665 | 617 | 661 | 715 |
| *Growth* | | *14.5%* | *-4.1%* | *-7.4%* | *-7.2%* | *7.1%* | *8.3%* |
| *% of sales* | *15.4%* | *16.5%* | *15.5%* | *14.4%* | *13.8%* | *14.1%* | *14.5%* |
| All Other (Intersegment and Financial Services Revenue) | 1,000 | 1,098 | 1,311 | 1,312 | 1,254 | 1,331 | 1,411 |
| *Growth* | | *9.8%* | *19.4%* | *0.1%* | *-4.4%* | *6.1%* | *6.0%* |
| *% of sales* | *23.6%* | *24.1%* | *28.4%* | *28.3%* | *28.1%* | *28.4%* | *28.6%* |

## Appendix 6: Ratios

| Items | Dec-17 | Dec-18 | Dec-19 | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
|---|---|---|---|---|---|---|---|
| Profitability | | | | | | | |
| Gross margin | 54.9% | 51.9% | 51.6% | 49.8% | 54.3% | 55.2% | 56.1% |
| Operating (EBIT) margin | 22.0% | 23.5% | 23.6% | 22.6% | 24.9% | 25.0% | 25.3% |
| Net profit margin | 14.2% | 16.5% | 16.8% | 17.6% | 18.4% | 18.1% | 18.5% |
| Activity | | | | | | | |
| NFA (gross) turnover | | 1.29 | 1.26 | 1.16 | 1.20 | 1.19 | 1.16 |
| Total asset turnover | | 0.77 | 0.74 | 0.64 | 0.63 | 0.64 | 0.65 |
| Liquidity | | | | | | | |
| Op asset / op liab | 2.80 | 2.91 | 3.29 | 3.53 | 3.50 | 3.67 | 3.26 |
| NOWC Percent of sales | | 34.6% | 38.2% | 49.0% | 53.3% | 52.2% | 47.7% |
| Solvency | | | | | | | |
| Debt to assets | 22.9% | 21.3% | 21.4% | 23.1% | 24.7% | 23.8% | 18.7% |
| Debt to equity | 40.5% | 36.8% | 35.5% | 39.4% | 43.4% | 40.1% | 29.3% |
| Other liab to assets | 6.0% | 6.4% | 5.6% | 4.9% | 4.9% | 4.7% | 4.7% |
| Total debt to assets | 29.0% | 27.8% | 27.0% | 28.0% | 29.6% | 28.5% | 23.4% |
| Total liabilities to assets | 43.4% | 42.0% | 39.7% | 41.3% | 43.1% | 40.8% | 36.3% |
| Debt to EBIT | 1.37 | 1.20 | 1.27 | 1.70 | 1.60 | 1.51 | 1.14 |
| EBIT/interest | 16.02 | 16.81 | 18.09 | 16.83 | 17.60 | 20.65 | 25.44 |
| Debt to total net op capital | 26.8% | 24.9% | 24.5% | 26.7% | 28.6% | 27.1% | 21.5% |
| ROIC | | | | | | | |
| NOPAT to sales | 15.3% | 17.9% | 18.1% | 17.5% | 19.3% | 19.4% | 19.7% |
| Sales to NWC | | 3.15 | 2.92 | 2.86 | 3.27 | 3.41 | 3.47 |
| Sales to NFA | | 1.29 | 1.26 | 1.16 | 1.20 | 1.19 | 1.16 |
| Sales to IC ex cash | | 0.92 | 0.88 | 0.83 | 0.88 | 0.88 | 0.87 |
| Total ROIC ex cash | | 16.5% | 15.9% | 14.5% | 17.0% | 17.2% | 17.1% |
| NOPAT to sales | 15.3% | 17.9% | 18.1% | 17.5% | 19.3% | 19.4% | 19.7% |
| Sales to NOWC | | 2.89 | 2.61 | 2.04 | 1.88 | 1.92 | 2.10 |
| Sales to NFA | | 1.29 | 1.26 | 1.16 | 1.20 | 1.19 | 1.16 |
| Sales to IC | | 0.89 | 0.85 | 0.74 | 0.73 | 0.74 | 0.75 |
| Total ROIC | | 16.1% | 15.3% | 13.0% | 14.2% | 14.3% | 14.7% |
| NOPAT to sales | 15.3% | 17.9% | 18.1% | 17.5% | 19.3% | 19.4% | 19.7% |
| Sales to EOY NWC | 3.15 | 3.10 | 2.76 | 3.07 | 3.25 | 3.40 | 3.40 |
| Sales to EOY NFA | 1.28 | 1.29 | 1.23 | 1.13 | 1.18 | 1.15 | 1.12 |
| Sales to EOY IC ex cash | 0.91 | 0.91 | 0.85 | 0.83 | 0.87 | 0.86 | 0.84 |
| Total ROIC using EOY IC ex cas | 13.9% | 16.3% | 15.3% | 14.5% | 16.7% | 16.7% | 16.6% |
| NOPAT to sales | 15.3% | 17.9% | 18.1% | 17.5% | 19.3% | 19.4% | 19.7% |
| Sales to EOY NOWC | 2.94 | 2.80 | 2.45 | 1.78 | 1.84 | 1.90 | 2.23 |
| Sales to EOY NFA | 1.28 | 1.29 | 1.23 | 1.13 | 1.18 | 1.15 | 1.12 |
| Sales to EOY IC | 0.89 | 0.88 | 0.82 | 0.69 | 0.72 | 0.72 | 0.75 |
| Total ROIC using EOY IC | 13.7% | 15.8% | 14.8% | 12.2% | 13.9% | 13.9% | 14.7% |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 23.5% | 23.6% | 22.6% | 24.9% | 25.0% | 25.3% |
| Sales / avg assets | | 0.77 | 0.74 | 0.64 | 0.63 | 0.64 | 0.65 |
| EBT / EBIT | | 94.1% | 94.5% | 94.1% | 94.3% | 95.2% | 96.1% |
| Net income /EBT | | 74.6% | 75.4% | 82.7% | 78.2% | 76.0% | 76.2% |
| ROA | | 12.7% | 12.3% | 12.5% | 11.6% | 11.6% | 12.1% |
| Avg assets / avg equity | | 1.74 | 1.69 | 1.68 | 1.73 | 1.72 | 1.63 |
| ROE | | 22.1% | 20.9% | 21.2% | 20.2% | 19.9% | 19.6% |
| **3-stage** | | | | | | | |
| Net income / sales | | 16.5% | 16.8% | 17.6% | 18.4% | 18.1% | 18.5% |
| Sales / avg assets | | 0.77 | 0.74 | 0.64 | 0.63 | 0.64 | 0.65 |
| ROA | | 12.7% | 12.3% | 12.5% | 11.6% | 11.6% | 12.1% |
| Avg assets / avg equity | | 1.74 | 1.69 | 1.68 | 1.73 | 1.72 | 1.63 |
| ROE | | 22.1% | 20.9% | 21.2% | 20.2% | 19.9% | 19.6% |
| Payout Ratio | | 28.6% | 31.7% | 31.2% | 35.9% | 34.7% | 33.4% |
| Retention Ratio | | 71.4% | 68.3% | 68.8% | 64.1% | 65.3% | 66.6% |
| Sustainable Growth Rate | | 15.8% | 14.2% | 14.6% | 12.9% | 13.0% | 13.1% |

## Appendix 7: Cash Flow Statement

| Cash Flow Statement | | | | | | |
|---|---|---|---|---|---|---|
| Note: This is not the actual cash flow statement. It is created using the indirect method and various simplifying assumptions. | | | | | Base Case | |
| **Items** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| **Cash from Operatings (understated - depr'n added to net assets)** | | | | | | |
| Net income | $672 | $683 | $694 | $779 | $806 | $860 |
| Change in Net Working Capital ex cash | (43) | (160) | 187 | (20) | (5) | (54) |
| Cash from operations | $629 | $523 | $534 | $759 | $801 | $806 |
| | | | | | | |
| **Cash from Investing (understated - depr'n added to net assets)** | | | | | | |
| Change in NFA | ($26) | ($157) | ($161) | ($124) | ($279) | ($267) |
| Change in Marketable Securities | $0 | $0 | $0 | $0 | $0 | $0 |
| Cash from investing | ($26) | ($157) | ($161) | ($124) | ($279) | ($267) |
| | | | | | | |
| **Cash from Financing** | | | | | | |
| Change in Short-Term and Long-Term Debt | ($56) | $72 | $296 | $172 | $0 | ($350) |
| Change in Other liabilities | 28 | (24) | 1 | 12 | 0 | 0 |
| Change in Debt/Equity-Like Securities | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividends | (192) | (217) | (243) | (280) | (280) | (287) |
| Change in Equity ex NI and Dividends | (334) | (153) | (165) | (459) | (210) | (218) |
| Cash from financing | ($554) | ($322) | ($334) | ($555) | ($490) | ($855) |
| | | | | | | |
| **Change in Cash** | 49 | 44 | 43 | 80 | 33 | (316) |
| **Beginning Cash** | 92 | 141 | 185 | 923 | 1003 | 1036 |
| **Ending Cash** | $141 | $185 | $184 | $1,003 | $1,036 | $719 |

# Appendix 8: 3-stage DCF Model

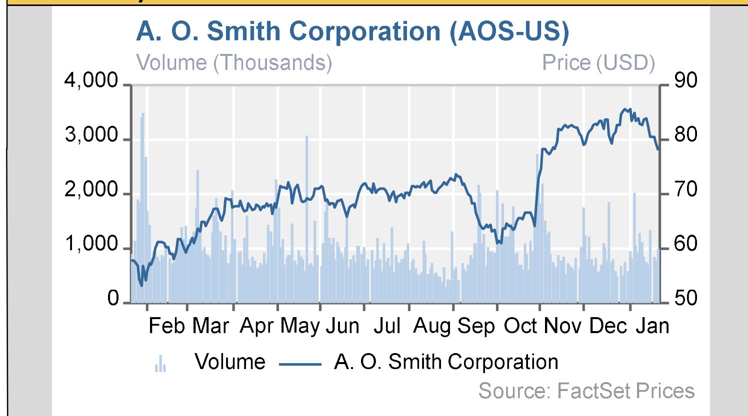
| | | | Year | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | First Stage | | Second Stage | | | | |
| Year ending January | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | | *7.6%* | *5.1%* | *4.1%* | *6.5%* | *6.6%* | *6.8%* | *7.1%* | *7.3%* |
| *NOPAT / S* | | *19.3%* | *19.4%* | *19.7%* | *19.4%* | *19.6%* | *20.0%* | *20.2%* | *20.6%* |
| *S / NWC* | | *3.25* | *3.40* | *3.40* | *3.40* | *3.40* | *3.40* | *3.40* | *3.40* |
| *S / NFA (EOY)* | | *1.18* | *1.15* | *1.12* | *1.12* | *1.12* | *1.12* | *1.12* | *1.12* |
| *S / IC (EOY)* | | *0.87* | *0.86* | *0.84* | *0.84* | *0.84* | *0.84* | *0.84* | *0.84* |
| *ROIC (EOY)* | | *16.7%* | *16.7%* | *16.6%* | *16.3%* | *16.5%* | *16.8%* | *17.0%* | *17.4%* |
| *ROIC (BOY)* | | | *17.7%* | *17.6%* | *17.4%* | *17.6%* | *18.0%* | *18.2%* | *18.6%* |
| *Share Growth* | | *-0.9%* | *-2.4%* | *-2.6%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $3,942 | $4,242 | $4,458 | $4,641 | $4,943 | $5,269 | $5,627 | $6,027 | $6,467 |
| NOPAT | $691 | $821 | $866 | $915 | $959 | $1,033 | $1,125 | $1,217 | $1,332 |
| *Growth* | | *27.6%* | *5.5%* | *5.6%* | *4.8%* | *7.7%* | *9.0%* | *8.2%* | *9.4%* |
| - Change in NWC | | 20 | 5 | 54 | 89 | 96 | 105 | 118 | 129 |
| *NWC EOY* | *1286* | *1306* | *1311* | *1364* | *1454* | *1550* | *1655* | *1773* | *1902* |
| *Growth NWC* | | *1.6%* | *0.4%* | *4.1%* | *6.5%* | *6.6%* | *6.8%* | *7.1%* | *7.3%* |
| - Chg NFA | | 124 | 279 | 267 | 269 | 291 | 320 | 357 | 393 |
| *NFA EOY* | *3,474* | *3,598* | *3,877* | *4,144* | *4,413* | *4,704* | *5,024* | *5,381* | *5,774* |
| *Growth NFA* | | *3.6%* | *7.7%* | *6.9%* | *6.5%* | *6.6%* | *6.8%* | *7.1%* | *7.3%* |
| Total inv in op cap | | 144 | 284 | 321 | 359 | 387 | 425 | 474 | 522 |
| Total net op cap | | 4904 | 5188 | 5508 | 5867 | 6254 | 6679 | 7154 | 7676 |
| FCFF | | $677 | $582 | $594 | $600 | $646 | $700 | $743 | $810 |
| *% of sales* | | *16.0%* | *13.1%* | *12.8%* | *12.1%* | *12.3%* | *12.4%* | *12.3%* | *12.5%* |
| *Growth* | | | *-13.9%* | *2.0%* | *1.1%* | *7.5%* | *8.5%* | *6.1%* | *9.0%* |
| - Interest (1-tax rate) | | 47 | 42 | 36 | 38 | 41 | 44 | 47 | 50 |
| *Growth* | | *16.2%* | *-10.0%* | *-14.3%* | *6.5%* | *6.6%* | *6.8%* | *7.1%* | *7.3%* |
| FCFE w/o debt | | $630 | $541 | $558 | $562 | $605 | $657 | $696 | $760 |
| *% of sales* | | *14.9%* | *12.1%* | *12.0%* | *11.4%* | *11.5%* | *11.7%* | *11.6%* | *11.7%* |
| *Growth* | | | *-14.2%* | *3.2%* | *0.7%* | *7.6%* | *8.6%* | *6.1%* | *9.1%* |
| / No Shares | 54.3 | 53.8 | 52.5 | 51.1 | 51.1 | 51.1 | 51.1 | 51.1 | 51.1 |
| FCFE | | $11.71 | $10.29 | $10.91 | $10.99 | $11.82 | $12.84 | $13.62 | $14.86 |
| *Growth* | | | *-12.1%* | *6.0%* | *0.7%* | *7.6%* | *8.6%* | *6.1%* | *9.1%* |
| * Discount factor | | | 0.89 | 0.80 | 0.72 | 0.64 | 0.57 | 0.51 | 0.46 |
| Discounted FCFE | | | $9.21 | $8.73 | $7.86 | $7.57 | $7.35 | $6.97 | $6.80 |
| **Terminal value P/E** | | | | | | | | | |
| Net income | | $779 | $806 | $860 | $921 | $992 | $1,082 | $1,171 | $1,282 |
| *% of sales* | | *18.4%* | *18.1%* | *18.5%* | *18.6%* | *18.8%* | *19.2%* | *19.4%* | *19.8%* |
| EPS | | $14.47 | $15.35 | $16.81 | $18.00 | $19.39 | $21.15 | $22.89 | $25.07 |
| *Growth* | | *-8.3%* | *6.1%* | *9.5%* | *7.1%* | *7.7%* | *9.1%* | *8.2%* | *9.5%* |
| Terminal P/E | | | | | | | | | 15.00 |
| * Terminal EPS | | | | | | | | | $25.07 |
| Terminal value | | | | | | | | | $376.01 |
| * Discount factor | | | | | | | | | 0.46 |
| Discounted terminal value | | | | | | | | | $172.23 |
| **Summary (using P/E multiple for terminal value)** | | | | | | | | | |
| First stage | | $17.94 | Present value of first 2 year cash flow | | | | | | |
| Second stage | | $36.56 | Present value of year 3-7 cash flow | | | | | | |
| Third stage | | $172.23 | Present value of terminal value P/E | | | | | | |
| Value (P/E) | | **$226.72** | | | | | | | |

| 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 |

Industrials, Building Materials

# A. O. Smith Corporation

## Price History




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

## 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.

## 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% |

## 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.

## 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

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.

## 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% | - | - |

## Risks

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

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## 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.

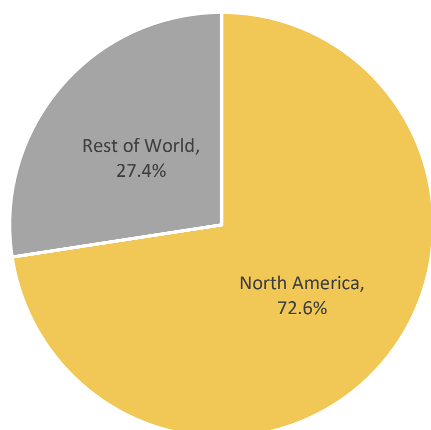
AOS generates revenue from its two segments: North America and Rest of World.

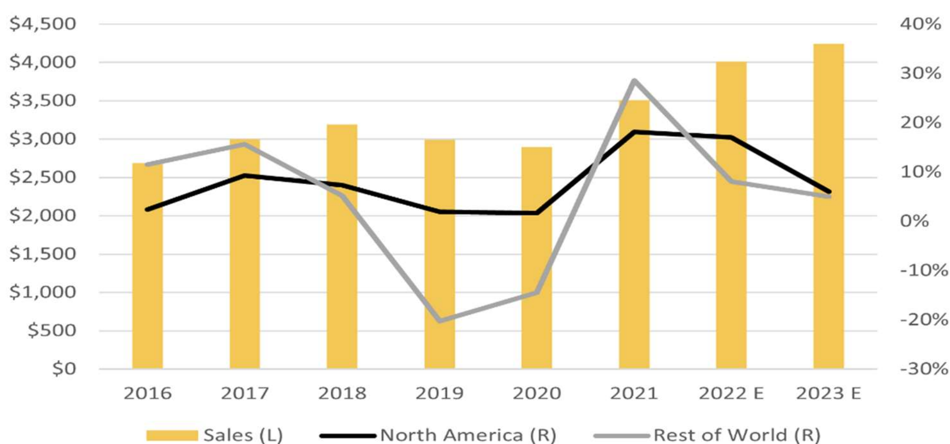
Between fiscal 2016 and 2020, total sales have grown at an annualized rate of 1.9%.

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

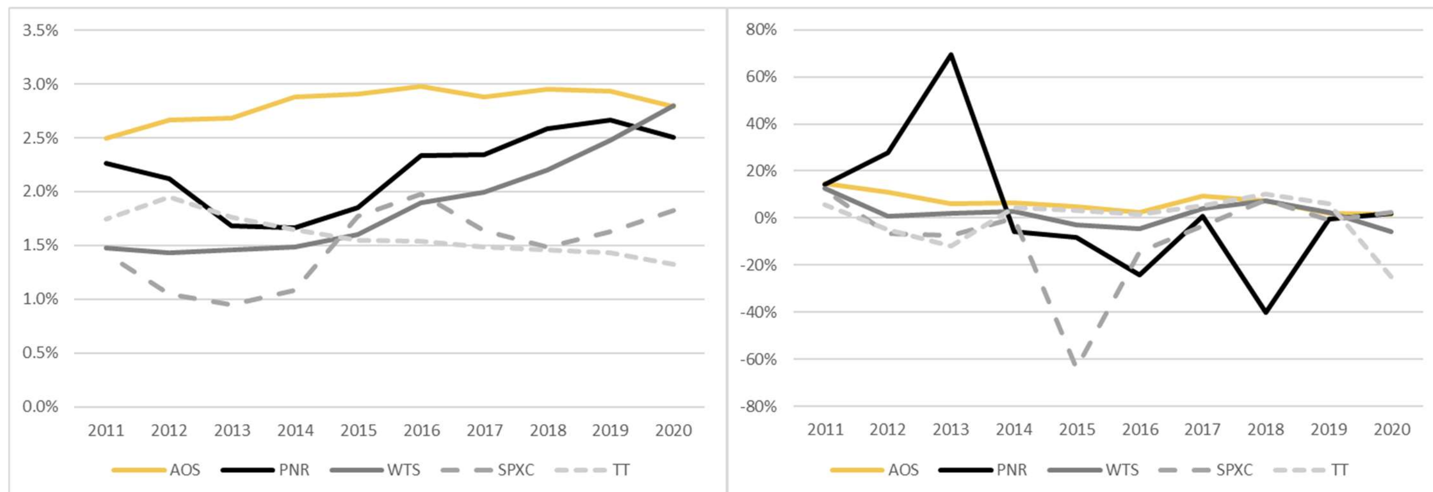
> The CTC which opened in 2018, has become a vital component to AOS' success in innovation.

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.

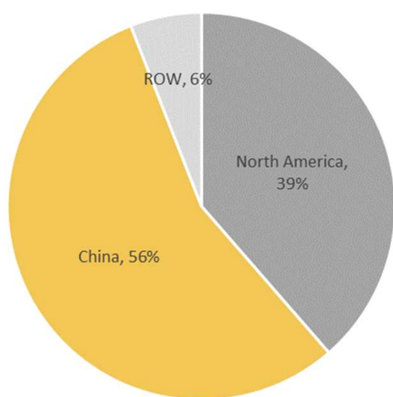
Global Outreach

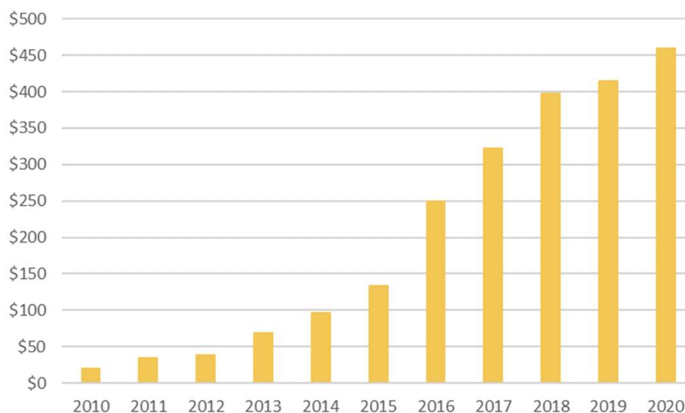
AOS is made up of two main segments; North America (NA) and Rest of World (ROW). In the NA segment, a large portion of sales comes from the replacement of existing products. AOS estimates 80-85% of both water heater and boiler units sold in the U.S. are due to replacement needs. Most sales are derived 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*

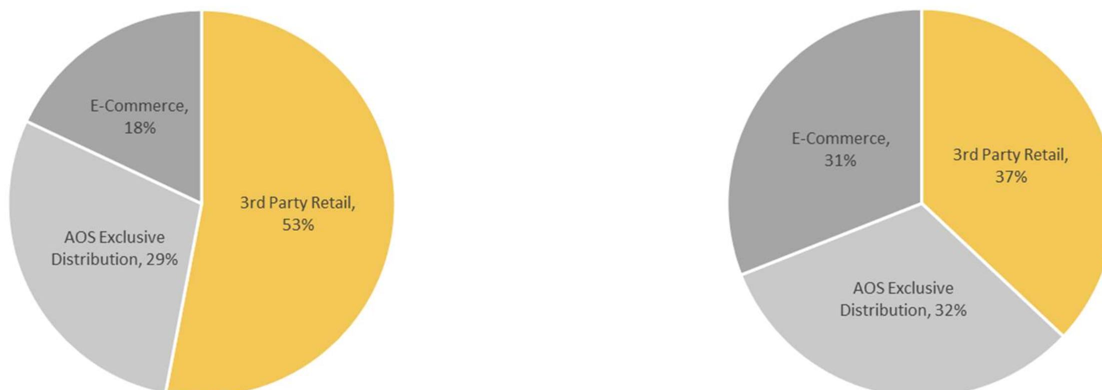
Other acquisitions have propelled AOS' growth in the water treatment industry. In 2013, AOS purchased MiM Water Technologies in Istanbul, Turkey to formally enter into the water treatment market. Two years later, in 2015, AOS branded water treatment products in India. This was followed by purchasing 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, Aerco, 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*

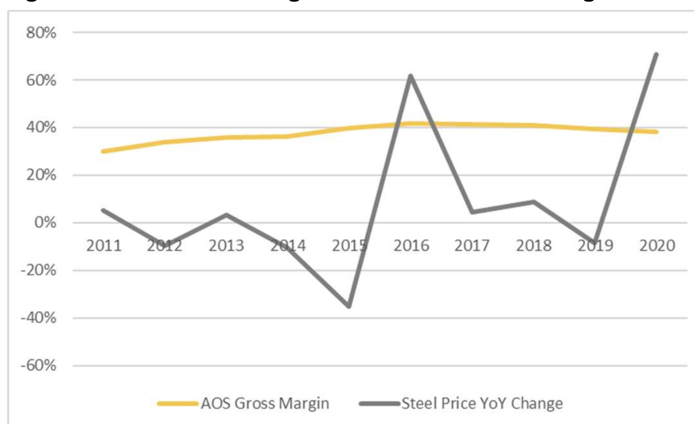
43% of AOS total net sales in 2020 are from five customers.

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**

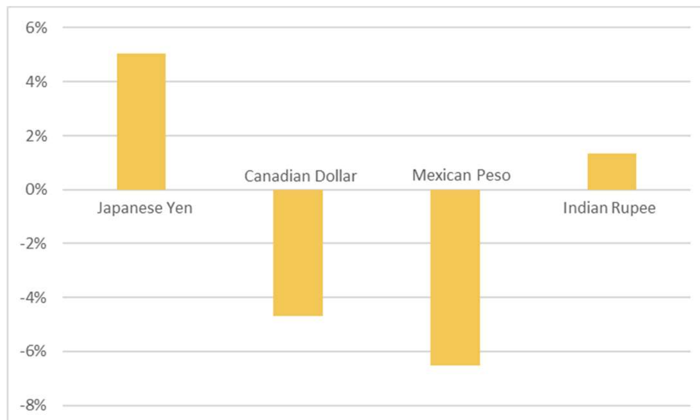



*Source: FactSet*

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.

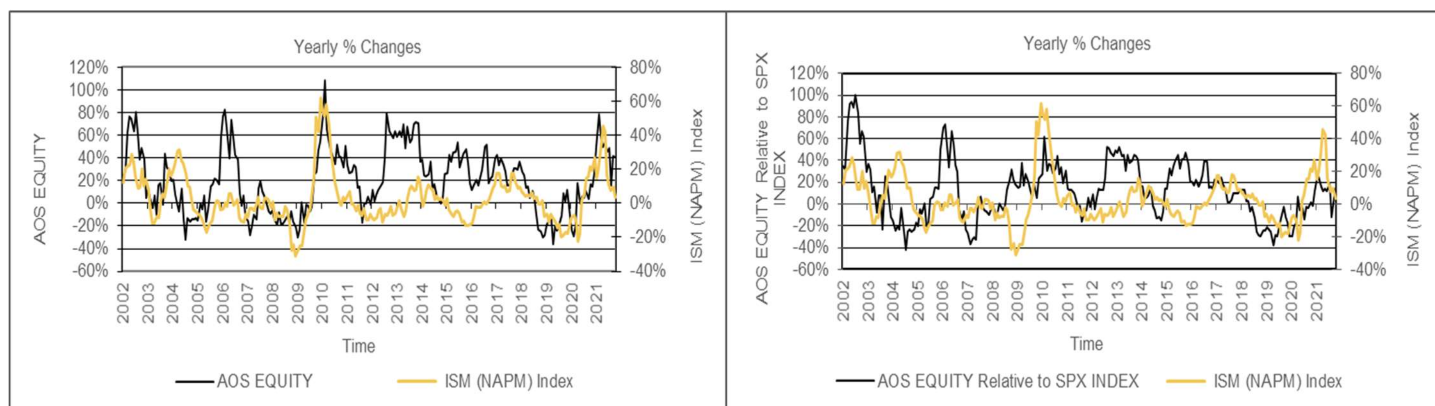
**Figure 14: USD Purchasing Power change October 2020 to October 2021**




*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

<u>Quantification of Drivers</u>

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

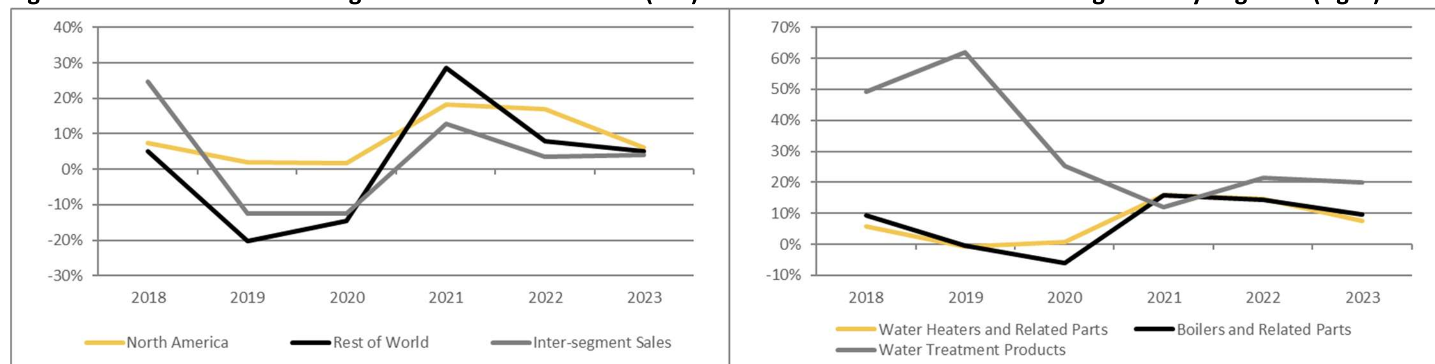
21.1% sales increase from 2020 – 2021 due to strong demand.

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)**

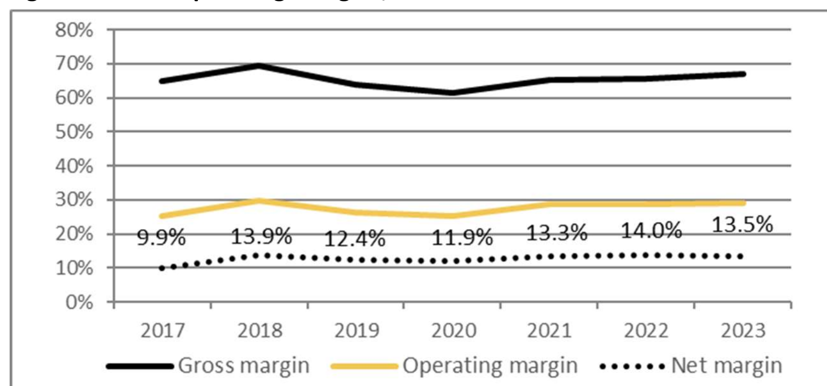



*Source: FactSet*

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 |
| *Growth* | | *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 |
| *Growth* | | *-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 |
| *Growth* | | | *-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 |
| *Growth* | | | *-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

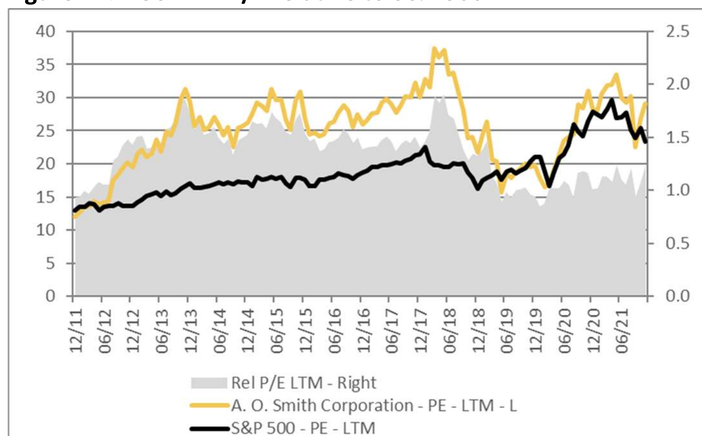
AOS target price is $72.

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 it's 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 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2019 | 2020 | 2021 | 2022 | Beta | LT Debt/ Equity | S&P Rating | LTM Dividend 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% | | | | | |

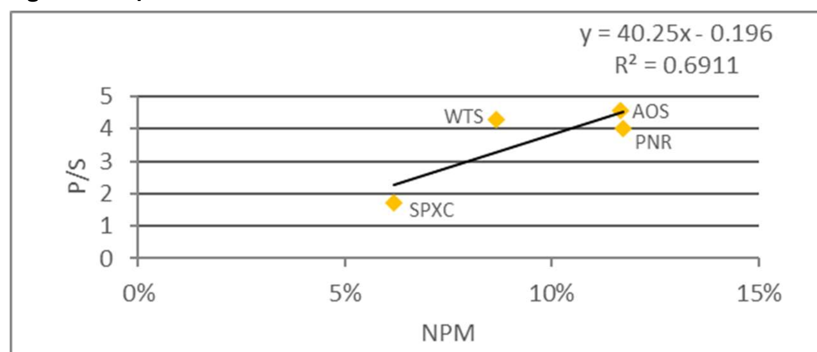
| Ticker | 2021 ROE | P/B | P/E 2018 | 2019 | 2020 | TTM | NTM | 2021 | 2022 | 2020 NPM | 2020 P/S | NM | OM | ROIC | EV/ EBIT | P/CF Current | Sales Growth NTM | STM | Book Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AOS** | 24.9% | 7.07 | 16.6 | 21.5 | 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

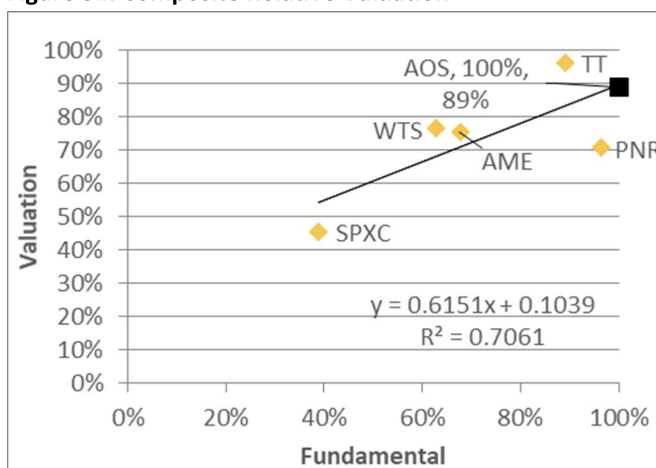
weight was on P/B and 25.0% was on EV/EBIT. Most of the weight was on the P/B metric due to industrial companies like AOS and its competitors being asset intensive. The regression line had an R-squared of approximately 0.71. AOS appears to be on the regression line having a fundamental weight of 100%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

**Figure 30: AOS and Competitors Fundamental vs Valuation Breakdown**

| | | | | | | | Fundamental | Valuation | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Weight | 100.0% | 75.0% | 25.0% |
| | | Rank | | Target | Weighted | | 2021 | | EV/ |
| Ticker | Name | Diff | Diff | Value | Fund | Value | ROE | P/B | 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 cyclicality 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 uncertainness 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<br>Demand predictability<br>Commitment to innovation | Chinese tension<br>Trade uncertainties<br>Highly established competition |
| **Opportunities** | **Threats** |
| Water purification expansion<br>Broadening ROW presense<br>Expanding e-commerce | Rising raw material cost<br>Change in consumer behaviors<br>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 |
| *Growth* | | *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 |
| *Growth* | | *7.3%* | *1.9%* | *1.7%* | *18.1%* | *17.0%* | *6.0%* |
| *% of sales* | *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 |
| *Growth* | | *5.1%* | *-20.3%* | *-14.5%* | *28.6%* | *8.0%* | *5.0%* |
| *% of sales* | *37.3%* | *36.8%* | *31.3%* | *27.6%* | *29.4%* | *2.0%* | *27.5%* |
| Inter-segment Sales | (24) | (30) | (27) | (23) | (26) | (27) | (28) |
| *Growth* | | *24.6%* | *-12.5%* | *-12.4%* | *12.9%* | *3.5%* | *4.0%* |
| *% of sales* | *-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 |
| *Growth* | | *5.7%* | *-0.8%* | *0.6%* | *15.7%* | *14.6%* | *7.6%* |
| *% of sales* | *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 |
| *Growth* | | *9.3%* | *-0.4%* | *-6.2%* | *15.7%* | *14.5%* | *9.5%* |
| *% of sales* | *6.1%* | *6.3%* | *6.7%* | *6.5%* | *6.2%* | *6.2%* | *6.4%* |
| Water Treatment Products | 59 | 87 | 141 | 177 | 198 | 241 | 288 |
| *Growth* | | *49.2%* | *62.0%* | *25.3%* | *11.9%* | *21.4%* | *19.8%* |
| *% of sales* | *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 |
| *Invested capital* | *$1,943* | *$1,901* | *$2,121* | *$2,165* | *$2,023* | *$2,246* | *$2,578* |
| | | | | | | | |
| Marketable securities | 473 | 385 | 177 | 117 | 175 | 240 | 325 |
| *Total assets* | *$3,197* | *$3,072* | *$3,058* | *$3,161* | *$3,198* | *$3,589* | *$4,176* |
| | | | | | | | |
| 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 |
| *Total supplied capital* | *$2,416* | *$2,286* | *$2,298* | *$2,281* | *$2,198* | *$2,486* | *$2,903* |
| | | | | | | | |
| *Total liabilities and equity* | *$3,197* | *$3,072* | *$3,058* | *$3,161* | *$3,198* | *$3,589* | *$4,176* |

# 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

| | Current | Market | Price Change | | | | | | Earnings Growth | | | | | | | LT Debt/ | S&P | LTM Dividend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Price | Value | 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | LTG | NTM | 2019 | 2020 | 2021 | 2022 | Beta | Equity | Rating | 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% | | | | | |

| | 2021 | | P/E | | | | | | | 2020 | 2020 | | | | EV/ | P/CF | Sales Growth | | Book |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | ROE | P/B | 2018 | 2019 | 2020 | TTM | NTM | 2021 | 2022 | NPM | P/S | NM | OM | ROIC | EBIT | Current | NTM | STM | Equity |
| **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

| | First Stage | | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|
| Year ending January | 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** | |

| Recommendation: Sell | | | | |
|---|---|---|---|---|
| Current Price | **$3.93** | --- | Ticker | QUAD |
| 1 Year Bear | $2.27 | | Sh. Out. (M) ($M) | 50.0 |
| 1 Year Base | **$3.46** | | M.Cap. ($M) | 204.1 |
| 1 Year Bull | 4.78 | | EV ($M) | 200.9 |

Industrials, Publishing

# QUAD/GRAPHICS, INC.

## Price History

| | 10Y | 5Y | 3Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return %** | **(6.03)** | **(27.99)** | **(28.37)** | **2.88** | **12.29** | **(2.00)** | **(6.65)** |

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($M) | 3951 | 3985 | 3923 | 2929 | 3010 | 3010 | 2726 |
| Gr. % | (4.6) | 1.5 | (6.4) | (25.3) | 1.1 | 0.9 | (9.4) |
| v. Cons. | (7.0) | 5.9 | 2.1 | (8.9) | (0.8) | (1.0) | (5.0) |
| Industry % | 3.2 | 4.7 | (0.6) | (18.5) | 7.6 | 6.1 | 6.5 |
| **EPS $** | 2.07 | 0.16 | (3.13) | (2.54) | 0.45 | 1.21 | 1.31 |
| Gr. % | 130 | (92) | (2056) | (19) | (118) | 169 | 8 |
| Industry | 0.9 | 0.7 | 0.9 | (0.5) | 0.3 | 1.1 | 1.4 |

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM%** | 15.7 | 2.6 | (3.6) | (2.0) | (2.0) | 2.0 | 2.0 |
| Industry | 1.6 | 2.2 | (9.7) | 3.2 | 3.2 | 6.0 | 6.5 |
| **ROE%** | 16.8 | 18.6 | (68.5) | (10.2) | (10.2) | 1.0 | 3.0 |
| Industry | 14.1 | 9.8 | 4.68 | (11.54) | 15.36 | 8.64 | 6.74 |
| **ROA%** | 4.1 | 0.3 | (4.9) | (0.2) | (0.2) | 1.0 | 1.0 |
| Industry | 3.2 | 3.1 | 0.6 | 1.1 | 1.1 | 3.0 | 3.1 |
| **A T/O** | 1.6 | 1.7 | 1.3 | 1.5 | 1.5 | 1.5 | 1.5 |
| **A/E** | 5.5 | 5.1 | 7.3 | 14 | 17.3 | 17.3 | 17.3 |

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 10.9 | 74.8 | NM | NM | NM | 3.2 | 3.0 |
| Industry | 15.3 | 19.7 | 19.1 | 4.1 | 55.4 | 55.2 | 7.7 |
| P/S | 0.28 | 0.15 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 |
| P/B | 2.2 | 3.9 | 5.2 | 2.4 | 2.1 | 1.8 | 1.8 |
| P/CF | 4.5 | 3.9 | 5.2 | 1.5 | 3.0 | 3.0 | 3.0 |
| EV/EBITDA | 4.6 | 4.1 | 4.2 | 4.4 | 4.5 | 4.5 | 4.5 |
| D/P % | 5.3 | 9.9 | 24.8 | 4.9 | 0.7 | 0 | 0 |

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## Summary

A neutral recommendation rating for Quad/Graphics with a target price of $3.46. The stock is fairly valued based on a DCF basis. Although QUAD has an opportunity to improve its efficiency and increase its margins, its declining revenues due to the dying publishing industry prove to be a barrier. This uncertainty offsets optimism that its core business, publishing, can improve.

## Key Drivers

- Growth of the advertising industry: Quad/Graphics is a marketing solutions company that is expected to benefit from the advertisement industry's 6% compounding annual growth expected between 2020 – 2024.
- Growth of its Imaging Marketing and Other Services: Quad Graphics' biggest growing segment is its imaging marketing services. Its total sales have increased 284% since 2011.
- The Secular Decline of the Printing Industry: Between 70-50% of Quad/Graphics' total sales revenue is from its catalog, publications, retail inserts, and directories. The current secular decline is at 56%. The commercial printing industry is also highly fragmented.
- Increased Postal charges: As part of its "Delivering for America" 10-year plan, the US postal service has increased its postage prices by 6%.

## Valuation

Using a relative valuation approach, Quad/Graphics appears to be reasonably valued compared to the publishing industry. DCF analysis implies that the stock is worth $3.46. A combination of these approaches suggests that Quad/Graphics is overvalued, as the shares trade at $3.93.

## Risks

- The COVID-19 pandemic and the resulting supply chain issues
- Decreasing demand for printing services
- Competitive market

## Company Overview

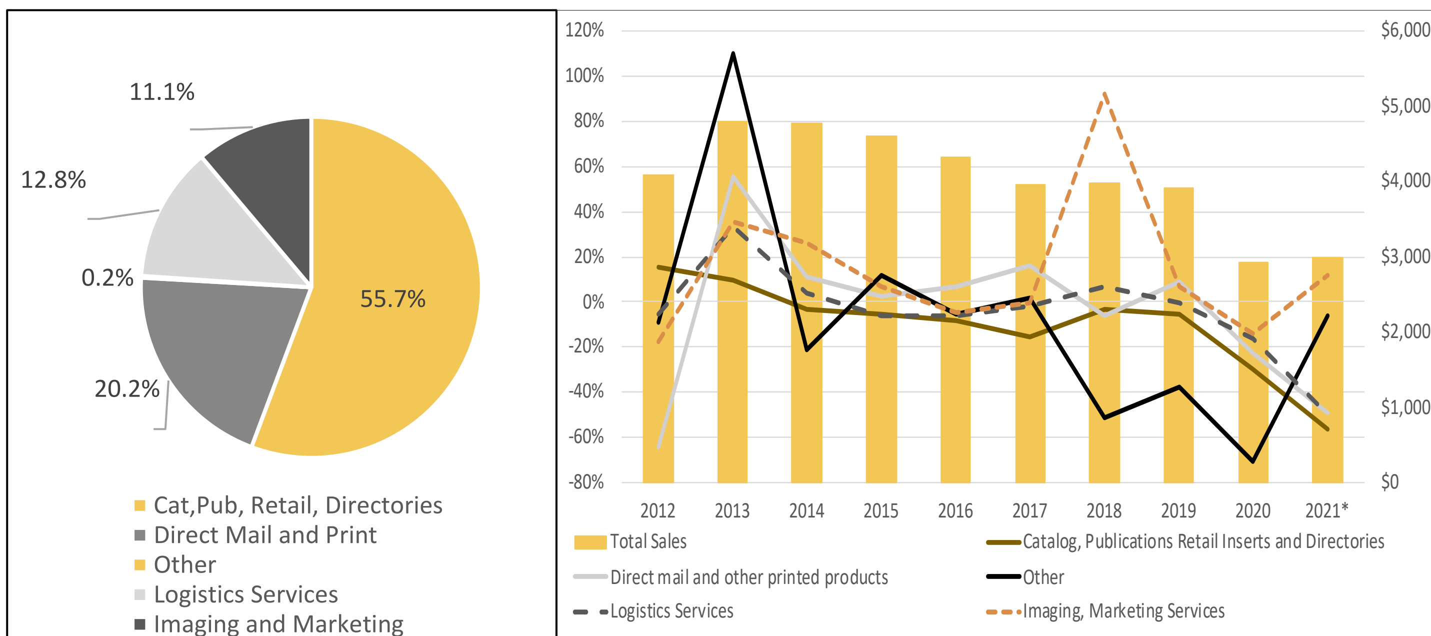
Quad/Graphics (QUAD) is a marketing solutions company that offers digital, printing, and marketing solutions. Its catalog of products and services ranges from the print publication, marketing, digital marketing, and logistics. The firm caters to retail, financial, insurance, health, beauty, food, and beverage companies and direct to consumers. It is notably the number one magazine printer in North America. Quad graphics serves clients in North America, South America, Europe, and Asia. It has made multiple mergers and acquisitions, making it nearly vertically integrated.

The company has been dealing with reduced revenue due to the secular decline of the publishing industry. 2021 Revenue growth is estimated to be 0.3% y/y versus -25.3% in 2020. As a printing company, it experiences high operating costs that further eat into its bottom line and made it quite vulnerable during the COVID-19 pandemic lockdown. QUAD is committing to cutting costs and reconstructing itself away from paper publication and is focusing more on digital marketing solutions to remain competitive.

*2021 Total sales number is an estimate

1) **Catalog, publications, retail inserts, and directories:** This is its primary source of sales revenue at 55.7% of its sales. 2H21 sales are down (55.7%) y/y.
2) **Direct mail and other printed products:** Quad/Graphics emphasize its use of up-to-date mailing lists to ensure that direct mail advertisement reaches the intended audience. It stands at 20.2%, and sales dropped. 2H21 sales are down (47%) y/y.
3) **Logistic services:** Services such as delivering printed materials, digital content management photography, color services, page production, marketing services, media planning, and placement. This is where Quad/Graphics is working to receive most of its revenue in response to the dwindling printing and publication industry. It is currently 12.8%. 2H21 sales are down (38.6%).
4) **Imaging, marketing, and other services:** QUAD provides services in marketing, print, and paper management through sourcing, outsourcing, and procurement. This segment is 11.1% of its total revenue. 2H21 sales are down (45.5%)

**Figures 1&2: Percentage Of Sales Revenue In 2020 By Product Category (L) And Segment Growth Rate To Total Sales**



## Business/Industry Drivers

Quad/Graphics is in the declining stage of its life cycle; however, working to overcome this. Its essential business drivers include:

1) Growth of the advertisement industry
2) Quad Graphics logistic growing logistic services is both a cost-saving and build competitive advantage
3) The secular decline of the printing industry
4) Increased postal charges
5) Mergers and acquisitions
6) Macro drivers

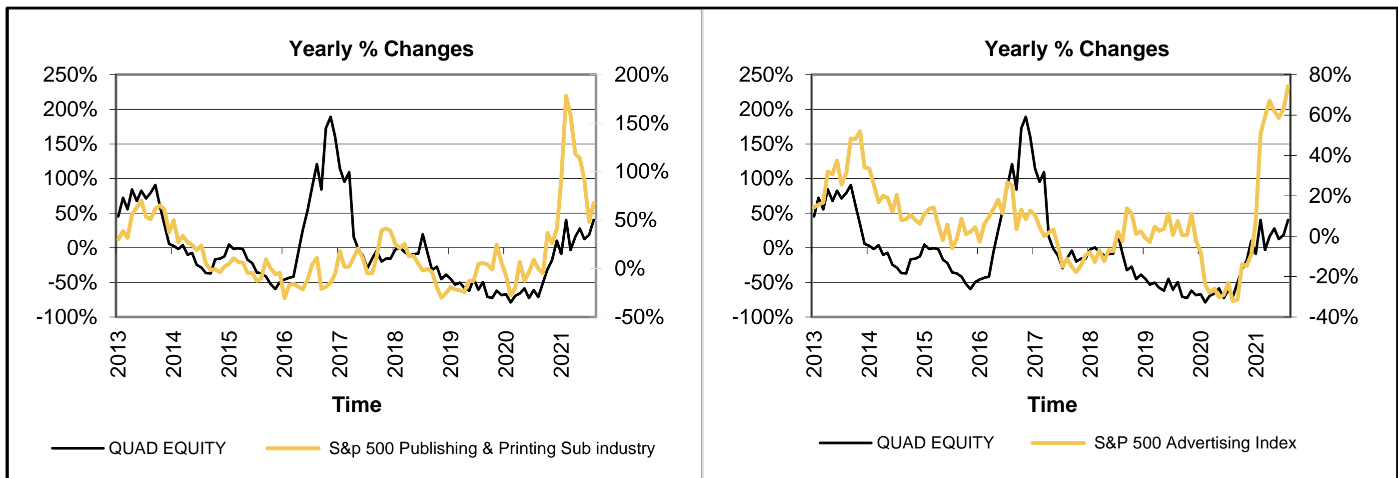
Though QUAD can benefit from the growing advertisement industry, printing and publishing being its biggest segment negatively affects performance

Growth of the Advertisement Industry:

Quad/Graphics is a marketing solutions company that benefits from the advertisement industry's 6% compounding annual growth. According to the 2021 Dun & Bradsheet first research report, the expected growth rate is between 2020 and 2024. This industry includes print, broadcast, and online media advertising, which accounts for (about 25% of industry sales); public relations (12%), and direct marketing (10%). The other 53% is in display advertising  (reselling advertising time and space), media buying, and media representation (selling advertising time and space on behalf of media outlet owners). The US advertising and marketing services industry includes about 38,000 establishments (single-location companies and units of multi-location companies), with combined annual revenue of about $105 billion.

Figure 2&3 show QUAD's correlation with both the publishing and printing industry and the advertising industry, both of which are quite volatile

**Figure 2&3 Absolute Price of Quad/Graphics Equity Versus S&P 500 Publishing & Printing Sub Industry (L) And S&P 500 Advertising Index (R)**




Quad Graphics growing logistic services is both a cost-saving and build a competitive advantage

Revenue generation from magazines, catalogs, and retail has been shrinking, whereas logistic service revenue has been steadily growing. In 2018 it stood at 8% of revenue generated, and in 2021, it was up four percentage points at 12%. In 2021 the segment revenue increased by $49 million year over year versus a decrease in sales of $1.2 million in 2020. However, the company divested a third company logistics business costing it $53.4 million in revenues.

Logistic services are not as capital intensive as publishing as they incorporate technology and software solutions to create marketing efficiencies for clients. Through its subsidiary Rise Interactive, QUAD introduced Connex, a software that makes a single platform to monitor digital marketing data. The software solves the problem of data silos resulting from multiple advertising platforms with separate marketing data, making it difficult to develop a complete picture of marketing performance. If QUAD grows its Connex software, it could establish a strong presence in the digital marketing market and ease its reliance on the dying publishing and printing industry.

There about 44,000 companies, and no company accounts for more thana 5% of annual revenue

The Secular Decline of Printing Industry:

Between 50 - 70% of Quad/Graphics' total revenue has been from its catalog, publications, retail inserts, and directories. In 2020, print sales dropped (29.5%), and 2H 21 is down (8.6%) year over year. The recovery from the pandemic is slow; regardless, this could have accelerated the shift away from print media. QUAD's clients are shifting to shorter printing runs, and lower page counts with more complex prints, which is a detrimental trend shift for the company.

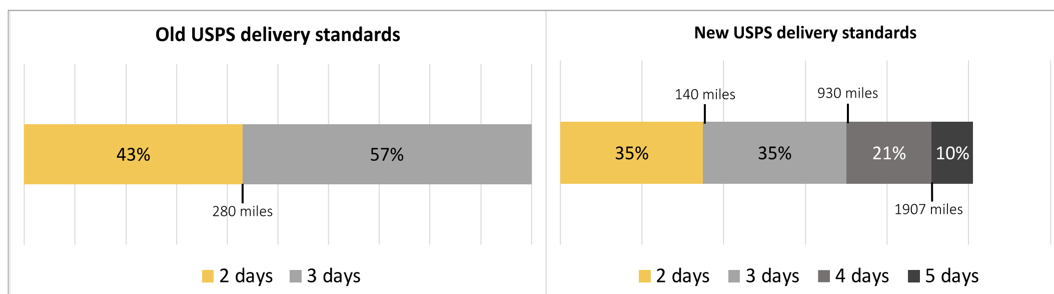
The commercial printing industry is also highly fragmented. According to the October 2020 US IBIS World Industry report, the US commercial printing industry generates $70 billion annually. There are about 44,000 companies, and no company accounts for more than 5% of the annual revenue. An opportunity for mergers and acquisitions to expand QUAD's customer base is possible, and QUAD can save funds due to high synergies.

**9Figure 4 QUAD's Revenue in Millions (L) and Growth (R) of its Catalog, Publications, Retail Inserts, and Directories**

Increased Postal charges

As part of its "Delivering for America" 10-year plan, the US postal service has increased its postage prices by 6%. Its subscription-based periodical price has increased by 10.5% and its marketing mail by 6.1%. USPS is still the most affordable option for Quad/Graphics. Regardless postal rates are a significant component that influences the number of pieces clients mail. However, pricing is not the only thing that is changing. Under the new Postmaster General, Louis DeJoy, there will be slower mail shipments. First class mail originally shipped under three days but will now ship in 2-5 days. In response, QUAD has employed a co-mailing optimization program that bundles multiple printed products mailed to consumers. USPS gives significant work-share discounts; however, according to its 2020 Annual Report, USPS is looking to adjust its discounts. Quad plans to expand its delivery service, bypassing USPS to deliver products to its consumers' doorsteps.

**Figure 5: USPS Old vs. New Delivery standards for 2021**




Source: USPS

Merges and Acquisitions:

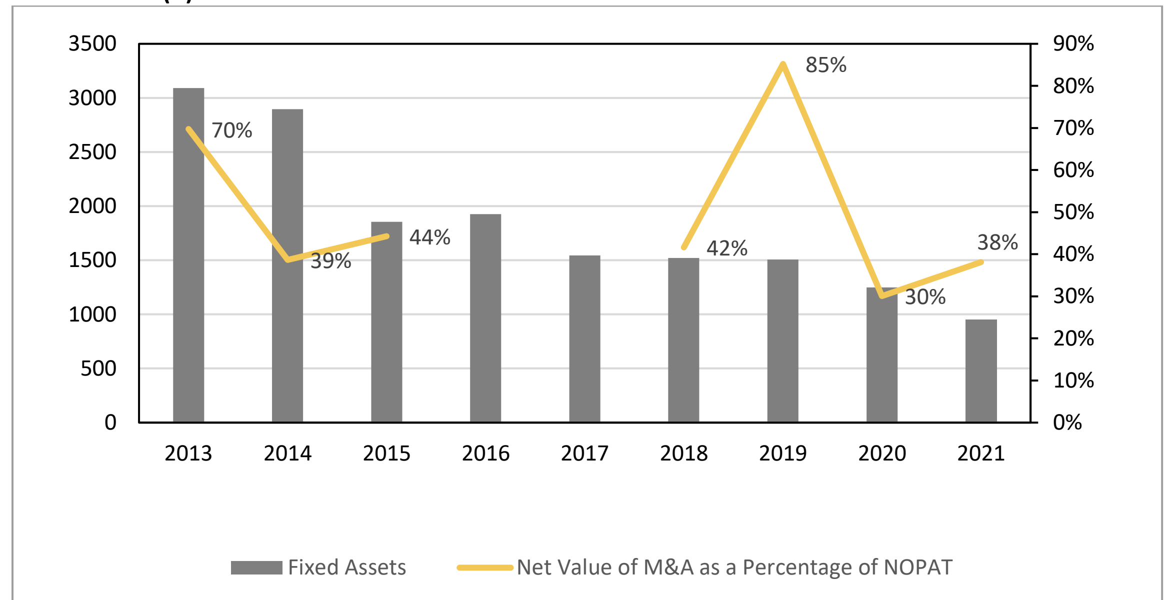
Quad/Graphics has made numerous mergers and acquisitions. Since 1992, Quad/Graphics has made 54 purchases and 19 sales. Its recent notable purchases include Periscope (2019) for 132 million, Rise

Interactive (2018) through a $56 million share takeover, and Ivie & Associates LLC (2018). These companies are in the advertising and marketing industry, which is the direction QUAD is looking to grow in. The firm has also made numerous sales to optimize its product and service portfolio and invest in the parts of its business that accelerate its transition. Its most recent sale was its sale of QuadExpress, a third-party logistics service provider, for $40 million.

In 2019, an anti-trust lawsuit by the U.S. Justice Department thwarted the purchase of LSC Communications (RR Donnelly). The lawsuit claims that if the transaction were to proceed, QUAD would dominate the market for magazine, catalog, and book printing services and reduce the quality at the expense of publishers, retailers, and ultimately the American consumer. The firm lost 60 million from the termination or about 171% of EBIT for that year.

QUAD is taking a "buy the winners" approach to diversify its revenue sources.

**Figure 6: QUADs Net Fixed Assets (L) and Absolute Net Value of M&A as a Percentage of NOPAT from 2013 to 2021 (R)**




Source: Factset

<u>Macroeconomic Trends:</u>

QUAD is a B2B company that provides marketing solutions to direct-to-consumer companies. Referring to figure 7, QUAD's price rises and falls slightly, along with the S&P 500 Retailing Industry from 2013 to 2016. From 2016 to 2018, QUAD'S price shot significantly in contrast to the index. Notable events during this time that affected QUAD were:

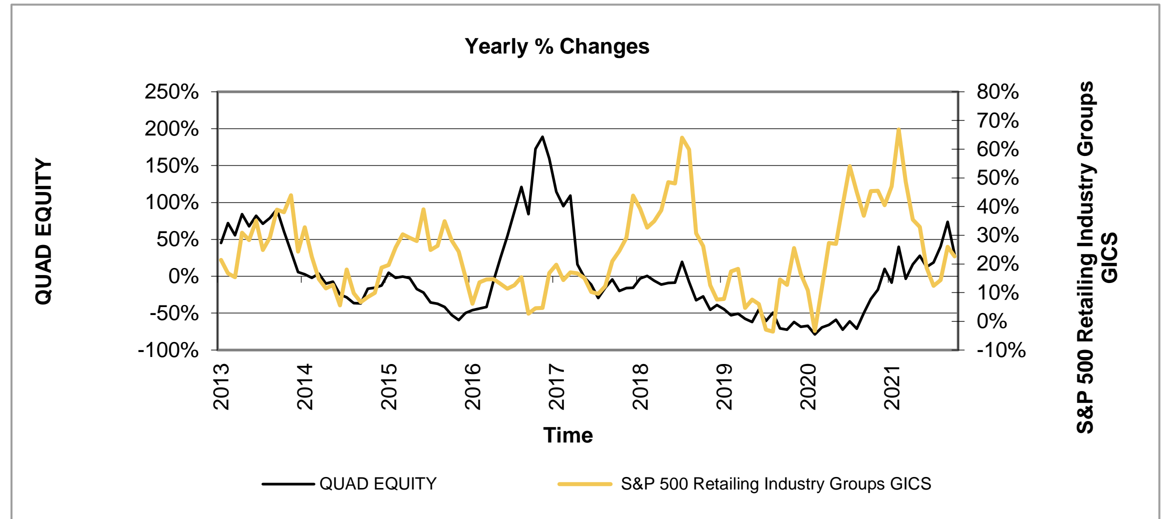
1. Before 2010, it had purchased:
   - Marin's international, a UK-based marketing firm
   - Copac Inc., a packaging and label printing company
   - Disruptive Retail Thinking is a marketing and advertising company
   - Specialty Finishing Inc., a carpentry and packaging company
   - Simple Interactive is a tech firm that creates machine learning products

   Rather than improve its core business, QUAD looks to inorganic growth through M&As.
2. In 2016, it received 20 awards in the Printing Industries of America 2016 Premier Print Awards, including 4 "Bennys," the competition's top recognition for print excellence.
3. At its peak in 2017, it won a $ 450 million contract to print 100% of Bluestem Brand's catalogs.

Besides the unique peak between 2016 and 2017, it continues to rise and fall with the retail index. With cash flush from the US stimulus checks, retailers are experiencing huge demand, which is a significant

growth opportunity for the retail sector. However, it is limited by supply chain backups and product shortages. There is an opportunity for QUAD as companies focus on advertising their currently available products. According to a Business Insider article by Lindsay Rittenhouse posted on October 11th, 2021: some companies are cutting advertising budgets to as much as 50%.

**Figure 7: Relative price of QUAD to S&P 500 vs. S&P 500 Retailing Industry Index**

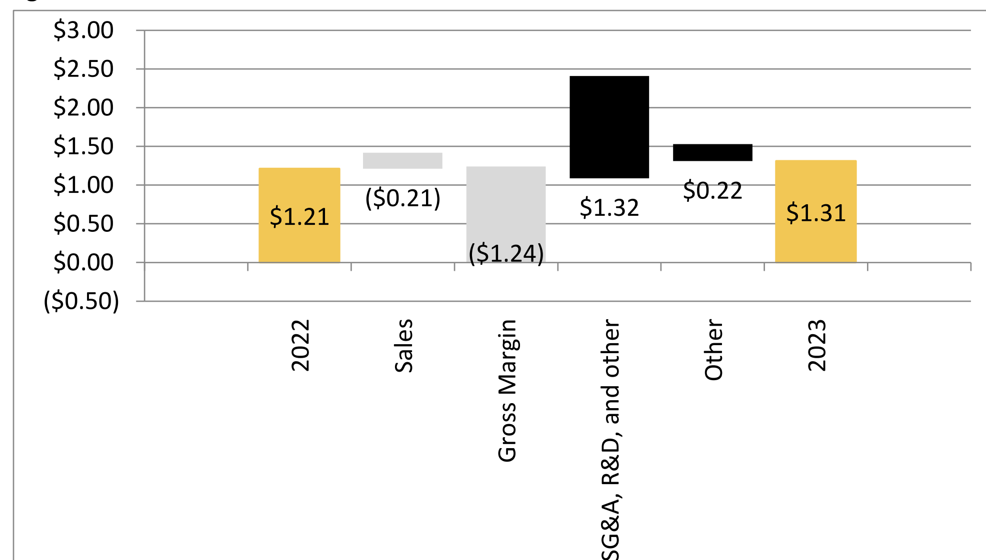



Source: Bloomberg, IMCP

## Financial Analysis

QUAD'S narrow profit margin explains its negative contribution to QUAD's price. EPS could correct itself in 2021 as QUAD recovers from the COVID-19 pandemic. To improve its earnings, QUAD is reducing its expenditures by closing down its underutilized facilities and letting go of staff. Correspondingly, QUAD aims to improve its Connex software, a product of Rise Interactive Inc, a company subsidiary. Rise Interactive has an excellent opportunity to grow its software across different online retail platforms, making it an attractive product to marketing directors.

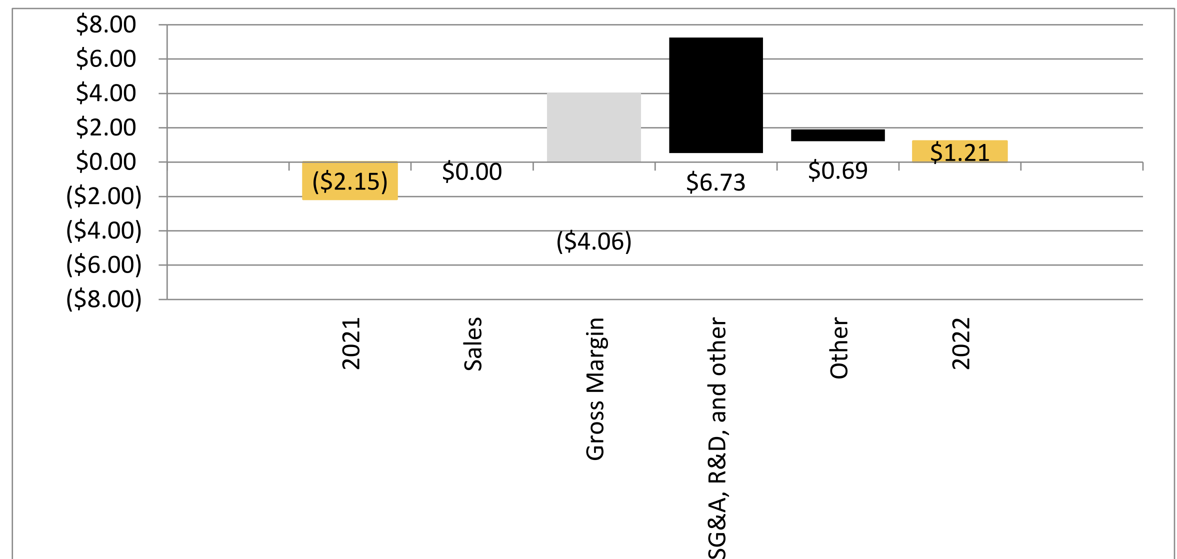
**Figure 10: Quantification of 2016 EPS drivers**




Source: Company Reports, IMCP

2022 to 2023, QUAD's situation will mirror its situation from 2021 to 2022. However, QUAD could improve its gross margin by employing economies of scale and streamlining production processes. QUAD has noted in its SWOT that it has access to the funds necessary to invest in more efficient machinery. Lower SG&A and R&D as a percent of sales from 2022 to 2023 ads to EPS similar to 2021 to 2022; however, it shows signs of slowing growth.

**Figure 9: Quantification of 2021 EPS drivers**




Source: Company Reports, IMCP

QUAD's sales could grow 0.9% y/y in 2022 as it stabilizes its sales after the 2020 COVID-19 pandemic. However, QUAD is cyclical, and sales growth could decrease in 2023. Figure 10 has projected estimates for EPS growth.

**Figure 11: EPS and YoY growth estimates by**

| Items | Dec-20 | Dec-21 | Dec-22 | Dec-23 |
|---|---|---|---|---|
| Sales | $2,930 | $2,983 | $3,010 | $2,727 |
| *Growth* | *-25.3%* | *1.8%* | *0.9%* | *-9.4%* |
| EPS | ($2.54) | ($2.15) | $1.21 | $1.31 |
| EPS Fully Diluted | ($2.54) | ($2.15) | $1.21 | $1.31 |
| DPS | $0.19 | $0.03 | $0.00 | $0.00 |
| *Growth Statistics* | | | | |
| *EPS* | *-18.8%* | *-15.5%* | *-156.5%* | *8.1%* |
| *EPS Fully Diluted* | *-18.8%* | *-15.5%* | *-156.5%* | *8.1%* |
| *DPS* | *-83.6%* | *-85.3%* | *-100.0%* | |

Source: Company 10-K, IMCP

Asset to Equity growth increased significantly in 2020 due to short price drop in share price. View Figure 17

Revenues

QUAD's decline began during the 2008 economic crisis; during this time, it started its reconstruction to revive its growth. Its reconstruction efforts include acquisitions, incorporating better cost management practices, and acquiring better talent. Like many other companies, QUAD's revenue suffered during the 2020 pandemic. QUAD should continue its recovery into 2022. The product segment experiencing the biggest reduction in sales is its catalog, publications, and retail inserts. Print media and catalogs are losing

favorability among its customers as it moves toward a digital marketing approach creating a big opportunity for growth.

QUAD has been reducing its production capacity and letting go of employees. In 2020, it closed four plants and eliminated 1100 jobs. The effectiveness of this downsizing will rely on the ability of the remaining capacity to meet demand.

**Figure 12: Quad/Graphics Percentage of Sales Growth by Region Estimates**

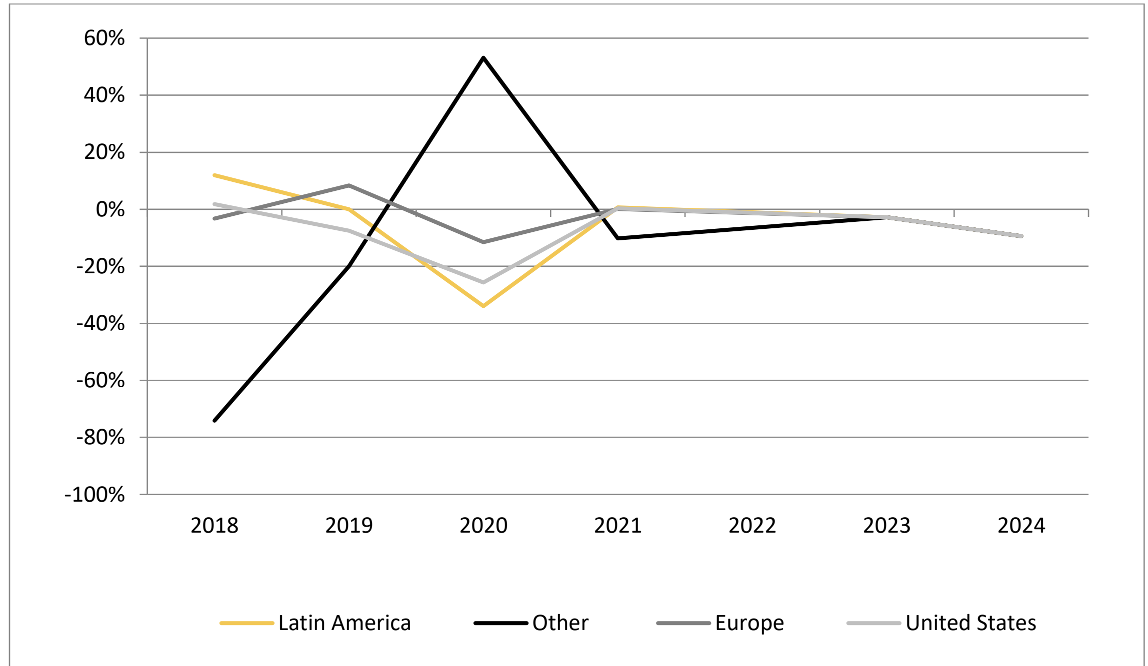
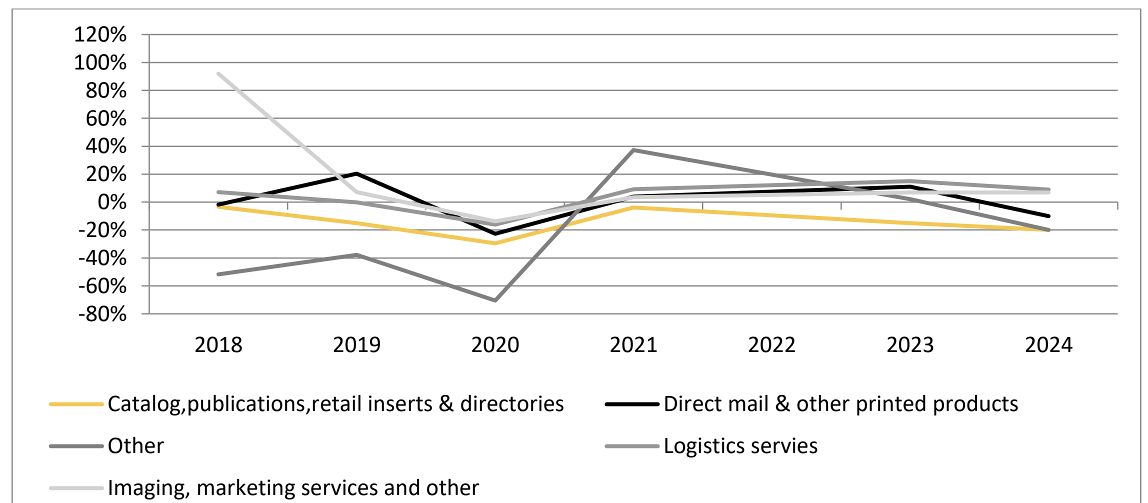



**Figure 13: Quad/Graphics Segment Revenue Growth Estimates**




Source: Company Reports, IMCP

<u>Operating Income and Margins</u>

Operating expenses are composed primarily of:

• Cost of sales and services,

• Selling, general and administrative expenses,

• Depreciation and amortization, and

• Restructuring and impairment and transaction-related charges,

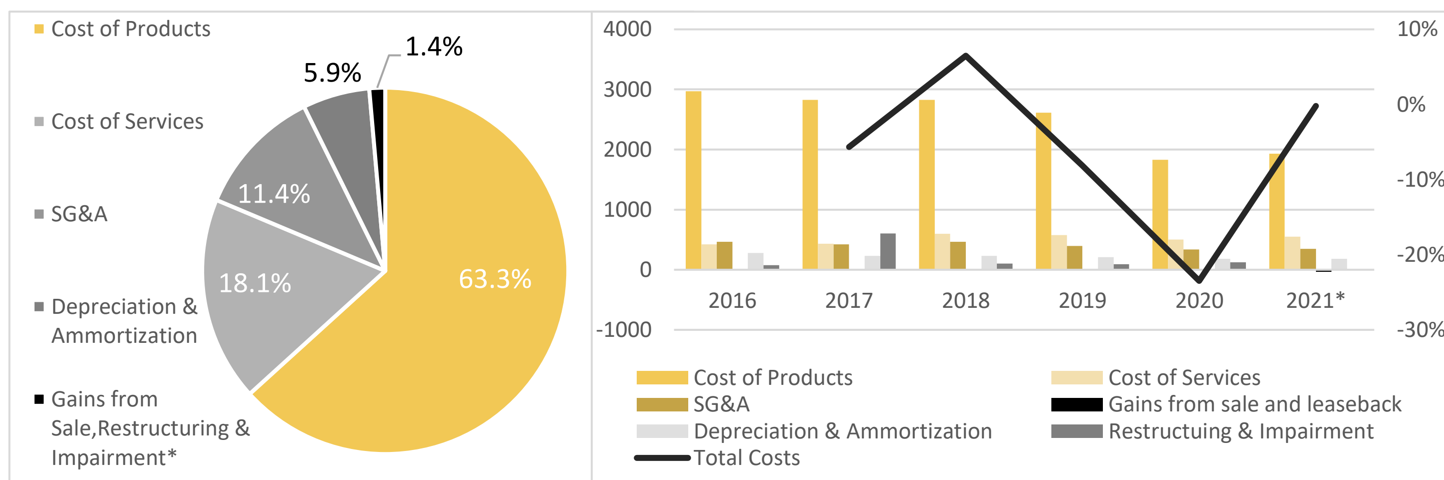
Operating margins are low at about 20% of revenue. Its raw materials used in printing are ink, paper, and energy. Half of its clients provide their paper. Though it is still committed to its printing business, it can be noted that the cost of services began to rise in 2018 after it purchased Rise Interactive. It has also reduced its SG&A by closing some of its printing plants. In 2021 alone, it closed three plants totaling approximately 1.79 million square feet. Its North American full-time employees have dropped from 19,600 in 2019 to 15,800 in 2020. The reduction in SG&A will positively impact EBIT and help improve operating margin and push the company towards positive net income.

**Figure 14: QUAD'S Expense Breakdown 2016 - 2017**

| | 2016 | 2017 | 2018 | 2019 | 2020 | 2021* |
|---|---|---|---|---|---|---|
| Cost of products | 2971 | 2827.3 | 2829 | 2615.6 | 1831.5 | $ 1,932.99 |
| | 70.5% | 71.1% | 66.8% | 67.3% | 61.6% | 65.1% |
| cost of services | 423.8 | 432.1 | 600.3 | 576.6 | 503.3 | $ 551.47 |
| | 10.1% | 10.9% | 14.2% | 14.8% | 16.9% | 18.6% |
| SG&A | 466.7 | 423.8 | 466.7 | 397.6 | 335.1 | $ 347.16 |
| | 11.1% | 10.7% | 11.0% | 10.2% | 11.3% | 11.7% |
| Gains from sale and leaseback | 0 | 0 | 0 | 0 | 0 | $ (37.09) |
| | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | -1.2% |
| Depreciation and Ammortization | 277.1 | 230.7 | 232.5 | 209.5 | 181.6 | $ 180.62 |
| | 6.6% | 5.8% | 5.5% | 5.4% | 6.1% | 6.1% |
| Restructuring & Impairment | 73.6 | 60.4 | 103.6 | 89.4 | 124.1 | $ (5.15) |
| | 1.7% | 1.5% | 2.4% | 2.3% | 4.2% | -0.2% |
| Total costs | 4212.2 | 3974.3 | 4232.1 | 3888.7 | 2975.6 | $ 2,970.0 |

Source: Factset

**Figure 15 & 16: Shows Composition of Operating Expenses 2021 (L) and Operating Expenses vs. YoY Operating Expense Growth (R)**




Return on Equity

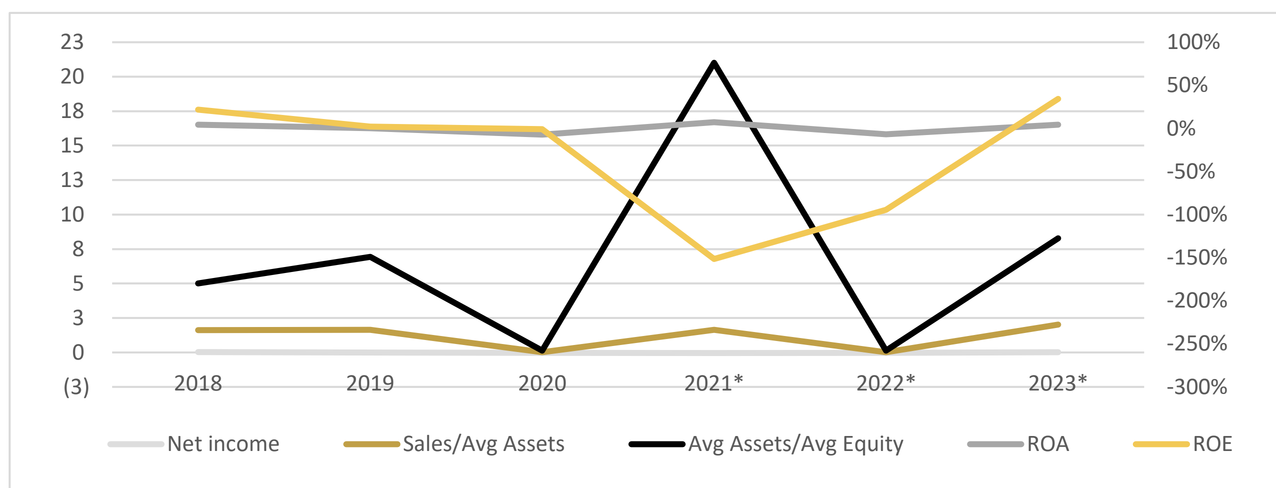
ROE was negative in 2020 as the profit margin fell to below zero. In 2022 ROE will be positive as the firm becomes profitable and asset turn increases substantially. However, in 2023 ROE declines as the firm reduces leverage

**Figure 17: Three-Stage Dupont Analysis**

| 3-Stage Dupont | 2018 | 2019 | 2020 | 2021* | 2022* | 2023* |
|---|---|---|---|---|---|---|
| Net Income/Sales | 0.027 | 0.002 | (0.040) | (0.044) | (0.037) | 0.020 |
| Sales/avg assets | 1.61 | 1.63 | 1.81 | 1.64 | 1.86 | 2.02 |
| ROA | 4.36% | 0.32% | -7.19% | -7.21% | -6.81% | 4.13% |
| Avg assets/avg equity | 5.01 | 6.94 | 13.20 | 21.01 | 13.84 | 8.29 |
| ROE | 21.82% | 2.24% | -94.99% | -151.53% | -94.30% | 34.27% |

Source Company 10-K, IMCP

**Figure 17b: Graphical Representation of Three Stage Dupont Analysis**




Source: IMCP

QUAD'S ROE's steep decline coincides with its increased avg assets equity at the same time as its profit decline. QUAD's debt-to-asset ratio is too high, and it needs to pay down some of its debt if it wants to improve its debt situation. QUAD is liquidating its assets to pay off its debt, and in November 2021, it reduced its revolving credit agreement with its bank from $500 million to $432.5 million. It also extended the January 31st, 2024 maturity date of the $90.0 million and $342.5 million portions of revolving credit due on November 2nd, 2026. Additionally, it modified the interest rate provisions relating to the phase-out of LIBOR as a reference rate.

<u>Free Cash Flow</u>

QUAD's free cash flow to the firm has been steadily increasing since 2018, primarily due to decline in capital which cannot continue forever. I project the company to use the free cash flow to pay off $300 million in debt in 2022 and 2023. The plan consists of asset liquidation to pay off debt, debt maturity reconstruction, and cost savings. The firm plans to reduce its debt by $350 million by the end of 2021; in LTM, it has paid down $140 million in long-term debt. Quad has set a debt/leverage target of 2-2.5x. In 2021, they reported debt leverage of 3.14x, down from 3.35 in 2020. Quad's Debt/EBITDA 2021 is 2.7. In 2H 2018, QUAD halted its share repurchases. It does, as of 2019, have $100 million of share repurchases authorized. The dividend payout has also decreased, and management has confirmed that it will refrain from dividend growth as it recovers its debt situation. In 2H 2020, cash dividends were suspended.

**Figure 18: QUAD's Free Cash Flow 2018 -2020 and Estimated Free Cash Flows 2021 – 2023 (Page 11)**

| Free Cash Flow | | | | | | | |
|---|---|---|---|---|---|---|---|
| Items | | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
| NOPAT | $245 | $9 | $45 | -$46 | $13 | $111 | $105 |
| *Growth* | | *-96.5%* | *429.0%* | *-201.8%* | *-129.0%* | *731.6%* | *-5.6%* |
| NOWC | 163 | 95 | 98 | (4) | 101 | 3 | 0 |
| Net fixed assets | 1,544 | 1,523 | 1,506 | 1,249 | 950 | 860 | 779 |
| Total net operating capital | $1,707 | $1,618 | $1,604 | $1,245 | $1,051 | $863 | $779 |
| *Growth* | | *-5.2%* | *-0.9%* | *-22.4%* | *-15.6%* | *-17.9%* | *-9.7%* |
| - Change in NOWC | | (67) | 2 | (101) | 105 | (98) | (3) |
| - Change in NFA | | (21) | (16) | (258) | (299) | (90) | (81) |
| FCFF | | $97 | $59 | $313 | $207 | $300 | $188 |
| *Growth* | | | *-38.9%* | *426.1%* | *-33.8%* | *44.7%* | *-37.1%* |
| - After-tax interest expense | | 2 | 150 | 60 | 84 | 50 | 38 |
| + Net new short-term and long-term debt | | (24) | 172 | (160) | (142) | (200) | (100) |
| No. of shares | | | | | | | |
| FCFF per share | | $1.95 | $1.19 | $6.18 | $4.08 | $5.90 | $3.71 |
| Growth | | | -39.2% | 419.9% | -34.0% | 44.7% | -37.1% |
| FCFE per share | | $1.43 | $1.63 | $1.83 | ($0.37) | $0.98 | $0.98 |
| *Growth* | | | *13.8%* | *12.2%* | *-120.3%* | *-365.7%* | *0.0%* |
| Sources of cash (FCFE) | | $71 | $82 | $92 | -$19 | $50 | $50 |
| Uses of cash | | | | | | | |
| Other expense | | ($1) | $52 | $22 | $39 | $0 | $0 |
| Increase mkt sec | | - | - | - | - | - | - |
| Dividends | | 63 | 57 | 10 | 1 | - | - |
| Change in other equity | | 7 | 2 | 22 | (110) | 0 | - |
| | | $69 | $112 | $53 | ($70) | $0 | $0 |
| Change in other liab | | (2) | 30 | (39) | (51) | (50) | (50) |
| Total | | $71 | $82 | $93 | ($19) | $50 | $50 |

## Valuation

QUAD was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is reasonably priced at $3.93, which is $0.47 higher than estimates. Its recent price jump was influenced by news of QUAD's sale of its Oklahoma manufacturing plant on December 17th, 2021.

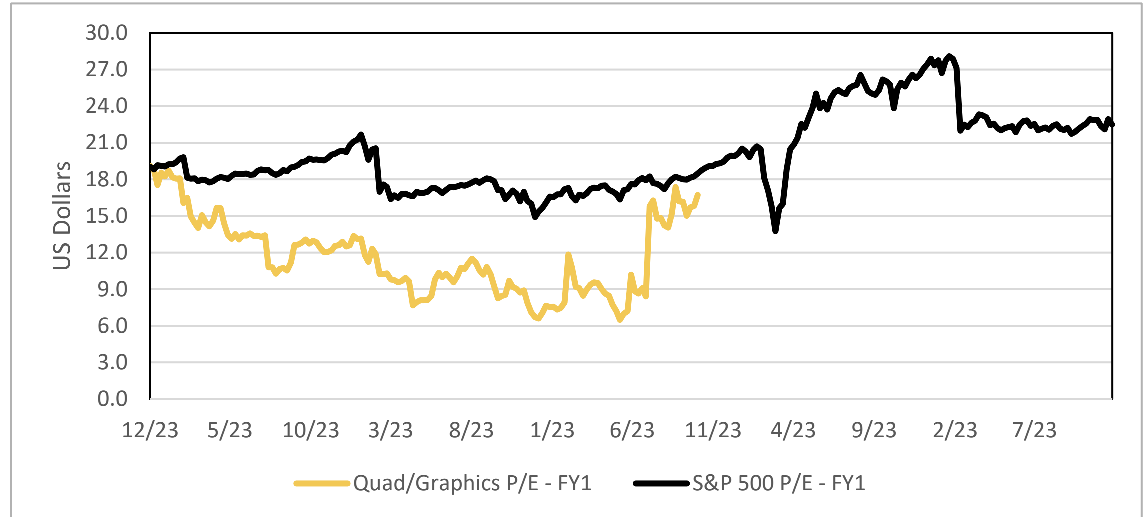
The price to book of $2.10 was affected by its net losses from sales and reduced retained earnings. The company has focused its use of cash on paying off debt, leaving little for common stockholders. From 2017 to date, QUAD's equity dropped 83.9%, from $522.4 million to $84.1 million.

Due to the volatility of QUAD's earnings over the past few years and the effect of the 2020 pandemic, this P/B metric may be unreliable, but QUAD is not reporting P/E. The relative valuation shows QUAD to be adequate compared to its peers in the publishing industry. A detailed DCF analysis values QUAD slightly lower, at $3.46; this valuation incorporates assumptions that reflect QUAD's ongoing structural changes.

Trading History

QUAD was trading near its five-year low relative to the S&P 50 due to the secular decline in its business.

**Figure 19: QUAD's Five-year P/E Relative to S&P 500**

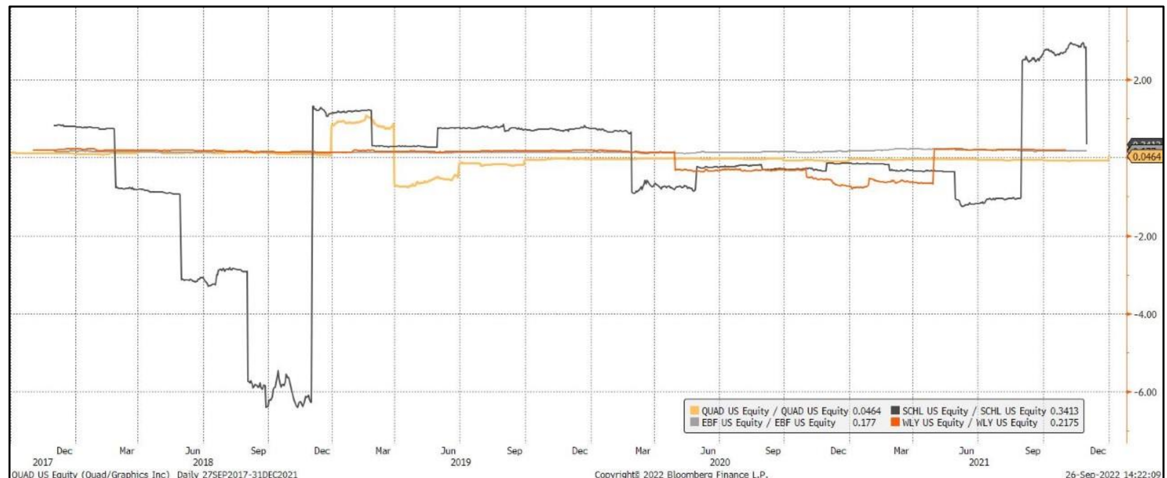



Source: Factset

If the firm maintains its current P/B, it will trade at $3.47 by the end of the year. Applying a discount of 14.3% cost of equity (explained in Discounted Cash Flow section) price brings me to my estimate of $3.47. This lower valuation is due to the projected net loss. QUAD's P/B relative to ROE is lower compared to its comps, which may reflect growth opportunity.

**Figure 20: QUAD'S P/B relative to ROE vs Comps**

QUAD is current trading cheaper than its peers, but its. ROE is also lower than its peers




Source: Bloomberg

<u>Relative Valuation</u>

QUAD P/B trades comparable to its competitors' average. However, RRD's negative P/B skews the number. Even without RRD, the average is 1.656, making QUAD cheaper than its competitors, but it also

has a lower ROE. Its stock is trading lower than its peers. QUAD's P/E is also among the lowest in its industry, which is to be expected from the losses it has experienced and stopping its dividend payouts.

**Figure 21: QUAD's Comparable Companies**

Source: Factset, IMCP

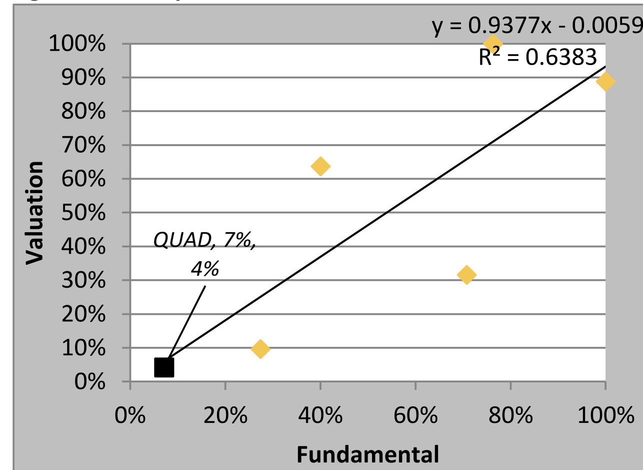
| Ticker | Website | 2022 ROE | P/B | P/E 2019 | P/E 2020 | P/E 2021 | Current Price | Market Value |
|---|---|---|---|---|---|---|---|---|
| **QUAD** | http://www.qg.com | 10.9% | 1.38 | 7.9 | 13.2 | 9.2 | $3.65 | $199 |
| **RRD** | http://www.rrd.com | -41.5% | -3.22 | 6.0 | 1.8 | 8.0 | $10.45 | $762 |
| **EBF** | http://www.ennis.com | 12.0% | 1.91 | 14.7 | 18.8 | 15.9 | $19.43 | $508 |
| **SCHL** | http://www.scholastic.com | 2.6% | 1.15 | 89.4 | -303.4 | 37.9 | $38.45 | $1,323 |
| **JW.A** | http://www.wiley.com | 12.4% | 2.88 | 16.4 | 19.3 | 19.0 | $55.50 | $3,101 |
| **TCL.A** | http://tctranscontinental.com/en-us | 17.5% | 0.96 | 4.9 | 6.3 | 6.7 | $14.95 | $1,301 |
| **Average** | | 2.3% | 0.84 | 23.2 | -40.7 | 16.1 | | $1,199 |
| **Median** | | 11.5% | 1.26 | 11.3 | 9.7 | 12.5 | | $1,031 |
| **spx** | S&P 500 INDEX | | | 19.8 | 26.9 | 23.2 | $4,592 | |

Since the variables have different scales, each was converted to percentiles before calculating the composite score. A 20% weight was given to the LTD/Equity, 80% weight to net profit margin 2021, and 100% P/S. RRD's negative inputs skewed the data and made relative valuation difficult. The result is an R2 of 63.83% with QUAD on the line, thus fairly inexpensive based on its fundamentals.

**Figure 22: Composite Valuation Percentage Range**

| Ticker | Name | 20.0% 1/(LTD/Equity) | 80.0% 2021 NPM | 100.0% P/S |
|---|---|---|---|---|
| QUAD | QUAD/GRAPHICS INC | 1% | 9% | 4% |
| RRD | DONNELLEY (R R) & SONS CO | 50% | 22% | 10% |
| EBF | ENNIS INC | 100% | 100% | 89% |
| SCHL | SCHOLASTIC CORP | 79% | 30% | 64 |
| JW.A | WILEY (JOHN) & SONS -CL A | 4% | 94% | 100% |
| TCL.A | TRANSCONTINENTAL INC – CL A | 8% | 86% | 32% |
| | | | | |
| | | 0.22 | | 0.07 |
| | | 24.29 | 7% | 1.60 |

**Figure 23: Composite Relative Valuation of QUAD**




Source: IMCP

Discounted Cash Flow Analysis

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

For this analysis, QUAD'S cost of equity was calculated to be 14.3% using the Capital Asset Pricing Model. The underlying assumptions used in calculating this rate are as follows:

• The risk-free rate, represented by the ten-year Treasury bond yield, is 1.50%.

• A ten-year beta of 1.50 was utilized since the company has a higher risk than the market.

• A long-term market rate of return of 10% was assumed since, historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 14.3% = (1.50 + 1.50 (10.0 – 1.50)).

Stage One - The model's first stage discounts fiscal years 2022 and 2023 free cash flow to equity (FCFE). These per share cash flows are forecasted to be \$0.98 and \$0.98, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of \$1.61 per share. Thus, stage one of this discounted cash flow analysis contributes \$1.61 of value.

Stage Two - The model focuses on fiscal years 2024 to 2028. FCFE is calculated based on revenue growth, NOPAT margin, and capital growth assumptions during this period. The resulting cash flows are then discounted using its 14.3% cost of equity. Assuming 1.0 % sales growth in 2024, and because of the cyclical nature, the growth rises and falls between 2024 and 2028. The ratio of NWC to sales will remain at 2024 levels, but NFA turnover will increase from 2.50 in 2014 to 3.50 in 2028 due to improvements in operations and liquidation of assets. Also, the NOPAT margin is expected to fluctuate between 2021 and 2028. 2021 NOPAT fell 129% (\$13 million) 2021 and is expected to grow 731.6% in 2022 due to recovery from the COVID-19 pandemic. The significant drop in 2024 is because the firm changes from selling assets to increasing its revenue. In the following years, investments will either be unchanged are declining.

**Figure 24: FCFE and discounted FCFE, 2022 – 2028**

| Year ending January | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| FCFE | $0.98 | $0.98 | ($9.90) | $1.84 | ($1.52) | $1.04 | $4.30 |
| *Growth* | *-365.7%* | *0.0%* | *-1105.5%* | *-118.6%* | *-182.6%* | *-168.8%* | *311.5%* |
| * Discount factor | 0.88 | 0.77 | 0.67 | 0.59 | 0.51 | 0.45 | 0.39 |
| Discounted FCFE | $0.86 | $0.75 | ($6.64) | $1.08 | ($0.78) | $0.47 | $1.69 |

Source: Company 10-K, IMCP

Together, discounted cash flows totals ($4.16)

Stage Three – Net income for 2024 – 2028 is calculated based on the same margin and growth assumptions used to determine FCFE in stage two. I expect EPS to drop to $1.21 - $0.78 and BVPS to grow from $2.87 – $7.28 from 2022 – 2028.

**Figure 25: EPS and BVPS estimates for 2022 – 2028**

| Year ending January | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| EPS | $1.21 | $1.31 | $0.22 | $0.39 | $0.85 | $0.84 | $0.78 |
| *Growth* | -157.5% | 8.1% | -83.2% | 78.0% | 117.2% | -1.3% | -6.6% |
| BVPS | $2.87 | $4.19 | $4.41 | $4.80 | $5.65 | $6.50 | $7.28 |
| *Growth* | 71.8% | 45.9% | 5.2% | 8.9% | 17.6% | 15.0% | 12.1% |

Source: Company 10-K, IMCP

Given the assumed terminal earnings per share of $7.28 and a price-to-book ratio of 2.10, a terminal value of $15.29 per share is calculated. The 14.3% cost of equity is discounted back to a present value of $6.02.

Total Present Value – given the above assumptions and utilizing a three-stage discounted cash flow model, an intrinsic value of $3.46 is calculated (1.61 - 4.18 + 6.02). Given QUAD's current price of $3.93, this model indicates that the stock is slightly overvalued.

Scenario Analysis

Quad/Graphics is difficult to value with certainty because QUAD is currently undergoing reconstruction and focusing on reducing its debt. Its sales are cyclical and commercial printing, its biggest revenue segment, is a dying industry. QUAD's growth will be dependent on the growth of its services: namely imaging and marketing, and logistics. Twelve scenarios were used to value QUAD by changing combinations of three key factors.

Sales Growth – Strong growth assumes that QUAD will continue to recover from the 2020 recession caused by the COVID-19 pandemic and have sales stabilize in 2022. The poor growth would mean revenue from publishing and retail inserts continues to fall.

**Figure 26: Scenario values used**

| Sales | Cost Savings | Gross Margin |
|---|---|---|
| Strong Growth: **10%**<br><br>Modest Growth: **7%**<br><br>Weak growth: **5%** | Significant: **5%**<br><br>Modest: **2.5%** | Stable: **30**<br><br>Declining:<br><br>**30,25,20,15,10** |

**Figure 27: Scenario analysis**

| Sales | Cost Savings | Gross Margin | DCF Value | Probability | Weighted Value |
|---|---|---|---|---|---|
| Strong Growth (p=0.2) | Significant (p=0.8) | Stable (p=0.5) | 15.42 | 8.0% | 1.23 |
| | | Declining (p=0.5) | 12.9 | 8.0% | 1.03 |
| | Modest (p=0.2) | Stable (p=0.5) | 5.79 | 2.0% | 0.12 |
| | | Declining (p=0.5) | 3.26 | 2.0% | 0.07 |
| Modest Growth (p=0.6) | Significant (p=0.8) | Stable (p=0.3) | 15.32 | 14.40% | 2.21 |
| | | Declining (p=0.7) | 13.11 | 33.6% | 4.40 |
| | Modest (p=0.2) | Stable (p=0.3) | 4.26 | 3.6% | 0.15 |
| | | Declining (p=0.7) | 2.05 | 8.4% | 0.17 |
| Weak Growth (p=0.2) | Significant (p=0.8) | Stable (p=0.2) | 15.24 | 3.2% | 0.49 |
| | | Declining (p=0.8) | 13.22 | 12.8% | 1.69 |
| | Modest (p=0.2) | Stable (p=0.2) | 4.79 | 8.00% | 0.38 |
| | | Declining (p=0.8) | 2.77 | 3.20% | 0.09 |
| **Total Probability Weighted Value** | | | | | **12.03** |

Source: IMCP

A valuation of QUAD stock was reached using the same discounted cash flow method outlined in the previous section. Each scenario's value was then multiplied by the scenario's probability to yield a probability-weighted value; the sum of these values is the likely price. This technique results in a target price of $12.03 implying conservative OCF.

One can see from this analysis that QUAD is much more sensitive to changes in cost savings and operating efficiency than it is to revenue growth. QUAD has experienced poor sales, low-profit margins, and high operating costs. If gross margins and efficiency are improved, the stock should considerably increase in value regardless of the rate of sales growth. Note that a declining gross margin and cost reduction result in meager prices even if sales growth is strong.

QUAD is making moves to improve its margins by improving production efficiency. Improved gross margins could mean successful reconstruction efforts by QUAD. The stock price will significantly improve if QUAD can achieve a gross margin of 30-40%.

## Business Risks

QUAD is a mature company, and due to the dying nature of the publishing industry, as well as QUAD's high debt leverage, it is fairly priced.

The risks relating to QUAD's business, operations and industry include:

COVID-19 pandemic and the resulting supply chain issues

COVID-19 has greatly affected company operations. The pandemic has weakened demand for QUAD's products and services, which has resulted in declined sales and supply chain shortages. The company is unsure how long COVID-19 will impact the company, especially with the introduction of the Omicron variant.

Decreasing demand for printing services

QUAD and the overall printing industry continue to experience a reduction in demand for printed materials and overcapacity due to shifting to digital substitution by marketers and advertisers. The reduced demand for printing services creates overcapacity and intense competition, resulting in the downward pricing of products and services.

Competitive market

QUAD operates primarily in the commercial print portion of the printing industry, which is highly fragmented and competitive in the United States and internationally. It competes for business with large, mid-sized printers and smaller regional printers and the growing forms of digital alternatives to print. The advertising and marketing services industries are highly competitive and are expected to remain so.

Increased Operating Costs

The primary raw materials that the company uses in its print business are paper, ink, and energy. The price of such raw materials has fluctuated over time and has caused fluctuations in its cost of sales. Approximately half of the paper used by QUAD is supplied directly by its clients. Clients that do not directly supply their paper have an adjusted price. The cost of paper is also affected by increased freight costs from volatile oil prices.

QUAD has also increased its wages, salaries, and the cost of medical, dental, pension, and other post-retirement benefits, including increases from the COVID-19 pandemic. Changes in interest rates, investment returns, or the regulatory environment may impact the amounts required to contribute to the pension plans it sponsors and may affect the solvency of these pension plans.

Low operating efficiency

QUAD needs to continue to improve its operating efficiency to maintain or improve its profitability. Achieving this means significantly reducing up-front costs by reducing the workforce, closing or consolidating facilities, or upgrading equipment and technology. If it is not successful, it could harm its competitive position.

Its transformation to a marketing solutions partner

QUAD's transformation into a digital marketing solutions provider has increased the complexity of QUAD's business. If it cannot successfully adapt its business processes as required by these new markets, it will be at a competitive disadvantage, and its ability to grow will be adversely affected.

Changes in postal rates and postal regulations

Integrated distribution with the postal service is an essential component of its business. Any material change in the current service levels provided by the postal service could impact clients' demand for print services. The USPS continues to experience financial problems and has thus increased its prices and slowed down its mail. Additional price increases may result in clients reducing mail volumes and exploring the use of alternative methods for delivering a larger portion of products.

## Appendix 1: Porter's 5 Forces

The threat of New Entrants – Moderate

While entering the commercial printing industry is very capital-intensive, marketing solutions as a service-based industry require less capital. Its most significant threat is online marketing solutions providers.

The threat of Substitutes – High

The go-green outlook of many customers who prefer to save paper negatively affects QUAD's print sales. Customers are less interested in printed catalogs and retail inserts and read most of their articles online. Customers spend more time with online platforms such as TikTok, YouTube, Facebook, and Instagram.

Supplier Power – Moderate

QUAD has yet to experience significant difficulty acquiring the paper. However, a continuous decline in suppliers, changes in the United States import or trade regulations, and the supply chain issues brought about by the COVID-19 pandemic could adversely affect paper supplies and company revenues.

Buyer Power – High

Companies are experiencing abnormally high sales due to the American cash flush as stimulus checks boost consumer buying power. However, chances are low that businesses would invest in printing ads over digital ads. QUAD benefits from its Connex software that bridges marketing data from several platforms and enables its users to recognize consumer buying patterns and trends.

The Intensity of Competition – Very High

QUAD is competing with other publishing companies and digital marketing platforms that already have an established presence. QUAD is still growing its digital marketing presence.

## Appendix 2: SWOT Analysis

| **Strengths** | **Weakness** |
| --- | --- |
| Paying off debt<br>Brand recognition<br>Award-winning software | Low-Profit margins<br>High value M&A |
| **Opportunities** | **Threats** |
| A large market for marketing solutions | Growing sustainability culture reduces the appeal of paper<br>Online advertising agencies and individual marketers |

## Appendix 3: Income Statement

| Income Statement | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| Sales | $3,951.2 | $3,985.8 | $3,923.4 | $2,929.6 | $2,983.2 | $3,010.0 | $2,726.7 |
| Direct costs | 3,026 | 3,283 | 3,192 | 2,335 | 2,188 | 2,408 | 2,263 |
| Gross Margin | 925 | 703 | 731 | 595 | 795 | 602 | 464 |
| SG&A, R&D, D&A, and ot | 717 | 706 | 697 | 641 | 782 | 458 | 327 |
| EBIT | 209 | (4) | 35 | (46) | 13 | 144 | 136 |
| Interest | 117 | (1) | 115 | 60 | 81 | 65 | 50 |
| EBT | 91 | (3) | (80) | (106) | (68) | 80 | 86 |
| Taxes | (16) | (10) | 24 | 0 | 2 | 18 | 20 |
| Income | 107 | 7 | (104) | (106) | (70) | 62 | 67 |
| Other | - | (1) | 52 | 22 | 39 | - | - |
| Net income | 107 | 8 | (156) | (129) | (109) | 62 | 67 |
| Basic Shares | 49.6 | 49.8 | 50.0 | 50.6 | 50.8 | 50.8 | 50.8 |
| Fully Diluted Shares | 51.8 | 51.6 | 50.0 | 50.6 | 50.8 | 50.8 | 50.8 |
| EPS | $2.16 | $0.16 | ($3.13) | ($2.54) | ($2.15) | $1.21 | $1.31 |
| EPS Fully Diluted | $2.07 | $0.15 | ($3.13) | ($2.54) | ($2.15) | $1.21 | $1.31 |
| DPS | $1.26 | $1.26 | $1.14 | $0.19 | $0.03 | $0.00 | $0.00 |

## Appendix 4: Balance Sheet

| Balance Sheet | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| **Assets** | | | | | | | |
| Cash | 64 | 70 | 79 | 55 | 54 | (80) | (75) |
| Operating assets ex cash | 844 | 877 | 832 | 624 | 631 | 641 | 581 |
| Operating assets | 909 | 947 | 911 | 679 | 685 | 561 | 506 |
| Operating liabilities | 746 | 851 | 813 | 683 | 584 | 701 | 635 |
| NOWC | 163 | 95 | 98 | (4) | 101 | (140) | (129) |
| NOWC ex cash (NWC) | 98 | 26 | 19 | (59) | 47 | (60) | (55) |
| NFA | 1,544 | 1,523 | 1,506 | 1,249 | 950 | 1,003 | 909 |
| *Invested capital* | *$1,707* | *$1,618* | *$1,604* | *$1,245* | *$1,051* | *$863* | *$779* |
| *Total assets* | *$2,452* | *$2,469* | *$2,417* | *$1,928* | *$1,635* | *$1,564* | *$1,415* |
| **Liabilities and Stockholders equity** | | | | | | | |
| S-T and L-T debt and financin | $917 | $893 | $1,065 | $905 | $762 | $562 | $462 |
| Other liabilities | 267 | 265 | 295 | 256 | 204 | 154 | 104 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 522 | 460 | 244 | 85 | 85 | 146 | 212.92 |
| *Total supplied capital* | *$1,707* | *$1,618* | *$1,604* | *$1,245* | *$1,052* | *$863* | *$780* |
| *Total liabilities and equity* | *$2,452* | *$2,469* | *$2,417* | *$1,928* | *$1,635* | *$1,565* | *$1,415* |

## Appendix 5: Sales Forecast

| Sales | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Jan-23** | **Jan-24** |
| Sales | $4,131 | $4,194 | 3,923 | 2,930 | $2,938 | 2,855 | $2,587 |
| *Growth* | | *1.5%* | *-6.4%* | *-25.3%* | *0.3%* | *-2.8%* | *-9.4%* |
| | | | | | | | |
| Catalog,publications,retail inse | 2,825 | 2,729 | 2,316 | 1,632 | 1,569 | 1,334 | 1,067 |
| *Growth* | | *-3.4%* | *-15.1%* | *-29.5%* | *-3.9%* | *-15.0%* | *-20.0%* |
| *% of sales* | *68.4%* | *65.1%* | *59.0%* | *55.7%* | *53.4%* | *46.7%* | *41.2%* |
| Direct mail & other printed pro | 647 | 636 | 765 | 592 | 615 | 683 | 614 |
| *Growth* | | *-1.7%* | *20.4%* | *-22.7%* | *4.0%* | *11.0%* | *-10.0%* |
| *% of sales* | *15.7%* | *15.2%* | *19.5%* | *20.2%* | *20.9%* | *2.0%* | *23.8%* |
| Other | 58 | 28 | 17 | 5 | 7 | 7 | 6 |
| *Growth* | | *-51.7%* | *-37.8%* | *-70.5%* | *37.3%* | *2.0%* | *-20.0%* |
| *% of sales* | *1.4%* | *0.7%* | *0.4%* | *0.2%* | *0.2%* | *0.3%* | *6.0%* |
| Logistics servies | 418 | 448 | 446 | 374 | 409 | 470 | 513 |
| *Growth* | | *7.1%* | *-0.3%* | *-16.1%* | *9.2%* | *15.0%* | *9.0%* |
| *% of sales* | *10.1%* | *10.7%* | *11.4%* | *12.8%* | *13.9%* | *16.5%* | *19.8%* |
| Imaging, marketing services a | 184 | 354 | 379 | 327 | 338 | 362 | 387 |
| *Growth* | | *92.0%* | *7.0%* | *-13.8%* | *3.5%* | *7.0%* | *7.0%* |
| *% of sales* | *4.5%* | *8.4%* | *9.7%* | *11.1%* | *11.5%* | *12.7%* | *15.0%* |
| | | | | | | | |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| United States | 3,704 | 3,771 | 3,487 | 2,592 | 2,600 | 2,527 | 2,289 |
| *Growth* | | *1.8%* | *-7.5%* | *-25.7%* | *0.3%* | *-2.8%* | *-9.4%* |
| *% of sales* | *89.7%* | *89.9%* | *88.9%* | *88.5%* | *88.5%* | *88.5%* | *88.5%* |
| Europe | 187 | 181 | 196 | 173 | 173 | 169 | 153 |
| *Growth* | | *-3.2%* | *8.4%* | *-11.5%* | *0.1%* | *-2.8%* | *-9.4%* |
| *% of sales* | *4.5%* | *4.3%* | *5.0%* | *5.9%* | *5.9%* | *5.9%* | *5.9%* |
| Latin America | 209 | 234 | 234 | 155 | 156 | 151 | 137 |
| *Growth* | | *11.9%* | *0.0%* | *-34.0%* | *0.6%* | *-2.8%* | *-9.4%* |
| *% of sales* | *5.1%* | *5.6%* | *6.0%* | *5.3%* | *5.3%* | *5.3%* | *5.3%* |
| Other | 31 | 8 | 6 | 10 | 9 | 9 | 8 |
| *Growth* | | *-74.1%* | *-20.0%* | *53.1%* | *-10.2%* | *-2.8%* | *-9.4%* |
| *% of sales* | *0.7%* | *0.2%* | *0.2%* | *0.3%* | *0.3%* | *0.3%* | *0.3%* |

# Appendix 6: Ratios

| Ratios | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Dec-17** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| Profitability | | | | | | | |
| Gross margin | 23.4% | 17.6% | 18.6% | 20.3% | 26.6% | 20.0% | 17.0% |
| Operating (EBIT) margi | 5.3% | -0.1% | 0.9% | -1.6% | 0.4% | 4.8% | 5.0% |
| Net profit margin | 2.7% | 0.2% | -4.0% | -4.4% | -3.7% | 2.0% | 2.4% |
| | | | | | | | |
| Activity | | | | | | | |
| NFA (gross) turnover | | 2.60 | 2.59 | 2.13 | 2.71 | 3.08 | 2.85 |
| Total asset turnover | | 1.62 | 1.61 | 1.35 | 1.67 | 1.88 | 1.83 |
| | | | | | | | |
| Liquidity | | | | | | | |
| Op asset / op liab | 1.22 | 1.11 | 1.12 | 0.99 | 1.17 | 0.80 | 0.80 |
| NOWC Percent of sales | | 3.2% | 2.5% | 1.6% | 1.6% | -0.7% | -4.9% |
| | | | | | | | |
| Solvency | | | | | | | |
| Debt to assets | 37.4% | 36.2% | 44.0% | 46.9% | 46.6% | 36.0% | 32.7% |
| Debt to equity | 175.6% | 194.0% | 435.7% | 1066.9% | 899.2% | 384.3% | 217.2% |
| Other liab to assets | 10.9% | 10.7% | 12.2% | 13.3% | 12.5% | 9.9% | 7.4% |
| Total debt to assets | 48.3% | 46.9% | 56.2% | 60.2% | 59.1% | 45.8% | 40.1% |
| Total liabilities to asset: | 78.7% | 81.4% | 89.9% | 95.6% | 94.8% | 90.7% | 85.0% |
| Debt to EBIT | 4.40 | (248.03) | 30.68 | (19.67) | 58.74 | 3.89 | 3.39 |
| EBIT/interest | 1.78 | 5.14 | 0.30 | (0.77) | 0.16 | 2.24 | 2.73 |
| Debt to total net op cap | 53.7% | 55.2% | 66.4% | 72.7% | 72.5% | 65.2% | 59.3% |
| | | | | | | | |
| ROIC | | | | | | | |
| NOPAT to sales | 6.2% | 0.2% | 1.2% | -1.6% | 0.4% | 3.7% | 3.9% |
| Sales to NWC | | 64.29 | 175.94 | (146.85) | (508.21) | (450.88) | (47.44) |
| Sales to NFA | | 2.60 | 2.59 | 2.13 | 2.71 | 3.08 | 2.85 |
| Sales to IC ex cash | | 2.50 | 2.55 | 2.16 | 2.73 | 3.10 | 3.03 |
| Total ROIC ex cash | | 0.5% | 2.9% | -3.4% | 1.2% | 11.5% | 11.7% |
| | | | | | | | |
| NOPAT to sales | 6.2% | 0.2% | 1.2% | -1.6% | 0.4% | 3.7% | 3.9% |
| Sales to NOWC | | 30.91 | 40.70 | 62.33 | 60.99 | (153.82) | (20.20) |
| Sales to NFA | | 2.60 | 2.59 | 2.13 | 2.71 | 3.08 | 2.85 |
| Sales to IC | | 2.40 | 2.44 | 2.06 | 2.60 | 3.14 | 3.32 |
| Total ROIC | | 0.5% | 2.8% | -3.2% | 1.2% | 11.6% | 12.8% |
| | | | | | | | |
| NOPAT to sales | 6.2% | 0.2% | 1.2% | -1.6% | 0.4% | 3.7% | 3.9% |
| Sales to EOY NWC | 40.24 | 154.49 | 208.69 | (49.91) | 63.53 | (49.91) | (49.91) |
| Sales to EOY NFA | 2.56 | 2.62 | 2.60 | 2.35 | 3.14 | 3.00 | 3.00 |
| Sales to EOY IC ex cash | 2.41 | 2.57 | 2.57 | 2.46 | 2.99 | 3.19 | 3.19 |
| Total ROIC using EOY I( | 14.9% | 0.6% | 3.0% | -3.9% | 1.3% | 11.8% | 12.3% |
| | | | | | | | |
| NOPAT to sales | 6.2% | 0.2% | 1.2% | -1.6% | 0.4% | 3.7% | 3.9% |
| Sales to EOY NOWC | 24.30 | 41.82 | 40.24 | (837.03) | 29.44 | (21.43) | (21.06) |
| Sales to EOY NFA | 2.56 | 2.62 | 2.60 | 2.35 | 3.14 | 3.00 | 3.00 |
| Sales to EOY IC | 2.32 | 2.46 | 2.45 | 2.35 | 2.84 | 3.49 | 3.50 |
| Total ROIC using EOY I( | 14.4% | 0.5% | 2.8% | -3.7% | 1.3% | 12.9% | 13.5% |
| | | | | | | | |
| **3-stage** | | | | | | | |
| Net income / sales | | 0.2% | -4.0% | -4.4% | -3.7% | 2.0% | 2.4% |
| Sales / avg assets | | 1.62 | 1.61 | 1.35 | 1.67 | 1.88 | 1.83 |
| ROA | | 0.3% | -6.4% | -5.9% | -6.1% | 3.8% | 4.5% |
| Avg assets / avg equity | | 5.01 | 6.94 | 13.20 | 21.01 | 13.84 | 8.29 |
| ROE | | 1.6% | -44.4% | -78.1% | -128.5% | 53.3% | 37.0% |
| | | | | | | | |
| Payout Ratio | | 796.2% | -36.5% | -7.4% | -1.3% | 0.0% | 0.0% |
| Retention Ratio | | -696.2% | 136.5% | 107.4% | 101.3% | 100.0% | 100.0% |
| Sustainable Growth Rate | | -11.2% | -60.6% | -83.9% | -130.2% | 53.3% | 37.0% |

## Appendix 7: Cash Flow Statement

| Cash Flow Statement | | | | | | |
|---|---|---|---|---|---|---|
| **Items** | **Dec-18** | **Dec-19** | **Dec-20** | **Dec-21** | **Dec-22** | **Dec-23** |
| **Cash from Operatings (understated - depr'n added to net assets)** | | | | | | |
| Net income | $8 | ($156) | ($129) | ($109) | $62 | $67 |
| Change in Net Working Capital ex cash | 72 | 7 | 78 | (106) | 107 | (6) |
| Cash from operations | $80 | ($149) | ($51) | ($215) | $169 | $61 |
| | | | | | | |
| **Cash from Investing (understated - depr'n added to net assets)** | | | | | | |
| Change in NFA | $21 | $16 | $258 | $299 | ($53) | $94 |
| Change in Marketable Securities | $0 | $0 | $0 | $0 | $0 | $0 |
| Cash from investing | $21 | $16 | $258 | $299 | ($53) | $94 |
| | | | | | | |
| **Cash from Financing** | | | | | | |
| Change in Short-Term and Long-Term Debt | ($24) | $172 | ($160) | ($142) | ($200) | ($100) |
| Change in Other liabilities | (2) | 30 | (39) | (51) | (50) | (50) |
| Change in Debt/Equity-Like Securities | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividends | (63) | (57) | (10) | (1) | 0 | 0 |
| Change in Equity ex NI and Dividends | (7) | (2) | (22) | 110 | 0 | 0 |
| Cash from financing | ($97) | $142 | ($230) | ($84) | ($250) | ($150) |
| | | | | | | |
| **Change in Cash** | 5 | 9 | (24) | (1) | (135) | 5 |
| **Beginning Cash** | 64 | 70 | 79 | 55 | 54 | (80) |
| **Ending Cash** | $70 | $79 | $55 | $55 | ($80) | ($75) |

# Appendix 8: 3-Stage DCF Model

| | | | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|
| Year ending January | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | *1.8%* | *0.9%* | *-9.4%* | *1.0%* | *1.0%* | *2.0%* | *-1.0%* | *-5.0%* |
| *NOPAT / S* | *0.4%* | *3.7%* | *3.9%* | *1.5%* | *1.5%* | *2.0%* | *2.0%* | *2.0%* |
| *S / NOWC* | *29.44* | *(21.43)* | *(21.06)* | *30.00* | *30.00* | *35.00* | *30.00* | *30.00* |
| *S / NFA (EOY)* | *3.14* | *3.00* | *3.00* | *2.50* | *3.00* | *3.00* | *3.00* | *3.50* |
| *S / IC (EOY)* | *2.84* | *3.49* | *3.50* | *2.31* | *2.73* | *2.76* | *2.73* | *3.13* |
| *ROIC (EOY)* | *1.3%* | *12.9%* | *13.5%* | *3.5%* | *4.1%* | *5.5%* | *5.5%* | *6.3%* |
| *ROIC (BOY)* | | *10.6%* | *12.2%* | *5.3%* | *3.5%* | *5.6%* | *5.5%* | *5.2%* |
| *Share Growth* | *0.4%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $2,983 | $3,010 | $2,727 | $2,754 | $2,782 | $2,837 | $2,809 | $2,668 |
| NOPAT | $13 | $111 | $105 | $41 | $42 | $57 | $56 | $53 |
| *Growth* | *-129.0%* | *731.6%* | *-5.6%* | *-60.6%* | *1.0%* | *36.0%* | *-1.0%* | *-5.0%* |
| - Change in NOWC | 105 | -242 | 11 | 221 | 1 | -12 | 13 | -5 |
| *NOWC EOY* | *101* | *-140* | *-129* | *92* | *93* | *81* | *94* | *89* |
| *Growth NOWC* | *-2994.9%* | *-238.6%* | *-7.8%* | *-170.9%* | *1.0%* | *-12.6%* | *15.5%* | *-5.0%* |
| - Chg NFA | -299 | 53 | -94 | 193 | -174 | 19 | -9 | -174 |
| *NFA EOY* | *950* | *1,003* | *909* | *1,102* | *927* | *946* | *936* | *762* |
| *Growth NFA* | *-23.9%* | *5.6%* | *-9.4%* | *21.2%* | *-15.8%* | *2.0%* | *-1.0%* | *-18.6%* |
| Total inv in op cap | -194 | -188 | -83 | 414 | -174 | 7 | 3 | -179 |
| Total net op cap | 1051 | 863 | 779 | 1193 | 1020 | 1027 | 1030 | 851 |
| FCFF | $207 | $300 | $188 | ($373) | $215 | $50 | $53 | $232 |
| *% of sales* | *6.9%* | *10.0%* | *6.9%* | *-13.5%* | *7.7%* | *1.8%* | *1.9%* | *8.7%* |
| *Growth* | | *44.7%* | *-37.1%* | *-297.8%* | *-157.8%* | *-76.8%* | *6.4%* | *337.0%* |
| - Interest (1-tax rate) | 84 | 50 | 38 | 30 | 22 | 14 | 14 | 14 |
| *Growth* | *38.8%* | *-40.6%* | *-22.6%* | *-21.6%* | *-27.6%* | *-38.1%* | *0.0%* | *0.0%* |
| + Net new debt | -142 | -200 | -100 | -100 | -100 | -100 | | |
| Debt | 762 | 562 | 462 | 362 | 262 | 162 | 162 | 162 |
| *Debt / tot net op ca* | *72.5%* | *65.2%* | *59.3%* | *30.4%* | *25.7%* | *15.8%* | *15.8%* | *19.1%* |
| FCFE w debt | ($19) | $50 | $50 | ($503) | $93 | ($64) | $40 | $218 |
| *% of sales* | *-0.6%* | *1.7%* | *1.8%* | *-18.3%* | *3.4%* | *-2.2%* | *1.4%* | *8.2%* |
| *Growth* | | *-365.7%* | *0.0%* | *-1105.5%* | *-118.6%* | *-168.1%* | *-162.2%* | *452.0%* |
| / No Shares | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 |
| FCFE | ($0.37) | $0.98 | $0.98 | ($9.90) | $1.84 | ($1.25) | $0.78 | $4.30 |
| *Growth* | | *-365.7%* | *0.0%* | *-1105.5%* | *-118.6%* | *-168.1%* | *-162.2%* | *452.0%* |
| * Discount factor | | 0.88 | 0.77 | 0.67 | 0.59 | 0.51 | 0.45 | 0.39 |
| Discounted FCFE | | $0.86 | $0.75 | ($6.64) | $1.08 | ($0.64) | $0.35 | $1.69 |
| | | | Third Stage | | | | | |
| **Terminal value P/B** | | | | | | | | |
| Book value | $85 | $146 | $213 | $224 | $244 | $287 | $330 | $370 |
| *Growth* | *0.0%* | *72.6%* | *45.5%* | *5.3%* | *8.9%* | *17.7%* | *14.9%* | *12.1%* |
| *ROE (EOY book)* | *-128.5%* | *42.1%* | *31.3%* | *5.0%* | *8.2%* | *15.1%* | *12.9%* | *10.8%* |
| Net income | -$109 | $62 | $67 | $11 | $20 | $43 | $43 | $40 |
| Dividends | $1 | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| *Growth* | *-85.3%* | *-100.0%* | *0.0%* | | | | | |
| Shares | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 | 50.8 |
| Price | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| *Growth* | | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Net issuance | | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Terminal P/B | | | | | | | | 2.10 |
| * Terminal BPS | | | | | | | | $7.28 |
| Terminal value | | | | | | | | $15.29 |
| * Discount factor | | | | | | | | 0.39 |
| Discounted terminal value | | | | | | | | $6.02 |

| Summary (using P/B multiple for terminal value) | | |
|---|---|---|
| First stage | $1.62 | Present value of first 2 year cash flow |
| Second stage | ($4.16) | Present value of year 3-7 cash flow |
| Third stage | $6.02 | Present value of terminal value P/B |
| Value (P/B) | **$3.47** | |

Manufacturing, Consumer Discretionary

# Spectrum Brands Holdings, Inc.

| Recommendation: Hold | | | | |
|---|---|---|---|---|
| Current Price | **$97.60** | --- | Ticker | SPB |
| 1 Year Bear | $84.69 | *-13%* | Sh. Out. (M) | 41.2 |
| 1 Year Base | **$92.85** | ***-4.8%*** | M.Cap. ($B) | 4.2 |
| 1 Year Bull | $116.73 | *20%* | EV ($B) | 6.4 |

## Summary

I recommend a neutral rating with a target of $94. Spectrum has an a great chance to increase sales of its pet, home, garden and personal care products. Growth and acquisitions will help make SPB more profitable in coming years. Management is continuing to make the business more efficient through technology and e-commerce; the business looks completely different compared to 2009 during the dark bankrupcy days. The stock is fairly valued based on relative and DCF analysis.

## Price History

| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | 1.2% | 108.8 | 58.3% | 41.0% | 23.6% | 5.7% | 3.5% |

## Key Drivers

- The Sale of HHI: On September 8th, 2021, SPB sold the largest part of its business. Purchased by ASSA Abloy for $4.3 billion, the segment consists of hardware and home products. The cash earned from the sale will be used to pay off debt and invest in company acquisitions.
- Growth of Global Pet Care: Sales in the GPC segment have continuously increased over the past years due to rising pet ownership and more time spent at home during the COVID-19 pandemic.
- Global Productivity Improvement Plan: Spectrum Brands plans to work on firm efficiency and customer satisfaction, while improving margins, using projects like the GPIP.
- Rise from Bankruptcy: In 2009, SPB filed for chapter 11 bankruptcy. Debt fell from $6.6 billion in 2017 to $2.4 billion in 2021.
- Economically Defensive Debt, and Recent Sales: Sales of segments over the past three years have given SPB the cash to help repair its debt.

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($B) | **3.7** | **3.8** | **2.4** | **2.6** | **2.9** | **3.3** | **3.5** |
| *Gr. %* | -40.4 | 2.8% | -35.8 | 7.2% | 14.3% | 10.2% | 6.6% |
| *v. Cons.* | - | - | - | - | - | 5.4% | 1.8% |
| *Industry* | 4.2% | 3.3% | 0.7% | 2.6% | 19.0% | 6.0% | 4.2% |
| **EPS** | **$8.48** | **$23.63** | **$9.78** | **$2.20** | **$4.44** | **$2.61** | **$3.16** |
| *Gr. %* | - | 178% | -58.6 | -77.5 | 101% | -41.2 | 21.1% |
| *v. Cons.* | - | - | - | - | - | - | - |
| *Industry* | 23.1% | -8.5% | -25.2 | 57.4 | 44.5 | 7.0% | 9.7% |

## Valuation

Using a relative valuation approach, Spectrum Brands appears to be overvalued in comparison to the manufacturing industry. DCF analysis implies that the stock is worth $92.85. A combination of the approaches suggests that Spectrum is fairly valued, as the stock's value is about $92.85 and the shares trade at $97.60.

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **7.4%** | **22.9%** | **20.3%** | **3.8%** | **6.3%** | **3.4%** | **3.8%** |
| *Industry* | 10.4% | 9.1% | 8.1% | 10.3% | 11.1% | | |
| **ROE** | - | 49.3% | 29.9% | 6.3% | 13.1% | 7.4% | 8.7% |
| *Industry* | 12.2% | 11.2% | 12.2% | 12.4% | 12.4% | | |
| **ROA** | - | 4.0% | 7.6% | 1.9% | 3.6% | 2.5% | 3.7% |
| *Industry* | 7.7% | 7.1% | 6.8% | 7.0% | 7.0% | | |
| **A T/O** | 0.1 | 0.17 | 0.38 | 0.51 | 0.57 | 0.74 | 0.96 |
| **A/E** | - | 12.33 | 3.92 | 3.29 | 3.61 | 2.99 | 2.38 |

## Risks

- Supply chain shortages and shipping costs
- Debt from previous company experiences
- Consumer trends changing rapidly
- Market saturation

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 4.7 | 3.6 | - | 27.3 | 21.0 | - | - |
| *Industry* | 23.63 | 28.28 | 32.62 | 30.35 | 20.24 | 19.04 | 17.34 |
| P/S | 0.68 | 0.5 | 0.86 | 0.89 | 1.40 | | |
| P/B | 4.1 | 2.5 | 1.5 | 1.8 | 2.7 | | |
| P/CF | 0.6 | 8.1 | 2429 | 8.8 | 14.3 | | |
| EV/EBITDA | 19.1 | 15.3 | 9.0 | 16.5 | 21.2 | | |
| D/P | 0.0% | 2.0% | - | 80.1% | 36.9% | | |

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## Company Overview

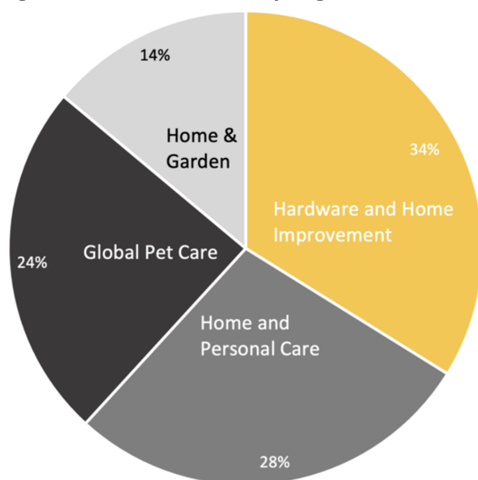
Spectrum Brands Holdings, Inc. (SPB) is made up of several smaller products and home essential companies. SPB's divisions include Hardware and Home Improvement (HHI), Home and Personal Care (HPC), Global Pet Care (GPC), and Home and Garden (H&G). Spectrum has products for all ages. Popular brands consist of Black + Decker, George Foreman, Dingo, Kwikset, and many more. SPB's products are primarily sold in North America, followed by Europe, Africa and Middle East, and Asia/Pacific. SPB is headquartered in Middleton, Wisconsin, and has multiple corporate offices located around the globe, including in Germany, Australia, Canada, and in four states (Wisconsin, Missouri, California, Florida), along with manufacturing, distribution, and sales offices in forty-five different countries. Spectrum Brands follows a business to consumer model.

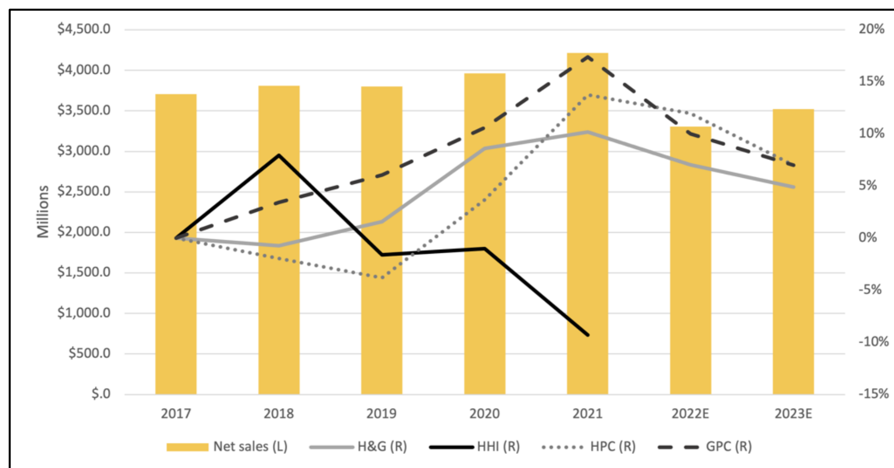
Spectrum Brands has four segments:

*Although Hardware and Home Improvement is the company's largest division, Global Pet Care has had a steady growth rate of 42.5% over the past five years.*

1) **Hardware and Home Improvement** sells items in categories such as security, plumbing, and hardware. HHI made up 34% of revenue in 2020 had a growth rate of -4.6% from 2017 to 2021.
2) The **Home and Personal Care** products are made up of different home appliances and personal care items. HPC made up 28% of revenue in 2020 and had a growth rate of 11.3% from 2017 to 2021.
3) **Global Pet Care** products are sold for those with furry friends. Items include companion animal products (grooming, training toys, and treats) and aquatics. GPC made up 24% of revenue in 2020 and had a growth rate of 42.5% from 2017 to 2021.
4) **Home and Garden** products are in three categories including, household, controls, and repellents. H&G made up 14% of revenue in 2020 and had a growth rate of 20.7% from 2017 to 2021.

**Figures 1 & 2: Revenue by segment in 2020 (left) and total revenue (in millions) & YoY growth by segment since 2017 (right)**




*Source: Company reports/FactSet*

Sales in the Hardware and Home Improvement segment have been slowly decreasing, but it was sold on September 8, 2021. Global Pet Care sales has helped pave the way for SPB with its continued growth over the past four years. In addition to pet care, the home and personal care products as well as home and garden products have been experiencing solid growth.

## Business/Industry Drivers

Though several factors may contribute to Spectrum Brands' future success, the following are the most important business drivers:

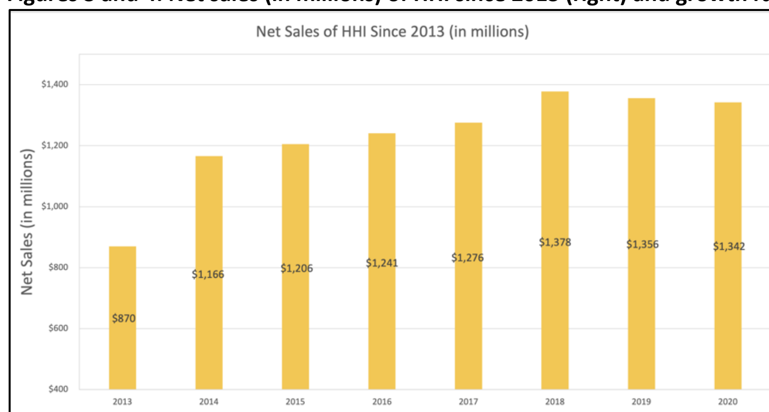
1) The Sale of HHI
2) Growth of Global Pet Care
3) Global Productivity Improvement Plan
4) The Rise from Bankruptcy
5) Economic Sensitivity

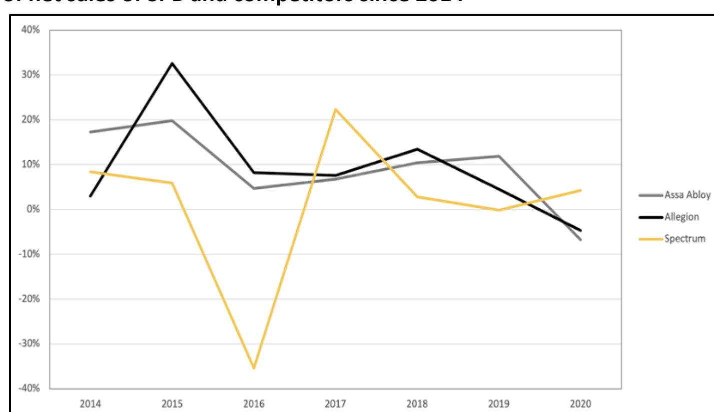
**The Sale of HHI**

The $4.3 billion sale represents 14x projected FY21 adjusted EBITDA.

On September 8th 2021, the company announced the sale of its Hardware and Home Improvement division. ASSA ABLOY is paying $4.3 billion in cash. Big name products within HHI consist of Kwikset, Weiser, Pfister, and many more. CEO David Maura said that the money will be used to pare down company debt and invest in growth. This will lead to acquisitions for Global Pet Care and Home and Garden, and to enhance the value of its Home and Personal Care business.

**Figures 3 and 4: Net sales (in millions) of HHI since 2013 (right) and growth rate of net sales of SPB and competitors since 2014**




*Source: Company reports/FactSet*

The hardware and home improvement business was growing rapidly, but started slowing in 2018. Q3 2021 sales rose 48.8% from the previous year, including a (46.7% organic 1y), but this was due to a shift in consumer spending on homes during covid, and may not be sustainable. Adjusted EBITDA was up 56% and GAAP operating income rose $26.1 million.

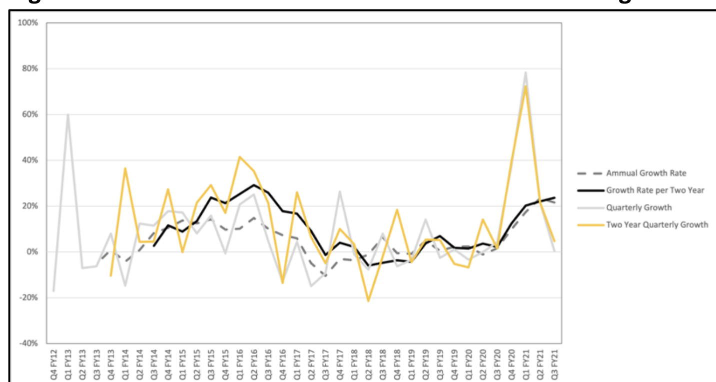
*Figure 4 shows that SPB's sales growth has been volatile. The company has regularly repositioned its portfolios. It sold its auto care and battery product segments in 2016. Since the rebound in 2017, sales growth has slowed.*

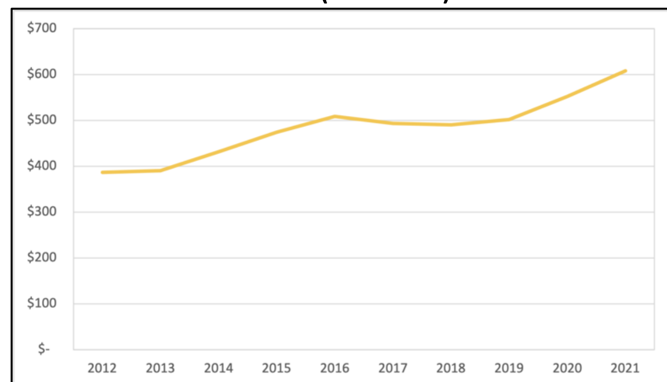
From 2013 to 2020, the HHI segment grew from $869.6 million to $1,342.1 million, or 53.4%. Since announcing the sale, the stock price jumped from $78.43 to $95.89, an 18.2% increase in just under a month. Perhaps investors believe the sale is for a good price at a peak in housing and that the proceeds are better used elsewhere.

As mentioned earlier, the money from this transaction will be used reduce company debt as well as for acquisitions in both the Global Pet Care unit and the Home and Personal Care segment. Acquisitions may help growth, but SPB plans to accelerate organic growth in these segments.

In April 2021, the Home and Garden segment acquired Rejuvenate, an industry leading household cleaning and maintenance product. Spectrum purchased its newest brand for approximately $300 million. This helped boost net sales from $82 million in Q1 2021 to $169 million in Q2, or 51.5%. Acquisitions are valuable to growth.

**Figures 5 and 6: Growth Rates for Home and Garden Segment Home and Garden Sales since 2012 (in millions)**




*Source: FactSet*

Figure 5 shows the annual growth rate, two-year annual growth rate, quarterly growth rate, and two-year quarterly growth rate of the Home and Garden segment. This vividly shows the seasonal trends, as garden sales usually peak during the warmer months, as well as jumped from the Rejuvenate acquisition. The graph also shows the upwards trend in the growth rate. After the sales of HHI, Home and Garden will be a larger part of sales so its growth will have a greater impact.

## The Growth of Global Pet Care

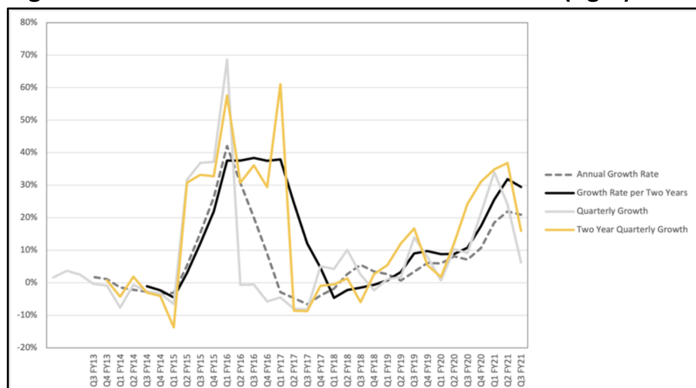
The Global Pet Care segment grew 6.5% in the last fiscal year. Owners have spent more on pets during the quarantine and now while working from home. Two major acquisitions have also helped grow sales including Omega Sea and Armitage Pet Care.

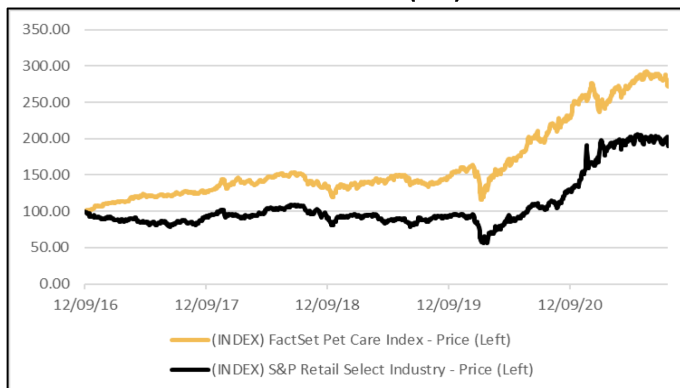
On October 26th 2020, Spectrum Brands announced the acquisition of Armitage Pet Care. Armitage Pet Care is a well-known grocery brand located in the United Kingdom. Purchased for approximately $180 million, SPB is looking to strengthen its GPC segment by increasing sales of dog chews. This investment was the perfect way to do so, with Armitage specializing in not only dog chews, but also cat chews, treats, and toys. This will also help expand international sales in Europe.

Omega Sea is the newest addition SPB's aquatic portfolio. On March 12th, 2020, the firm helped expand its aquatics products as well as tap into the reptile market. Paying $16.9 million for the newest addition, Omega Sea makes products such as fish food, sea salts, and supplies. SPB's president of GPC, John Pailthorp, said that the investment in Omega Sea will allow the company to leverage relationships in the US to help grow in the future. Omega joins SPB's industry leading consumer and commercial aquatics lines.

The largest quarterly growth happened from FY20 to FY21 when net sales jumped 78% from $46M to $82M.

**Figures 7 and 8: Growth Rates for Global Pet Care (right) and Pet Care Index vs S&P Retail since 2016 (left)**

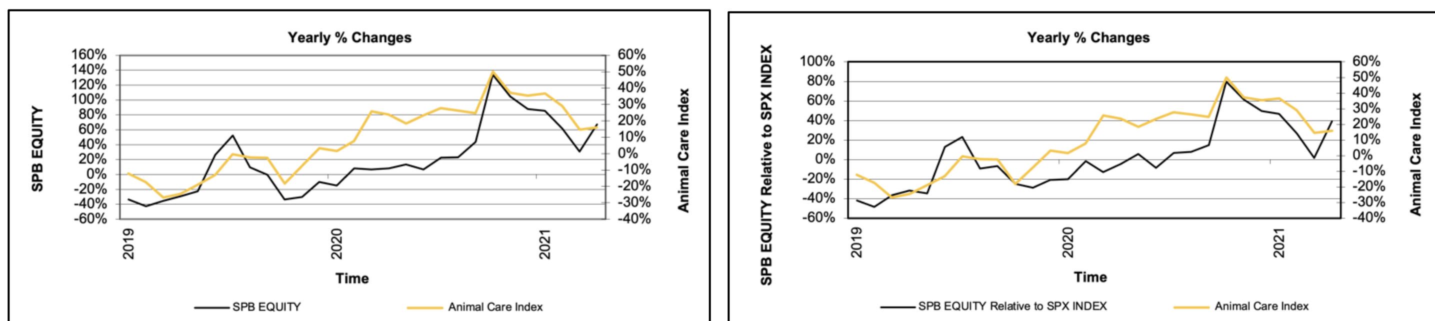



*Source: FactSet*

Figure seven displays the annual growth rate, two-year annual growth rate, quarterly growth rate, and two-year quarterly growth rate for the Global Pet Care segment. GPC's growth has accelerated over the past two years. Figure eight shows that pet care stocks have performed well relative to the S&P retail industry, however, appreciation slowed in 2021 which coincides with people heading back to work in the office.

**Figure 9 and 10: Spectrum Brands vs Animal Care Index (left) and Spectrum Brands relative to SPX vs Animal Care Index (right)**




*Source: Bloomberg*

Figures 9 and 10 show that SPB's stock is closely correlated with the animal care index, which implies that investors care about this business.

## Global Productivity Improvement Plan

SPB is looking to improve its margins through the Global Productivity Improvement Plan (GPIP). GPIP targets improving the company's operating efficiency and effectiveness, while focusing on consumer insights and growth-enabling functions. This includes technology, marketing, research and development. Management reported that they expect savings of $200 million by the end of the 2022 fiscal year, which is $4.73 EPS. These savings will most likely be reinvested into growth initiatives and consumer insights, as well as marketing across the business to help promote its products.

When accounting for these expenses, charges get counted as "Total restructuring and related charges" and then get broken up into COGS and operating expense, appearing on the income statement. The items that add up to these expenses consist of the GPIP, GPC Edwardsville 3PL transition, SAP S4 ERP transformation and other restructuring activities.

Started in 2019, the GPIP is expected to continue through the fiscal year 2022. This project focus includes the company's continued operations post-divestiture environment and separation with Energizer, following the sales of the Global Auto Care and Global Batteries and Lighting segments. So far, the project saved $152.2 million of the expected $200 million, with $21.2 million coming in FY21.

During the year ended September 30th 2021, Spectrum transitioned its third-party logistics (3PL) at the Edwardsville, IL distribution location. This allows SPB to optimize and improve its fill rates to meet customer requirements and handle projected growth. Main costs from this project come from technology, as well as incremental and incentive-based compensation to maintain performance. Costs incurred were $11.5 million, with a projected $12.2 million to be paid and completed in the first half of the fiscal year ending September 30th 2022.

Also, during FY21, Spectrum has entered an initiative to transform its enterprise-wide operating system to SAP S4. This is a company-wide information system that will help improve the company's efficiency and productivity. This multi-year project will incur multiple costs including software configuration and implementation costs. Currently in the planning and design phase of the project, SPB has incurred $4.3 million in costs, with $13 million remaining with an anticipated completion in FY24.

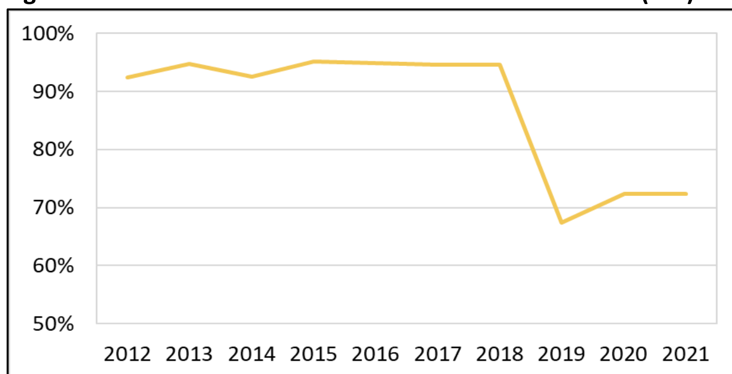
Other restructuring activities include less significant costs that help improve margins and typically are less than one-year costs. These projects are all ways to make the business more efficient, profitable, and make better use manufacturing resources. These restructuring expenses increased adjusted EBITDA 13.1% from 2020 to 2021, due to increased sales volume, productivity, and positive pricing, offset by tariffs and additional investment in marketing and advertising.

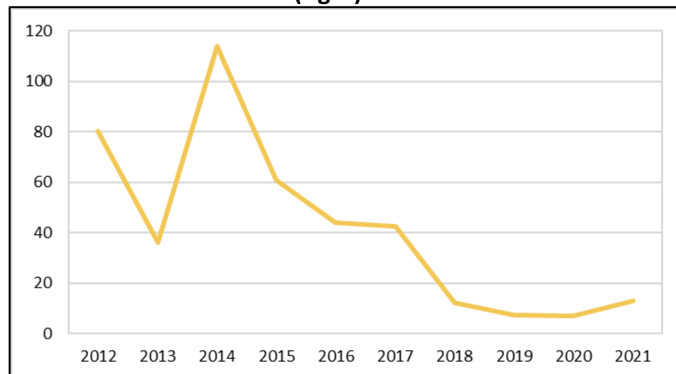
In its first quarter back from bankruptcy, Spectrum Brands' profitability was up 52%.

**The Rise from Bankruptcy**

In February of 2009, Spectrum Brands announced a Chapter 11 bankruptcy. With the stock price falling and the firm missing a $25.8 million interest payment, the company decided to look for a new life. Its struggles were amplified by the financial crisis in 2008, but it resulted from pressure following acquisition of garden and pet products.

**Figures 11 and 12: Debt to Assets Ratio of SPB since 2012 (left) and Debt to EBITDA since 2012 (right)**




*Source: FactSet*

Figure 11 shows SPB's the debt to assets ratio since 2012, when the company came back from bankruptcy. SPB's ratio has been hovering around 90%, dropping down to 67% in 2019, after it sold the battery business. With the sales of HHI, the company will be paring down debt to help lower that ratio further.

The decrease in debt ratio from 2018 to 2019 is due to the complete sale of its battery segment, including Rayovac, to Energizer.

Shown in figure 12 is the debt to EBITDA ratio since 2012. In 2013, Spectrum added the hardware and home improvement section of its business, which drove the ratio down due to the increased earnings. The ratio bounced back up to 114 in 2014 due to its increased debt and lower earnings but has consistently fallen since then. This is mainly due to the multiple sales and acquisitions that boosted earnings. Expect this ratio to keep dropping due to the debt being paid off from the sale of the HHI segment.

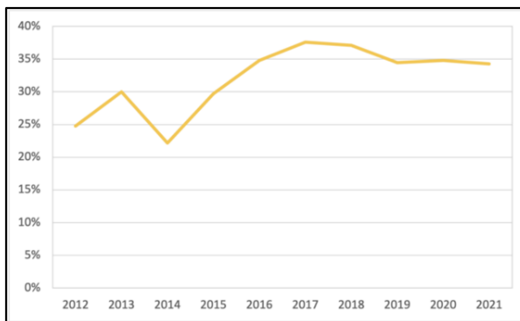
According to a letter from the firm after emerging from bankruptcy, the company presented its plan to reduce debt and issue new shares of stock, which brought SPB new life. The company reduced debt by $840 million thanks to General Electric Capital Corp that helped replace its $235 million debtor in possession financing facility.

Former shareholders lost everything, but bondholders were issued 27 million shares of new common stock and $218 million in 12% senior subordinated toggle notes. A toggle note gives the issuer the option of deferring interest payment by increasing the coupon in the future.

Figure 13 shows that SPB's profit margin has been relatively steady since 2018. The company is looking to increase this number by growing sales and stronger margins from its restructuring and related charges.

In 2019, Spectrum sold its Global Battery and Lighting segment to Energizer Holding Inc. for $2 billion. This segment included the popular Rayovac Battery, which was founded in Madison, Wisconsin 1906. This product helped make a name for Spectrum Brands. Included in the Global Battery and Lighting segment sale was Varta Battery, which will help Energizer's European sales. The firm also sold the auto care division to Energizer in 2010. This segment included popular products such as Armor All, STP, and A/C Pro Brands. This deal was valued at $1.25 billion, $937.5 million in cash and $132.5 in Energizer's equity. Both sales were used to lower company debt, as well as investments in continued operations for Spectrum's success.

**Figure 13: Gross Profit Margin Since 2011**



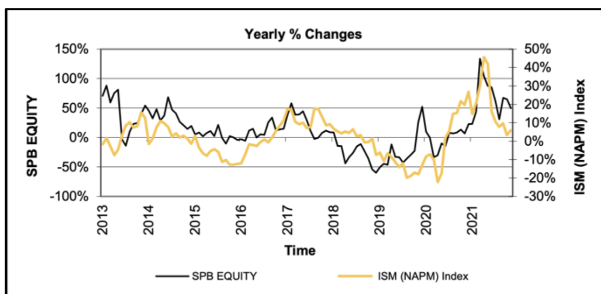

*Source: Company Reports*

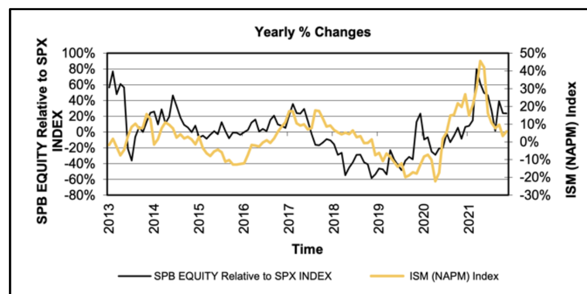
Just over twelve months after announcing their Chapter 11 bankruptcy, SPB cut its losses roughly in half. The firm also reduced its debt by $800 million and net sales grew 3% in 2009 and 5% in 2010. Spectrum later announced a merger with Russell Hobbs, which is still owned by the company today. In addition to Russell Hobbs, brands like Rayovac batteries and Hot Shot bug spray helped bring Spectrum back from the dead.

Kent Hussey, the CEO at the time, said in an interview with TheStreet, that at the end of the 2010 fiscal year EBITDA was expected to be between $430 and $440 million on about $3 billion in revenue. Hussey later said that they are looking forward to expanding its highly fragmented pet supply business, as well as home and garden, foreshadowing what was to come for SPB.

**Economic Sensitivity**

**Figures 14 and 15: Spectrum Brands vs ISM (NAPM) Index (left) and Spectrum Brands relative to SPX Index vs ISM (NAPM) Index**




*Source: Bloomberg*

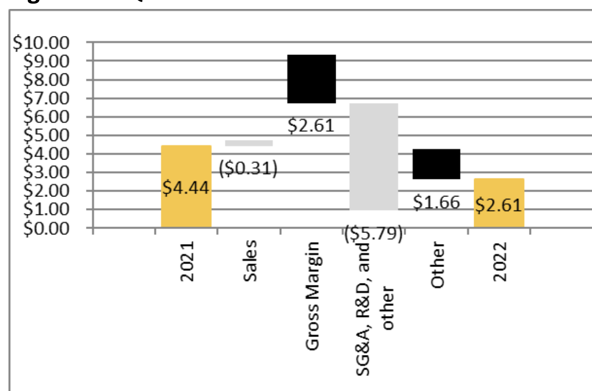
Historically, the stock has been positively correlated on absolute and relative basis to the economy as proxied by the ISM index of manufacturers. However, it was previously much more indebted and home and hardware may have been more dependent on the economic cycle than remaining businesses. These graphs show that if the economy is strong, these companies do better.

## Financial Analysis

In 2018, Spectrum Brands merged with controlling shareholder HRG group, Inc, and officially changed its formal name to Spectrum Brands Holding, Inc.

I anticipate EPS to drop to $2.61 in FY 2022. Holding margins and other factors unchanged, declining sales costs EPS $0.31. Rising gross margin adds $2.61 while rising SG&A, R&D and other as a percent of sales costs $5.79. Other factors add $1.66 Sales are expected to drop slightly due to the sale of the Hardware and Home Improvement segment, but not significantly due to the future acquisitions to grow the three segments. The restructuring and other related charges will help improve gross margin.

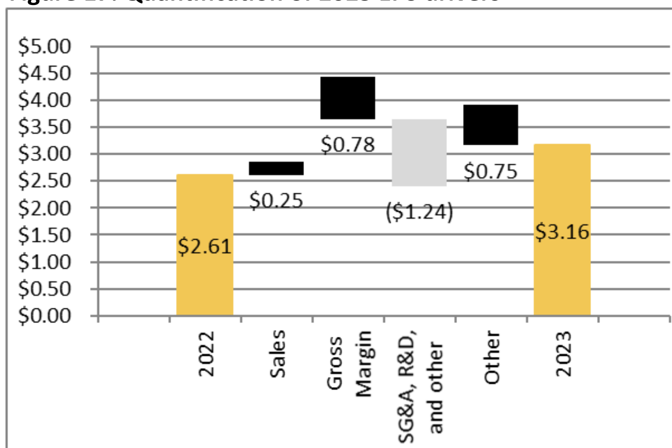
**Figure 16: Quantification of 2022 EPS drivers**




*Source: Company Reports, IMCP*

I expect 2022 EPS to increase $0.55 to $3.16. SPB will lose $1.24 as SG&A, R&D, and other rise as a percent of sales. This is due to the GPIP to help improve firm efficiency and customer satisfaction. On the other hand, it will gain $0.25 from sales growth, $0.78 from rising gross margin, and $0.75 from other. Sales growth is expected to continue in all five of its regions worldwide due to acquisitions. The company will rebound strongly from the sale of the HHI segment, after having over a year to reinvest the proceeds into its other segments.

**Figure 17: Quantification of 2023 EPS drivers**




*Source: Company Reports, IMCP*

I am slightly more optimistic than consensus estimates for both 2022 and 2023. This is mainly due to increased sales and acquisitions made over the next year with the funds from the HHI sale. This business will continue to evolve in all countries with the support from these new brands.

**Figure 18: EPS and YoY growth estimates**

| | FY22E | FY23E |
|---|---|---|
| Revenue- Estimate | $3,305 | $3,523 |
| YoY Growth | 10.2% | 6.6% |
| Consensus Sales | $3,145 | $3,220 |
| YoY Growth | 4.9% | 2.4% |
| EPS-Estimate | $2.61 | $3.16 |
| YoY Growth | 54.5% | 20.9% |
| EPS-Consensus | $7.14 | $5.44 |
| YoY Growth | 60.8% | -31.3% |

*Source: Company Reports, IMCP*

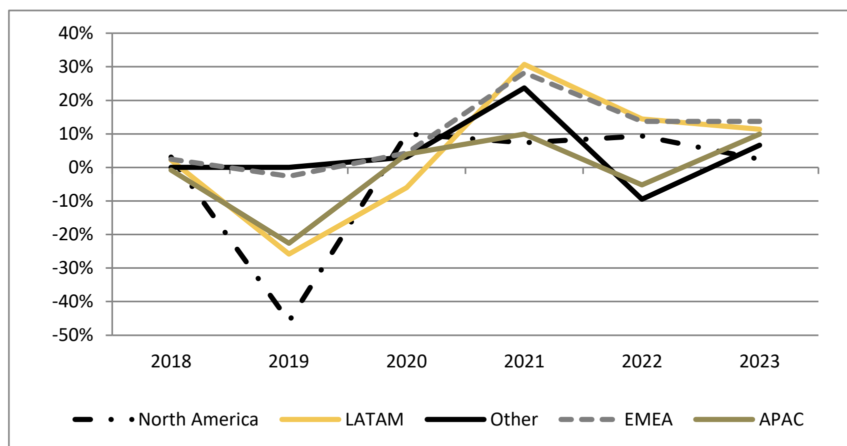
Revenues

After the sales of HHI, SPB will own 29 brands, with plans to expand on this number.

Spectrum Brands' sales has been increasing since 2017. Sales figures in figure 18 are shown without the Hardware and Home Improvement segment, since it was sold in 2021. I expect the sales to increase in the coming years due to the essential needs of pet, garden, and personal care items. I expect all regions to experience continued growth, including EMEA (Europe, Middle East, and Africa), powered by the Armitage Pet Care acquisition in 2020.

North America and LATAM (Latin America) sales will continue to grow due to higher HPC revenue. Main brands such as Black and Decker as well as George Foreman will also help drive sales for this region. E-commerce sales have also helped the LATAM market gain momentum with expanded distribution.

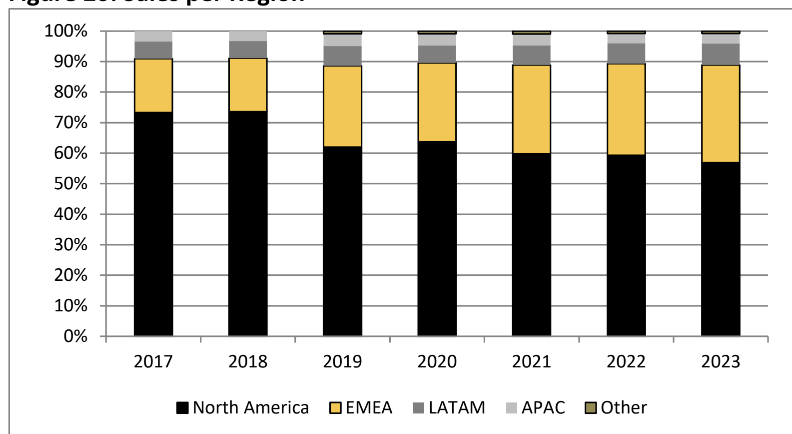
**Figure 19: Spectrum Brands Growth Percentage by Region**




*Source: Company Reports, IMCP*

SPB is looking to increase the percent of total sales in the EMEA and LATAM markets. I expect this to happen through lower sales in the North America and APAC (Asia Pacific) regions. Sales in the EMEA region increased 28.2% over the past year from $679.9 to $871.9 million. In addition to the substantial rise in EMEA sales over the last year, sales in the LATAM region rose 30.7%. LATAM sales jumped from $147.9 million in FY20 to $193.4 million in FY21. Other revenue consists of licensing and “other.”

**Figure 20: Sales per Region**

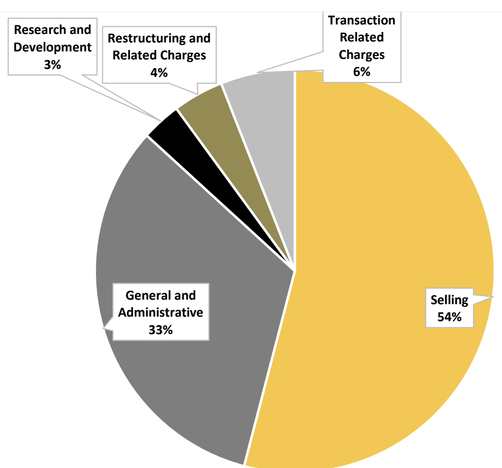


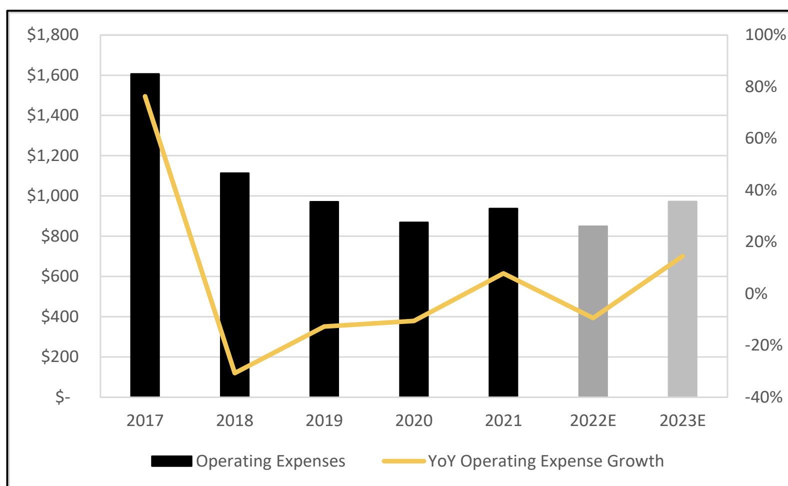

*Source: Company Reports*

Operating Income and Margins

Operating expenses are composed primarily of selling and general and administrative expenses. Advertising expense is broken out of SG&A, and shipping & handling expense is contained within stores and distribution expense. I expect most of the savings from SPB's profit maximizing initiatives to come out of sales expense, as SG&A has remained relatively stable as a percentage of sales and contains a baseline of overhead which cannot be reduced.

**Figures 21 & 22: Composition of 2021 operating expenses (left); Operating expenses vs YoY Operating Expense Growth (right)**




*Source: Company Reports*

Operating expenses for FY21 increased due to higher selling expenses of $78.3 million. These are attributed to higher freight and distribution costs and higher marketing and advertising spend, increased general and administrative costs of $26.3 million and increased transaction related charges of $33.2 million due to strategic acquisition and divestiture activities. This was offset by a decrease in restructuring costs of $19.4 million with a loss from the sale of Coevorden facility of $26.8 million and impairment of related intangible assets of $24.2 million in the prior year. Operating expenses for the year ended September 30, 2020 decreased due to the impairment of HPC goodwill of $116.0 million and impairment of intangible assets of $35.4 million in the *previous year* with offsets by the recognition of loss from sale of Coevorden facility of $26.8 million and impairment of related intangible assets $24.2 million.

After selling the Hardware and Home Improvement segment, SPB will cut its selling expenses due to losing their most profitable segment. This will lower other operating expenses in 2022 before they rise again in 2023. We can expect general and administrative expenses as well as research and development expenses to rise due to the work done to expand.

Operating income and adjusted EBITDA for the FY21 both rose with a lower margin due to increased sales volume and favorable foreign currency.

**Figure 23: SPB Operating margins, 2020-2023E**

| | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|
| Sales | 2622.1 | 2998.1 | 3304.9 | 3523.2 |
| Cost of Goods Sold | 1744.0 | 1963.5 | 2247.3 | 2353.5 |
| Gross Income | 878.1 | 1034.6 | 1057.6 | 1169.7 |
| *Gross Margin* | *33.5%* | *34.5%* | *32.0%* | *33.2%* |
| Operating Expenses | | | | |
| SG&A, R&D, D&A, and other | 869.5 | 937.5 | 849.4 | 972.4 |
| *Growth* | -21.9% | 7.8% | -9.4% | 14.5% |
| *Operating Income* | 8.6 | 97.1 | 208.2 | 197.3 |
| *Operating Margin* | 0.3% | 3.2% | 6.3% | 5.6% |

*Source: Company Reports*

Return on Equity

Spectrum Brands had an extremely high ROE in 2019, but since has dropped more than half as margins fell. ROE is expected to bounce back over the next two years. DuPont analysis for SPB reveals that ROE is mostly driven by profit margins, but with the sale of the HHI segment, asset turnover will increase due to highly profitable assets declining more than sales. The drop in ROE and ROA from 2019 to 2020 was most likely due to the sale of the GBL and GAC to Energizer. SPB has since bounced back and doubled both margins and asset turns.

**Figure 24: ROE breakdown, 2019 – 2023E**

| 3 Stage DuPont | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|
| Net income (cont)/sales | 20% | 4% | 6% | 9% | 10% |
| Sales/avg assets | 0.38 | 0.51 | 0.57 | 0.72 | 0.89 |
| ROA | 8% | 2% | 4% | 6% | 9% |
| Avg Assets/Avg Equity | 3.92 | 3.29 | 3.61 | 2.87 | 2.16 |
| ROE | 30% | 6% | 13% | 18% | 19% |

*Source: Company Reports*

I expect ROE growth in the next two years due to higher sales growth from the pet care and home and personal care products above growth in expenses. Home appliance products are becoming increasingly popular as well as pet ownership which also rose over the past year. ROA will continue to rise into 2022 and 2023. SPB is using cash from the HHI sale to pay off debt owed which will also lower its debt to asset ratio and put downward pressure on ROE, but it's a higher quality ROE.

Free Cash Flow

**Figure 25: Free cash flow calculations**

| Free Cash Flow | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| NOPAT | $ 630 | $ (2,682) | $ (130) | $ 18 | $ (130) | $ 164 | $ 156 |
| *Growth* | | -526% | -95% | -114% | -830% | -226% | -5% |
| NOWC | 2391 | 2009 | 520 | 783 | 1750 | 211 | 711 |
| Net fixed assets | 5814 | 4389 | 3586 | 3379 | 2427 | 2203 | 1762 |
| Total net operating capital | $ 8,205 | $ 6,398 | $ 4,106 | $ 4,162 | $ 4,176 | $ 2,414 | $ 2,473 |
| *Growth* | | -22.0% | -35.8% | 1.4% | 0.3% | -42.2% | 2.4% |
| - Change in NOWC | | $ (383) | $ (1,489) | $ 263 | $ 966 | $ (1,539) | $ 501 |
| - Change in NFA | | $ (1,425) | $ (803) | $ (207) | $ (952) | $ (224) | $ (442) |
| FCFF | | $ (874.4) | $ 2,161.6 | $ (38.6) | $ (144.2) | $ 1,927.0 | $ 96.9 |
| *Growth* | | | -347.2% | -101.8% | 273.2% | -1435.9% | -95.0% |
| - After-tax interest expense | | $ (3,108.6) | $ 172.2 | $ 70.0 | $ (145.2) | $ 53.0 | $ 20.9 |
| + Net new short-term and long-term debt | | $ (1,506.2) | $ (2,510.2) | $ 358.8 | $ (23.2) | $ (1,800.0) | $ - |
| FCFE | | $ 728.0 | $ (520.8) | $ 250.2 | $ (22.2) | $ 74.0 | $ 76.0 |
| *Growth* | | | -171.5% | -148.0% | -108.9% | -433.3% | 2.7% |
| Sources of cash (FCFE) | | $ 728.0 | $ (520.8) | $ 250.2 | $ (22.2) | $ 74.0 | $ 76.0 |
| Uses of cash | | | | | | | |
| Other expense | | $ (445.0) | $ (798.0) | $ (150.6) | $ (174.7) | $ - | $ - |
| Increase mkt sec | | | | | | | |
| Dividends | | 16 | 85.5 | 75.2 | 71.5 | 74 | 76 |
| Change in other equity | | 1213.3 | 271 | 336.4 | 54.9 | 0 | 0 |
| | | $ 784.3 | $ (441.5) | $ 261.0 | $ (48.3) | $ 74.0 | $ 76.0 |
| Change in other liab | | 56.3 | 79.3 | 10.8 | -26.1 | 0 | 0 |
| Total | | $ 728.0 | $ (520.8) | $ 250.2 | $ (22.2) | $ 74.0 | $ 76.0 |

*Source: Company Reports, IMCP*

SPB's free cash flow has been extremely volatile over the last several years. The company paid off over four billion in debt from 2018 to 2019. These payments were made with the money received from the sale to Energizer. I forecast that Spectrum Brands will continue to pay off debt with $1.8 billion being paid off in 2022. I forecast that NOPAT will grow over the next two years. NOWC drops in 2022 with the sale, but slightly bounces back in 2023. The sales and acquisitions over time has helped drive the company towards a more profitable future. Spectrum's stock price jumped significantly higher this year, compared to the last few years, which indicated investors are optimistic.

I expect FCFF to increase dramatically in 2022 with the inflow of cash received from the HHI sale, but then drop in 2023. FCFE will increase in both 2022 and 2023, showing the firm is slowly becoming more profitable.

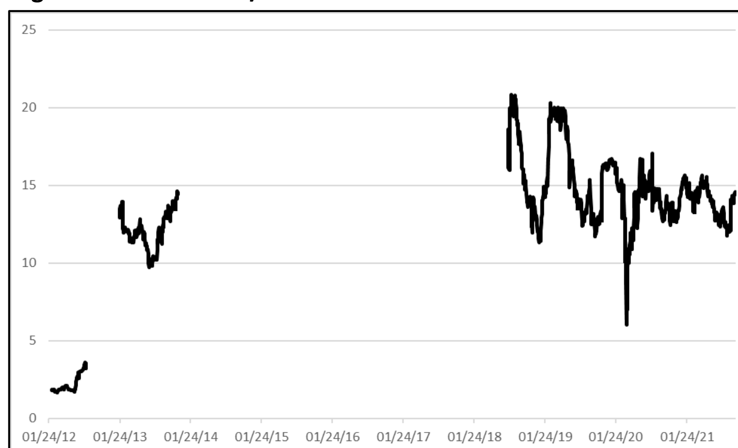
## Valuation

SPB was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is expensive vs the market and is worth $92.85, however, due to the volatility of SPB's earnings the past few years, this metric may not be the most accurate. Relative valuation shows SPB to be slightly overvalued based on its fundamentals versus those of its peers in the manufacturing industry. DCF valuation suggests it is wort $92.85. As a result of these valuations, I value the stock at the same value.

Trading History

SPB is currently trading near its five-year high. This is the result of hardware and home improvement sale, but mixed Q4 earnings results. SPB's current NTM P/E is at 14.5 compared to its five-year average of 14.7. While I expect some progression towards that number in the future, I do not think that is likely to be the case in the near term. As noticed in figure 26, the gap in the data from 2013 to 2018 is due to negative earnings.

**Figure 26: SPB NTM P/E since 2012**




*Source: FactSet*

Assuming the firm maintains a 14.5 NTM P/E at the end of 2022, it should trade at $113.54 by the end of the year:

- Price = P/E x EPS = 14.5 x 3 x $2.61 = $113.54

Discounting $95.99 back to today at a 9.8% cost of equity (explained in Discounted Cash Flow section) yields a price of $86.58. Given SPB's potential for continued growth and profitability amongst its segments, this seems to be an unusually low valuation.

Acquisitions will help increase top line growth, margins, revenues and cost savings, as well as earnings per share.

## Relative Valuation

Spectrum Brands is currently trading at a 2021 P/E lower than its peers, with a P/E of 14.4 compared to an average of 20.4. SPB's P/B and P/S ratios are significantly lower than those of its competitors reflecting relatively poor ROE and net margin compared to its competitors. Additionally, Spectrum's beta (1.58) is extremely high compared to its comps showing the volatility of the stock.

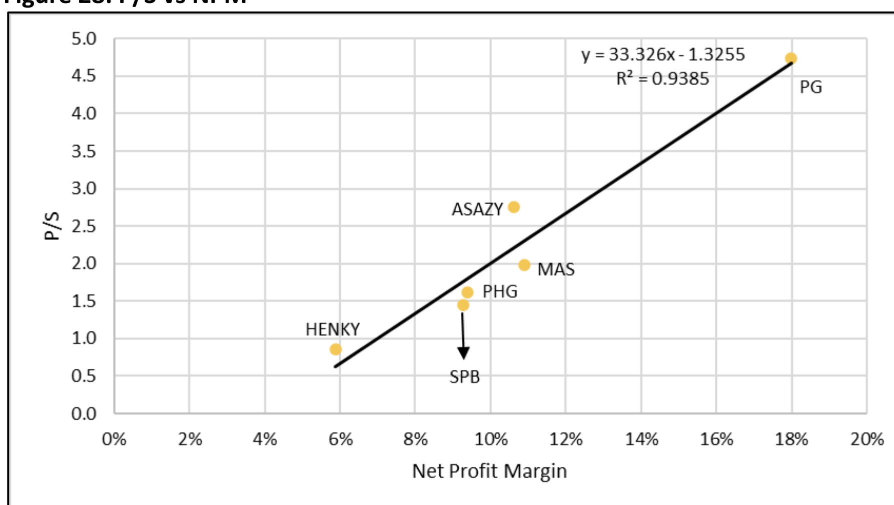
**Figure 27: SPB comparable companies**

| | | Current | Market | Price Change | | | | | | Earnings Growth | | | | | | | LT Debt/ | S&P | LTM Dividend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Name | Price | Value | 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | LTG | NTM | 2020 | 2021 | 2022 | 2023 | Beta | Equity | Rating | Yield | Payout |
| SPB | SPECTRUM BRND HLDG INC | $102.17 | $4,345 | (0.2) | 9.0 | 26.5 | 14.9 | 51.5 | 29.4 | 18.5 | | 43.4% | 59.3% | -100.0% | | 1.58 | 172.5% | B- | 1.79% | 47.5% |
| PG | PROCTER & GAMBLE CO | $149.02 | $360,621 | 1.1 | 4.2 | 4.7 | 10.5 | 7.5 | 7.1 | 6.6 | 10.6% | 13.3% | 10.5% | 4.8% | 7.8% | 0.48 | 45.4% | A | 2.38% | 60.7% |
| HENKY | HENKEL AG & CO KGAA | $18.82 | $19,555 | (1.2) | (9.8) | (16.9) | (24.1) | (21.4) | (22.0) | 8.3 | | -15.8% | 1.6% | 9.2% | 7.0% | 0.60 | | | 1.71% | |
| PHG | KONINKLIJKE PHILIPS NV | $35.88 | $32,749 | (3.4) | (24.1) | (20.2) | (36.5) | (30.5) | (33.8) | 13.7 | | 71.4% | -13.3% | 8.2% | 15.6% | 0.76 | | | 1.86% | |
| ASAZY | ASSA ABLOY AB | $14.26 | $30,037 | 1.4 | (2.6) | (11.9) | (7.4) | 17.2 | 15.7 | 13.8 | 21.3% | -6.2% | 22.2% | 14.5% | 9.5% | 0.82 | 33.0% | | 1.02% | |
| UNICY | UNI-CHARM CORP | $8.60 | $25,628 | 0.2 | 6.8 | (1.8) | 8.1 | (12.0) | (9.2) | | | | | | | 0.82 | 33.0% | | 1.02% | |
| MAS | MASCO CORP | $67.34 | $16,437 | 0.4 | 2.7 | 8.6 | 11.7 | 24.2 | 22.6 | 18.7 | 117.5% | 38.7% | 18.9% | 11.9% | 9.6% | 1.28 | | B | 1.14% | 46.2% |
| **Average** | | | $69,910 | (0.3) | (2.0) | (1.6) | (3.2) | 5.2 | 1.4 | 13.3 | 49.8% | 24.1% | 16.5% | -8.6% | 9.9% | 0.91 | 71.0% | | 1.56% | 51.5% |
| **Median** | | | $25,628 | 0.2 | 2.7 | (1.8) | 8.1 | 7.5 | 7.1 | 13.7 | 21.3% | 26.0% | 14.7% | 8.7% | 9.5% | 0.82 | 39.2% | | 1.71% | 47.5% |
| **SPX** | S&P 500 INDEX | $4,655 | | 1.3 | 1.1 | 3.2 | 10.7 | 28.0 | 23.9 | | | 1.1% | -14.0% | 33.6% | 12.1% | | | | | |

| | | 2022 | | P/E | | | | | | | 2021 | 2021 | | | | EV/ | P/CF | Sales Growth | | Book |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Website | ROE | P/B | 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | NPM | P/S | NM | OM | ROIC | EBIT | Current | NTM | STM | Equity |
| **SPB** | http://www.spectrumbrands.com | 0.0% | 2.91 | 18.1 | 13.9 | 14.4 | 28.9 | | | | 9.3% | 1.45 | 0.5% | 6.1% | 0.4% | 35.4 | 14.9 | -25.0% | 2.4% | $35.13 |
| **PG** | http://www.pg.com | 31.7% | 7.97 | 27.4 | 26.8 | 25.3 | 27.2 | 24.6 | 25.1 | 23.3 | 18.0% | 4.74 | 18.8% | 24.4% | 20.3% | 20.2 | 22.9 | 4.0% | 3.6% | $18.70 |
| **HENKY** | http://www.henkel.de | 11.3% | 1.50 | 16.0 | 17.7 | 16.0 | | | 13.3 | 12.4 | 5.9% | 0.85 | 7.3% | 12.0% | 6.7% | 16.5 | 13.1 | | | $12.55 |
| **PHG** | http://www.philips.com | 14.5% | 2.31 | 31.0 | 19.4 | 22.7 | | | 15.9 | 13.8 | 9.4% | 1.62 | 6.1% | 10.2% | 6.6% | 23.9 | 10.8 | | | $15.53 |
| **ASAZY** | http://www.assaabloy.com | 18.2% | 4.12 | 25.2 | 23.8 | 26.6 | 28.9 | 23.8 | 22.6 | 20.7 | 10.6% | 2.75 | 10.5% | 13.8% | 10.5% | 23.4 | 21.7 | 9.1% | 8.9% | $3.46 |
| **MAS** | http://www.masco.com | -802.0% | -130.14 | 20.7 | 17.2 | 17.7 | 36.8 | 16.9 | 16.2 | 14.8 | 10.9% | 1.98 | 11.2% | 18.0% | 27.6% | 12.7 | 21.9 | 3.4% | 3.0% | -$0.52 |
| **Average** | | -121.0% | -18.55 | 23.1 | 19.8 | 20.4 | 30.4 | 21.8 | 18.6 | 17.0 | 10.7% | 2.23 | 9.1% | 14.1% | 12.0% | 22.0 | 17.5 | -2.1% | 4.5% | |
| **Median** | | 12.9% | 2.61 | 22.9 | 18.5 | 20.2 | 28.9 | 23.8 | 16.2 | 14.8 | 10.0% | 1.80 | 8.9% | 12.9% | 8.6% | 21.8 | 18.3 | 3.7% | 3.3% | |
| **spx** | S&P 500 INDEX | | | 19.3 | 20.4 | 33.4 | | | 25.2 | 22.5 | | | | | | | | | | |

*Source: FactSet, IMCP*

**Figure 28: P/S vs NPM**




*Source: FactSet, IMCP*

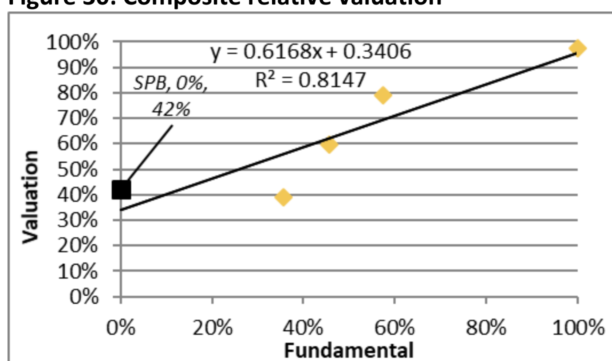
For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. A weight of 100% for ROE was compared to an equal weight of 50% for 2021 P/E and P/S. After eliminating Uni-Charm Corp and Masco Corp, both extreme outliers, the regression line had an R-squared of 0.81. One can see that SPB is above the line, so it is marginally expensive based on its fundamentals.

**Figure 29: Composite valuation, % of range**

| | | | | | | | Fundamentals | Valuation | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Weight | 100.0% | 50.0% | 50.0% |
| | | Rank | | Target | Weighted | | 2022 | P/E | |
| Ticker | Name | Diff | Diff | Value | Fund | Value | ROE | 2021 | P/S |
| **SPB** | SPECTRUM BRND HLDG INC | 3 | -68% | -26% | 0% | 42% | 0% | 54% | 31% |
| **PG** | PROCTER & GAMBLE CO | 7 | 30% | 127% | 100% | 97% | 100% | 95% | 100% |
| **HENKY** | HENKEL AG & CO KGAA | 6 | -11% | 29% | 36% | 39% | 36% | 60% | 18% |
| **PHG** | KONINKLIJKE PHILIPS NV | 5 | -16% | 44% | 46% | 60% | 46% | 85% | 34% |
| **ASAZY** | ASSA ABLOY AB | 4 | -17% | 62% | 57% | 79% | 57% | 100% | 58% |
| **UNICY** | UNI-CHARM CORP | 1 | -3963% | -3909% | -2529% | 54% | -2529% | 66% | 42% |
| **MAS** | MASCO CORP | 2 | -1959% | -1891% | -1215% | 68% | -1215% | 77% | 59% |

*Source: IMCP*

**Figure 30: Composite relative valuation**




*Source: IMCP*

Discounted Cash Flow Analysis

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

For the purpose of this analysis, the company's cost of equity was calculated to be 9.8% 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 five-year industry beta of .98 was utilized since the company has higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 9.8% (1.5 + .98 (10.0 – .98)).

The beta calculated was an average of SPB's comparable companies over the past five years. This is a relatively neutral beta based on the necessities of home, pet, and garden products. Home appliance businesses are relatively stable due to the continued needs of these products. This is similar to that of pet care products, although they are on the rise due to the recent influx of pet care owners. Lastly, although garden products are seasonal, that doesn't make them cyclical, and will keep these products relevant throughout each quarter. This keeps the industry beta relatively neutral.

*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 -$4.70 and $10.79, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $6.09 per share. Thus, stage one of this discounted cash flow analysis contributes $6.09 to 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 9.8% cost of equity. I assume 5.1% sales growth in 2024, fluctuating up and down over the next four years to 3.5% in 2028. The ratio of NWC to sales will increase slightly to 11.5% and NFA turnover will rise from 2.00 in 2024 to 2.30 in 2028 as a result of improvements in operations. Also, the NOPAT margin is expected to rise to 7.0% in 2028 from 5.0% in 2024.

**Figure 31: FCFE and discounted FCFE, 2024 – 2028**

| | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|
| FCFE | $1.66 | $4.20 | $4.14 | $5.04 | $10.30 |
| Discounted FCFE | $1.26 | $2.88 | $2.59 | $2.87 | $5.34 |

Added together, these discounted cash flows total $14.94.

*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 $4.44 in 2022 to $6.27 in 2028.

**Figure 32: EPS estimates for 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| EPS | $4.44 | $2.61 | $3.16 | $3.82 | $4.41 | $5.37 | $6.27 |

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. For the purpose of this analysis, it is generally assumed that as a company grows larger and matures, its P/E ratio will converge near to the historical average of the S&P 500. Therefore, a P/E ratio of 21 is assumed at the end of SPB's terminal year. While this may be a high multiple at the end of 2028, one must consider what the market will price in today. A lower multiple may be better to calculate a fair value, based on recent company history and projections for the future. Although, the firm is moving its business to perhaps more stable areas and debt is much reduced.

Given the assumed terminal earnings per share of $6.59 and a price to earnings ratio of 21, a terminal value of $142.99 per share is calculated. Using the 9.8% cost of equity, this number is discounted back to a present value of $71.82.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $92.85 is calculated (6.09+ 14.94 + 71.82). Given SPB's current price of $97.60, this model indicates that the stock is slightly overvalued.

Scenario Analysis

Spectrum Brands is a tough company to predict due to the frequent acquisitions and divestitures, due to changes in consumer trends and behavior. It will be interesting to see what the future holds as Spectrum Brands develops its ever-changing segments and international sales. Base, bull, and bear case, scenarios are presented below.

*Base Case*- In the base case, sales growth was forecasted based on the recent influx of pet owners, as well as higher home and personal product sales. I expect NOPAT margin to. Additionally, I believe sales to NFA will increase because the firm will become more efficient due to programs such as the GPIP.

**Figure 33: Base case estimated for 2022**

| Summary (using P/E multiple for terminal value) | | |
|---|---|---|
| First stage | $6.09 | Present value of first 2 year cash flow |
| Second stage | $14.94 | Present value of year 3-7 cash flow |
| Third stage | $71.82 | Present value of terminal value P/E |
| Value (P/E) | **$92.85** | |

*Bull Case*- Assuming SPB's sales growth continues on a trajectory similar to that over the past two years, sales will be even higher. This will be powered by the GPC and HPC segments, since numbers have been growing quickly over this recent stretch. With the recent increase of pet owners, food, toys, and pet care will drive sales upwards. H&G and HPC segments will also experience high growth to add to those sales. The beta will drop to 0.9 where P/E will increase to 23. This give SPB a bullish value of $116.73.

**Figure 34: Bull case estimated for 2022**

| Summary (using P/E multiple for terminal value) | | |
|---|---|---|
| First stage | $6.19 | Present value of first 2 year cash flow |
| Second stage | $12.87 | Present value of year 3-7 cash flow |
| Third stage | $97.67 | Present value of terminal value P/E |
| Value (P/E) | **$116.73** | |

*Bear Case*- On the other, hand sales could drop dramatically due to a changing consumer market. With office re-openings and people spending less time at home, consumers are spending less time thinking of home essentials. Pet care sales could decline due to consumes spending less time with their furry friends. Since these consumers are spending less time at home, garden sales and home products could decrease as well. Keeping the beta the same as the bull case, 0.9, but dropping the terminal P/E to 18, a fair bear value would be $84.69.

**Figure 35: Bear case estimated for 2022**

| Summary (using P/E multiple for terminal value) | | |
|---|---|---|
| First stage | $6.19 | Present value of first 2 year cash flow |
| Second stage | $15.78 | Present value of year 3-7 cash flow |
| Third stage | $62.71 | Present value of terminal value P/E |
| Value (P/E) | **$84.69** | |

## Business Risks

Although I have many reasons to be optimistic about Spectrum Brands, there are several good reasons to be conservative while thinking about investing in its stock.

Exposure to currency fluctuations:

Nearly 60% of SPB's revenues are denominated in currencies other than the dollar. Continued strength of the dollar against the Euro, British Pound, Canadian Dollar, Japanese Yen and other foreign currencies could seriously reduce gross margins.

Supply Chain Issues:

Over the past two years, issues revolving around the supply chain have made it very difficult to easily transport goods throughout the world, and Spectrum products manufactured around the globe.

Indebtedness:

Spectrum's substantial indebtedness can limit its financial and operating freedom; however, the firm has steadily reduced the debt load over the last decade.

Changes in Consumer Spending:

SPB is experiencing the growth in e-commerce sales in comparison to brick-and-mortar retail spending. If Spectrum does not successfully develop plans to adjust to the e-commerce market, sales could decline.

COVID-19:

Spectrum Brands was positively impacted by the COVID-19 pandemic as home and pet care sales rose. This is viewed as a risk due to return to work plans send homeowners back to their office, guiding them away from Spectrum products. Additionally, Covid may have negatively impacted suppliers and distributors.

Market Saturation:

Due to the nature of the industries Spectrum Brands competes in, consumers have alternatives when looking to buy products. This is except for pet care, where many of the firm's industries are relatively mature.

# Appendix 1: Porter's 5 Forces

Threat of New Entrants – High

While the barriers to entry into the manufacturing industry are not extensive, it would require significant real estate or online presence to cause a major disruption in the industry. The most significant threat would be entry of a new product or significant e-commerce emergence from a competitor.

Threat of Substitutes – High

Spectrum relies on its products' brand names to help power its sales. There is no cost of switching for the consumer. This is always a major threat for this company, especially if there is a cheaper alternative.

Supplier Power - Low

Spectrum Brands does not have any long-term contacts with its suppliers; therefore, supplier power is relatively low.

Buyer Power – Very High

Consumers of SPB products have a great degree of power over retailers. There is no cost of switching between brands and there is a large number of potential substitutes. There is little urgency for consumers to buy new garden, pet care, or home/personal care products, so they are able to wait to get a better price if they are unwilling to pay what is asked.

Intensity of Competition – Very High

Spectrum lives in a very competitive market with the variety of businesses it owns. There are countless garden products, pet care items, and home and personal brands that are direct competitors to SPB. Each brand has its own unique competitor which fights for market share within their perspective industries.

## Appendix 2: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| Stong Brand Recognition | Debt |
| Segment Growth | High Inventory |
| Great Returns on Strategic Sales | Low Market Share |
| **Opportunities** | **Threats** |
| e-commerce Expansion | Consumer Trends |
| Expansion in Foreign Markets | Market Saturation |
| New Technology | Supply Chain Issues |

## Appendix 3: Income Statement

| Income Statement (in thousands) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Nov-17** | **Nov-18** | **Nov-19** | **Nov-20** | **Nov-21** | **Nov-22** | **Nov-23** |
| Sales | $3,705 | $3,809 | $2,446 | $2,622 | $2,998 | $3,305 | $3,523 |
| Direct costs | 1,815 | 2,471 | 1,627 | 1,744 | 1,964 | 2,247 | 2,353 |
| Gross Margin | 1,890 | 1,338 | 820 | 878 | 1,035 | 1,058 | 1,170 |
| SG&A, R&D, D&A, and other | 1,607 | 1,114 | 972 | 870 | 938 | 849 | 972 |
| EBIT | 283 | 224 | (152) | 9 | 97 | 208 | 197 |
| Interest | 314 | 260 | 202 | 34 | 108 | 67 | 26 |
| EBT | (31) | (36) | (354) | (25) | (11) | 141 | 171 |
| Taxes | 38 | (463) | (52) | 27 | (26) | 30 | 36 |
| Income | (69) | 427 | (302) | (52) | 15 | 111 | 135 |
| Other | (342) | (445) | (798) | (151) | (175) | - | - |
| Net income | 273 | 872 | 496 | 99 | 190 | 111 | 135 |
| Basic Shares | 32.2 | 36.9 | 50.7 | 44.7 | 42.7 | 42.7 | 42.7 |
| Fully Diluted Shares | 32.2 | 37.0 | 50.7 | 44.7 | 43.2 | 43.2 | 43.2 |
| EPS | $8.48 | $23.63 | $9.78 | $2.20 | $4.44 | $2.61 | $3.16 |
| EPS Fully Diluted | $8.48 | $23.57 | $9.78 | $2.20 | $4.39 | $2.58 | $3.12 |
| DPS | $0.00 | $0.43 | $1.69 | $1.68 | $1.67 | $1.73 | $1.78 |

## Appendix 4: Balance Sheets

| Balance Sheet (in thousands) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Nov-17** | **Nov-18** | **Nov-19** | **Nov-20** | **Nov-21** | **Nov-22** | **Nov-23** |
| Cash | 270 | 553 | 627 | 532 | 188 | (107) | 373 |
| Operating assets ex cash | 29,766 | 2,806 | 1,033 | 1,197 | 2,726 | 1,508 | 1,608 |
| Operating assets | 30,036 | 3,359 | 1,660 | 1,728 | 2,914 | 1,401 | 1,981 |
| Operating liabilities | 27,645 | 1,350 | 1,140 | 945 | 1,164 | 1,191 | 1,270 |
| NOWC | 2,391 | 2,009 | 520 | 783 | 1,750 | 211 | 711 |
| NOWC ex cash (NWC) | 2,121 | 1,456 | (107) | 252 | 1,562 | 317 | 338 |
| NFA | 5,814 | 4,389 | 3,586 | 3,379 | 2,427 | 2,203 | 1,762 |
| *Invested capital* | *$8,205* | *$6,398* | *$4,106* | *$4,162* | *$4,176* | *$2,414* | *$2,473* |
| Marketable securities | - | - | - | - | - | - | - |
| *Total assets* | *$35,850* | *$7,748* | *$5,246* | *$5,107* | *$5,340* | *$3,605* | *$3,742* |
| S-T and L-T debt and financing leases | $6,067 | $4,561 | $2,051 | $2,410 | $2,386 | $586 | $586 |
| Other liabilities | 191 | 247 | 326 | 337 | 311 | 311 | 311 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 1,947 | 1,590 | 1,729 | 1,416 | 1,479 | 1,516 | 1,575 |
| *Total supplied capital* | *$8,205* | *$6,398* | *$4,106* | *$4,162* | *$4,176* | *$2,414* | *$2,473* |
| *Total liabilities and equity* | *$35,850* | *$7,748* | *$5,246* | *$5,107* | *$5,340* | *$3,605* | *$3,742* |

## Appendix 5: Sales Forecast

| Sales | | | | | | | |
|---|---|---|---|---|---|---|---|
| Sales | $3,705.4 | $3,808.7 | 2,446.4 | $2,622.1 | 2,998.1 | $3,305 | $3,523 |
| *Growth* | | *2.8%* | *-35.8%* | *7.2%* | *14.3%* | *10.2%* | *6.6%* |
| | | | | | | | |
| HHI | 1,276 | 1,378 | | | | - | - |
| *Growth* | | *8.0%* | *-100.0%* | | | *0.0%* | *0.0%* |
| *% of sales* | *34%* | *36%* | *0%* | *0%* | *0%* | *0.0%* | *0.0%* |
| HPC | 1,132 | 1,110 | 1,068 | 1,108 | 1,260 | 1,411 | 1,510 |
| *Growth* | | *-1.9%* | *-3.8%* | *3.7%* | *13.8%* | *12.0%* | *7.0%* |
| *% of sales* | *30.6%* | *29.2%* | *43.7%* | *42.2%* | *42.0%* | *2.0%* | *42.9%* |
| GPC | 793 | 821 | 870 | 963 | 1,130 | 1,243 | 1,330 |
| *Growth* | | *3.4%* | *6.1%* | *10.6%* | *17.4%* | *10.0%* | *7.0%* |
| *% of sales* | *21.4%* | *21.5%* | *35.6%* | *36.7%* | *37.7%* | *37.6%* | *6.0%* |
| H&G | 504 | 500 | 508 | 552 | 608 | 651 | 683 |
| *Growth* | | *-0.7%* | *1.6%* | *8.6%* | *10.2%* | *7.0%* | *5.0%* |
| *% of sales* | *13.6%* | *13.1%* | *20.8%* | *21.0%* | *20.3%* | *19.7%* | *19.4%* |
| | | | | | | | |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| North America | 2,718 | 2,801 | 1,517 | 1,669 | 1,792 | 1,960 | 2,008 |
| *Growth* | | *3%* | *-46%* | *10%* | *7%* | *9.4%* | *2.5%* |
| *% of sales* | *73.3%* | *73.5%* | *62.0%* | *63.7%* | *59.8%* | *59.3%* | *57.0%* |
| EMEA | 653 | 669 | 652 | 680 | 872 | 991 | 1,127 |
| *Growth* | | *2%* | *-3%* | *4%* | *28%* | *13.7%* | *13.7%* |
| *% of sales* | *17.6%* | *17.6%* | *26.6%* | *25.9%* | *29.1%* | *30.0%* | *32.0%* |
| LATAM | 208 | 212 | 157 | 148 | 193 | 221 | 247 |
| *Growth* | | *2%* | *-26%* | *-6%* | *31%* | *14.5%* | *11.4%* |
| *% of sales* | *5.6%* | *5.6%* | *6.4%* | *5.6%* | *6.5%* | *6.7%* | *7.0%* |
| APAC | 127 | 126 | 98 | 102 | 112 | 106 | 116 |
| *Growth* | | *-1%* | *-23%* | *4%* | *10%* | *-5.2%* | *9.9%* |
| *% of sales* | *3.4%* | *3.3%* | *4.0%* | *3.9%* | *3.7%* | *3.2%* | *3.2%* |
| Other | - | - | 23 | 24 | 29 | 26 | 28 |
| *Growth* | | | | *3.1%* | *23.7%* | *-9.5%* | *6.6%* |
| *% of sales* | *0.0%* | *0.0%* | *0.9%* | *0.9%* | *1.0%* | *0.8%* | *0.8%* |

## Appendix 6: Ratios

| Items | Nov-17 | Nov-18 | Nov-19 | Nov-20 | Nov-21 | Nov-22 | Nov-23 |
|---|---|---|---|---|---|---|---|
| Profitability | | | | | | | |
| Gross margin | 51.0% | 35.1% | 33.5% | 33.5% | 34.5% | 32.0% | 33.2% |
| Operating (EBIT) margin | 7.6% | 5.9% | -6.2% | 0.3% | 3.2% | 6.3% | 5.6% |
| Net profit margin | 7.4% | 22.9% | 20.3% | 3.8% | 6.3% | 3.4% | 3.8% |
| | | | | | | | |
| Activity | | | | | | | |
| NFA (gross) turnover | | 0.75 | 0.61 | 0.75 | 1.03 | 1.43 | 1.78 |
| Total asset turnover | | 0.17 | 0.38 | 0.51 | 0.57 | 0.74 | 0.96 |
| | | | | | | | |
| Liquidity | | | | | | | |
| Op asset / op liab | 1.09 | 2.49 | 1.46 | 1.83 | 2.50 | 1.18 | 1.56 |
| NOWC Percent of sales | | 57.8% | 51.7% | 24.8% | 42.2% | 29.7% | 13.1% |
| | | | | | | | |
| Solvency | | | | | | | |
| Debt to assets | 16.9% | 58.9% | 39.1% | 47.2% | 44.7% | 16.3% | 15.7% |
| Debt to equity | 311.6% | 286.9% | 118.6% | 170.2% | 161.4% | 38.7% | 37.2% |
| Other liab to assets | 0.5% | 3.2% | 6.2% | 6.6% | 5.8% | 8.6% | 8.3% |
| Total debt to assets | 17.5% | 62.1% | 45.3% | 53.8% | 50.5% | 24.9% | 24.0% |
| Total liabilities to assets | 94.6% | 79.5% | 67.0% | 72.3% | 72.3% | 57.9% | 57.9% |
| Debt to EBIT | 21.44 | 20.34 | (13.46) | 280.19 | 24.58 | 2.82 | 2.97 |
| EBIT/interest | 0.90 | 0.86 | (0.76) | 0.26 | 0.90 | 3.10 | 7.46 |
| Debt to total net op capital | 73.9% | 71.3% | 49.9% | 57.9% | 57.1% | 24.3% | 23.7% |
| ROIC | | | | | | | |
| NOPAT to sales | 17.0% | -70.4% | -5.3% | 0.7% | -4.3% | 5.0% | 4.4% |
| Sales to NWC | | 2.13 | 3.63 | 36.34 | 3.31 | 3.52 | 10.75 |
| Sales to NFA | | 0.75 | 0.61 | 0.75 | 1.03 | 1.43 | 1.78 |
| Sales to IC ex cash | | 0.55 | 0.52 | 0.74 | 0.79 | 1.02 | 1.53 |
| Total ROIC ex cash | | -38.9% | -2.8% | 0.5% | -3.4% | 5.1% | 6.7% |
| | | | | | | | |
| NOPAT to sales | 17.0% | -70.4% | -5.3% | 0.7% | -4.3% | 5.0% | 4.4% |
| Sales to NOWC | | 1.73 | 1.94 | 4.02 | 2.37 | 3.37 | 7.64 |
| Sales to NFA | | 0.75 | 0.61 | 0.75 | 1.03 | 1.43 | 1.78 |
| Sales to IC | | 0.52 | 0.47 | 0.63 | 0.72 | 1.00 | 1.44 |
| Total ROIC | | -36.7% | -2.5% | 0.4% | -3.1% | 5.0% | 6.4% |

| | Nov-17 | Nov-18 | Nov-19 | Nov-20 | Nov-21 | Nov-22 | Nov-23 |
|---|---|---|---|---|---|---|---|
| NOPAT to sales | 17.0% | -70.4% | -5.3% | 0.7% | -4.3% | 5.0% | 4.4% |
| Sales to EOY NWC | 1.75 | 2.62 | (22.80) | 10.42 | 1.92 | 10.42 | 10.42 |
| Sales to EOY NFA | 0.64 | 0.87 | 0.68 | 0.78 | 1.24 | 1.50 | 2.00 |
| Sales to EOY IC ex cash | 0.47 | 0.65 | 0.70 | 0.72 | 0.75 | 1.31 | 1.68 |
| Total ROIC using EOY IC ex cash | 7.9% | -45.9% | -3.7% | 0.5% | -3.3% | 6.5% | 7.4% |
| | | | | | | | |
| NOPAT to sales | 17.0% | -70.4% | -5.3% | 0.7% | -4.3% | 5.0% | 4.4% |
| Sales to EOY NOWC | 1.55 | 1.90 | 4.71 | 3.35 | 1.71 | 15.70 | 4.95 |
| Sales to EOY NFA | 0.64 | 0.87 | 0.68 | 0.78 | 1.24 | 1.50 | 2.00 |
| Sales to EOY IC | 0.45 | 0.60 | 0.60 | 0.63 | 0.72 | 1.37 | 1.42 |
| Total ROIC using EOY IC | 7.7% | -41.9% | -3.2% | 0.4% | -3.1% | 6.8% | 6.3% |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 5.9% | -6.2% | 0.3% | 3.2% | 6.3% | 5.6% |
| Sales / avg assets | | 0.17 | 0.38 | 0.51 | 0.57 | 0.74 | 0.96 |
| EBT / EBIT | | -15.9% | 232.4% | -291.9% | -11.4% | 67.8% | 86.6% |
| Net income /EBT | | -2442.6% | -140.0% | -392.4% | -1708.1% | 79.0% | 79.0% |
| ROA | | 4.0% | 7.6% | 1.9% | 3.6% | 2.5% | 3.7% |
| Avg assets / avg equity | | 12.33 | 3.92 | 3.29 | 3.61 | 2.99 | 2.38 |
| ROE | | 49.3% | 29.9% | 6.3% | 13.1% | 7.4% | 8.7% |
| | | | | | | | |
| **3-stage** | | | | | | | |
| Net income / sales | | 22.9% | 20.3% | 3.8% | 6.3% | 3.4% | 3.8% |
| Sales / avg assets | | 0.17 | 0.38 | 0.51 | 0.57 | 0.74 | 0.96 |
| ROA | | 4.0% | 7.6% | 1.9% | 3.6% | 2.5% | 3.7% |
| Avg assets / avg equity | | 12.33 | 3.92 | 3.29 | 3.61 | 2.99 | 2.38 |
| ROE | | 49.3% | 29.9% | 6.3% | 13.1% | 7.4% | 8.7% |
| | | | | | | | |
| Payout Ratio | | 1.8% | 17.2% | 76.3% | 37.7% | 66.4% | 56.3% |
| Retention Ratio | | 98.2% | 82.8% | 23.7% | 62.3% | 33.6% | 43.7% |
| Sustainable Growth Rate | | 48.4% | 24.7% | 1.5% | 8.2% | 2.5% | 3.8% |

## Appendix 7: Cash Flow Statement

| Cash Flow Statement | | | | | | | |
|---|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
| NOPAT | $630 | -$2,682 | -$130 | $18 | -$130 | $164 | $156 |
| *Growth* | | *-525.9%* | *-95.2%* | *-113.7%* | *-830.2%* | *-226.2%* | *-5.2%* |
| | | | | | | | |
| NOWC | 2,391 | 2,009 | 520 | 783 | 1,750 | 211 | 711 |
| Net fixed assets | 5,814 | 4,389 | 3,586 | 3,379 | 2,427 | 2,203 | 1,762 |
| Total net operating capital | $8,205 | $6,398 | $4,106 | $4,162 | $4,176 | $2,414 | $2,473 |
| *Growth* | | *-22.0%* | *-35.8%* | *1.4%* | *0.3%* | *-42.2%* | *2.4%* |
| | | | | | | | |
| - Change in NOWC | | (383) | (1,489) | 263 | 966 | (1,539) | 501 |
| - Change in NFA | | (1,425) | (803) | (207) | (952) | (224) | (442) |
| | | | | | | | |
| FCFF | | -$874 | $2,162 | -$39 | -$144 | $1,927 | $97 |
| *Growth* | | | *-347.2%* | *-101.8%* | *273.2%* | *-1435.9%* | *-95.0%* |
| | | | | | | | |
| - After-tax interest expense | | (3,109) | 172 | 70 | (145) | 53 | 21 |
| + Net new short-term and long-term debt | | (1,506) | (2,510) | 359 | (23) | (1,800) | - |
| | | | | | | | |
| FCFE | | $728 | -$521 | $250 | -$22 | $74 | $76 |
| *Growth* | | | *-171.5%* | *-148.0%* | *-108.9%* | *-433.3%* | *2.7%* |
| | | | | | | | |
| Sources of cash (FCFE) | | $728 | -$521 | $250 | -$22 | $74 | $76 |
| | | | | | | | |
| Uses of cash | | | | | | | |
| Other expense | | ($445) | ($798) | ($151) | ($175) | $0 | $0 |
| Increase mkt sec | | - | - | - | - | - | - |
| Dividends | | 16 | 86 | 75 | 72 | 74 | 76 |
| Change in other equity | | 1,213 | 271 | 336 | 55 | (0) | (0) |
| | | $784 | ($442) | $261 | ($48) | $74 | $76 |
| | | | | | | | |
| Change in other liab | | 56 | 79 | 11 | (26) | - | - |
| Total | | $728 | ($521) | $250 | ($22) | $74 | $76 |

# Appendix 8: 3-stage DCF Model

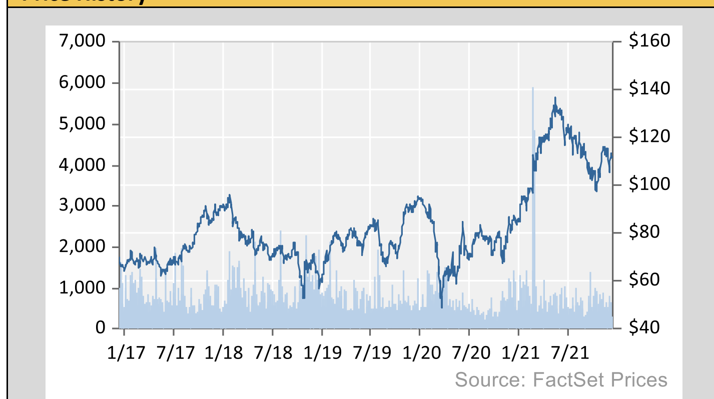
| | | | Year | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | | First Stage | | Second Stage | | | | |
| Year ending January | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | | *14.3%* | *10.2%* | *6.6%* | *5.1%* | *3.6%* | *4.7%* | *5.7%* | *3.5%* |
| *NOPAT / S* | | *-4.3%* | *5.0%* | *4.4%* | *5.0%* | *5.5%* | *6.3%* | *6.9%* | *7.0%* |
| *S / NWC* | | *1.92* | *10.42* | *10.42* | *10.00* | *9.00* | *9.50* | *10.50* | *11.50* |
| *S / NFA (EOY)* | | *1.24* | *1.50* | *2.00* | *2.00* | *2.10* | *2.10* | *2.10* | *2.30* |
| *S / IC (EOY)* | | *0.75* | *1.31* | *1.68* | *1.67* | *1.70* | *1.72* | *1.75* | *1.92* |
| *ROIC (EOY)* | | *-3.3%* | *6.5%* | *7.4%* | *8.3%* | *9.4%* | *10.8%* | *12.1%* | *13.4%* |
| *ROIC (BOY)* | | | *4.1%* | *6.2%* | *8.8%* | *9.5%* | *11.2%* | *12.5%* | *12.7%* |
| *Share Growth* | | *-4.5%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $2,622 | $2,998 | $3,305 | $3,523 | $3,703 | $3,836 | $4,016 | $4,245 | $4,394 |
| NOPAT | $18 | ($130) | $164 | $156 | $185 | $211 | $253 | $293 | $308 |
| *Growth* | | *-830.2%* | *-226.2%* | *-5.2%* | *18.8%* | *14.0%* | *19.9%* | *15.8%* | *5.0%* |
| - Change in NWC | | 1310 | -1244 | 21 | 32 | 56 | -3 | -18 | -22 |
| *NWC EOY* | *252* | *1562* | *317* | *338* | *370* | *426* | *423* | *404* | *382* |
| *Growth NWC* | | *520.7%* | *-79.7%* | *6.6%* | *9.5%* | *15.1%* | *-0.8%* | *-4.4%* | *-5.5%* |
| - Chg NFA | | -952 | -224 | -442 | 90 | -25 | 86 | 109 | -111 |
| *NFA EOY* | *3,379* | *2,427* | *2,203* | *1,762* | *1,851* | *1,827* | *1,913* | *2,022* | *1,910* |
| *Growth NFA* | | *-28.2%* | *-9.2%* | *-20.0%* | *5.1%* | *-1.3%* | *4.7%* | *5.7%* | *-5.5%* |
| Total inv in op cap | | 358 | -1468 | -421 | 122 | 31 | 82 | 91 | -133 |
| Total net op cap | | 3988 | 2520 | 2100 | 2222 | 2253 | 2335 | 2426 | 2293 |
| FCFF | | ($488) | $1,633 | $577 | $63 | $180 | $171 | $202 | $441 |
| *% of sales* | | *-16.3%* | *49.4%* | *16.4%* | *1.7%* | *4.7%* | *4.2%* | *4.8%* | *10.0%* |
| *Growth* | | | *-434.6%* | *-64.7%* | *-89.1%* | *184.9%* | *-5.1%* | *18.6%* | *117.9%* |
| - Interest (1-tax rate) | | -145 | 53 | 21 | 22 | 23 | 24 | 25 | 26 |
| *Growth* | | *-307.6%* | *-136.5%* | *-60.5%* | *5.1%* | *3.6%* | *4.7%* | *5.7%* | *3.5%* |
| + Net new debt | | -23 | -1800 | 0 | 30 | 22 | 30 | 38 | 25 |
| Debt | | 2386 | 586 | 586 | 616 | 638 | 669 | 707 | 731 |
| *Debt / tot net op capit* | | *59.8%* | *23.3%* | *27.9%* | *27.7%* | *28.3%* | *28.6%* | *29.1%* | *31.9%* |
| FCFE w debt | | ($366) | ($220) | $556 | $71 | $179 | $177 | $215 | $440 |
| *% of sales* | | *-12.2%* | *-6.7%* | *15.8%* | *1.9%* | *4.7%* | *4.4%* | *5.1%* | *10.0%* |
| *Growth* | | | *-39.7%* | *-352.0%* | *-87.2%* | *152.3%* | *-1.3%* | *21.8%* | *104.2%* |
| / No Shares | 44.7 | 42.7 | 42.7 | 42.7 | 42.7 | 42.7 | 42.7 | 42.7 | 42.7 |
| FCFE | | ($8.57) | ($5.16) | $13.01 | $1.66 | $4.20 | $4.14 | $5.04 | $10.30 |
| *Growth* | | | *-39.7%* | *-352.0%* | *-87.2%* | *152.3%* | *-1.3%* | *21.8%* | *104.2%* |
| * Discount factor | | | 0.91 | 0.83 | 0.75 | 0.69 | 0.63 | 0.57 | 0.52 |
| Discounted FCFE | | | ($4.70) | $10.79 | $1.26 | $2.88 | $2.59 | $2.87 | $5.34 |
| | | | | Third Stage | | | | | |
| **Terminal value P/E** | | | | | | | | | |
| Net income | | $190 | $111 | $135 | $163 | $188 | $229 | $268 | $282 |
| *% of sales* | | *6.3%* | *3.4%* | *3.8%* | *4.4%* | *4.9%* | *5.7%* | *6.3%* | *6.4%* |
| EPS | | $4.44 | $2.61 | $3.16 | $3.82 | $4.41 | $5.37 | $6.27 | $6.59 |
| *Growth* | | *101.5%* | *-41.2%* | *21.0%* | *20.9%* | *15.4%* | *21.8%* | *16.8%* | *5.1%* |
| Terminal P/E | | | | | | | | | 21.00 |
| * Terminal EPS | | | | | | | | | $6.59 |
| Terminal value | | | | | | | | | $138.45 |
| * Discount factor | | | | | | | | | 0.52 |
| Discounted terminal value | | | | | | | | | $71.82 |
| **Summary (using P/E multiple for terminal value)** | | | | | | | | | |
| First stage | | $6.09 | Present value of first 2 year cash flow | | | | | | |
| Second stage | | $14.94 | Present value of year 3-7 cash flow | | | | | | |
| Third stage | | $71.82 | Present value of terminal value P/E | | | | | | |
| Value (P/E) | | **$92.85** | | | | | | | |

Automotive, Arms Industry

# Oshkosh Corporation

| Recommendation: Hold | | | | |
|---|---|---|---|---|
| Current Price | **$104.23** | --- | Ticker | OSK |
| 1 Year Bear | $89.66 | *-16.0%* | Sh. Out. (M) | 67.5 |
| 1 Year Base | **$120.31** | ***12.7%*** | M.Cap. ($M) | 7,436 |
| 1 Year Bull | $180.65 | *29%* | EV ($M) | 6,983 |

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | 12.2% | 21.6% | 21.2% | 30.1% | 29.7% | 5.3% | -4.9% |

## Summary

I recommend a neutral rating with a target of $120. Although OSK has an opportunity to improve margins and raise sales, the next two years hold a lot of uncertainty. If the company makes it through 2023 with minimal losses or growth, I am confident it will see significant increases in growth going forward. OSK's growth will hinge on its continued R&D to remain competitive against larger competitors, and the success of its DoD segment expansion. The scenario analysis appears in line with my own opinions.

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($M) | **6830** | **7706** | **8382** | **6857** | **7737** | **8613** | **9216** |
| *Gr. %* | 0.1% | 12.8% | 8.8% | -18.2% | 12.8% | 11.3% | 7.0% |
| *v. Cons.* | - | - | - | - | - | -10.8% | 34.2% |
| *Industry* | 8.3% | 13.0% | -4.9% | -16.7% | 12.9% | 13.5% | 9.1% |
| **EPS** | **$4.78** | **$6.85** | **$7.46** | **$5.15** | **$6.83** | **$6.71** | **$8.72** |
| *Gr. %* | 28.5% | 30.2% | 8.2% | -44.9% | 24.6% | -1.8% | 23.1% |
| *v. Cons.* | - | - | - | - | - | **-29.4%** | 41.7% |
| *Industry* | 19.5% | 29.8% | -2.9% | -51.2% | 88.5% | 14.0% | 27.8% |

## Key Drivers

- Commercial infrastructure: OSK's buyers of access equipment are companies in nonresidential construction, warehouses, and other industrial work. Access segment is expected to rise 17% in the next year.
- DoD contracts: Defense contracts are highly competitive and subject to change, but highly lucrative. OSK's defense segment made 35% of sales in 2020 and has been more stable than the cyclical access segment.
- Competition: OSK has competitors in many different industries but primarily in access equipment and defense. The firm competes with access equipment competitors through superior technology and supply chains. In defense contracts, OSK has a long history with the DoD and is well known for its production of Mine-Resistant Ambush Protected (MRAP) heavy-duty tactical vehicles.

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **4.2%** | **6.1%** | **6.9%** | **4.7%** | **6.1%** | **5.3%** | **6.4%** |
| *Industry* | 4.4% | 4.8% | 5.2% | 1.0% | 4.6% | | |
| **ROE** | 15.3% | 19.7% | 19.4% | 11.9% | 15.5% | 13.4% | 15.5% |
| *Industry* | 12.3% | 17.3% | 17.2% | 0.4% | 12.6% | | |
| **ROA** | 5.9% | 9.1% | 10.7% | 5.6% | 7.4% | 6.7% | 8.3% |
| *Industry* | 5.9% | 6.8% | 6.4% | 1.2% | 4.8% | | |
| **A T/O** | 1.40 | 1.48 | 1.54 | 1.20 | 1.22 | 1.24 | 1.27 |
| **A/E** | 2.18 | 2.16 | 2.12 | 2.09 | 2.08 | 2.03 | 1.91 |

## Valuation

Using a relative valuation approach, Oshkosh Corp. appears to be overvalued in comparison to its competitors. DCF analysis implies that the stock is worth $131. Using a combination of approaches suggests that Oshkosh is fairly valued, as the stock's value is about $120 and the shares trade at $104.

| Valuation | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 21.9 | 11.3 | 12.6 | 16.6 | 19.9 | 21.4 | 12.5 |
| *Industry* | 23.2 | 9.4 | 8.3 | 74.5 | 13.9 | 12.3 | 8.7 |
| P/S | 0.92 | 0.69 | 0.64 | 0.74 | 0.92 | | |
| P/B | 2.68 | 2.05 | 1.98 | 1.76 | 2.14 | | |
| P/CF | 25.38 | 12.24 | 9.41 | 15.54 | 5.80 | | |
| V/EBITDAA | 10.50 | 7.30 | 6.08 | 8.99 | 10.27 | | |
| D/P | 22.3% | 15.3% | 13.2% | 25.4% | 19.3% | | |

## Risks

- Long-term impacts of Covid-19 regulations
- Defense contract uncertainties
- Highly cyclical markets

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## Company Overview

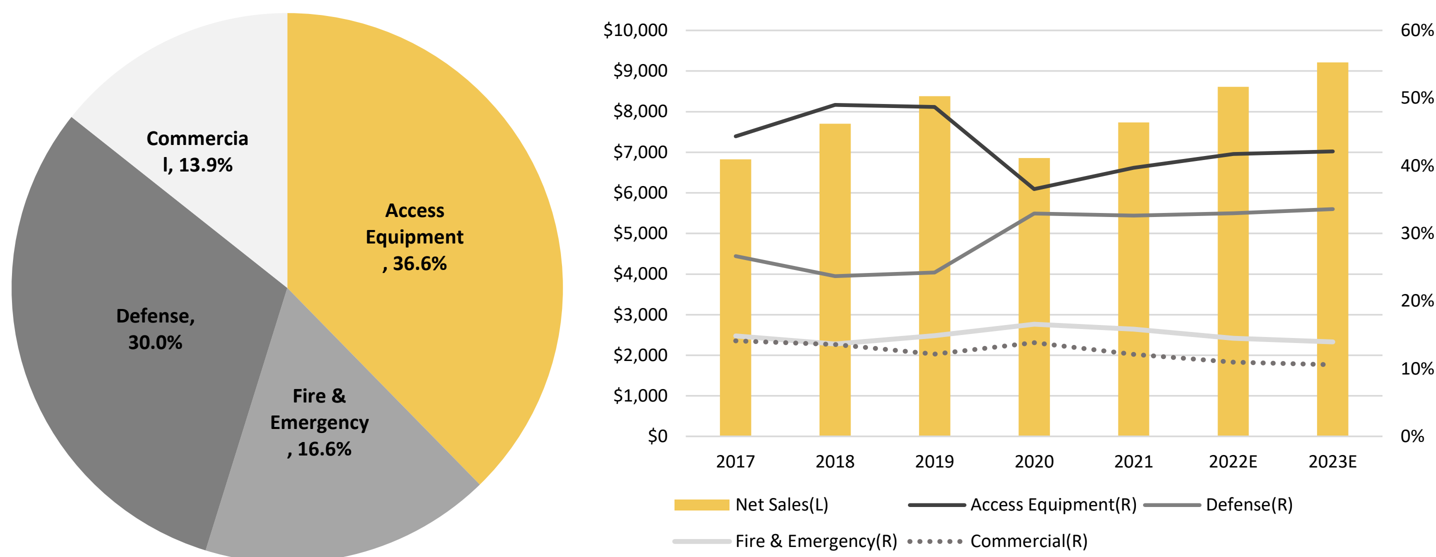
Oshkosh Corporation is a leading designer and manufacturer of access equipment, specialty vehicles and truck bodies which includes defense, fire & emergency, refuse hauling, concrete placement, and airport services. The many products of Oshkosh's leading brands serve several industries providing the firm with efficiencies in its supply chain, manufacturing processes, and cross portfolio innovation. The Company's logistical and operational effectiveness is the key to its superiority as a global industrial manufacturer. In 2020, 35.0% of net sales were to the U.S. government. Of which, a majority are under multi-year contracts and programs with the Department of Defense (DoD) for tactical vehicles. Oshkosh Corp. operates in six U.S. states, Romania, Chine, France, Australia, United Kingdom, Mexico, and Canada. Oshkosh Corporation is headquartered in Oshkosh, Wisconsin.

Oshkosk Corporation comprises ten brands. For financial reporting purposes, they maintain four reportable segemnts:

Growth is affected by cyclical markets except the defense segment which was approx. 35% of net sales in fiscal year 2020.

1) **Access Equipment (36.6% of sales)**: JLG, a subsidiary of Oshkosh, produces aerial work platforms, telehandlers (forklifts), and tow trucks (wreckers). The equipment is often sold to rental companies, construction contractors, and home improvement centers.
2) **Defense (30.0% of sales)**: Designed, manufactured, and sold military tactical wheeled vehicles to the DoD for more then 90 years. OSK is the DoD's leading supplier of severe-duty, heavy- and medium-payload tactical trucks. The vehicles perform demanding tasks for hauling tanks, missile systems, ammunition, fuel, and troops. In 2020, during the global pandemic, defense showed 11.3% growth while the other three segments were negative because government budgets are not affected by economic changes.
3) **Fire & Emergency (16.6% of sales)**: Custom and commercial firefighting vehicles, aircraft rescue and firefighting vehicles (ARFF), snow removal and other emergency vehicles primarily sold to fire departments, airports, and other governmental bodies.
4) **Commercial (13.9% of sales)**: OSK designs and manufactures refuse collection vehicles, concrete mixing vehicles, and truck mounted cranes that are primarily sold to commercial and municipal waste collectors, mining, and construction companies.

**Figures 1 & 2: Revenue by segment in 2020 (left) and total revenue (in millions) & YoY revenue growth since 2016 (right)**




*Source: Company reports*

## Business/Industry Drivers

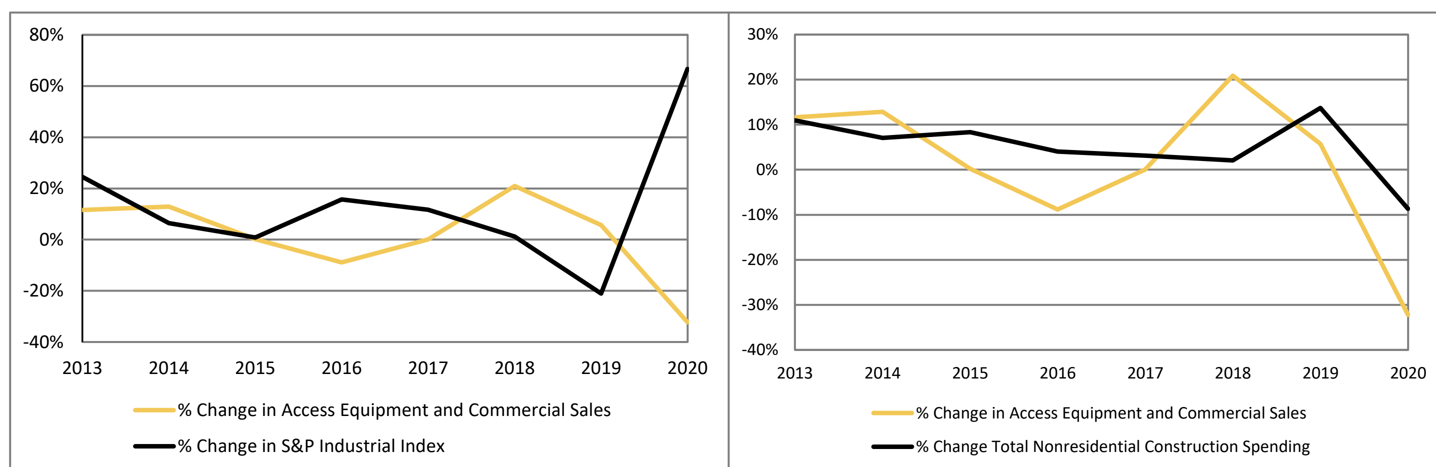
Though several factors may contribute to Oshkosh Corporation's future success, the following are the most important business drivers:

1) Commercial Infrastructure
2) DoD Contracts
3) Competitor Analysis
4) Macroeconomic Trend

Commercial Infrastructure

Industrial companies drive demand for construction access equipment, commercial concrete products, and commercial refuse vehicles. These segments correlate directly with nonresidential construction and new home sales. Between 2014 and 2017 they appear to run inversely with the industrial index (figure 3), but the index may have gotten a boost from oil prices followed by a drop in 2016.

**Figures 3 and 4: Percent change in access equipment and commercial sales compared to percent change in S&P Industrial Sector index (left), and percentage change in access equipment and commercial sales (left axis) compared to the percentage change in total nonresidential construction spending (right axis) (right)**



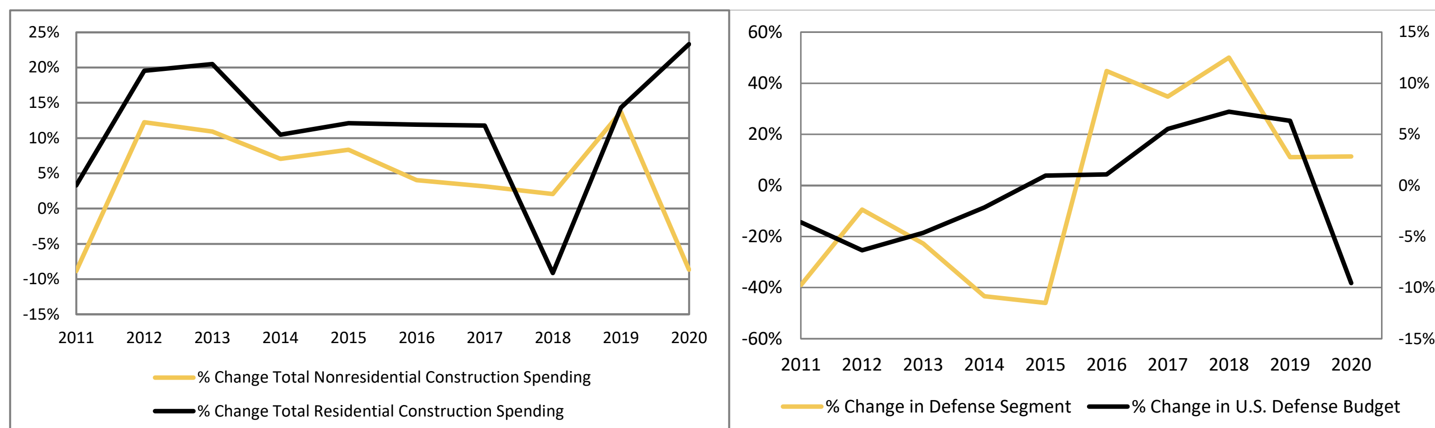

*Source: FactSet, WSJ Markets*

Access equipment sales are up 89.4% in Q3 2021 compared to Q3 2020.

As the graphs indicate, OSK's sales has a close relationship with the industrial index (left) and even more so with nonresidential construction (right). From 2019 to 2020, OSK saw a roughly 30% drop in sales from access equipment and commercial sales. The impacts of Covid-19 affected sales growth in two main ways. Rental companies slowed down or stopped their fleet growth and replacements, and there was a reduction in demand for future nonresidential construction. More recently, disruptions in supply-chains have impacted OSK's access equipment sales by nearly $100M in revenue. Despite these hurdles, access equipment and commercial sales are up 89.4% and 12.3% respectively in the third quarter of 2021 compared to 2020. As supply-chains catch up and the prices of raw materials, such as steel, begin to normalize OSK should expect higher sales and profits in the near future. Construction companies are purchasing new and replacing old equipment during this rise in construction.

Going forward, OSK should experience higher growth as President Biden's massive infrastructure plan comes to fruition. The Senate passed the $1 trillion spending plan which targets many struggling or underdeveloped communities around the country. One of the major priorities is to build or update more than two million commercial and public buildings.

**Figures 5 and 6: Percent change in total nonresidential and residential construction (left), Percent change in defense segment over percent change in U.S. defense budget (right)**




*Source: US Census Bureau, FactSet*

DoD Contracts

A substantial amount of the 33% was from other multi-year contracts.

This is a big milestone for OSK as it marks the company's entrance into the combat vehicles market.

Oshkosh Corp's success over the years has relied heavily on Department of Defense (DoD) contracts and sales and closely follow DoD spending as seen in figure 6. OSK has been fulfilling contracts for the DoD for over 90 years and it averages about 35% of its sales over the last two decades. In 2009, Oshkosh Defense was awarded a $450M five-year contract for the production of up to 23,000 vehicles and trailers. This led to a 25% increase in revenue that leveled out over the following years with the help of other smaller contracts. In 2016, OSK won a contract for $433M (32% of sales); however, there have been contractual issues that prevented this order from being completely fulfilled.

Although the defense segment has remained fairly level over the past seven years, it would not be surprising to see high growth in the coming years. President Biden's Afghanistan withdrawal left a staggering amount of U.S. military equipment behind. Roughly 75K ground vehicles are reported to be left behind. Whatever the reason for this possible misstep, OSK is looking to the future. Just this year, it was awarded a nearly $1B contract for army tanks over the next six years. The company will be partnering with Rafael Advanced Defense Systems to integrate a 30MM Medium Caliber Weapon System (MCWS) onto the Stryker Double V Hull Infantry Carrier Vehicle (ICVVA1).

Competitor Analysis

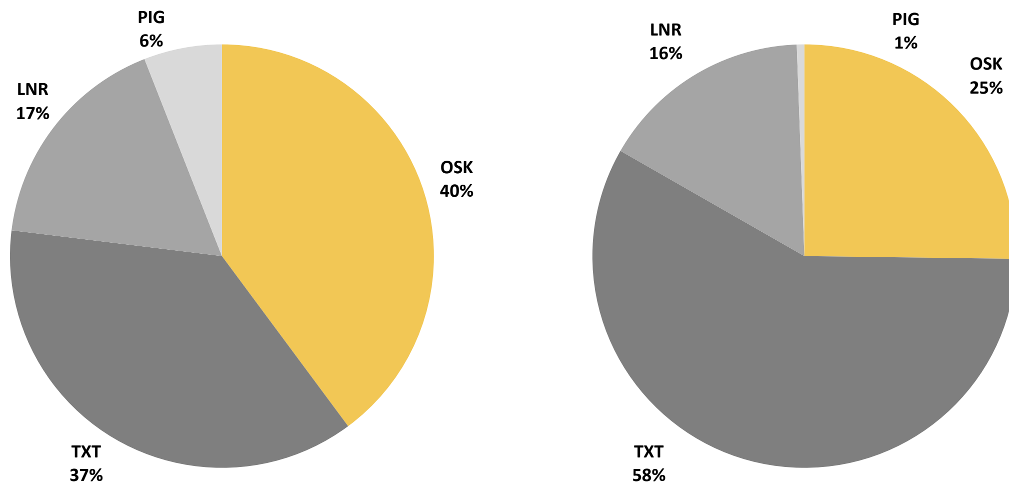
Oshkosh Corp is a leader in innovation and product development. Its competition varies from large well-established companies to various small, specialized producers. The firm primarily competes in the U.S. with only 11% of sales international, but it does compete with foreign imports. OSK's competitive strengths include a well-established brand name, flexible product offerings, superior quality, and customer-focused product support.

In access equipment/service vehicles/emergency vehicles, OSK competes with various large and small companies. Genie (a subsidiary of Terex), Skyjack ( a subsidiary of Linamar), and Haulotte Group are OSK's biggest competitors.

OSK generated about 40% of access equipment sales between itself and its leading competitors in 2019

Terex has 58% of its sales in the U.S., Linamar has 61%, and Haulotte Group, a French company, has 21.2%. Despite Haulotte Group only having 21.2% of sales in America, it is a strong competitor because it specializes in the same selection of access equipment as OSK. Oshkosh Corp sells lifts, booms, telehandlers, and stock/order pickers. 89% of OSK's sales are in the U.S. while the remaining 11% is split between Europe, Asia, and Africa. OSK comprised over 40% of access equipment sales between itself and its leading competitors in 2019.

**Figure 7 & 8: Industry concentration by access equipment sales (left) vs market cap (right)**



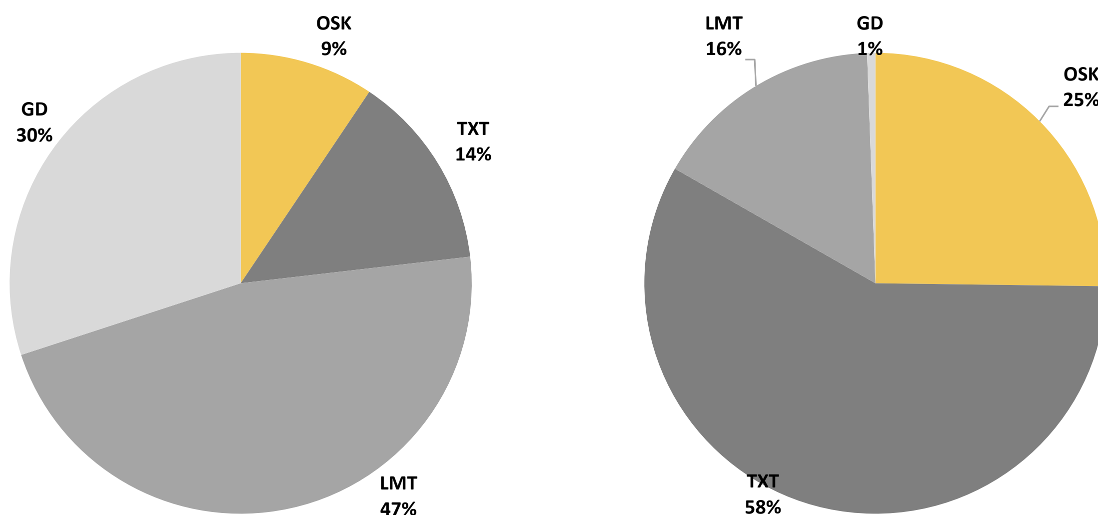

*Source: FactSet*

One of OSK's largest competitors, Navistar Defense, recently sold 70% of its ownership interest

Oshkosh Defense sells directly to the DoD via contracts and maintains a liaison office in Washington D.C. Each year the DoD has a finite budget and each of the competitors fight for a piece of it. To set itself apart from the herd, OSK has established advanced logistics and productions processes to create an advantage in bidding wars along with its long-standing relationship with the DoD. Products offered include the well known Mine Resistant Ambush Protected (MRAP) vehicle, heavy- and medium-troop transport vehicles, and various access/fire/emergency vehicles.

Per OSK's 2020 10-K, top defense segment competitors include Mercedes-Benz (a subsidiary of Daimler) which produces heavy- to medium- transport vehicles, Navistar which sold the greater majority of its defense business after legal issues late 2019, General Dynamics Corp which produces a wide variety of military platforms and technologies, and Lockheed Martin Corp.

**Figure 9 & 10: Industry concentration by defense sales (left) vs market cap (right)**

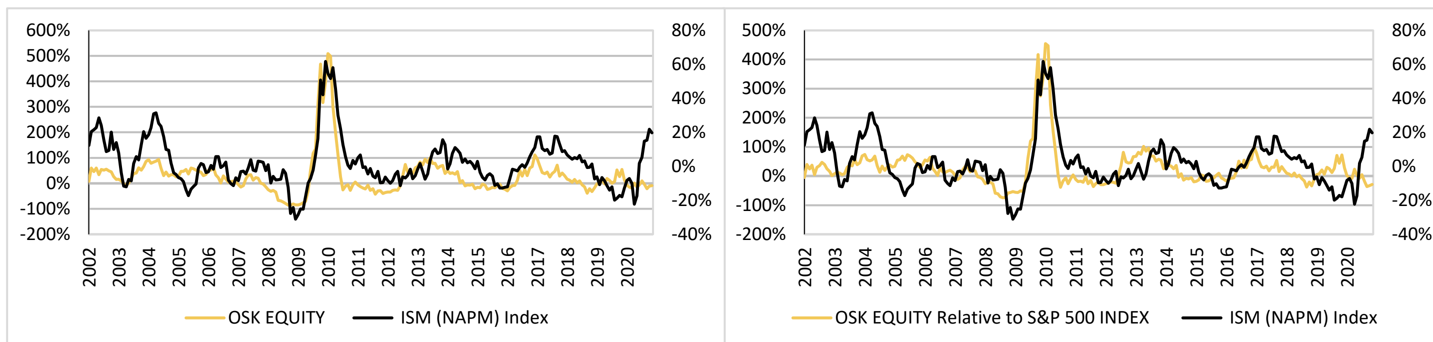



*Source: FactSet*

Macroeconomic Trends

Each of OSK's product segments are cyclical in nature and positively correlate, on both an absolute and relative basis, to the ISM NAPM index. This is despite OSK's defense segment as it is not fully driven on the economy. The defense segments growth is more dependent on DoD needs and OSK's ability to perform.

**Figures 11 & 12: OSK compared to the ISM (NAPM) index (left) and OSK competitors compared to the ISM (NAPM) index**

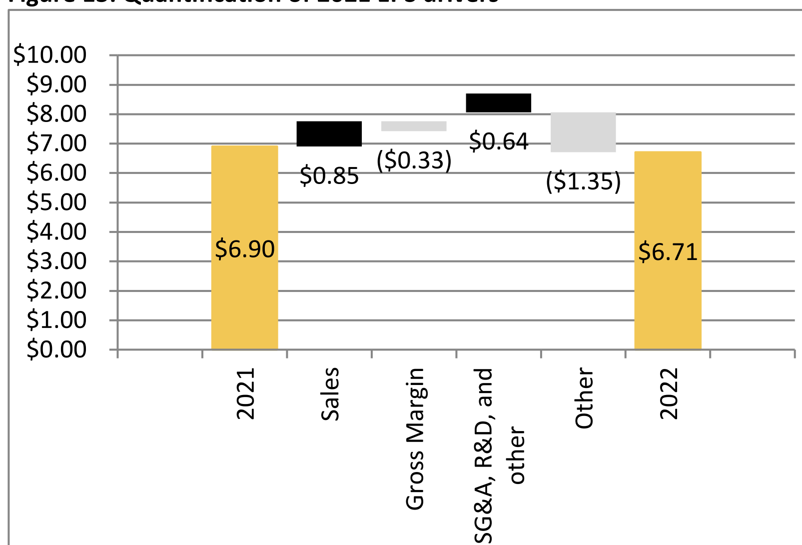



*Source: Bloomberg, IMCP*

## Financial Analysis

I anticipate EPS to decrease to $6.71 in FY 2022 from $6.90 in FY 2021. Increasing revenues in access, defense, fire and emergency and commercial segments should increase earnings by $0.85. Despite increased sales, the cost of goods sold are higher which decreases gross margin, driving down EPS by $0.33. I expect lower SG&A as a percentage of sales will increase EPS $0.64 as OSK continues development of new products that it could sell to federal and state agencies. The effective tax rate for 2021 was significantly lower than average, which contributes to "other" having a -$1.35 impact on EPS for 2022.

**Figure 13: Quantification of 2021 EPS drivers**

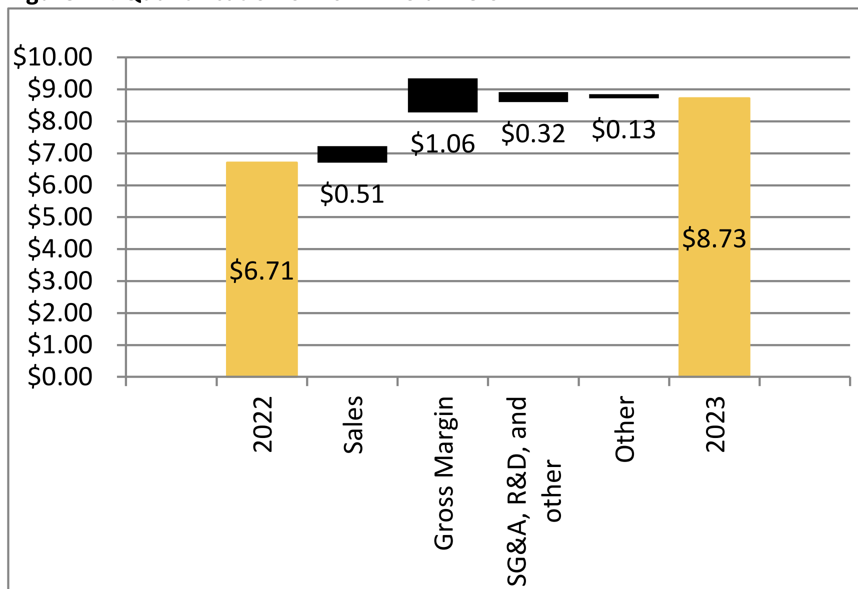



*Source: Company Reports, IMCP*

I anticipate EPS to grow to $8.72 in FY 2023. Rising revenues in access, defense, fire and emergency and commercial segments should increase earnings by $0.51. As the economy corrects back to normal, I expect lower cost of goods sold and an increase in construction resulting in increased earnings from gross margin of $1.06. I expect that EBIT margin will further increase EPS $0.32 as OSK slows R&D with the realization of its large defense contract. EPS rises $0.12 from a small share repurchase leaving a net increase in EPS of $1.01 for the year.

Growth is 2021 was 3.6% ($430M) higher than average estimates. I expect this trend to continue through 2020.

**Figure 14: Quantification of 2022 EPS drivers**




*Source: Company Reports, IMCP*

I am more optimistic about 2022 EPS growth. However, I am less optimistic for growth in 2023 than consensus EPS estimates. I anticipate continued growth for defense, fire and emergency, and commercial. In 2022, while consensus expects sales to decline, I anticipate industrial growth leading to higher access equipment sales. Growth in 2021 was higher than estimated which contributes to my higher expectations.

**Figure 15: Sales and EPS estimates for FY '22 and '23**

| | 2022E | 2023E |
|---|---|---|
| Revenue | $8,613 | $9,216 |
| YoY Growth | 11% | 7% |
| Revenue-Consensus | $6,659 | $8,937 |
| YoY Growth | -6% | 34% |
| EPS | $6.71 | $8.72 |
| YoY Growth | -3% | 15% |
| EPS-Consensus | $5.28 | $9.05 |
| YoY Growth | -6% | 65% |

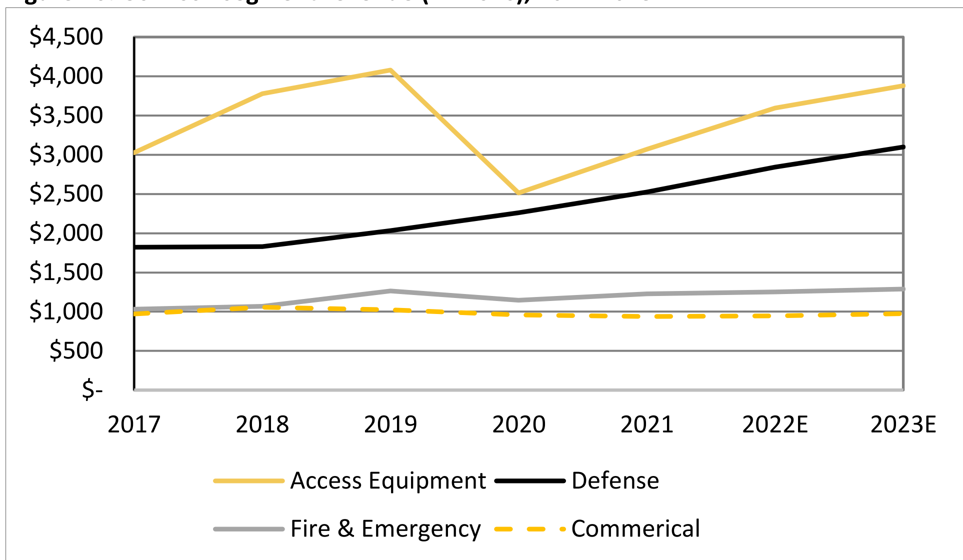
*Source: Factset, IMCP*

Revenues

Oshkosh Corporation's revenue rose from 2017 to 2019, but naturally dropped with the raise of COVID-19. It slightly recovered over the last year. OSK's sales from defense contracts helped minimize losses. OSK's fire and emergency and commercial segments will continue to see low but normal growth. Most importantly, I expect that the access equipment segment's growth to increase due to a recovering economy and possible infrastructure spending. OSK's global reach has been stymied and continues to trend downward.

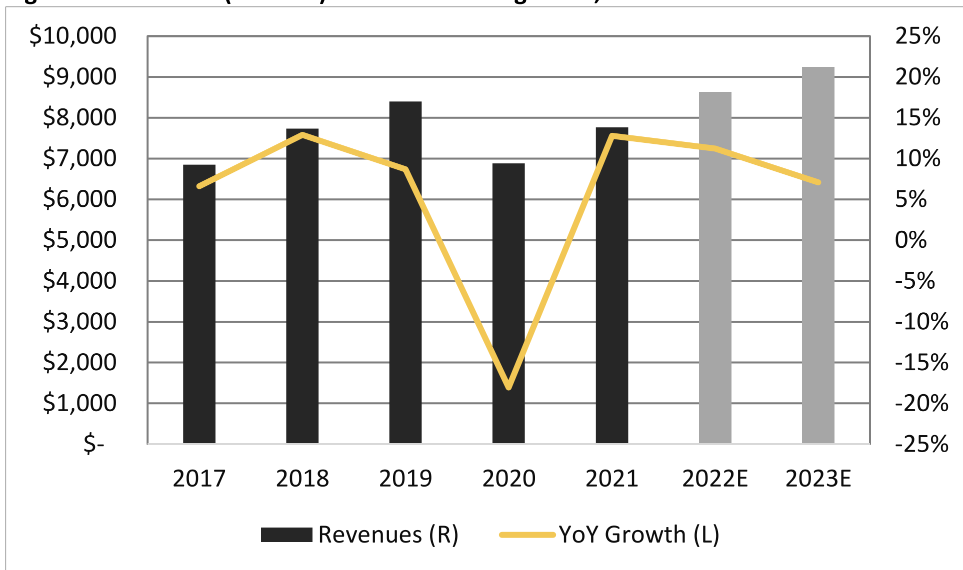
Increases in revenue climbing back toward pre-Covid levels

**Figure 16: Oshkosh segment revenue (millions), 2017-2023E**




*Source: Company Reports, IMCP*

**Figure 17: Revenue (millions) vs. YoY revenue growth, 2017-2023E**

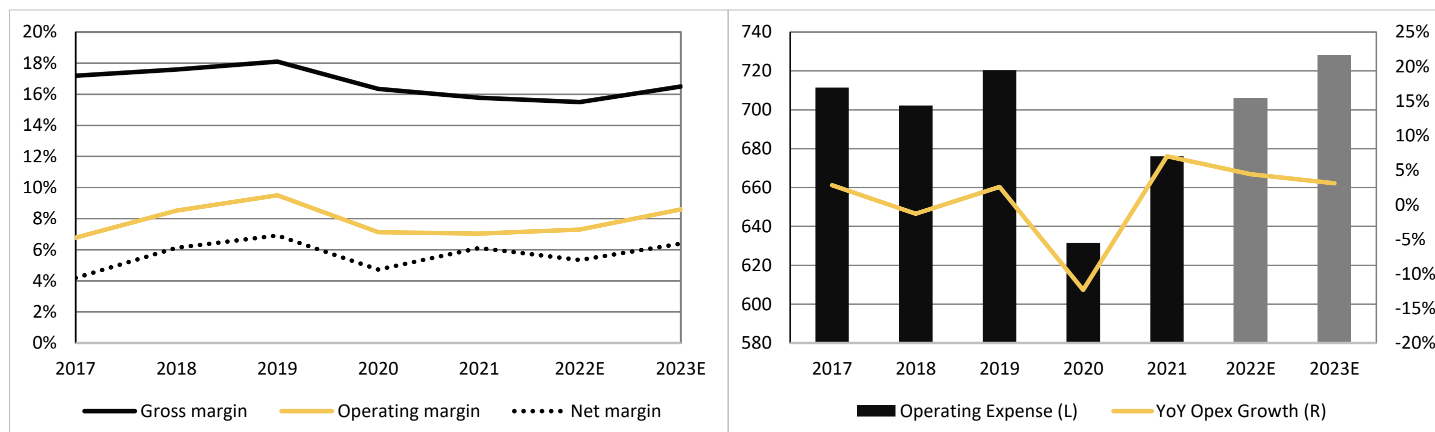



*Source: Company Reports*

Operating Income and Margins

The selling, general and administrative expense makes up roughly 99% of operating expenses. I expect operating expenses to grow in 2022 and to carry through in 2023. I expect this in part from OSK's efforts to restrengthen its defense segment.

**Figures 18 & 19: Income margins (left) vs YoY operating expense growth (right)**




*Source: Company Reports*

Expected increase in growth margin and operating margins.

OSK had relatively stable gross margins over the years leading up to Covid-19, but it has been low since it's onset. EBIT margin has picked back up to pre-Covid levels. As the country has slowly continued to open up, operating margins have held steady growth. By fiscal year 2023, I expect operating margins to increase to 8.6, near the high of 9.5% in 2021.

**Figure 20: OSK operating margins, 2013 – 2016E**

| | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|
| Sales | $6,857 | $7,737 | $8,613 | $9,216 |
| Costs of goods sold | $5,737 | $6,517 | $7,278 | $7,695 |
| Gross income | $1,120 | $1,221 | $1,335 | $1,521 |
| *Gross margin* | *16.3%* | *15.8%* | *15.5%* | *16.5%* |
| | | | | |
| Operating expense | $632 | $676 | $706 | $728 |
| *Growth* | *-12.3%* | *7.0%* | *4.5%* | *3.1%* |
| Operating income | $489 | $545 | $629 | $793 |
| *Operating margin* | *7.1%* | *7.0%* | *7.3%* | *8.6%* |

*Source: Company Reports*

Return on Equity

In 2019, ROE peaked at 22.75. Through 2021, it has fallen to 15.55 as margins and asset turns have declined. Despite a 10 million share buyback program, leverage has also modestly declined. Going forward through 2023, I expect ROE to be stable. While margins and asset turns should rise, leverage is expected to decline.

**Figure 21: ROE breakdown, 2018 – 2023E**

| 3-Stage DuPont | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|
| Net income / sales | 6.1% | 6.9% | 4.7% | 6.1% | 5.3% | 6.4% |
| Sales / avg assets | 1.48 | 1.54 | 1.20 | 1.22 | 1.24 | 1.27 |
| ROA | 9.1% | 10.7% | 5.7% | 7.4% | 6.6% | 8.1% |
| Avg assets / avg equity | 2.16 | 2.12 | 2.09 | 2.08 | 2.03 | 1.91 |
| ROE | 19.6% | 22.7% | 11.9% | 15.5% | 13.4% | 15.5% |

*Source: Company Reports*

Free Cash Flow

OSK BoD approves 10M share buyback program in 2019. 3.6M shares have been purchased.

**Figure 22: Free cash flow calculations**

| Free Cash Flow | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|---|
| NOPAT | $320 | $519 | $615 | $363 | $517 | $497 | $626 |
| *Growth* | | *62.4%* | *18.4%* | *-41.0%* | *42.4%* | *-4.0%* | *26.1%* |
| NWC* | 1,237 | 1,401 | 1,525 | 1,718 | 1,247 | 1,722 | 1,704 |
| Net fixed assets | 2,059 | 2,024 | 2,158 | 2,280 | 2,474 | 2,743 | 2,671 |
| Total net operating capital* | $3,296 | $3,425 | $3,683 | $3,998 | $3,721 | $4,465 | $4,376 |
| *Growth* | | *3.9%* | *7.5%* | *8.6%* | *-6.9%* | *20.0%* | *-2.0%* |
| - Change in NWC* | | 164 | 124 | 193 | (471) | 475 | (18) |
| - Change in NFA | | (35) | 134 | 122 | 194 | 269 | (72) |
| FCFF* | | $390 | $357 | $48 | $794 | ($247) | $716 |
| *Growth* | | | *-8.4%* | *-86.5%* | *1549.4%* | *-131.1%* | *-389.5%* |
| - After-tax interest expense | 36 | 49 | 36 | 37 | 44 | 37 | 37 |
| FCFE** | | $341 | $321 | $11 | $750 | ($284) | $678 |
| *Growth* | | | *-5.8%* | *-96.5%* | *6536.3%* | *-137.9%* | *-338.8%* |
| + Net new debt/other cap | | (13) | 1 | 4 | (4) | 6 | (2) |
| Sources of cash | | $328 | $322 | $15 | $746 | ($278) | $676 |
| FCFF per share * | | $5.27 | $5.12 | $0.71 | $11.60 | ($3.61) | $10.59 |
| *Growth* | | | *-2.9%* | *-86.2%* | *1539.8%* | *-131.1%* | *-393.6%* |
| FCFE per share** | | $4.61 | $4.60 | $0.17 | $10.95 | ($4.15) | $10.04 |
| *Growth* | | | *-0.1%* | *-96.4%* | *6497.5%* | *-137.9%* | *-342.1%* |

*Source: Company Reports, IMCP*

OSK's free cash flow has varied significantly over the last couple of years. Before Covid, FCFF was running at about $400 million. Then it fell to $48 million in 2020 as NOPAT declined. 2021 rose to about $800 million as NOPAT rebounded but the firm shrank net working capital. In 2022, I expect NWC to normalize and NOPAT to be flat, so FCFF goes negative. 2023 is expected to rise to above $200 million due to a rise in NOPAT but no asset growth. Overall, the firm will have about $500 million in the next two years for interest, dividends, and share buybacks. The company paid about $90 million in dividends in 2021 with about 10% annual growth. OSK also approved a stock repurchase program in 2019 up to 10M shares. As of September 2021, the firm has repurchased about 3.6M of the 10M shares totaling $531M

## Valuation

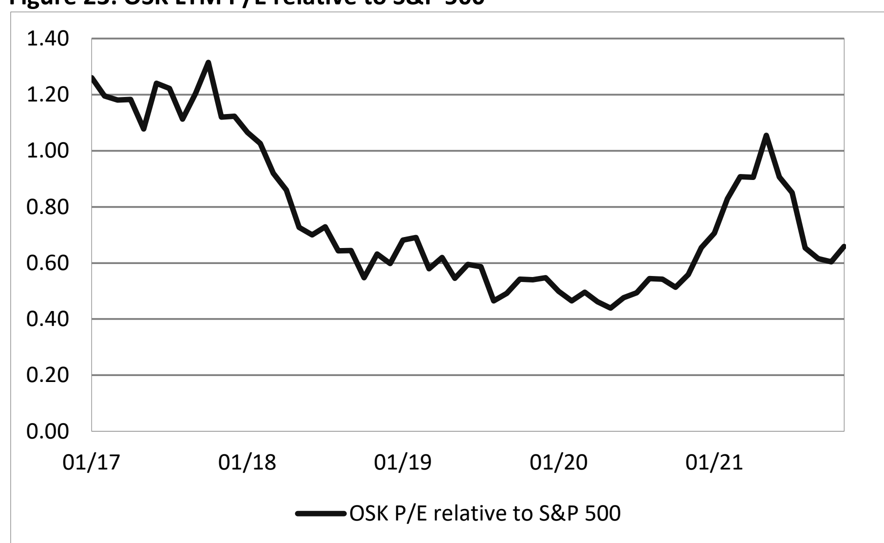
The NTM P/E is equal to the five-year average at 16.7.

OSK was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock price is relatively accurate and is worth $131. Relative valuation shows OSK to be slightly overvalued based on its fundamentals versus those of its competitors. Price to book valuation yielded a price of $81. A detailed DCF analysis values OSK higher, at $120. As a result of these valuations, I value the stock at $125.

Trading History

OSK is recovering from its 10-year low relative to the S&P 500. This is the result of increased earnings and economic recovery. OSK's current NTM P/E is at 16.7 which is the same as the five-year average. I expect the P/E to remain stable in the short term, but in the long-term it will rise above the 2021 P/E of 19.57.

**Figure 23: OSK LTM P/E relative to S&P 500**




*Source: FactSet*

Discounted P/E x EPS = 131.31

Current price = 104.23

Assuming the firm maintains a 16.7 NTM P/E at the end of 2022, it should trade at $115.23 by the end of the year:

- Price = P/E x EPS = 16.7 x $8.72 = $145.62

Discounting $145.62 back to today at a 10.9% cost of equity (explained in Discounted Cash Flow section) yields a price of $131.31. This implies that it is undervalued if I use an optimistic P/E.

Relative Valuation

Oshkosh Corporation is currently trading at a P/E above the average and median of its peers, with a P/E TTM of 15.9 compared to an average of 14.2 and a median of 15.9. Investors have been open to paying a greater premium for OSK as both its access equipment and defense segment have a strong and established history. OSK's P/B is above average of its competitors and its P/S ratio is as well. Yet OSK's ROE and net profit margin are at about the median.

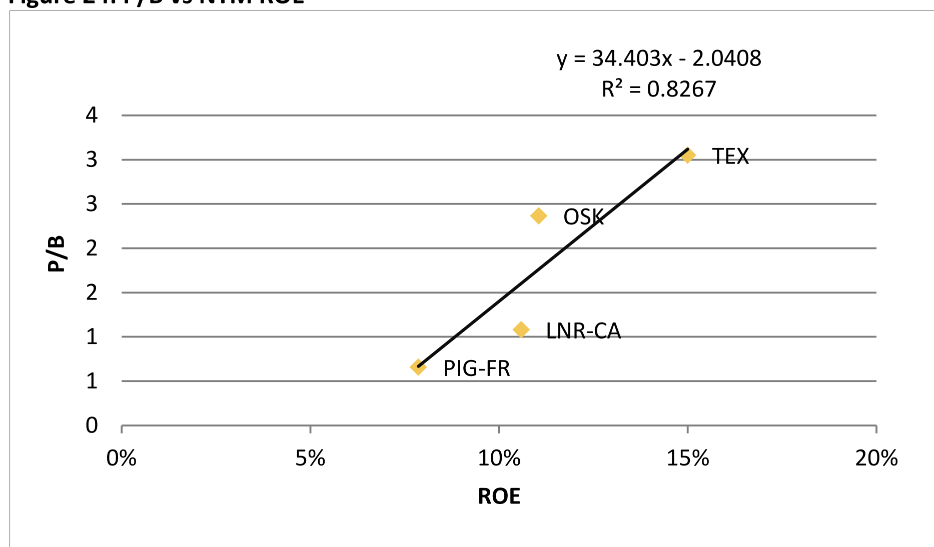
A more thorough analysis of P/B and ROE is shown in figure 24. The calculated R-squared of the regression indicates that over 82% of a firm's P/B is explained by its 2021 ROE. OSK has an average P/B. According to this, OSK is just slightly overvalued. I believe that this regression is somewhat accurate. Terex's ROE was adjusted for strong Covid related abnormalities and reflects a five-year average.

- Estimated P/B = Estimated 2022 ROE (10.9%) x 34.403 - (2.0408) = 1.7091
- Target Price = Estimated P/B (1.7091) x 2022E BVPS (52.67) = $90.02

Discounting back to the present at a 10.9% cost of equity leads to a target price of $81.17 using this metric.

OSK is trading at a premium P/B that is not justified by its ROE.

**Figure 24: P/B vs NTM ROE**




*Source: Factset*

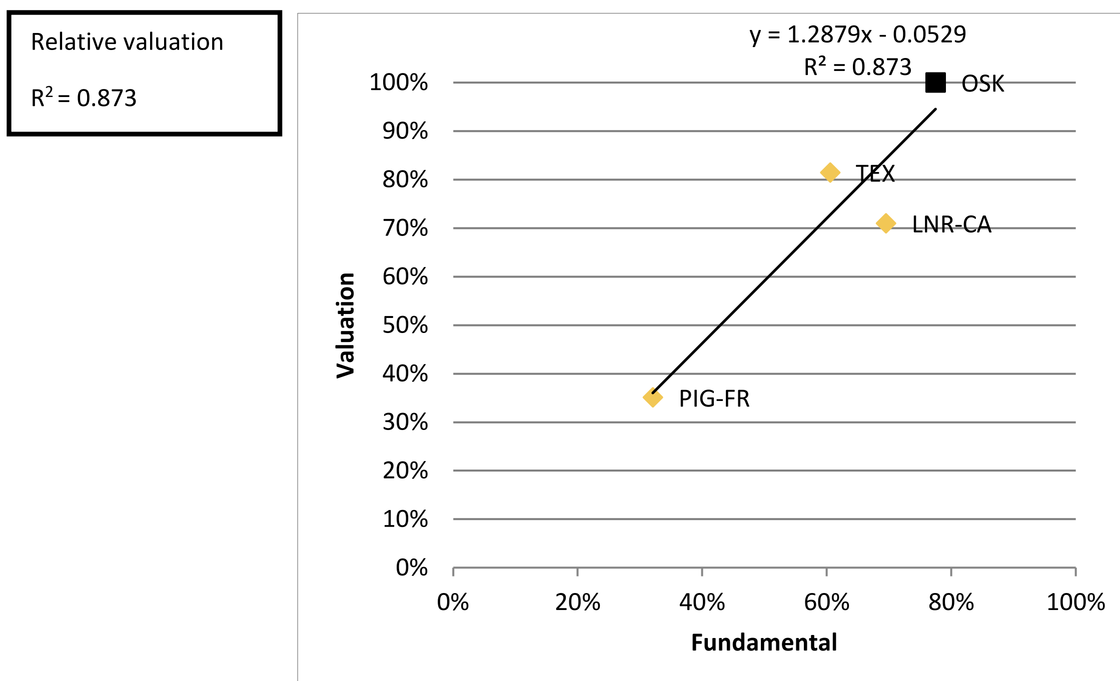
For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. The fundamental variables include 2023E earnings growth, NTM ROE, NPM, and STM compared to sales growth, and this was a composite of 2021 and 2022 P/E and P/S. This gives a regression line with an R-squared of 0.873. Here, in figure 26, you can see OSK is only slightly above the line, so it is selling at a premium based on its fundamentals.

**Figure 25: Composite valuation, % of range**

| | | Fundamentals | | | | Valuation | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Weight | 30.0% | 20.0% | 40.0% | 10.0% | 10.0% | 10.0% | 80.0% | | |
| | | EG | 2022 | 2021 | SG | PE | | | Weighted | |
| Ticker | Name | 2023 | ROE | NPM | STM | 2021 | 2022 | P/S | Fund | Value |
| **OSK** | OSHKOSH CORP | 100% | 40% | 74% | 100% | 100% | 100% | 100% | 77% | 100% |
| **TEX** | TEREX | 1% | 100% | 76% | 99% | 82% | 52% | 85% | 61% | 81% |
| **LNR-CA** | LINAMAR | 39% | 39% | 100% | 99% | 56% | 48% | 76% | 70% | 71% |
| **PIG-FR** | HAULOTTE GROUP | 15% | 29% | 30% | 99% | 73% | 39% | 30% | 32% | 35% |

*Source: IMCP*

**Figure 26: Composite relative valuation**




*Source: IMCP*

Discounted Cash Flow Analysis

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

For the purpose of this analysis, the company's cost of equity was calculated to be 10.9% using the Capital Asset Pricing Model. The underlying assumptions used in calculating this rate are as follows:

- The risk-free rate, as represented by a more normal ten-year Treasury bond yield, is 2.42%.
- A five-year beta of 1.12 was utilized, and the firm is exposed to the economic cycle.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 10.9% (2.42 + 1.12 (10.0 – 2.42)).

*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 $1.45 and $3.32, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $4.01 per share. Thus, stage one of this discounted cash flow analysis contributes $4.01 to 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 10.9% cost of equity. I assume 5.0% sales growth in 2024 through 2028 as markets stabilize and OSK returns to stable growth. The ratio of sales to NOWC will remain at 2023 levels. Also, for NOPAT, I used a seven-year average as I expect these margins to remain relatively stable in the next few years. Finally, after-tax interest is expected to rise 5.0% per year as result of normal increases in borrowing.

**Figure 27: FCFE and discounted FCFE, 2024 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| FCFE | $1.45 | $3.32 | $6.75 | $5.80 | $6.09 | $6.40 | $6.72 |
| Discounted FCFE | $1.31 | $2.70 | $4.95 | $3.83 | $3.63 | $3.44 | $3.25 |

Added together, these discounted cash flows total $19.10.

*Stage Three* – Net income for the years 2022 – 2028 is calculated based upon the same margin and growth assumptions used to determine FCFE in stage two. EPS is expected to grow from $6.71 in 2022 to $11.15 in 2028.

**Figure 28: EPS estimates for 2015 – 2021**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| EPS | $6.71 | $8.73 | $9.17 | $9.63 | $10.11 | $10.62 | $11.15 |

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. Recently, OSK has traded close to market P/E ratio, and the company has substantial growth. Investors expect a growth spike in 2023 to 2024, but I expect this to be more gradual with higher earnings in 2022. Therefore, I assume a P/E ratio of 18 at the end of OSK's terminal year. This multiple is just below the 19.57 P/E in 2021, and I believe this will level out the long-term growth.

Given the assumed terminal earnings per share of $11.15 and a price to earnings ratio of 18, a terminal value of $200.64 per share is calculated. Using the 10.9% cost of equity, this number is discounted back to a present value of $97.19.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $120.31 is calculated (4.01 + 19.10 + 97.19). Given OSK's current price of $108.23, this model indicates that the stock is undervalued.

Scenario Analysis

Oshkosh Corporation is difficult to value because it is hard to predict government defense spending and non-residential construction. Furthermore, it is nearly impossible to assume which government contracts OSK will be awarded. I valued OSK under three scenarios using certain key metrics.

*Sales Growth* – Strong growth assumes that OSK is able to continue and even improve its product sales. Sales would grow by 8.0% each year reaching over $13.5 billion by 2028. This growth percentage is just over the 5.0% 10-year average. Weak growth assumes that OSK does not gain as many new defense contracts and access equipment growth is lower. The growth rate is 3.8% and considers the uncertainty of defense contracts and a possible decline in industrial growth.
*Terminal P/E* – Oshkosh holds a slightly higher average P/E than the industry at about a 16.7. Assuming OSK expands its defense segment, as it appears it my, I believe it will attract more investors raising the P/E close to 20.0 which is just above the 2021 P/E of 19.7.

**Figure 29: Scenario analysis**

| Base Case Expectations | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Beta | 1.12 | | | | | | |
| Sales Growth | 11.3% | 7.0% | 5.0% | 5.0% | 5.0% | 5.0% | 5.0% |
| NOPAT/S | 5.8% | 6.8% | 6.8% | 6.8% | 6.8% | 6.8% | 6.8% |
| S/NFA | 3.14 | 3.45 | 3.45 | 3.45 | 3.45 | 3.45 | 3.45 |
| Terminal Year P/E | 18.00 | | | | | | |
| **Bear Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.28 | | | | | | |
| Sales Growth | 11.3% | 7.0% | 3.8% | 3.8% | 3.8% | 3.8% | 3.8% |
| NOPAT/S | 5.8% | 6.8% | 5.2% | 5.2% | 5.2% | 5.2% | 5.2% |
| S/NFA | 3.14 | 3.45 | 3.45 | 3.45 | 3.45 | 3.45 | 3.45 |
| Terminal Year P/E | 15.00 | | | | | | |
| **Bull Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.05 | | | | | | |
| Sales Growth | 11.3% | 7.0% | 8.0% | 8.0% | 8.0% | 8.0% | 8.0% |
| NOPAT/S | 5.8% | 6.8% | 7.2% | 7.2% | 7.2% | 7.2% | 7.2% |
| S/NFA | 3.14 | 3.45 | 3.45 | 3.45 | 3.45 | 3.45 | 3.45 |
| Terminal Year P/E | 20.00 | | | | | | |

**Figure 30: Bear, base, and bull price targets**

| Expectations | P/E | Target Price |
|---|---|---|
| Base | 18.00 | $120.31 |
| Bear | 15.00 | $89.66 |
| Bull | 20.00 | $180.65 |

Figure 30 shows the results of the scenario analysis with the information mentioned above. The values of OSK stock were reached using the same discounted cash flow method outlined in the previous section. A probability-weighted value base on assumed future events could be added to give even more accurate projections. Using this technique results in three possible target prices for each base, bear, and bull case.

OSK's growth is very sensitive to sales growth which is directly correlated to the economy. Historically, gross margins have been stable which is good for OSK, and if it maintains a healthy EBIT margin and growth continues, the stock value could increase substantially. If sales do not grow and OSK does not continue to grow its defense segment, the firm should be valued much lower.

Close attention should be given to OSK's sales growth and operating costs in the near future. The company can continue to grow in value with sales growth, but if sales growth disappoints or goes negative, the stock has significant downside.

## Business Risks

I am optimistic about Oshkosh Corporation's future, but there are a number of factors that may be causes for concern.

Covid-19:

Governments around the world have implemented restrictions on their populations in order to contain or reduce the spread of the virus. Some of the restrictions include reduced business capacity, curfews, and travel bans. As restrictions have decreased, significant demands have been put on markets leading to global supply chains being in significant distress. This has resulted in resource/component shortages and production inefficiencies within the company and its suppliers.

Defense contracts:

Defense contracts are very competitive and open to change. At any time, the DoD can terminate, change, or even reopen contracts to re-competition. This is a significant risk as OSK's defense revenue in FY 2021 made up 32.6% of sales. OSK also recently entered the weapons and armament segment of defense contracts for the first time. It's ability to full-fill the first contract, to arm Army vehicles, will be crucial to the success of its defense segment.

Highly cyclical markets:

OSK is impacted heavily by market cycles due to many factors including customers' perception of market timing. Purchasers are also reliant on third-party financing, and both residential and non-residential construction spending is cyclical. Construction equipment rental companies are major purchasers of OSK access equipment, and their business varies with the economy. During the pandemic and economic times of turmoil, renters have faced their own financial restrictions as third-party lenders were less willing to provide financing for OSK's highly priced equipment.

## Appendix 1: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| Superior products<br>Brand recognition<br>Market share | Supply chain constraints<br>Global sales<br>Low ROE |
| **Opportunities** | **Theats** |
| Defense segment expansion<br>Internation expansion<br>Increase in DOD and infrastructure spending | Continued Covid-19 restrictions<br>Defense contract uncertainties<br>Costs of raw materials |

## Appendix 2: Porter's 5 Forces

Threat of New Entrants – Low

There are significant barriers to entry in the access equipment industry, but more so in the defense industry. The defense industry is well established with some of the competitors dating back to WW2. Other inhibitors are the high costs of operations and the superior technology of existing firms.

Threat of Substitutes – Low

Threats of substitutes are low because faulty or ineffective equipment affects the buyers' operations and in turn their revenues. OSK has a robust supply chain adding to the intrinsic value of its customer service, and in turn its products.

Supplier Power - High

Parts and materials that OSK uses are expensive, and the suppliers have control over the prices. To combat this, OSK buys in bulk and is often its own supplier for some products.

Buyer Power – Very High

For defense contracts, the buyer has all of the power. The DoD can terminate contracts whenever, adjust them, or even open them for rebidding. However, any expense incurred by OSK will be paid out by the government. The other segments sell to companies in more cyclical industries which gives the seller more power.

Intensity of Competition – Very High

The defense segment is highly competitive with multiple companies bidding for each contract. Companies involved in these bidding wars are frequently filing law suites to try and claim the contracts.

## Appendix 3: Sales Forecasts

| Sales (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Sales | $6,830 | $7,706 | $8,382 | $6,857 | $7,737 | $8,613 | $9,216 |
| *Growth* | | *12.8%* | *8.8%* | *-18.2%* | *12.8%* | *11.3%* | *7.0%* |
| | | | | | | | |
| Access Equipment | 3,026 | 3,777 | 4,080 | 2,515 | 3,072 | 3,594 | 3,882 |
| *Growth* | | *24.8%* | *8.0%* | *-38.4%* | *22.1%* | *17.0%* | *8.0%* |
| *% of sales* | *44.3%* | *49.0%* | *48.7%* | *36.7%* | *39.7%* | *41.7%* | *42.1%* |
| Defense | 1,820 | 1,829 | 2,032 | 2,262 | 2,526 | 2,841 | 3,097 |
| *Growth* | | *0.5%* | *11.1%* | *11.3%* | *11.6%* | *12.5%* | *9.0%* |
| *% of sales* | *26.7%* | *23.7%* | *24.2%* | *33.0%* | *32.6%* | *33.0%* | *33.6%* |
| Fire & Emergency | 1,031 | 1,070 | 1,266 | 1,147 | 1,227 | 1,251 | 1,289 |
| *Growth* | | *3.8%* | *18.4%* | *-9.4%* | *6.9%* | *2.0%* | *3.0%* |
| *% of sales* | *15.1%* | *13.9%* | *15.1%* | *16.7%* | *15.9%* | *14.5%* | *14.0%* |
| Commercial | 970 | 1,055 | 1,022 | 958 | 938 | 947 | 975 |
| *Growth* | | *8.7%* | *-3.1%* | *-6.3%* | *-2.1%* | *1.0%* | *3.0%* |
| *% of sales* | *14.2%* | *13.7%* | *12.2%* | *14.0%* | *12.1%* | *11.0%* | *10.6%* |
| Other 1 | (18) | (25) | (18) | (25) | (25) | (21) | (27) |
| *Growth* | | *35.9%* | *-26.4%* | *40.3%* | *-3.1%* | *-15.0%* | *30.0%* |
| *% of sales* | *-0.3%* | *-0.3%* | *-0.2%* | *-0.4%* | *-0.3%* | *-0.2%* | *-0.3%* |
| | | | | | | | |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| North America | 5,286 | 6,490 | 7,217 | 6,024 | 6,749 | 7,597 | 8,128 |
| *Growth* | | *22.8%* | *11.2%* | *-16.5%* | *12.0%* | *12.6%* | *7.0%* |
| *% of sales* | *77.4%* | *84.2%* | *86.1%* | *87.9%* | *87.2%* | *88.2%* | *88.2%* |
| Europe, Africa, and the Mid | 1,147 | 852 | 664 | 414 | 505 | 474 | 507 |
| *Growth* | | *-25.7%* | *-22.0%* | *-37.7%* | *22.0%* | *-6.2%* | *7.0%* |
| *% of sales* | *16.8%* | *11.1%* | *7.9%* | *6.0%* | *6.5%* | *5.5%* | *5.5%* |
| Other 1 | 396 | 364 | 501 | 419 | 484 | 539 | 576 |
| *Growth* | | *-8.1%* | *37.7%* | *-16.3%* | *15.4%* | *11.3%* | *7.0%* |
| *% of sales* | *5.8%* | *4.7%* | *6.0%* | *6.1%* | *6.3%* | *6.3%* | *6.3%* |

# Appendix 4: Income Statement

| Income Statements (in millions: excepting EPS and DPS) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Items | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
| Sales | $6,830 | $7,706 | $8,382 | $6,857 | $7,737 | $8,613 | $9,216 |
| Direct costs | $5,655 | $6,350 | $6,865 | $5,737 | $6,517 | $7,278 | $7,695 |
| Gross margin | $1,174 | $1,356 | $1,517 | $1,120 | $1,221 | $1,335 | $1,521 |
| | | | | | | | |
| SG&A, R&D, and other | $711 | $700 | $720 | $632 | $676 | $706 | $728 |
| EBIT | $463 | $656 | $797 | $489 | $545 | $629 | $793 |
| | | | | | | | |
| Interest | $52 | $61 | $46 | $50 | $47 | $47 | $47 |
| EBIT | $411 | $595 | $751 | $439 | $498 | $582 | $746 |
| | | | | | | | |
| Taxes | $127 | $124 | $171 | $113 | $25 | $122 | $157 |
| Net income | $284 | $471 | $579 | $326 | $473 | $460 | $589 |
| | | | | | | | |
| Other | ($2) | ($1) | $0 | $2 | $0 | $0 | $0 |
| Net income | $286 | $472 | $579 | $325 | $473 | $460 | $589 |
| | | | | | | | |
| Dividends | $62.80 | $71.10 | $75.50 | $81.80 | $90.40 | $99.44 | $109.38 |
| Basic Shares | 74.70 | 74.00 | 69.80 | 68.10 | 68.50 | 68.50 | 67.50 |
| | | | | | | | |
| Earnings per share | $3.82 | $6.38 | $8.30 | $4.77 | $6.90 | $6.71 | $8.73 |
| Dividends per share | $0.84 | $0.96 | $1.08 | $1.20 | $1.32 | $1.45 | $1.62 |

## Appendix 5: Balance Sheet

| Balance sheet (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| Items | 2017 | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
| **ASSETS** | | | | | | | |
| Current assets | | | | | | | |
| Cash | 447 | 455 | 448 | 583 | 1,376 | 998 | 1,450 |
| Operating assets ex cash | 2,593 | 2,815 | 2,960 | 2,953 | 3,042 | 3,273 | 3,364 |
| Operating assets | 3,040 | 3,270 | 3,408 | 3,536 | 4,418 | 4,271 | 4,814 |
| Operating liabilities | 1,356 | 1,414 | 1,435 | 1,235 | 1,795 | 1,551 | 1,659 |
| NOWC | 1,684 | 1,856 | 1,974 | 2,301 | 2,623 | 2,720 | 3,155 |
| NOWC es cash (NWC) | 1,237 | 1,401 | 1,525 | 1,718 | 1,247 | 1,722 | 1,704 |
| NFA | 2,059 | 2,024 | 2,158 | 2,280 | 2,474 | 2,743 | 2,671 |
| Invested capital | 3,743 | 3,880 | 4,132 | 4,581 | 5,097 | 5,463 | 5,826 |
| Total assets | $5,099 | $5,294 | $5,566 | $5,816 | $6,892 | $7,014 | $7,485 |
| **LIABILITIES AND SHAREHOLDERS' EQUITY** | | | | | | | |
| Short-term and long-term debt | 831 | 818 | 819 | 823 | 819 | 825 | 823 |
| Other liabilities | 604 | 548 | 713 | 907 | 1,030 | 1,030 | 1,030 |
| Debt/equity-like securities | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Equity | 2,307 | 2,514 | 2,600 | 2,851 | 3,248 | 3,608 | 3,973 |
| Total supplied capital | 3,743 | 3,880 | 4,132 | 4,581 | 5,097 | 5,463 | 5,826 |
| Toal liabilities and equity | $5,099 | $5,294 | $5,566 | $5,816 | $6,892 | $7,014 | $7,485 |

## Appendix 6: Ratios

| Ratios | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Oct-17** | **Oct-18** | **Oct-19** | **Sep-20** | **Sep-21** | **Oct-22** | **Oct-23** |
| Profitability | | | | | | | |
| Gross margin | 17.2% | 17.6% | 18.1% | 16.3% | 15.8% | 15.5% | 16.5% |
| Operating (EBIT) margin | 6.8% | 8.5% | 9.5% | 7.1% | 7.0% | 7.3% | 8.6% |
| Net profit margin | 4.2% | 6.1% | 6.9% | 4.7% | 6.1% | 5.3% | 6.4% |
| Activity | | | | | | | |
| NFA (gross) turnover | | 3.77 | 4.01 | 3.09 | 3.26 | 3.30 | 3.40 |
| Total asset turnover | | 1.48 | 1.54 | 1.20 | 1.22 | 1.24 | 1.27 |
| Liquidity | | | | | | | |
| Op asset / op liab | 2.24 | 2.31 | 2.38 | 2.86 | 2.46 | 2.75 | 2.90 |
| NOWC Percent of sales | | 23.0% | 22.8% | 31.2% | 31.8% | 31.0% | 31.9% |
| Solvency | | | | | | | |
| Debt to assets | 16.3% | 15.5% | 14.7% | 14.2% | 11.9% | 11.8% | 11.0% |
| Debt to equity | 36.0% | 32.5% | 31.5% | 28.9% | 25.2% | 22.9% | 20.7% |
| Other liab to assets | 11.9% | 10.4% | 12.8% | 15.6% | 15.0% | 14.7% | 13.8% |
| Total debt to assets | 28.1% | 25.8% | 27.5% | 29.8% | 26.8% | 26.4% | 24.8% |
| Total liabilities to assets | 54.7% | 52.5% | 53.3% | 51.0% | 52.9% | 48.6% | 46.9% |
| Debt to EBIT | 1.79 | 1.25 | 1.03 | 1.68 | 1.50 | 1.31 | 1.04 |
| EBIT/interest | 8.96 | 10.68 | 17.21 | 9.85 | 11.64 | 13.42 | 16.88 |
| Debt to total net op capital | 22.2% | 21.1% | 19.8% | 18.0% | 16.1% | 15.1% | 14.1% |
| ROIC | | | | | | | |
| NOPAT to sales | 4.7% | 6.7% | 7.3% | 5.3% | 6.7% | 5.8% | 6.8% |
| Sales to NOWC | | 4.35 | 4.38 | 3.21 | 3.14 | 3.22 | 3.14 |
| Sales to NFA | | 3.77 | 4.01 | 3.09 | 3.26 | 3.30 | 3.40 |
| Sales to IC | | 2.02 | 2.09 | 1.57 | 1.60 | 1.63 | 1.63 |
| Total ROIC | | 13.6% | 15.4% | 8.3% | 10.7% | 9.4% | 11.1% |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 8.5% | 9.5% | 7.1% | 7.0% | 7.3% | 8.6% |
| Sales / avg assets | | 1.48 | 1.54 | 1.20 | 1.22 | 1.24 | 1.27 |
| EBT / EBIT | | 90.6% | 94.2% | 89.9% | 91.4% | 92.5% | 94.1% |
| Net income /EBT | | 79.4% | 77.2% | 73.9% | 94.9% | 79.0% | 79.0% |
| ROA | | 9.1% | 10.7% | 5.7% | 7.4% | 6.6% | 8.1% |
| Avg assets / avg equity | | 2.16 | 2.12 | 2.09 | 2.08 | 2.03 | 1.91 |
| ROE | | 19.6% | 22.7% | 11.9% | 15.5% | 13.4% | 15.5% |
| **3-stage** | | | | | | | |
| Net income / sales | | 6.1% | 6.9% | 4.7% | 6.1% | 5.3% | 6.4% |
| Sales / avg assets | | 1.48 | 1.54 | 1.20 | 1.22 | 1.24 | 1.27 |
| ROA | | 9.1% | 10.7% | 5.7% | 7.4% | 6.6% | 8.1% |
| Avg assets / avg equity | | 2.16 | 2.12 | 2.09 | 2.08 | 2.03 | 1.91 |
| ROE | | 19.6% | 22.7% | 11.9% | 15.5% | 13.4% | 15.5% |
| Payout Ratio | | 15.1% | 13.0% | 25.2% | 19.1% | 21.6% | 18.6% |
| Retention Ratio | | 84.9% | 87.0% | 74.8% | 80.9% | 78.4% | 81.4% |
| Sustainable Growth Rate | | 16.6% | 19.7% | 8.9% | 12.5% | 10.5% | 12.7% |

# Appendix 7: Competitors

| | | Current | Market | Price Change | | | | | | Earnings Growth | | | | | | | LT Debt/ | S&P | LTM Dividend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Name | Price | Value | 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | LTG | NTM | 2020 | 2021 | 2022 | 2023 | Beta | Equity | Rating | Yield | Payout |
| OSK | OSHKOSH CORP | $108.23 | $7,304 | (1.0) | (4.3) | 0.1 | (8.8) | 25.4 | 25.7 | 18.9 | -18.4% | -31.2% | 9.3% | -6.2% | 71.4% | 1.41 | 30.6% | B | 1.26% | 19.4% |
| TEX | TEREX | $42.02 | $2,933 | (2.5) | (11.2) | (6.4) | (0.5) | 16.6 | 20.4 | 233.2 | 48.5% | -96.0% | 2061.5% | 47.7% | 0.5% | 1.70 | 84.5% | B | 1.13% | 14.5% |
| LNR-CA | LINAMAR | $56.58 | $3,703 | 1.4 | (9.2) | 7.7 | (5.8) | 4.1 | 7.6 | | -11.5% | -24.9% | 37.6% | 9.7% | 28.2% | 1.63 | 17.0% | | 0.93% | 9.2% |
| PIG-FR | HAULOTTE GROUP | $5.59 | $165 | 2.9 | 1.2 | (18.0) | (23.8) | (16.6) | (18.3) | | | -239.2% | -136.9% | 76.3% | 10.4% | 0.92 | | | 4.49% | |
| **Average** | | | $3,526 | 0.2 | (5.8) | (4.2) | (9.7) | 7.4 | 8.9 | 126.1 | 6.2% | -97.8% | 492.9% | 31.9% | 27.6% | 1.42 | 44.0% | | 1.95% | 14.4% |
| **Median** | | | $3,318 | 0.2 | (6.7) | (3.2) | (7.3) | 10.3 | 14.0 | 126.1 | -11.5% | -63.6% | 23.5% | 28.7% | 19.3% | 1.52 | 30.6% | | 1.20% | 14.5% |
| **SPX** | S&P 500 INDEX | $4,621 | | (1.0) | (1.5) | 4.2 | 9.4 | 24.1 | 23.0 | | | -13.9% | 46.2% | 8.3% | 9.3% | | | | | |

| | | 2022 | | P/E | | | | | | | 2021 | 2021 | | | | EV/ | P/CF | Sales Growth | | Book |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Website | ROE | P/B | 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | NPM | P/S | NM | OM | ROIC | EBIT | Current | NTM | STM | Equity |
| **OSK** | http://www.oshkoshcorp.com | 11.1% | 2.27 | 12.6 | 16.6 | 19.2 | 15.9 | 19.5 | 20.5 | 12.0 | 4.9% | 0.94 | 6.1% | 7.1% | 11.8% | 12.2 | 14.3 | 3.8% | 9.6% | $47.75 |
| **TEX** | http://www.terex.com | 27.3% | 2.77 | 9.2 | 268.5 | 15.0 | 17.0 | 11.4 | 10.1 | 10.1 | 5.1% | 0.76 | 0.3% | 2.5% | 0.4% | 39.4 | 8.8 | 16.5% | 9.6% | $15.18 |
| **LNR-CA** | http://www.linamar.com | 10.6% | 1.04 | 7.4 | 14.0 | 10.7 | 9.7 | 10.9 | 9.8 | 7.6 | 6.7% | 0.72 | 4.8% | 7.5% | 5.1% | 11.1 | | -2.3% | | $54.57 |
| **PIG-FR** | http://www.haulotte.com | 7.9% | 0.66 | 8.0 | -7.4 | 14.7 | | | 8.3 | 7.6 | 2.0% | 0.29 | -5.9% | 2.3% | -6.7% | 35.7 | 4.6 | | | $8.52 |
| **Average** | | 14.2% | 1.68 | 9.3 | 72.9 | 14.9 | 14.2 | 13.9 | 12.2 | 9.3 | 4.7% | 0.68 | 1.3% | 4.9% | 2.6% | 24.6 | 9.2 | 6.0% | 9.6% | |
| **Median** | | 10.8% | 1.65 | 8.6 | 15.3 | 14.8 | 15.9 | 11.4 | 10.0 | 8.9 | 5.0% | 0.74 | 2.5% | 4.8% | 2.7% | 23.9 | 8.8 | 3.8% | 9.6% | |
| **spx** | S&P 500 INDEX | | | 19.8 | 26.6 | 22.5 | | | 20.8 | 19.0 | | | | | | | | | | |

## Appendix 8: 3-stage DCF Model

| 3 Stage Discounted Cash Flow | |
|---|---|
| **Cost of equity** | |
| Market return | 10.00% |
| - Risk free rate | 2.42% |
| = Market risk premium | 7.58% |
| * Beat | 1.12 |
| = Stock risk premium | 8.49% |
| r = $r_f$ + stock RP | **10.91%** |

| | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | |
| | First Stage | | | Second Stage | | | | |
| Year ending January | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | *12.8%* | *11.3%* | *7.0%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* |
| *NOPAT / S* | *6.7%* | *5.8%* | *6.8%* | *6.8%* | *6.8%* | *6.8%* | *6.8%* | *6.8%* |
| *S / NOWC* | *2.95* | *3.17* | *2.92* | *3.00* | *3.00* | *3.00* | *3.00* | *3.00* |
| *S / NFA (EOY)* | *3.13* | *3.14* | *3.45* | *3.45* | *3.45* | *3.45* | *3.45* | *3.45* |
| *S / IC (EOY)* | *1.52* | *1.58* | *1.58* | *1.60* | *1.60* | *1.60* | *1.60* | *2.22* |
| *ROIC (EOY)* | *10.1%* | *9.1%* | *10.7%* | *10.9%* | *10.9%* | *10.9%* | *10.9%* | *10.9%* |
| *ROIC (BOY)* | | *9.7%* | *11.5%* | *11.3%* | *11.5%* | *11.5%* | *11.5%* | *11.5%* |
| *Share Growth* | *0.6%* | *0.0%* | *-1.5%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $7,737 | $8,613 | $9,216 | $9,677 | $10,160 | $10,668 | $11,202 | $11,762 |
| NOPAT | $517 | $497 | $626 | $658 | $691 | $725 | $762 | $800 |
| *Growth* | *42.4%* | *-4.0%* | *26.1%* | *5.1%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* |
| - Change in NOWC | 322 | 97 | 434 | 71 | 161 | 169 | 178 | 187 |
| *NOWC EOY* | *2623* | *2720* | *3155* | *3226* | *3387* | *3556* | *3734* | *3921* |
| *Growth NOWC* | *14.0%* | *3.7%* | *16.0%* | *-50.5%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* |
| - Chg NFA | 194 | 269 | -72 | 134 | 140 | 147 | 155 | 162 |
| *NFA EOY* | *2,474* | *2,743* | *2,671* | *2,805* | *2,945* | *3,092* | *3,247* | *3,409* |
| *Growth NFA* | *8.5%* | *10.9%* | *-2.6%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* |
| Total inv in op cap | 516 | 366 | 363 | 204 | 302 | 317 | 332 | 349 |
| Total net op cap | 5097 | 5463 | 5826 | 6030 | 6332 | 6648 | 6981 | 7330 |
| FCFF | $1 | $130 | $263 | $454 | $389 | $409 | $429 | $451 |
| *% of sales* | *0.0%* | *1.5%* | *2.9%* | *4.7%* | *3.8%* | *3.8%* | *3.8%* | *3.8%* |
| *Growth* | | *9013.9%* | *101.9%* | *72.2%* | *-14.2%* | *5.0%* | *5.0%* | *5.0%* |
| - Interest (1-tax rate) | 44 | 37 | 37 | 39 | 41 | 43 | 45 | 47 |
| *Growth* | *20.5%* | *-16.7%* | *0.2%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* |
| + Net new debt | -4 | 6 | -2 | 41 | 43 | 45 | 48 | 50 |
| Debt | 819 | 825 | 823 | 864 | 907 | 952 | 1000 | 1050 |
| *Debt / tot net op capita* | *16.1%* | *15.1%* | *14.1%* | *14.3%* | *14.3%* | *14.3%* | *14.3%* | *14.3%* |
| FCFE w debt | ($47) | $99 | $224 | $456 | $392 | $411 | $432 | $453 |
| *% of sales* | *-0.6%* | *1.2%* | *2.4%* | *4.7%* | *3.9%* | *3.9%* | *3.9%* | *3.9%* |
| *Growth* | | *-310.2%* | *125.5%* | *103.3%* | *-14.1%* | *5.0%* | *5.0%* | *5.0%* |
| / # Shares | 68.5 | 68.5 | 67.5 | 67.5 | 67.5 | 67.5 | 67.5 | 67.5 |
| FCFE | ($0.69) | $1.45 | $3.32 | $6.75 | $5.80 | $6.09 | $6.40 | $6.72 |
| *Growth* | | *-310.2%* | *128.8%* | *103.3%* | *-14.1%* | *5.0%* | *5.0%* | *5.0%* |
| * Discount factor | | 0.90 | 0.81 | 0.73 | 0.66 | 0.60 | 0.54 | 0.48 |
| Discounted FCFE | | $1.31 | $2.70 | $4.95 | $3.83 | $3.63 | $3.44 | $3.25 |

| Third Stage | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Terminal value P/E** | | | | | | | | |
| Net income | $473 | $460 | $589 | $619 | $650 | $683 | $717 | $752 |
| *% of sales* | *6.1%* | *5.3%* | *6.4%* | *6.4%* | *6.4%* | *6.4%* | *6.4%* | *6.4%* |
| EPS | $6.90 | $6.71 | $8.73 | $9.17 | $9.63 | $10.11 | $10.62 | $11.15 |
| *Growth* | *44.8%* | *-2.8%* | *30.0%* | *5.1%* | *5.0%* | *5.0%* | *5.0%* | *5.0%* |
| Terminal P/E | | | | | | | | 18.00 |
| * Terminal EPS | | | | | | | | $11.15 |
| Terminal value | | | | | | | | $200.64 |
| * Discount factor | | | | | | | | 0.48 |
| Discounted terminal value | | | | | | | | $97.19 |

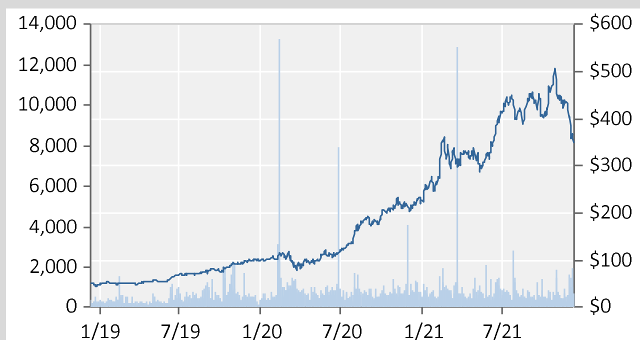
| Summary (using P/E multiple for terminal value) | | |
|---|---|---|
| First stage | $4.01 | Present value of first 2 year cash flow |
| Second stage | $19.10 | Present value of year 3-7 cash flow |
| Third stage | $97.19 | Present value of terminal value P/E |
| Value (P/E) | **$120.31** | |

| Recommendation: Buy | | | | |
|---|---|---|---|---|
| Current Price | **$348.24** | --- | Ticker | GNRC |
| 1 Year Bear | $329 | *(6)%* | Sh. Out. (M) | 64.2 |
| 1 Year Base | **$461** | ***32%*** | M.Cap. ($B) | 22.0 |
| 1 Year Bull | $619 | *78%* | EV ($B) | 21.5 |

Industrial, Power Generation Equipment

# Generac Inc.

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | 840% | 668% | 352% | 160% | 153% | (23)% | (21)% |

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021E | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($B) | **1.6** | **2.0** | **2.2** | **2.5** | **3.5** | **4.6** | **5.7** |
| *Gr. %* | 15.8 | 21.0% | 9.0% | 12.7% | 43.0% | 24.8% | 22.7% |
| *v. Cons.* | - | - | - | - | - | 26.8% | 12.4% |
| *Industry* | 8.5% | 14.8% | 15.5% | (0.9)% | 33.7% | 20.0% | 9.5% |
| **EPS** | **$3.40** | **$4.70** | **$5.06** | **$6.47** | **$9.60** | **$10.9** | **$14.4** |
| *Gr. %* | 12.2% | 38.2% | 7.7% | 27.9% | 48.4% | 13.6% | 31.8% |
| *v. Cons.* | - | - | - | - | - | 21.1% | 16.1% |
| *Industry* | 15.3% | 0.4% | 137.6 | 1.1% | 92.0% | 28.7% | 19.5% |

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021E | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | **9.5%** | **10.9** | **11.5** | **14.1** | **14.1** | **14.8** | **15.9** |
| *Industry* | 2.5% | 8.0 | 12.3 | 10.3 | 10.3 | 14.5 | 15.8 |
| **ROE** | 32.2% | 33.5 | 28.3 | 28.8 | 28.8 | 37.7 | 34.5 |
| *Industry* | 14.3% | 28.0 | 39.6 | 20.5 | 20.5 | 33.0 | 31.9 |
| **ROA** | 8.2% | 9.9 | 9.9 | 11.8 | 11.8 | 15.4 | 17.2 |
| *Industry* | -0.4% | 8.0 | 12.1 | 8.0 | 8.0 | 11.9 | 13.1 |
| **A T/O** | 0.86 | 0.91 | 0.87 | 0.84 | 0.84 | 1.04 | 1.08 |
| **A/E** | 4.04 | 3.37 | 2.84 | 2.44 | 2.57 | 2.44 | 2.01 |

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021E | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | 14.6 | 10.9 | 24.4 | 49.1 | 42.4 | 29.9 | 25.8 |
| *Industry* | 41.6 | 24.6 | 40.1 | 131.9 | 64.6 | 32.6 | 26.4 |
| P/S | 1.93 | 1.59 | 2.90 | 6.26 | 6.52 | | |
| P/B | 6.51 | 4.46 | 6.73 | 11.62 | 12.33 | | |
| P/CF | 12.51 | 11.15 | 26.09 | 32.70 | 39.39 | | |
| EV/EBITDA | 15.73 | 10.76 | 18.71 | 31.01 | 31.01 | | |
| D/P | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | | |

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## Summary

I recommend a buy rating with a target of $461. Generac has a tremendous growth opporuntity in the home energy storage space, and maintains a strong market share in its legacy products. These powers can lead to the company expanding margins and capitalizing on green initiatives, especially the transition to renewable energy yields volitile energy supplies. This risk of relying on severe weather offsets my optimism that the core business can maintain the growth seen in past few years. The stock is undervalued based on relative and DCF analysis.

## Key Drivers

- Environmental surprises and initiatives: Most of Generac's sales come after weather induced power outages, which drive residential and commercial customers to purchase backup systems. Additionally, the company's green tech is poised for growth.
- Housing market size: Generac has penetrated only 5% of the housing market, which leaves massive growth in this space. The COVID pandemic has driven residences to be places of business which must have power, which increases the value of home backup systems.
- Macroeconomics: GNRC will benefit from industrial efficiency improvements domestically especially in an inflationary environment with rising wages. The company should also see significant growth in the underpenetrated international market.
- Infrastructure package: The infrastructure package should provide additional tailwinds as jobsites and 5G towers will require portable and backup generators respectively.

## Valuation

Using a relative valuation approach, Generac appears to be undervalued in comparison to the electrical products industry and its historical PE, which values the stock at $370. DCF analysis implies that the stock is worth $490. A weighted average of the approaches suggests that Generac is undervalued, as the stock's value is $461 and the shares trade at $348.24.

## Risks

- Drop in consumer confidence and household net worth
- Unpredictability of power outages
- Party gridlock further delaying infrastructure spend

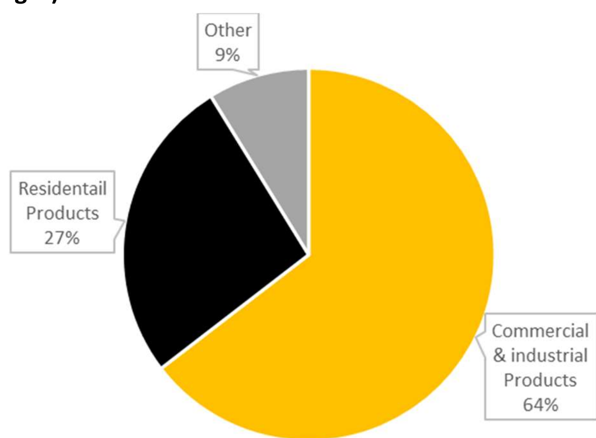
## Company Overview

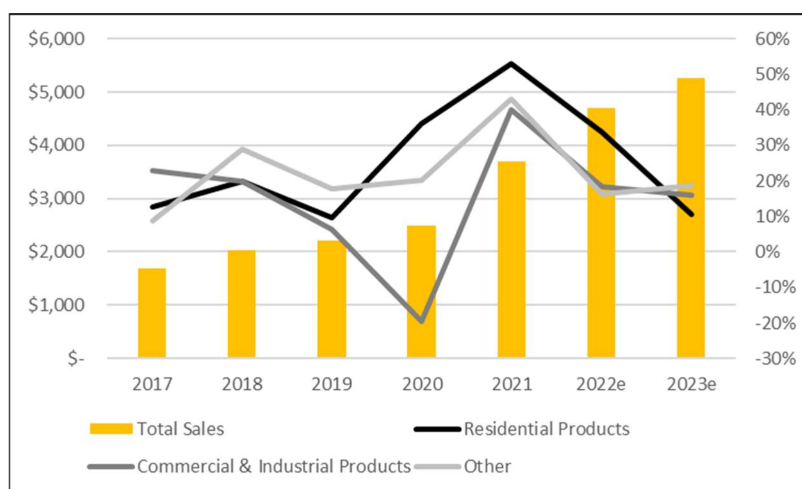
Generac's revenue has grown at a CAGR of 17% since 2016

Generac (GNRC) is a manufacturer of power generation, energy storage systems, grid service solutions, and other power products serving residential, commercial, and industrial markets. Its primary products include industrial, commercial, residential, and portable generators. As the largest company with a primary focus on generators, it maintains one of the leading market positions, with 71% share of the home generator market[1]. Recently, Generac has shifted focus towards growing its product line of clean energy and natural gas generators. It recently began providing energy storage systems for use with solar panels and other renewable power sources. Additionally, the company entered the grid services market, which offer optimization services to current power grids. Generac believes that as the traditional utility model evolves, cleaner and more decentralized grids will flourish, and Generac will be among the first to benefit from that transition.

1) **Residential products**: these are sold through independent resellers and consist of automatic home standby generators, portable generators, energy storage and monitoring. This segment makes up 64.6% of sales and grew 32.7% from 3Q20 to 3Q21.
2) **Commercial and Industrial products**: C&I products consist of larger output stationary generators with power outputs up to 3,250kW. This segment also includes mobile generators, light towers, mobile heaters, and mobile pumps. In most cases, the C&I products are not sold directly to the customer but are distributed through industrial dealers or rental companies. This segment makes up 27.4% of Generac's sales and grew 46.6% from 3Q20 to 3Q21.
3) **Other:** this segment consists of aftermarket parts and accessories sold to its dealers. Additionally, Generac makes light towers that provide temporary solutions for outdoor uses. This makes up 14.0% of all sales and grew 34.4% from 3Q20 to 3Q21.

**Figures 1 & 2: Segment revenue for Generac (left); and Total revenue (in millions) and Y/Y revenue growth by segment since 2017 (right)**




*Source: Company reports*

[1]Generac company reports

## Business/Industry Drivers

Though several factors may contribute to Generac's future success, the following are the most important business drivers:

1) Environmental surprises and initiatives
2) Housing market size
3) Macroeconomics & comps
4) Infrastructure package

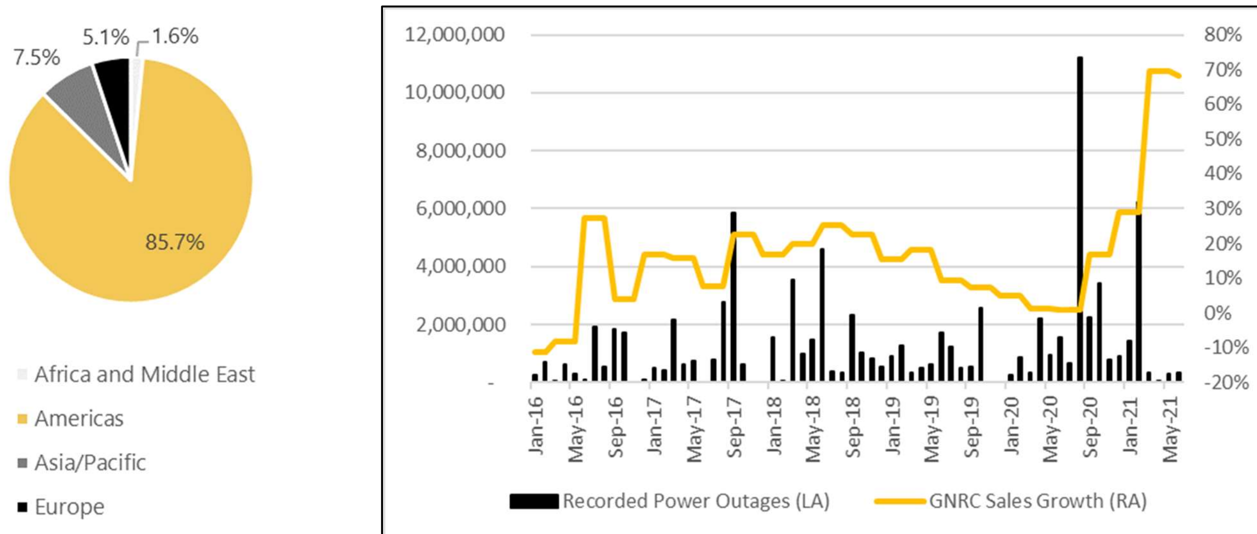
<u>Environmental surprises and initiatives</u>

GNRC has achieved 71+% market share in its residential segment

In recent years, there have been an increasing number of environmental surprises throughout Generac's market. In California specifically, the longstanding wildfires have required central utilities to shutoff the power grid. This forces users to rely on a decentralized grid, which leverages backup power products including home standby and commercial & industrial (C&I) units. Additionally, environmental surprises in hurricane effected regions have sparked a "fear factor" in the eyes of residents, governments, and executives.

Harsher winters, longer summers, and fluctuating environmental conditions can also drive sales among residents or in areas that rely on wind or solar power. In recent months, Europe has experienced low wind, which is problematic for people who rely on wind-generated power. Generac is well poised to fill in the gaps of that market by providing reliable standby power via natural gas or by selling its PWRcell batteries, which can power the average home for about ½ day.

**Figures 3 and 4: Geographic revenue for Generac (left); year to year percent change in sales for GNRC (right)**




*Source: Company reports, FactSet*

For Generac, sales are influenced heavily by environmental disasters and their resultant power outages. It is no surprise that the company performs well after hurricane season (see Figure 4). The American Society of Civil Engineers estimated that 75% of power outages are weather induced.[1] Additionally, the Federal Emergency Management Agency (FEMA) reported that 1 out of every 3 Americans lived in a place that was declared a natural disaster during the summer of 2021[2].

[1]The ASCE Library: *Economic Impact Assessment of Severe Weather–Induced Power Outages in the US*



[2]The Washington Post: *Nearly 1 in 3 Americans experienced a weather disaster this summer*, September 4, 2021

In August 2021, the Department of the Interior declared the first Colorado River Basin water shortage, meaning that authorities are rationing water to the region's inhabitants, in hopes of maintaining a steady energy output from the many hydroelectric dams that reside on the Colorado River. It is estimated that the river generates power for 782,000 households, and the Hoover Dam (Nevada) alone generates power for 1.3 million people in the states of California, Nevada, and Arizona. A study by the UW-Milwaukee School of Freshwater Sciences warns about the dangers of river-fed reservoirs falling below "functional" levels, where the dams would need to stop using turbines to avoid damaging them[1]. The water levels in the two largest lakes, Powell and Mead, are not far from causing dysfunction. A large portion of the river's water is used for agriculture that supports cattle feed. The cropland needs more irrigation in hot, dry conditions, such as the ones we have seen in recent years. This situation could provide an opportunity for Generac to further penetrate the market for "Grid 2.0" and solar support systems, by selling its PWRcells and residential home backup systems to provide resilience for customers between periods of lost, rationed, or expensive power. The Generac PWRcell performs better than its competitor products, Tesla Powerwall, LG Energy Solution, and Enphase. In the specifications of usable energy, continuous power, and peak power, the PWRcell leads the market in performance by 33%, 29%, and 20% respectively.

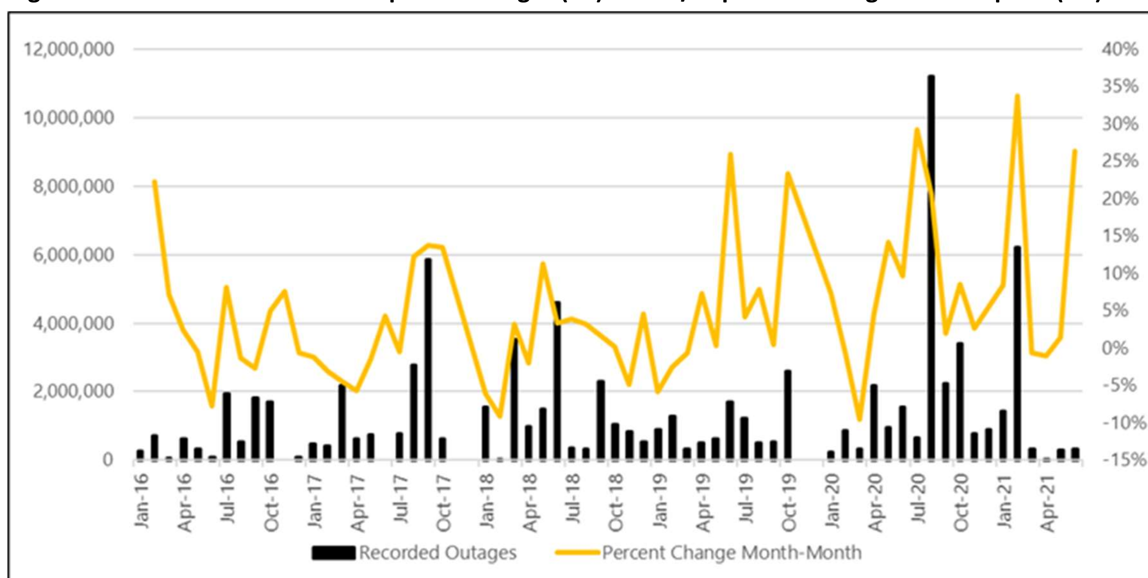
GNRC capitalizes on periods with volatile environmental conditions

Some of the environmentally induced demand is driven by post-hoc consumer fear, and other times is due to regulations put in place by governments. Following the Texas winter storm of 2021 - which left 4.5 million homes and businesses without power and forced 56 long-term care facilities to evacuate to homeless shelters – the state started a new bill with intent to **overhaul the energy industry**. The bill will require weatherization for natural gas generators – allowing Generac to deploy its service teams to areas without prior demand. The same winter storm required 27 skilled nursing facilities to evacuate residents, while 176 relied on backup generators, out of the 1220 facilities statewide. Another bill is pushing to require power generators at long-term care facilities, with 72 hours of gas stores on-site.

Since 2016, Generac's revenue has jumped an average of 34% YoY in the quarters following large power outages. The share price in the months of those power outages grew an average of 16% when compared to the month prior. The company reinforces that it is not a climate scientist, though in recent years we have seen many more natural disasters than historic averages. The current sentiment around climate change is that these disaster situations will continue, but the company should expect significant fluctuations in earnings due to the randomness and uncertainty of such events. Overall, Generac benefits greatly from unpredictable natural disasters. Its headquarters and manufacturing facilities are in areas with low rates of severe natural disasters, allowing for a further advantage when disaster strikes.

PWRcell outperforms Tesla Powerwall+, LG Energy Solution RESU, and Enphase Encharge 10 in usable energy, continuous power, and peak power metrics

**Figures 5: Number of recorded US power outages (LA) and M/M percent change in GNRC price (RA)**




*Source: Company reports, US Energy Information Administration*

[1]UW-Milwaukee Center for Water Policy: *Climate Change Impacts on Hydropower in the Colorado River Basin,* Aaron Theil

[2]Generac November 2021 Investor Presentation

Housing market size

Residential sales have grown at a 21% CAGR since 2016

Residential sales make up 66% of Generac's total sales, making it a vital segment for the company. Since 2016, residential sales have grown at a 21% CAGR. Residential home backup systems (i.e., natural gas generators and/or backup battery banks) benefit from home builds, home sales, and a "fear factor" of environmentally induced demand. The company estimates only 5% of US homes have a generator, providing a massive growth opportunity for residential home backup products. In the US, c1.5 million new homes are built each year, adding to the existing supply of 115 million homes.

If Generac continues to grow residential sales by 12% until 2031, (current 75% market share in residential home backup systems), it can expect to sell approximately one million units annually by 2031, yielding revenue of approximately $7.1 billion (current residential revenue is $2.5 billion). This growth will result in the company reaching only 5% more of all US homes, conservatively. I do not expect the company to achieve greater than 75% market share in this segment and would not expect the bottom 60% of new homes to install a home backup system upon construction, without some sort of government regulation.

**Figure 6: Market Opportunity for Residential Systems**

| | Market Opportunity for Residential Systems | | | |
|---|---|---|---|---|
| 1 | Average Household Cost | $ | 10,000 | |
| 2 | Homes in the United States | | 115,000,000 | |
| 3 | Penetrable Market (% of homes) | | 40% | |
| | Years to achieve penetrable market | | 10 | |
| (1*2*3) | Market Size | $ | 460,000,000,000 | |
| | Long-Term Market Share | | 50.0% | |
| | Long-Term Differential Margin (FCFE) | | 9.5% | |
| | Discounted Growth Factor (WACC) | | 12.6% | |
| | Sales 10-Year CAGR | | 33% | |
| | Terminal Growth Rate | | 2.5% | |
| | Shares Outstanding | | 64,000,000 | |
| | Net Present Value of the Opportunity | | 45,346 | (m) |
| | **Value Per Share** | **$** | **709** | |

*Source: Company reports*

Conversely, if the residential home backup market grows to reach 40% of US homes by 2032, and Generac maintains a 50% market share in that segment, it will total $230 billion in sales over the 10-year period. This provides the company with a $45.3 billion dollar opportunity, or $709 per share for its residential home backup segment.

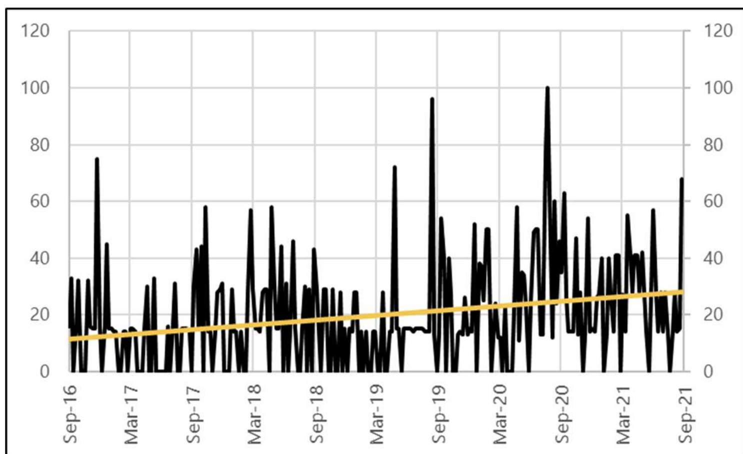
(See Appendix 10 for entire calculation)

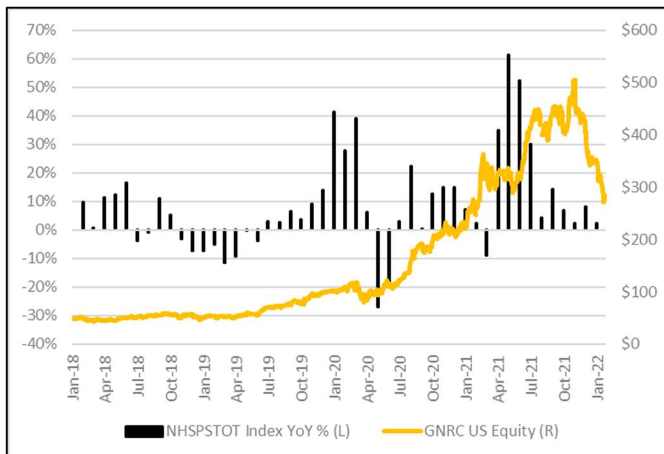
Housing shortages are widespread across the United States, and the millennial cohort is now searching for starter homes. If the shortage drives the entry level housing supply to replenish itself, that means more homes will be built at a lower price, further driving demand. Couple this with the pandemic-driven urban exodus, where city dwellers are leaving the metro for suburbs, where single family homes prevail.

Bloomberg estimates 91% of sub-urban counties experienced increases in populations, and 82% of urban centers saw declines. I would conclude that this understates the potential market size, as a larger portion of US residents will dwell in a place with more fragile utility infrastructure.

Another answer to the question of sustained demand could be found by observing the volume of generator permits. To install a generator, customers must obtain a permit first. The Google search volume for "generator permit" has been rising over time and could be a positive indicator for quarter-to-quarter sales.

**Figures 7 and 8: Google Search Queries for "generator permit", United States, 2016-Present (left); United States Y/Y change in home starts (L) and GNRC Y/Y stock price (R) (right)**



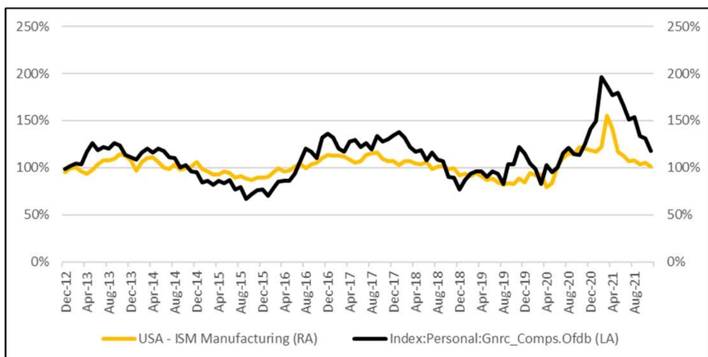

*Source: Company reports, Google Trends, Bloomberg*

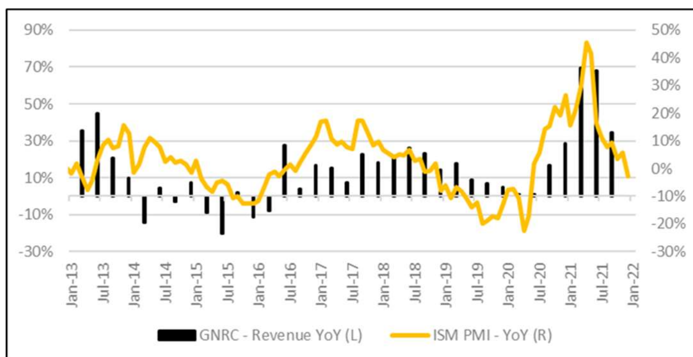
US industrials may be poised to outperform service heavy industries as automation increases to match peer nations

Macroeconomics & Comps

The ISM PMI has had a strong correlation with the sales growth of Generac Composite (Gnrc_Comps.Ofdb), consisting of Cummins, Inc., Caterpillar, Emerson Electric Co., Enphase, Eaton Corp., Generac, and Vicor Corporation. Since 2011, the two metrics have had a 0.78 correlation, and an $R^2$ of 0.59. Chart 9 (below) compares the two. The industrial nature of these companies makes the index perform cyclically. Looking forward, the sector could be poised for growth as United States companies lag the rest of the world in terms of automation. Higher wages may drive this transition to avoid compressing margins. The cost of robotics is dropping, and cost of capital is staying low. Though it recently announced a mass hire of 700 employees, Generac does not need to maintain a large payroll, when compared to service companies, which will need to continue to pay higher wages and feel margins pinch.

**Figure 9 and 10: GNRC Comps Index YoY (LA) and United States ISM PMI YoY (RA); Generac Sales YoY and ISM PMI YoY**




*Source: FactSet*

Fuel costs could also drive inflation for private competitors that manufacture in Europe. If the United States does not open its natural gas stores to the rest of the world, its generators will not be impacted by the surge in world prices. This will help maintain the relatively low operating costs for Generac and avoid deterring customers who are considering investing in a natural gas-powered system. In addition, US consumers will avoid an "energy tax" if utility bills remain relatively low.

Fuel costs may remain low if the US continues to restrict sales of natural gas outside the country

When compared to household net worth, Generac's sales are correlated (0.56), showing that it benefits from higher household net worth, likely due to more funds available to spend on improvement projects such as a generator (Figure 11).

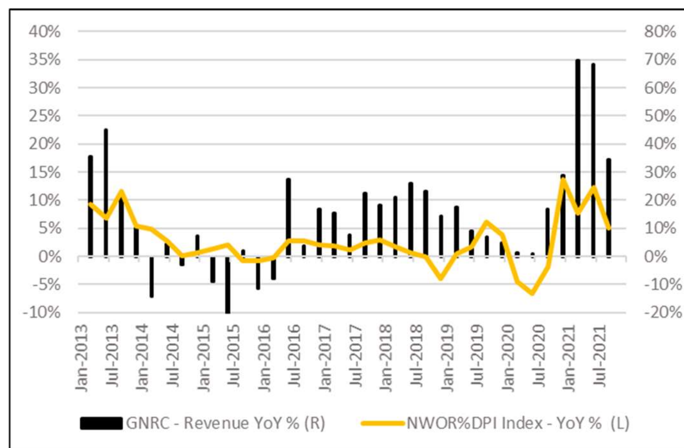
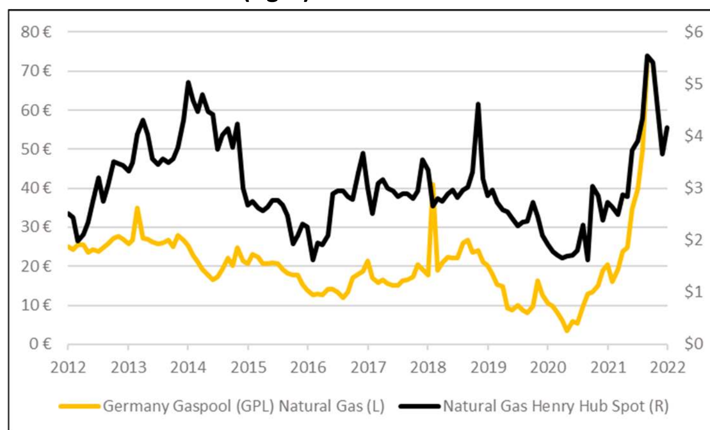
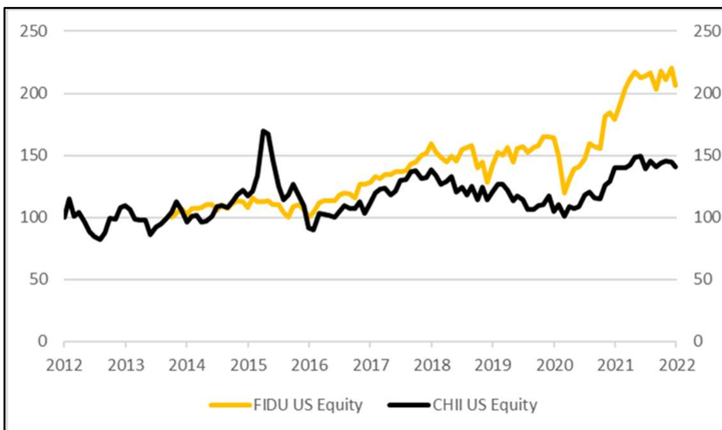



**Figure 11: Household Net Worth YoY% and GNRC Sales Growth YoY%**

**Figure 12 and 13: Natural Gas ($/Mmbtu) and Natural Gas (EUR/mwh) (left); Fidelity MSCI Industrial Index ETF and Global X MSCI China Industrials ETF (right)**




*Source: FactSet*

Energy costs, supply chain bottlenecks, wage growth, and corporate tax hikes will drive inflation and yields

Higher natural gas prices, which the United States is not completely immune from, could propel inflation higher. The combination of energy prices, supply chain bottlenecks, wage growth, and corporate tax hikes, would cause the cost of goods to increase for producers, which will certainly be pushed towards consumers. These inflationary pressures have already worked themselves into Fed monetary policy and could lead to higher interest rates on the 10-year Treasury.

With the Chinese regulatory crackdown and potential economic slowdown on the horizon, the company's lack of exposure to the region protects it from regulation that would deter sales or investment in the equity. Global industrials are exposed to China have underperformed domestic industrials in the past year. (Figure 13)

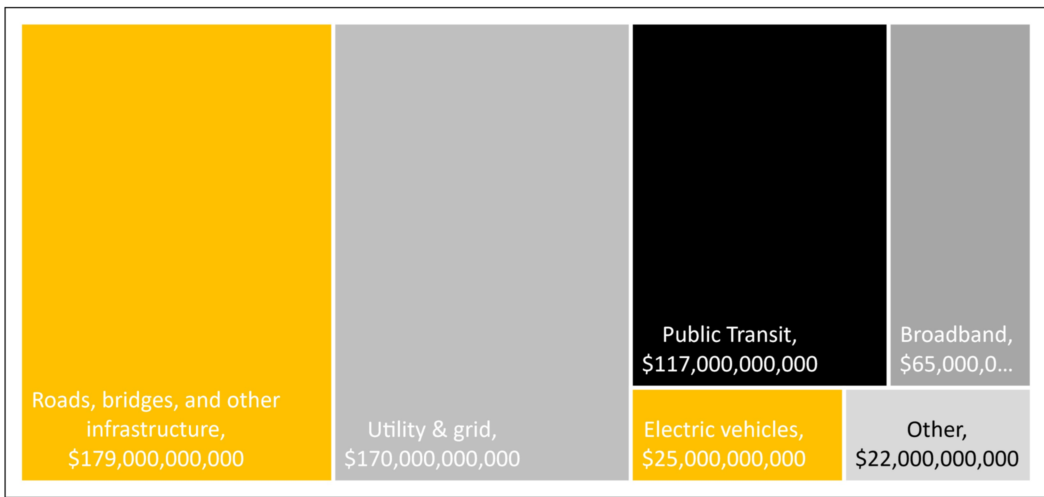
Infrastructure & American Jobs Plan

The pending infrastructure bill is a major driver for Generac. The bill, which plans to spend c$550 billion, will provide new roads, bridges, utility updates, and tech infrastructure such as broadband and 5G. This could push the demand for (1) portable generators on jobsites and (2) 5G tower backup power systems. As this technology is essential for modern society to function, it will be imperative that it is always powered.

American Society of Civil Engineers (ASCE) rates current utility infrastructure at D+

Independent of the infrastructure bill, the current infrastructure landscape remains in need of updating. In the utility sector specifically, the American Society of Civil Engineers (ASCE) rates current infrastructure at a D+. Power outages are especially costly for large industrial companies, which can lose tens of thousands of dollars in production per hour when without power. In total, the ASCE estimates a $18-33 billion annual loss in GDP due to weather related power outages.

**Figure 14: The Infrastructure Bill spending breakdown**



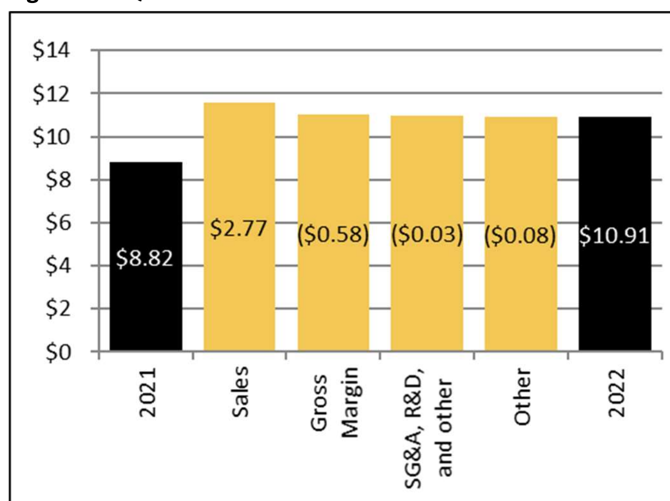

*Source: whitehouse.gov*

## Financial Analysis

I anticipate EPS to grow to $10.91 in FY 2022. Revenue growth in the US and internationally should contribute $2.77 to earnings. A modestly lower gross margin, due to material costs and supply chain bottlenecks should subtract $0.58 from EPS respectively. I anticipate that SG&A will increase slightly, due to manufacturing wage growth, taking $0.03 from earnings. In total, supply chain bottlenecks, materials and wage expenses will detract from sales growth and reduce earnings by a total of $0.61. Finally, I forecast interest expense due to less cash flow from operations will require a smaller debt paydown, which will result in a slightly higher interest expense. This will take $0.08 from earnings. In total, the year should add $2.09 to EPS.

Supply chain bottlenecks, materials and wage expenses will reduce earnings by a total of $0.61 in 2022

**Figure 15: Quantification of 2022 EPS drivers**

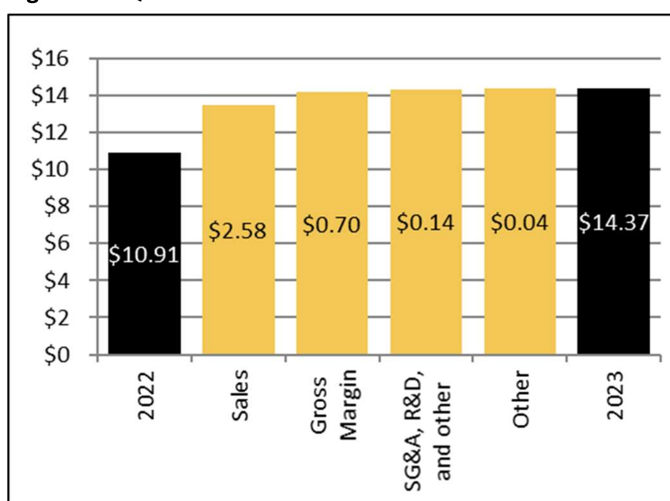



*Source: Company Reports, IMCP*

I expect 2023 EPS to increase from $10.91 to $14.37. Generac will gain $2.58 of earnings from increased sales in all three segments in the US and internationally. I anticipate expansion in gross margin from bottleneck relief and the company's successful vertical integration, which will contribute $0.70 to EPS. Sustained labor costs will ease, decreasing SG&A and leading to a $0.14 increase in EPS. Additionally, the higher cash flow from operations will allow the company to pay more debt and decrease interest expenses.

Gross margin expansion from bottleneck relief and vertical integration will contribute $0.70 to EPS in 2023

**Figure 16: Quantification of 2023 EPS drivers**




*Source: Company Reports, IMCP*

I am slightly less optimistic than consensus estimates for 2022. However, I anticipate more sustained and higher growth in 2023 driven primarily by GNRC's commitment to improving efficiency through automation and vertical integration, particularly with its natural gas generators.

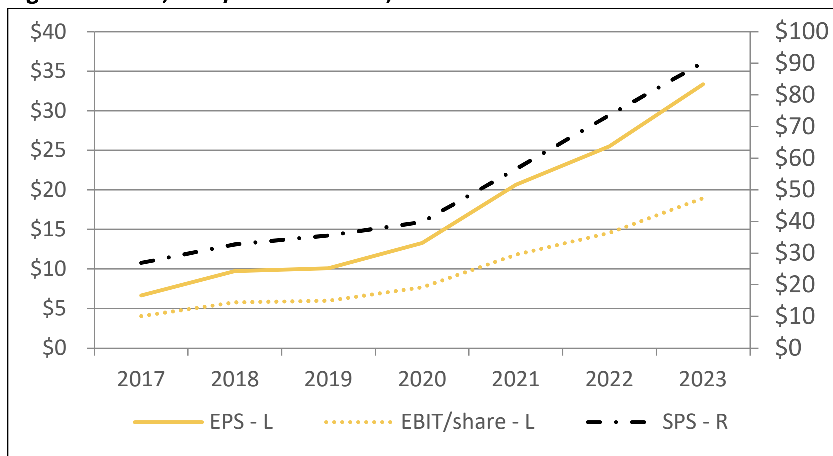
**Figure 17: EPS and YoY growth estimates by quarter**

| | 2022E | 2023E |
|---|---|---|
| Sales | $ 4,615 | $ 5,664 |
| YoY Growth | 25% | 23% |
| Revenue Consensus | $ 4,688 | $ 5,241 |
| YoY Growth | 26.57% | 11.80% |
| EPS | $ 10.91 | $ 14.37 |
| YoY Growth | 14% | 32% |
| EPS Consensus | $ 11.68 | $ 13.52 |
| YoY Growth | 22% | 16% |

*Source: Factset, IMCP*

Growth should remain strong for the duration of the decade as Generac's acquisitions have yet to significantly impact top-line growth.

**Figure 18: EPS, EBIT/share Growth, and SPS Growth**




*Source: Factset, IMCP*

Revenues

Generac's revenue is largely tied to natural disasters and has had strong growth since 2016. I expect that trend to continue in 2022 and 2023, though I expect the rate of growth to diminish slightly thereafter, as these events are relatively unpredictable. Growth should remain strong for the duration of the decade as Generac's acquisitions have yet to significantly impact top-line growth. International sales are a large opportunity for the company. International orders should climb in winter 2021-22, as recent European Union stimulus focuses on green technology, and the region recently suffered the effects of energy shortages.

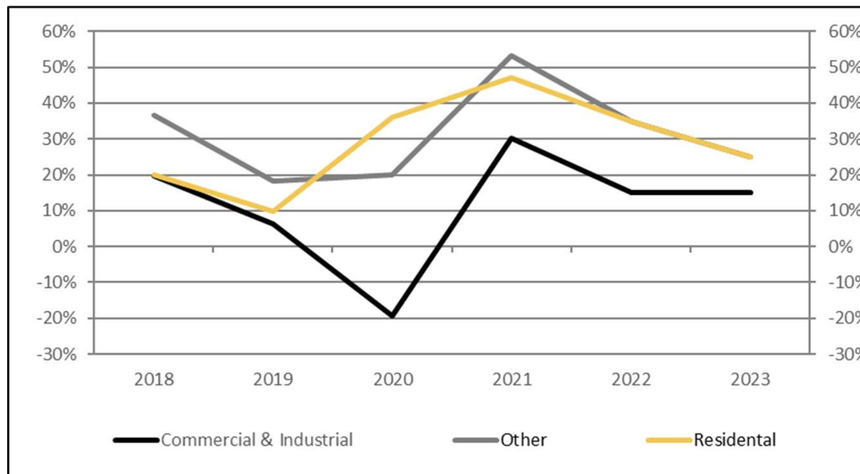
Parts sales ("Other") typically trails growth of residential products

Generac chore products such as power washers, snow blowers, and lawn edgers should see slower growth due to their durability, but I expect the "Other" segment to be supported by parts sales which typically trail growth of residential products. I expect portable generator growth to remain high as a lockdown mentality persists and young cohorts continue to choose domestic vacations and lifestyles frequently utilizing campsites and RVs.

Given the long-standing need for generators in industrial settings, and the scale of other players in that space, I expect growth to level between 20-25% into 2023. Though C&I generators are the most essential, C&I does not have the same growth profile as residential home backup technology because it is already heavily penetrated.

Generac's Commercial & Industrial segment does not have the same growth profile as residential home backup technology because it is already heavily penetrated

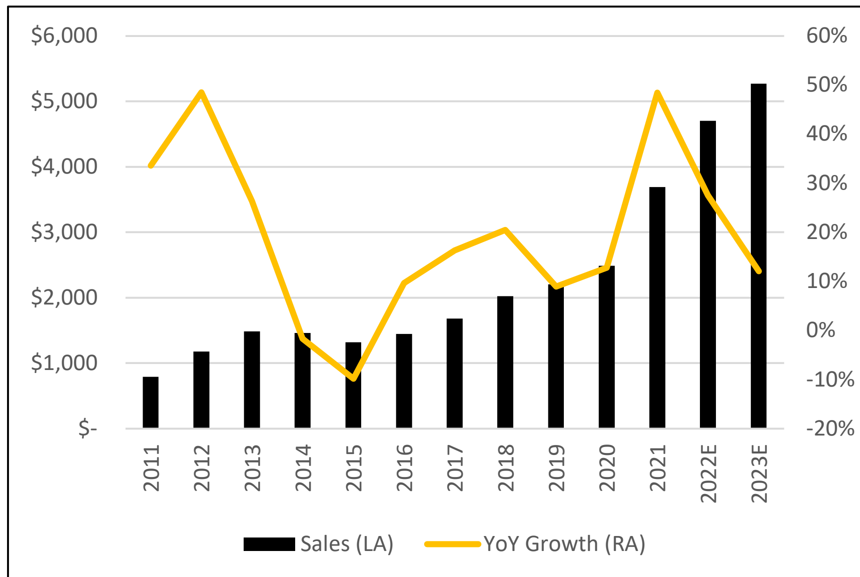
**Figure 19: Generac segment revenues**




*Source: Company Reports*

Residential home backup revenue should continue to grow. Home backup systems are becoming less of a luxury item and more of an essential. Coal shortages in the United States are an early indication that the country is entering a period of energy volatility. The probability of cutoffs, driving home backup demand, is on the rise. Environmental movements should push for higher adoption of solar and home backup technologies. I anticipate a low interest rate environment that should drive home construction and improvement spending.

**Figure 20: Revenue (millions - LA) vs YoY revenue growth (RA)**

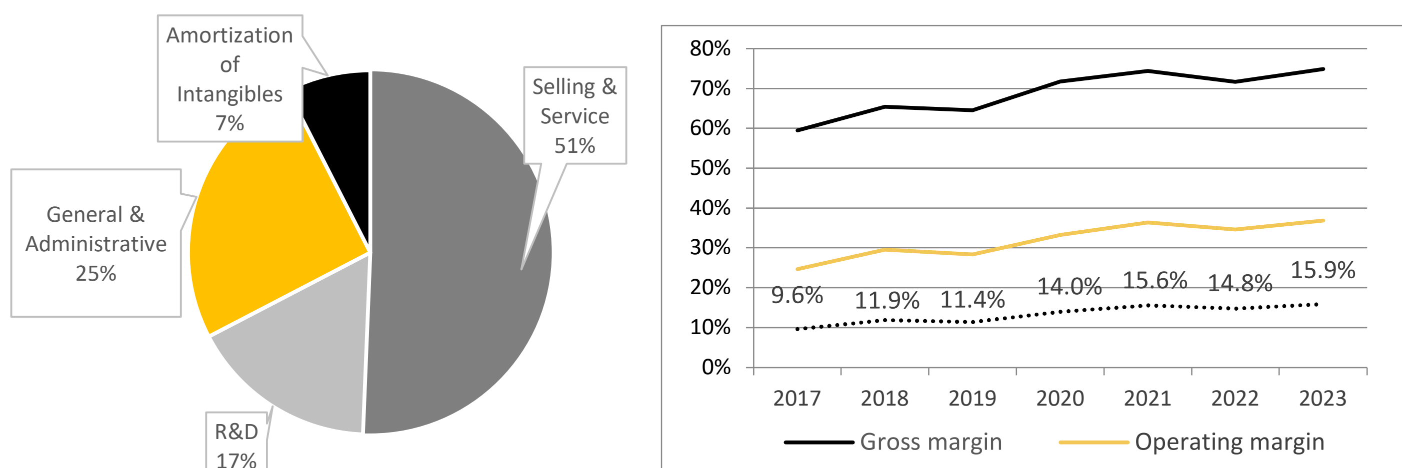



*Source: Company Reports*

Operating Income and Margins

Operating expenses are composed primarily of selling, general and administrative expenses. The company reduced its R&D spend as a percent of sales, though cash acquisitions rose. The rise in expenses can be attributed to higher wages and inconsistent raw material prices. I expect Generac to see higher selling & service expenses as it will need to maintain a strong salesforce to maintain sales growth and expand into new markets where backup power awareness is not existent. International expansion will be especially dependent on the company's ability to sell the value of backup power, particularly in C&I applications.

**Figures 21 & 22: Composition of 2021 operating expenses (left); Figure 23: gross, operating, and net margins including expectations for 2022 and 2023 (right)**

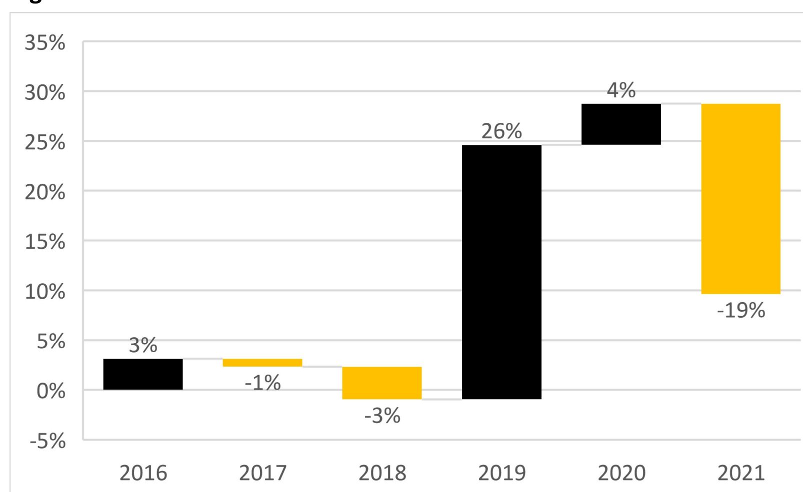



*Source: Company Reports*

R&D expenses as a percent of sales fell during FY21, likely because of tremendous sales growth and use of cash to acquire innovative product lines from Chilcon, Apricity Code, Off Grid Energy, and Deep Sea.

The company reduced its R&D spend as a percent of sales, though cash acquisitions rose

**Figure 24: R&D as a % of sales YoY**




*Source: Company Reports*

Generac management does not account for any M&A accretion, though Generac has made 10 acquisitions in the past two years

Generac management does not account for any M&A accretion, though Generac has made 10 acquisitions in the past two years. After speaking with engineers in its green energy division, the company spends a significant portion of its budget on researching potential acquisitions. R&D will either come in the form of internal R&D (on the income statement) or use of cash through acquisitions. I would contend that the recent acquisitions will prove as valuable for top-line growth, though they only contributed to 1% of sales growth in 3Q21, compared to 34.4% sales growth YoY. The transfer of R&D to the cash flow statement, in the form of acquisitions, will positively impact operating margins.

**Figure 25: GNRC Operating margins, 2020 – 2023E**

| | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|
| **Sales** | $ 2,486 | $ 3,554 | $ 4,615 | $ 5,842 |
| **Cost of goods sold** | 1,528 | 2,204 | 2,907 | 3,622 |
| **Gross income** | 958 | 1,350 | 1,708 | 2,220 |
| *Gross margin* | 39% | 38% | 37% | 38% |
| **Operating expenses** | 479 | 610 | 831 | 1,168 |
| *Growth* | 12% | 27% | 36% | 41% |
| **Operating income** | 479 | 741 | 877 | 1,051 |
| *Operating margin* | 19% | 21% | 19% | 18% |

*Source: Company Reports*

Return on Equity

Generac ROE fell in 2019 and 2020. ROE climbed to a normal level for the company in 2021 due to rising asset turnover, primarily due to high sales growth, which led to higher margins. DuPont analysis for GNRC reveals that ROE is driven almost by margins, asset turnover, and interest. ROE rose to a 4-year high in 2021 due to peak margins, asset turns, and low interest burden. I expect margin compression in the next two years to be flat, as GNRC is expecting to increase spending on new technology development and production to meet its growth expectations and gain essential market share. This investment will pay off as sales rise faster than assets (turns rise from 0.97 to 1.08). ROE will decline from 39% to 35% as leverage is reduced.

ROE rose to a 4-year high in 2021 due to peak margins, asset turns, and low interest burden

**Figure 26: ROE breakdown, 2011 – 2016E**

| 5-stage DuPont | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|
| EBIT/Sales | 18% | 17% | 19% | 21% | 20% | 21% |
| Sales/avg assets | 0.91 | 0.87 | 0.84 | 0.97 | 1.04 | 1.08 |
| EBT/EBIT | 87% | 86% | 93% | 95% | 96% | 97% |
| Net income/EBT | 78% | 79% | 78% | 79% | 78% | 78% |
| ROA | 11% | 10% | 12% | 15% | 15% | 17% |
| Avg assets/avg equity | 3.37 | 2.84 | 2.44 | 2.57 | 2.44 | 2.01 |
| **ROE** | 37% | 28% | 29% | 39% | 38% | 35% |

*Source: Company Reports*

Free Cash Flow

**Figure 27: Free cash flow calculations**

| Free Cash Flow | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|---|---|
| NOPAT | $198 | $277 | $294 | $373 | $582 | $713 | $928 |
| *Growth* | | *40.0%* | *6.1%* | *26.9%* | *56.1%* | *22.5%* | *30.2%* |
| NWC* | 313 | 383 | 437 | 417 | 435 | 600 | 736 |
| Net fixed assets | 1,201 | 1,306 | 1,470 | 1,566 | 2,034 | 2,198 | 2,462 |
| Total net operating capital* | $1,515 | $1,689 | $1,907 | $1,982 | $2,468 | $2,798 | $3,199 |
| *Growth* | | *11.5%* | *12.9%* | *4.0%* | *24.5%* | *13.3%* | *14.3%* |
| - Change in NWC* | | 70 | 54 | (20) | 18 | 165 | 136 |
| - Change in NFA | | 104 | 164 | 96 | 468 | 164 | 265 |
| FCFF* | | $103 | $76 | $297 | $96 | $384 | $527 |
| *Growth* | | | *-26.5%* | *292.9%* | *-67.8%* | *300.6%* | *37.3%* |
| - After-tax interest expense | 37 | 36 | 41 | 26 | 29 | 29 | 27 |
| FCFE** | | $67 | $34 | $272 | $67 | $355 | $500 |
| *Growth* | | | *-49.2%* | *694.7%* | *-75.5%* | *432.6%* | *41.0%* |
| + Net new debt/other cap | | (5) | (25) | (14) | 167 | (100) | (200) |
| Sources of cash | | $63 | $9 | $258 | $233 | $255 | $300 |
| Uses of cash | | | | | | | |
| Other expense | | (0) | (0) | (0) | (0) | - | - |
| Increase cash and mkt sec | | 86 | 98 | 332 | (105) | 255 | 300 |
| Dividends | | - | - | - | - | - | - |
| Change in other equity | | 40 | (19) | (10) | 469 | - | - |
| | | $126 | $79 | $322 | $364 | $255 | $300 |
| Change in other liab | | 63 | 70 | 64 | 130 | - | - |
| Total | | $62 | $9 | $258 | $233 | $255 | $300 |

*Source: Company Reports, IMCP*

Capital activity and debt paydowns will be supported by continued NOPAT growth

GNRC's free cash flow has been volatile over the last several years. The firm has paid off $44 million in debt since 2018 and will pay off a total of $300 million over the next two years despite accumulating fixed assets. I forecast that NOPAT will grow at a higher rate than net operating capital over the next two years. I expect both FCFF and FCFE to increase 300.6% and 432.6% respectively in 2022 despite a 38% increase in NWC, then leading to continued high, but lower NWC growth in 2023. This should lead to a flatter growth of 37.3% and 41.0% for FCFF and FCFE in 2023. Capital activity and debt paydowns will be supported by continued NOPAT growth.

## Valuation

GNRC was valued using multiples and a 3-stage discounting cash flow model. Based on earnings multiples, the stock is worth $370 however, due to the potential volatility of Genreac's earnings the next few years, as well as the effects of unrealized sales in the company's growth products – many of which came through acquisitions, this metric may be unreliable. Relative valuation shows GNRC to be significantly undervalued

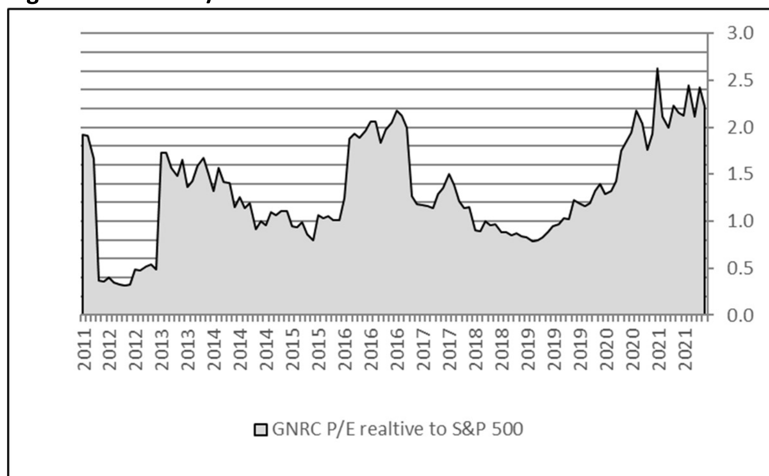
based on its fundamentals versus those of its peers in the electrical products industry. Though price to earnings valuation yielded a price of $370, detailed DCF analysis values GNRC significantly higher, at $491; I give the P/E valuation less weight because it fails to consider potential growth in the years after the third stage. Based on a weighted average of these two valuations – P/E: 25%, and DCF with a terminal multiple: 75% - I value the stock at $460.

GNRC's current NTM P/E is at 37.5 compared to its five-year average of 32.2

Trading History

GNRC is currently trading at its all-time high P/E to the S&P 500. This is the result of recent acquisitions and earnings growth and the fact that most analysts believe that earnings will continue to grow rapidly in the near future. GNRC's current NTM P/E is at 37.5 compared to its five-year average of 32.2. I expect regression towards that number in the future and I do not think that is likely to rise higher in the near-term.

**Figure 28: GNRC P/E relative to S&P 500**




*Source: FactSet*

Assuming the firm maintains a 29 NTM P/E at the end of 2022, it should trade at $416.73 by the end of the year:

- Price = P/E x 2023 EPS = 29 x $14.37 = $416.73

Discounting $416.73 back to today at a 12.6% cost of equity (explained in Discounted Cash Flow section) yields a price of $370.10. Given GNRC's potential for earnings growth and expanding profitability, this seems to be a fair valuation. Additionally, this makes sense because I am more bullish about 2023 earnings than consensus.

GNRC's value is not fully captured by last year's cash flow, which was depressed by acquisitions

Relative Valuation

Generac is currently trading at a P/E much higher than its peers, with a P/E TTM of 49.1 compared to a median of 40.2. Investors are willing to pay a premium for GNRC because it has the potential for greater growth than many of the other companies in its market segment, and its value is not fully captured by last year's cash flow, which was depressed by acquisitions focusing on long term trends in the home backup and electrical products spaces. However, GNRC's P/B and P/S ratios are priced closer to its peers, and based on its relative profitability.

**Figure 29: GRNC comparable companies**

| Ticker | Name | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Beta | LT Debt/ Equity | S&P Rating |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GNRC | GENERAC HOLDINGS INC | $403.57 | $25,461 | (4.2) | (20.2) | (8.0) | 25.4 | 89.5 | 77.5 | 10.0 | 31.0% | 34.5% | 71.1% | 21.7% | 15.8% | 0.99 | 47.3% | |
| CMI | CUMMINS INC | $209.12 | $29,911 | (0.3) | (14.8) | (11.0) | (20.1) | (9.2) | (7.9) | 15.4 | 9.0% | -19.9% | 24.4% | 21.1% | 11.5% | 1.05 | 48.6% | B+ |
| ENPH | ENPHASE ENERGY INC | $236.86 | $31,955 | (5.3) | (1.1) | 34.3 | 69.9 | 83.8 | 35.0 | 36.5 | 140.0% | 44.2% | 67.2% | 34.1% | 29.3% | 1.53 | 147.1% | |
| CAT | CATERPILLAR INC | $191.47 | $103,574 | (1.0) | (6.8) | (7.9) | (21.1) | 10.5 | 5.2 | 25.8 | 22.0% | -40.7% | 58.7% | 18.4% | 17.6% | 0.77 | 162.9% | B+ |
| ETN | EATON CORP PLC | $161.47 | $64,362 | (0.4) | (1.7) | (3.2) | 10.4 | 33.8 | 34.4 | 12.4 | 39.6% | -26.4% | 56.6% | 12.2% | 10.1% | 1.11 | 55.5% | |
| VICR | VICOR CORP | $140.34 | $6,142 | (2.2) | (6.8) | 13.3 | 50.4 | 67.3 | 52.2 | 20.0 | 81.2% | 20.6% | 297.6% | 62.6% | 35.1% | 0.85 | 0.9% | C |
| **Average** | | | $43,568 | (2.2) | (8.6) | 2.9 | 19.1 | 45.9 | 32.7 | 20.0 | 53.8% | 2.1% | 95.9% | 28.3% | 19.9% | 1.05 | 77.0% | |
| **Median** | | | $30,933 | (1.6) | (6.8) | (5.5) | 17.9 | 50.6 | 34.7 | 17.7 | 35.3% | 0.3% | 62.9% | 21.4% | 16.7% | 1.02 | 52.1% | |
| **SPX** | S&P 500 INDEX | $4,513 | | (1.2) | (2.2) | (0.2) | 7.4 | 23.2 | 20.2 | | | -13.9% | 46.2% | 8.3% | 9.3% | | | |

| Ticker | Website | 2022 ROE | P/B | P/E 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | 2021 NPM | 2021 P/S | NM | OM | ROIC | P/CF Current | Sales Growth NTM | STM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GNRC** | http://www.generac.com | 41.3% | 14.29 | 24.1 | 40.9 | 42.3 | 49.1 | 37.5 | 34.6 | 29.8 | 16.4% | 6.87 | 14.1% | 19.2% | 16.7% | 38.7 | 29.1% | 14.6% |
| **CMI** | http://www.cummins.com | 32.3% | 3.70 | 11.8 | 18.6 | 14.3 | 13.8 | 12.6 | 11.5 | 10.3 | 9.0% | 1.25 | 9.0% | 9.3% | 16.7% | 11.6 | 5.2% | 5.8% |
| **ENPH** | http://www.enphase.com | 63.9% | 49.30 | 27.5 | 126.2 | 102.6 | 206.0 | 85.8 | 77.2 | 59.7 | 22.6% | 23.33 | 17.3% | 24.1% | 30.2% | 99.3 | 42.0% | 30.6% |
| **CAT** | http://www.caterpillar.com | 40.3% | 6.27 | 13.4 | 27.4 | 18.9 | 20.5 | 16.8 | 15.5 | 13.2 | 11.3% | 2.07 | 7.2% | 11.9% | 7.2% | 14.2 | 12.2% | 11.7% |
| **ETN** | http://www.eaton.com | 18.6% | 4.03 | 16.4 | 28.1 | 25.1 | 31.3 | 22.5 | 21.7 | 19.7 | 13.4% | 3.25 | 7.9% | 13.0% | 6.1% | 24.0 | 1.9% | 6.7% |
| **VICR** | http://www.vicorpower.con | 28.2% | 14.93 | 137.4 | 224.8 | 86.8 | 106.8 | 59.0 | 53.0 | 39.2 | 19.3% | 16.60 | 6.0% | 5.9% | 6.4% | 94.8 | 27.3% | 26.0% |
| **Average** | | 37.4% | 15.42 | 38.4 | 77.7 | 48.3 | 71.2 | 39.0 | 35.6 | 28.7 | 15.3% | 8.89 | 10.3% | 13.9% | 13.9% | 47.1 | 19.6% | 15.9% |
| **Median** | | 36.3% | 10.28 | 20.3 | 34.5 | 33.7 | 40.2 | 30.0 | 28.1 | 24.8 | 14.9% | 5.06 | 8.5% | 12.5% | 11.9% | 31.3 | 19.8% | 13.1% |
| **SPX** | S&P 500 INDEX | | | 19.8 | 26.6 | 22.3 | | | 20.3 | 18.6 | | | | | | | | |

*Source: Factset, IMCP*

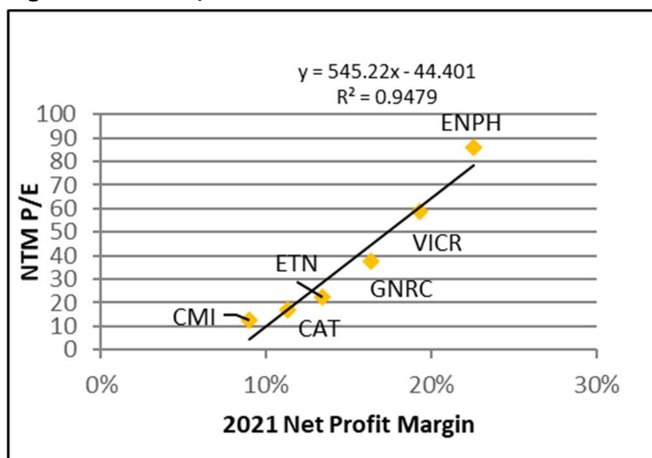
I believe that NPM will be more highly valued by investors in the coming years because it will show effective production automation

A more thorough analysis of P/E and Net Profit Margin is shown in figure 30. The calculated R-squared of the regression indicates that over 95% of a sampled firm's P/E is explained by its NPM. Between the highest growth companies in this list, Enphase, Vicor, and Generac, GNRC has the lowest P/E and NPM of this grouping, and according to this measure is slightly undervalued. However, given the tailwinds that the electrical products are expecting in the next decade, I believe that NPM will be more highly valued by investors in the coming years because it will show effective implementation of automation in production facilities.

- Estimated P/E = Estimated 2022 NPM (15.9%) x 545.22 – 44.81 = 42.29
- Target Price = Estimated P/E (42.29) x 2023E EPS (14.37) = $607.69

Discounting back to the present at a 12.6% cost of equity leads to a target price of $538.26 using this metric.

**Figure 30: NTM P/E and 2021 NPM**




*Source: FactSet, IMCP*

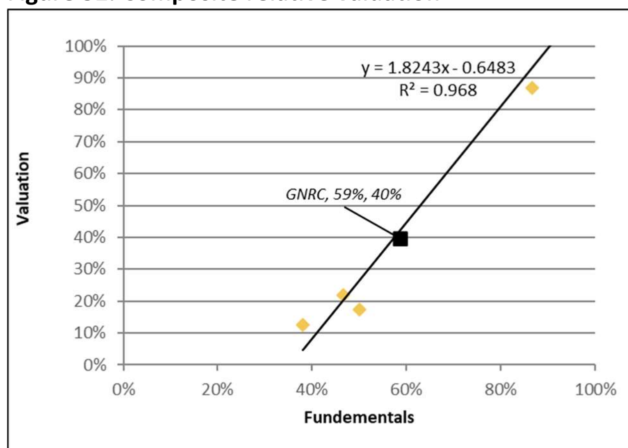
For a final comparison, I created a composite ranking of several valuation and fundamental metrics. Since the variables have different scales, each was converted to a percentile before calculating the composite score. A weighting of long-term growth rate, 2022E and 2023E earnings growth, and net profit margin, was compared to a weighted composite of NTM P/E, P/B, P/S, P/CF, and EV/EBIT. The regression line had an R-squared of 0.97. One can see that GNRC is just under the line, so it is fairly priced based on its fundamentals.

**Figure 31: Composite valuation, % of range**

| | | | | Fundamental Percent of Max | | | | Valuation Percent of Max | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Weight | 10.0% | 10.0% | 20.0% | 60.0% | 40.0% | 20.0% | 20.0% | 20.0% | 20.0% |
| Ticker | Name | Fund | Value | LTG | 2022 | 2023 | NPM | NTM | P/B | P/S | P/CF | EBIT |
| **GNRC** | GENERAC HOLDINGS INC | 59% | 40% | 27% | 35% | 45% | 73% | 44% | 29% | 29% | 39% | 14% |
| **CMI** | CUMMINS INC | 38% | 13% | 42% | 34% | 33% | 40% | 15% | 8% | 5% | 12% | 9% |
| **ENPH** | ENPHASE ENERGY INC | 92% | 112% | 100% | 54% | 84% | 100% | 100% | 100% | 100% | 100% | 60% |
| **CAT** | CATERPILLAR INC | 50% | 17% | 71% | 29% | 50% | 50% | 20% | 13% | 9% | 14% | 12% |
| **ETN** | EATON CORP PLC | 47% | 22% | 34% | 19% | 29% | 59% | 26% | 8% | 14% | 24% | 11% |
| **VICR** | VICOR CORP | 87% | 87% | 55% | 100% | 100% | 85% | 69% | 30% | 71% | 95% | 100% |

*Source: IMCP*

**Figure 32: Composite relative valuation**




*Source: IMCP*

A ten-year beta of 1.3 was utilized since the company has higher risk than the market due to its dependence on weather events

Discounted Cash Flow Analysis

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

For this analysis, the company's cost of equity was calculated to be 12.6% 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 1.50%.
- A ten-year beta of 1.3 was utilized since the company has higher risk than the market.
- A long-term market rate of return of 10% was assumed, since historically, the market has generated an annual return of about 10%.

Given the above assumptions, the cost of equity is 12.6% (1.5 + 1.3 (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 $5.66 and $7.98, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of $11.32 per share. Thus, stage one of this discounted cash flow analysis contributes $11.32 to value.

The company should become more profitable as its software products grow to be a more substantial portion of the business

*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 12.6% cost of equity. I assume 20% sales growth in 2024, declining to a conservative 16% in 2028. The ratio of sales to NWC will climb to 9.00 from 7.69 in 2023, and NFA turnover will rise from 2.50 in 2024 to 3.00 in 2028 because of improvements in operations. The company should become more profitable as its software products grow to be a more substantial portion of the business. Also, the NOPAT margin is expected to stabilize at 17% in 2024 from 16.4% in 2023.

**Figure 33: FCFE and discounted FCFE, 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| FCFE | $5.66 | $7.98 | $13.53 | $13.14 | $15.69 | $18.72 | $25.73 |
| Discounted FCFE | $5.03 | $6.30 | $9.49 | $8.19 | $8.69 | $9.21 | $11.25 |

Added together, these discounted cash flows total $46.82.

*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 $17.92 in 2024 to $34.16 in 2028.

**Figure 34: EPS estimates for 2022 – 2028**

| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| EPS | $10.91 | $14.37 | $17.92 | $21.15 | $24.95 | $29.44 | $34.16 |

Stage three of the model requires an assumption regarding the company's terminal price-to-earnings ratio. For this analysis, it is generally assumed that as the company grows larger and matures, its P/E ratio will converge near to the historical average. Therefore, a P/E ratio of 29 is assumed at the end of GNRC's terminal year. While this may be a low multiple at the end of 2021, one must consider what the market will price in 2028. The stock will trade at a lower P/E in 2025 since growth beyond that point is slower than today. Given the assumed terminal earnings per share of $34.16 and a price to earnings ratio of 29, a terminal value of $990.52 per share is calculated. Using the 12.6% cost of equity, this number is discounted back to a present value of $432.96.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $491.10 is calculated (11.32 + 46.82 + 432.96). Given GNRC's current price of $348.24, this model indicates that the stock is undervalued.

Scenario Analysis

Generac is difficult to value with certainty because it is nearly impossible to predict with certainty adverse weather events and how consumers will adopt new technologies focusing on the Grid 2.0, including PWRCell batteries, inverter, and transfer switches. I valued GNRC using three scenarios by changing combinations of five key factors as shown in figure 35.

*Bear Case* – In this scenario, Generac fails to capitalize on its recent acquisitions, pushing sales growth down and compressing margins due inability to sell high margin software and electronics. The case is discounted further using a higher beta, due to a higher portion of revenue based on generator sales, which are notoriously volatile due to unpredictability of weather events. Additionally, S/NFA may not climb due to poor acquisition implementation as listed above. Ultimately, the scenario in which the

Generac fails to incorporate new technology and acquisitions into its top-line will give it a fair value of $329 when using the same weights of PE (25%) and DCF with a terminal PE (75%) as the base case.

*Bull Case* – I am assuming a constant P/E of 31 and am incorporating less risk through a lower beta of 1.1. In this scenario, I assume that the company can continue sales growth of 22% through 2028. This would be driven by the growth potential in the home energy storage products. Additionally, effective implementation of software products focused on monitoring generator systems would widen margins and increase NOPAT/S to 18% in 2028, up from 16% in 2024. Finally, NFA/S would be slightly higher at 3.2 due to the scalability of software-heavy products. This scenario yields a value of $619 when using the same weights of PE (25%) and DCF with a terminal PE (75%) as the base case.

**Figure 35: Scenario analysis**

| Base Case Expectations | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|---|---|---|---|---|---|---|
| Beta | 1.30 | | | | | | |
| Sales Growth | 29.9% | 22.7% | 20.0% | 18.0% | 18.0% | 18.0% | 16.0% |
| NOPAT/S | 15.4% | 16.4% | 17.0% | 17.0% | 17.0% | 17.0% | 17.0% |
| S/NFA | 2.10 | 2.30 | 2.50 | 2.60 | 2.70 | 2.80 | 3.00 |
| Terminal Year P/E | 29.00 | | | | | | |
| **Bear Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.50 | | | | | | |
| Sales Growth | 29.9% | 22.7% | 18.0% | 16.0% | 16.0% | 16.0% | 15.0% |
| NOPAT/S | 15.4% | 16.4% | 16.0% | 16.0% | 16.0% | 16.0% | 16.0% |
| S/NFA | 2.10 | 2.30 | 2.30 | 2.40 | 2.40 | 2.40 | 2.40 |
| Terminal Year P/E | 27.00 | | | | | | |
| **Bull Case Expectations** | **2022** | **2023** | **2024** | **2025** | **2026** | **2027** | **2028** |
| Beta | 1.10 | | | | | | |
| Sales Growth | 29.9% | 22.7% | 20.0% | 22.0% | 22.0% | 22.0% | 22.0% |
| NOPAT/S | 15.4% | 16.4% | 17.0% | 18.0% | 18.0% | 18.0% | 18.0% |
| S/NFA | 2.10 | 2.30 | 2.50 | 2.60 | 3.00 | 3.10 | 3.20 |
| Terminal Year P/E | 31.00 | | | | | | |

| Expectations | P/E | Target Price |
|---|---|---|
| Base | 29.00 | $460.85 |
| Bear | 27.00 | $328.51 |
| Bull | 31.00 | $618.85 |

*Source: Factset, IMCP*

## Business Risks

Although I have many reasons to be optimistic about Generac, there are several reasons why I find the stock to be undervalued by a 30% below its 52-week high.

Fragility relating to COVID induced shutdowns:

Generac relies heavily on the supply chain to maintain low cost of raw materials and distribute its products effectively. Further bottlenecks could hinder the company's ability to maintain competitive prices and expand sales internationally.

Competitive marketplace:

Though Generac maintains a majority market share in residential systems, its products sell in a competitive market with participants that have more diversified product portfolios. This puts Generac in a risky position because if it is pressured by lower prices, it may not be able to maintain margins across its entire business.

Dependence on natural disasters:

Natural disasters that induce power outages and generate demand are imperative for the company's top-line. The nature of these events is that they are difficult or impossible to predict, therefore it is likely that the company will see fluctuating sales and may not meet growth estimates.

Residential investment cycle:

Residential generator sales are heavily influenced by household budgets and consumer confidence. If interest rates rise and housing spend declines, residential investment would also decline, leading Generac's sales to be substantially impacted.

Technology in the market:

The current valuation of Generac considers that its new technology will grow at levels far greater than its industrial producer counterparts. If the company fails to achieve market share with these products, or cannot integrate them into its business, then growth expectations may be impacted substantially.

## Appendix 1: Porter's 5 Forces

Threat of New Entrants – Moderate

While the threat of new entrants in the natural gas and diesel generator market is low, the emerging industry of home energy storage and monitoring is underdeveloped. This space is very open to new firms and will likely see more competition.

Threat of Substitutes – Moderate

Generac has substitutes in some of its segments. Currently, the home backup generator market is dominated by Generac, though the C&I generator space is highly competitive, with Caterpillar, Kohler, Ingersoll-Rand, and Cummins. These companies have strong pricing power and more diverse product lines than Generac.

Supplier Power – High

Though the company is focusing on incorporating vertical integration, it still relies on outside suppliers for its component parts. Raw material prices and supply chains are vital for the company to maintain competitive prices and gross margins.

Buyer Power – Moderate

In times of crisis, buyers are more willing to purchase at any price, especially since demand comes in waves followed by emergency situations. In "normal" times, buyers will leverage their options and may select competitors' products.

Intensity of Competition – High

There are numerous domestic and international brands that occupy the same space in the generator market. In the C&I market, most of the competitors have better penetration, stronger branding, and better pricing power in their respective generator segments. The residential home backup generator market is almost entirely occupied by Generac, though it does have notable competition in both domestic and international markets. Generac's emerging business of home energy storage faces strong competition from Tesla, which has excellent brand recognition and leverages the ecosystem of: car, solar panels, and energy storage.

## Appendix 2: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| High market share<br>Growth of new tech<br>Robut track record | Inconsistent sales<br>Not diversified<br>Low pricing power |
| **Opportunities** | **Threats** |
| International expansion<br>Green technology<br>Massive TAM | New entrants & tech<br>Higher lending rates<br>Supply chain breakdowns |

## Appendix 3: Income Statement

| Income Statement (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Sales | $1,672 | $2,023 | $2,205 | $2,486 | $3,554 | $4,615 | $5,664 |
| Direct costs | 1,090 | 1,298 | 1,407 | 1,528 | 2,204 | 2,907 | 3,511 |
| Gross Margin | 582 | 725 | 798 | 958 | 1,350 | 1,708 | 2,152 |
| SG&A, R&D, D&A, and other | 331 | 368 | 426 | 479 | 610 | 794 | 963 |
| EBIT | 251 | 357 | 372 | 479 | 741 | 914 | 1,189 |
| Interest | 46 | 46 | 53 | 33 | 37 | 37 | 34 |
| EBT | 205 | 311 | 320 | 446 | 704 | 877 | 1,155 |
| Taxes | 43 | 70 | 67 | 99 | 151 | 193 | 254 |
| Income | 161 | 241 | 252 | 347 | 553 | 684 | 901 |
| Other | 0 | (0) | (0) | (0) | (0) | - | - |
| Net income | 161 | 241 | 252 | 347 | 553 | 684 | 901 |
| Basic Shares | 62.0 | 61.7 | 61.9 | 62.3 | 62.7 | 62.7 | 62.7 |
| Fully Diluted Shares | 62.6 | 62.2 | 62.9 | 63.7 | 64.2 | 64.2 | 64.2 |
| EPS | $2.60 | $3.91 | $4.07 | $5.58 | $8.82 | $10.91 | $14.37 |
| EPS Fully Diluted | $2.57 | $3.88 | $4.01 | $5.45 | $8.61 | $10.65 | $14.03 |
| DPS | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 | $0.00 |
| | | | | | | | |
| *Growth Statistics* | | | | | | | |
| *Sales* | | *21.0%* | *9.0%* | *12.7%* | *43.0%* | *29.9%* | *22.7%* |
| *Direct Costs* | | *19.1%* | *8.4%* | *8.6%* | *44.2%* | *31.9%* | *20.8%* |
| *Gross Margin* | | *24.6%* | *10.0%* | *20.0%* | *41.0%* | *26.5%* | *26.0%* |
| *SG&A, R&D, and other* | | *11.1%* | *15.7%* | *12.4%* | *27.4%* | *30.2%* | *21.3%* |
| *EBIT* | | *42.3%* | *4.2%* | *28.7%* | *54.6%* | *23.4%* | *30.2%* |
| *Interest* | | *-0.6%* | *14.1%* | *-37.4%* | *12.7%* | *-0.3%* | *-7.8%* |
| *EBT* | | *52.0%* | *2.7%* | *39.6%* | *57.7%* | *24.6%* | *31.8%* |
| *Taxes* | | *61.1%* | *-3.7%* | *47.1%* | *52.4%* | *27.8%* | *31.8%* |
| *Continuing income* | | *49.5%* | *4.6%* | *37.6%* | *59.2%* | *23.7%* | *31.8%* |
| *Other* | | *-112.1%* | *-60.0%* | *125.0%* | *-27.8%* | *-100.0%* | |
| *Net income* | | *49.7%* | *4.6%* | *37.6%* | *59.2%* | *23.7%* | *31.8%* |
| *Basic Shares* | | *-0.6%* | *0.4%* | *0.6%* | *0.7%* | *0.0%* | *0.0%* |
| *EPS* | | *50.6%* | *4.1%* | *36.8%* | *58.2%* | *23.7%* | *31.8%* |
| *EPS Fully Diluted* | | *50.7%* | *3.5%* | *35.7%* | *58.0%* | *23.7%* | *31.8%* |
| *DPS* | | | | | | | |
| | | | | | | | |
| *Common Size* | | | | | | | |
| *Sales* | *100.0%* | *100.0%* | *100.0%* | *100.0%* | *100.0%* | *100.0%* | *100.0%* |
| *Direct Costs* | *65.2%* | *64.2%* | *63.8%* | *61.5%* | *62.0%* | *63.0%* | *62.0%* |
| *Gross Margin* | *34.8%* | *35.8%* | *36.2%* | *38.5%* | *38.0%* | *37.0%* | *38.0%* |
| *SG&A, R&D, and other* | *19.8%* | *18.2%* | *19.3%* | *19.2%* | *17.2%* | *17.2%* | *17.0%* |
| *EBIT* | *15.0%* | *17.7%* | *16.9%* | *19.3%* | *20.8%* | *19.8%* | *21.0%* |
| *Interest* | *2.8%* | *2.3%* | *2.4%* | *1.3%* | *1.0%* | *0.8%* | *0.6%* |
| *EBT* | *12.2%* | *15.4%* | *14.5%* | *17.9%* | *19.8%* | *19.0%* | *20.4%* |
| *Taxes* | *2.6%* | *3.5%* | *3.1%* | *4.0%* | *4.2%* | *4.2%* | *4.5%* |
| *Continuing income* | *9.6%* | *11.9%* | *11.4%* | *14.0%* | *15.6%* | *14.8%* | *15.9%* |
| *Other* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| *Net income* | *9.6%* | *11.9%* | *11.4%* | *14.0%* | *15.6%* | *14.8%* | *15.9%* |

## Appendix 4: Balance Sheets

| Capital (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Cash | 139 | 225 | 323 | 655 | 550 | 805 | 1,105 |
| Operating assets ex cash | 680 | 896 | 873 | 1,015 | 1,535 | 1,754 | 2,152 |
| Operating assets | 819 | 1,121 | 1,196 | 1,670 | 2,085 | 2,558 | 3,257 |
| Operating liabilities | 367 | 513 | 436 | 598 | 1,100 | 1,154 | 1,416 |
| NOWC | 452 | 608 | 760 | 1,072 | 985 | 1,405 | 1,841 |
| NOWC ex cash (NWC) | 313 | 383 | 437 | 417 | 435 | 600 | 736 |
| NFA | 1,201 | 1,306 | 1,470 | 1,566 | 2,034 | 2,198 | 2,462 |
| *Invested capital* | *$1,653* | *$1,913* | *$2,230* | *$2,637* | *$3,018* | *$3,602* | *$4,303* |
| | | | | | | | |
| Marketable securities | - | - | - | - | - | - | - |
| *Total assets* | *$2,020* | *$2,426* | *$2,666* | *$3,235* | *$4,118* | *$4,756* | *$5,719* |
| | | | | | | | |
| S-T and L-T debt and financing leas | $929 | $924 | $899 | $885 | $1,052 | $952 | $752 |
| Other liabilities | 165 | 228 | 298 | 362 | 492 | 492 | 492 |
| Debt/equity-like securities | | | | | | - | - |
| Equity | 560 | 761 | 1,033 | 1,390 | 1,474 | 2,158 | 3,059 |
| *Total supplied capital* | *$1,653* | *$1,913* | *$2,230* | *$2,637* | *$3,018* | *$3,602* | *$4,303* |
| | | | | | | | |
| *Total liabilities and equity* | *$2,020* | *$2,426* | *$2,666* | *$3,235* | *$4,118* | *$4,756* | *$5,719* |
| | | | | | | | |
| *Growth Statistics* | | | | | | | |
| *Cash* | | *62.1%* | *43.8%* | *102.9%* | *-16.0%* | *46.3%* | *37.3%* |
| *Operating assets ex cash* | | *31.8%* | *-2.6%* | *16.2%* | *51.3%* | *14.3%* | *22.7%* |
| *Operating assets* | | *36.9%* | *6.7%* | *39.6%* | *24.9%* | *22.7%* | *27.3%* |
| *Operating liabilities* | | *39.9%* | *-15.0%* | *37.2%* | *83.9%* | *4.9%* | *22.7%* |
| *NOWC* | | *34.5%* | *25.0%* | *41.0%* | *-8.1%* | *42.6%* | *31.1%* |
| *NOWC ex cash (NWC)* | | *22.3%* | *14.0%* | *-4.7%* | *4.4%* | *38.0%* | *22.7%* |
| *NFA* | | *8.7%* | *12.6%* | *6.5%* | *29.9%* | *8.1%* | *12.0%* |
| *Invested capital* | | *15.7%* | *16.5%* | *18.3%* | *14.4%* | *19.3%* | *19.5%* |
| *Marketable securities* | | | | | | | |
| *Total assets* | | *20.1%* | *9.9%* | *21.4%* | *27.3%* | *15.5%* | *20.3%* |
| | | | | | | | |
| *Short-term and long-term debt* | | *-0.5%* | *-2.7%* | *-1.5%* | *18.8%* | *-9.5%* | *-21.0%* |
| *Other liabilities* | | *38.4%* | *30.7%* | *21.5%* | *36.0%* | *0.0%* | *0.0%* |
| *Debt/equity-like securities* | | | | | | | |
| *Equity* | | *36.0%* | *35.7%* | *34.6%* | *6.0%* | *46.4%* | *41.8%* |
| *Total supplied capital* | | *15.7%* | *16.5%* | *18.3%* | *14.4%* | *19.3%* | *19.5%* |
| *Total liabilities and equity* | | *20.1%* | *9.9%* | *21.4%* | *27.3%* | *15.5%* | *20.3%* |

## Appendix 5: Sales Forecast

| Sales (in millions) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Sales | $1,672 | $2,023 | 2,205 | $2,486 | $3,554 | $4,615 | $5,664 |
| *Growth* | | *21.0%* | *9.0%* | *12.7%* | *43.0%* | *29.9%* | *22.7%* |
| | | | | | | | |
| Residental | 870 | 1,043 | 1,144 | 1,557 | 2,292 | 3,094 | 3,867 |
| *Growth* | | *19.9%* | *9.7%* | *36.1%* | *47.2%* | *35.0%* | *25.0%* |
| *% of sales* | *52.0%* | *51.6%* | *51.9%* | *62.6%* | *64.5%* | *67.0%* | *68.3%* |
| Commercial & Industrial | 685 | 820 | 872 | 702 | 915 | 1,052 | 1,210 |
| *Growth* | | *19.7%* | *6.3%* | *-19.5%* | *30.3%* | *15.0%* | *15.0%* |
| *% of sales* | *41.0%* | *40.5%* | *39.5%* | *28.2%* | *25.7%* | *2.0%* | *21.4%* |
| Other | 117 | 160 | 189 | 227 | 348 | 469 | 587 |
| *Growth* | | *36.8%* | *18.1%* | *20.1%* | *53.1%* | *35.0%* | *25.0%* |
| *% of sales* | *7.0%* | *7.9%* | *8.6%* | *9.1%* | *9.8%* | *10.2%* | *6.0%* |
| | | | | | | | |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Domestic | 1,297 | 1,567 | 1,743 | 2,089 | 3,021 | 3,923 | 4,701 |
| *Growth* | | *20.8%* | *11.3%* | *19.8%* | *44.6%* | *29.9%* | *19.8%* |
| *% of sales* | *77.5%* | *77.4%* | *79.0%* | *84.0%* | *85.0%* | *85.0%* | *83.0%* |
| International | 376 | 457 | 461 | 396 | 533 | 692 | 963 |
| *Growth* | | *21.6%* | *1.0%* | *-14.1%* | *34.5%* | *29.9%* | *39.1%* |
| *% of sales* | *22.5%* | *22.6%* | *20.9%* | *15.9%* | *15.0%* | *15.0%* | *17.0%* |

# Appendix 6: Ratios

| Ratios | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Items** | | **2017** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| Profitability | | | | | | | | |
| Gross margin | | 34.8% | 35.8% | 36.2% | 38.5% | 38.0% | 37.0% | 38.0% |
| Operating (EBIT) margin | | 15.0% | 17.7% | 16.9% | 19.3% | 20.8% | 19.8% | 21.0% |
| Net profit margin | | 9.6% | 11.9% | 11.4% | 14.0% | 15.6% | 14.8% | 15.9% |
| | | | | | | | | |
| Activity | | | | | | | | |
| NFA (gross) turnover | | | 1.61 | 1.59 | 1.64 | 1.97 | 2.18 | 2.43 |
| Total asset turnover | | | 0.91 | 0.87 | 0.84 | 0.97 | 1.04 | 1.08 |
| | | | | | | | | |
| Liquidity | | | | | | | | |
| Op asset / op liab | | 2.23 | 2.18 | 2.74 | 2.79 | 1.90 | 2.22 | 2.30 |
| NOWC Percent of sales | | | 26.2% | 31.0% | 36.8% | 28.9% | 25.9% | 28.7% |
| | | | | | | | | |
| Solvency | | | | | | | | |
| Debt to assets | | 46.0% | 38.1% | 33.7% | 27.4% | 25.5% | 20.0% | 13.1% |
| Debt to equity | | 165.9% | 121.4% | 87.0% | 63.7% | 71.3% | 44.1% | 24.6% |
| Other liab to assets | | 8.2% | 9.4% | 11.2% | 11.2% | 12.0% | 10.3% | 8.6% |
| Total debt to assets | | 54.1% | 47.5% | 44.9% | 38.5% | 37.5% | 30.4% | 21.8% |
| Total liabilities to assets | | 72.3% | 68.6% | 61.3% | 57.0% | 64.2% | 54.6% | 46.5% |
| Debt to EBIT | | 3.70 | 2.59 | 2.42 | 1.85 | 1.42 | 1.04 | 0.63 |
| EBIT/interest | | 5.42 | 7.75 | 7.08 | 14.56 | 19.98 | 24.72 | 34.90 |
| Debt to total net op capital | | 56.2% | 48.3% | 40.3% | 33.6% | 34.9% | 26.4% | 17.5% |
| | | | | | | | | |
| ROIC | | | | | | | | |
| NOPAT to sales | | 11.8% | 13.7% | 13.3% | 15.0% | 16.4% | 15.4% | 16.4% |
| Sales to NWC | | | 5.81 | 5.38 | 5.83 | 8.35 | 8.92 | 8.48 |
| Sales to NFA | | | 1.61 | 1.59 | 1.64 | 1.97 | 2.18 | 2.43 |
| Sales to IC ex cash | | | 1.26 | 1.23 | 1.28 | 1.60 | 1.75 | 1.89 |
| Total ROIC ex cash | | | 17.3% | 16.3% | 19.2% | 26.1% | 27.1% | 30.9% |
| | | | | | | | | |
| NOPAT to sales | | 11.8% | 13.7% | 13.3% | 15.0% | 16.4% | 15.4% | 16.4% |
| Sales to NOWC | | | 3.82 | 3.22 | 2.71 | 3.46 | 3.86 | 3.49 |
| Sales to NFA | | | 1.61 | 1.59 | 1.64 | 1.97 | 2.18 | 2.43 |
| Sales to IC | | | 1.13 | 1.06 | 1.02 | 1.26 | 1.39 | 1.43 |
| Total ROIC | | | 15.5% | 14.2% | 15.3% | 20.6% | 21.5% | 23.5% |
| | | | | | | | | |
| NOPAT to sales | | 11.8% | 13.7% | 13.3% | 15.0% | 16.4% | 15.4% | 16.4% |
| Sales to EOY NWC | | 5.34 | 5.28 | 5.05 | 5.97 | 8.18 | 7.69 | 7.69 |
| Sales to EOY NFA | | 1.39 | 1.55 | 1.50 | 1.59 | 1.75 | 2.10 | 2.30 |
| Sales to EOY IC ex cash | | 1.10 | 1.20 | 1.16 | 1.25 | 1.44 | 1.65 | 1.77 |
| Total ROIC using EOY IC ex cash | | 13.1% | 16.4% | 15.4% | 18.8% | 23.6% | 25.5% | 29.0% |
| | | | | | | | | |
| NOPAT to sales | | 11.8% | 13.7% | 13.3% | 15.0% | 16.4% | 15.4% | 16.4% |
| Sales to EOY NOWC | | 3.70 | 3.33 | 2.90 | 2.32 | 3.61 | 3.29 | 3.08 |
| Sales to EOY NFA | | 1.39 | 1.55 | 1.50 | 1.59 | 1.75 | 2.10 | 2.30 |
| Sales to EOY IC | | 1.01 | 1.06 | 0.99 | 0.94 | 1.18 | 1.28 | 1.32 |
| Total ROIC using EOY IC | | 12.0% | 14.5% | 13.2% | 14.1% | 19.3% | 19.8% | 21.6% |
| | | | | | | | | |
| ROE | | | | | | | | |
| **5-stage** | | | | | | | | |
| EBIT / sales | | | 17.7% | 16.9% | 19.3% | 20.8% | 19.8% | 21.0% |
| Sales / avg assets | | | 0.91 | 0.87 | 0.84 | 0.97 | 1.04 | 1.08 |
| EBT / EBIT | | | 87.1% | 85.9% | 93.1% | 95.0% | 96.0% | 97.1% |
| Net income /EBT | | | 77.5% | 78.9% | 77.8% | 78.6% | 78.0% | 78.0% |
| ROA | | | 10.9% | 9.9% | 11.8% | 15.0% | 15.4% | 17.2% |
| Avg assets / avg equity | | | 3.37 | 2.84 | 2.44 | 2.57 | 2.44 | 2.01 |
| ROE | | | 36.5% | 28.1% | 28.7% | 38.6% | 37.7% | 34.5% |
| | | | | | | | | |
| **3-stage** | | | | | | | | |
| Net income / sales | *NPM* | | 11.9% | 11.4% | 14.0% | 15.6% | 14.8% | 15.9% |
| Sales / avg assets | *TAT* | | 0.91 | 0.87 | 0.84 | 0.97 | 1.04 | 1.08 |
| ROA | *ROA* | | 10.9% | 9.9% | 11.8% | 15.0% | 15.4% | 17.2% |
| Avg assets / avg equity | *EM* | | 3.37 | 2.84 | 2.44 | 2.57 | 2.44 | 2.01 |
| ROE | *=NMP*TAT* | | 36.5% | 28.1% | 28.7% | 38.6% | 37.7% | 34.5% |
| | | | | | | | | |
| Payout Ratio | | | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Retention Ratio | | | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Sustainable Growth Rate | | | 36.5% | 28.1% | 28.7% | 38.6% | 37.7% | 34.5% |

## Appendix 7: Cash Flow Statement

| Cash Flow Statement | | | | | | |
|---|---|---|---|---|---|---|
| **Items** | **2018** | **2019** | **2020** | **2021** | **2022** | **2023** |
| **Cash from Operatings (understated - depr'n added to net assets)** | | | | | | |
| Net income | $241 | $252 | $347 | $553 | $684 | $901 |
| Change in Net Working Capital ex cash | (70) | (54) | 20 | (18) | (165) | (136) |
| Cash from operations | $171 | $199 | $368 | $535 | $519 | $765 |
| | | | | | | |
| **Cash from Investing (understated - depr'n added to net assets)** | | | | | | |
| Change in NFA | ($104) | ($164) | ($96) | ($468) | ($164) | ($265) |
| Change in Marketable Securities | $0 | $0 | $0 | $0 | $0 | $0 |
| Cash from investing | ($104) | ($164) | ($96) | ($468) | ($164) | ($265) |
| | | | | | | |
| **Cash from Financing** | | | | | | |
| Change in Short-Term and Long-Term Debt | ($5) | ($25) | ($14) | $167 | ($100) | ($200) |
| Change in Other liabilities | 63 | 70 | 64 | 130 | 0 | 0 |
| Change in Debt/Equity-Like Securities | 0 | 0 | 0 | 0 | 0 | 0 |
| Dividends | 0 | 0 | 0 | 0 | 0 | 0 |
| Change in Equity ex NI and Dividends | (40) | 19 | 10 | (469) | 0 | 0 |
| Cash from financing | $19 | $64 | $60 | ($172) | ($100) | ($200) |
| | | | | | | |
| **Change in Cash** | 86 | 98 | 332 | (105) | 255 | 300 |
| **Beginning Cash** | 139 | 225 | 323 | 655 | 550 | 805 |
| **Ending Cash** | $225 | $323 | $655 | $550 | $805 | $1,105 |

## Appendix 8: 3-stage DCF Model:

| | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | First Stage | | | Second Stage | | | |
| Year ending January | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | *43.0%* | *29.9%* | *22.7%* | *20.0%* | *18.0%* | *18.0%* | *18.0%* | *16.0%* |
| *NOPAT / S* | *16.4%* | *15.4%* | *16.4%* | *17.0%* | *17.0%* | *17.0%* | *17.0%* | *17.0%* |
| *S / NWC* | *8.18* | *7.69* | *7.69* | *9.00* | *9.00* | *9.00* | *9.00* | *9.00* |
| *S / NFA (EOY)* | *1.75* | *2.10* | *2.30* | *2.50* | *2.60* | *2.70* | *2.80* | *3.00* |
| *S / IC (EOY)* | *1.44* | *1.65* | *1.77* | *1.96* | *2.02* | *2.08* | *2.14* | *2.25* |
| *ROIC (EOY)* | *23.6%* | *25.5%* | *29.0%* | *33.3%* | *34.3%* | *35.3%* | *36.3%* | *38.3%* |
| *ROIC (BOY)* | | *28.9%* | *33.2%* | *36.1%* | *39.2%* | *40.5%* | *41.7%* | *42.1%* |
| *Share Growth* | *0.7%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $3,554 | $4,615 | $5,664 | $6,796 | $8,020 | $9,463 | $11,166 | $12,953 |
| NOPAT | $582 | $713 | $928 | $1,155 | $1,363 | $1,609 | $1,898 | $2,202 |
| *Growth* | *56.1%* | *22.5%* | *30.2%* | *24.5%* | *18.0%* | *18.0%* | *18.0%* | *16.0%* |
| - Change in NWC | 18 | 165 | 136 | 19 | 136 | 160 | 189 | 199 |
| *NWC EOY* | *435* | *600* | *736* | *755* | *891* | *1051* | *1241* | *1439* |
| *Growth NWC* | *4.4%* | *38.0%* | *22.7%* | *2.6%* | *18.0%* | *18.0%* | *18.0%* | *16.0%* |
| - Chg NFA | 468 | 164 | 265 | 256 | 366 | 420 | 483 | 330 |
| *NFA EOY* | *2,034* | *2,198* | *2,462* | *2,718* | *3,084* | *3,505* | *3,988* | *4,318* |
| *Growth NFA* | *29.9%* | *8.1%* | *12.0%* | *10.4%* | *13.5%* | *13.6%* | *13.8%* | *8.3%* |
| Total inv in op cap | 486 | 329 | 401 | 275 | 502 | 581 | 672 | 528 |
| Total net op cap | 2468 | 2798 | 3199 | 3474 | 3975 | 4556 | 5229 | 5757 |
| FCFF | $96 | $384 | $527 | $880 | $861 | $1,028 | $1,226 | $1,674 |
| *% of sales* | *2.7%* | *8.3%* | *9.3%* | *13.0%* | *10.7%* | *10.9%* | *11.0%* | *12.9%* |
| *Growth* | | *300.6%* | *37.3%* | *67.2%* | *-2.2%* | *19.3%* | *19.3%* | *36.5%* |
| - Interest (1-tax rate) | 29 | 29 | 27 | 32 | 38 | 44 | 52 | 61 |
| *Growth* | *13.8%* | *-1.0%* | *-7.8%* | *20.0%* | *18.0%* | *18.0%* | *18.0%* | *16.0%* |
| FCFE w/o debt | $67 | $355 | $500 | $848 | $824 | $984 | $1,173 | $1,613 |
| *% of sales* | *1.9%* | *7.7%* | *8.8%* | *12.5%* | *10.3%* | *10.4%* | *10.5%* | *12.5%* |
| *Growth* | | *432.6%* | *41.0%* | *69.7%* | *-2.9%* | *19.4%* | *19.3%* | *37.5%* |
| / No Shares | 62.7 | 62.7 | 62.7 | 62.7 | 62.7 | 62.7 | 62.7 | 62.7 |
| FCFE | $1.06 | $5.66 | $7.98 | $13.53 | $13.14 | $15.69 | $18.72 | $25.73 |
| *Growth* | | *432.6%* | *41.0%* | *69.7%* | *-2.9%* | *19.4%* | *19.3%* | *37.5%* |
| * Discount factor | | 0.89 | 0.79 | 0.70 | 0.62 | 0.55 | 0.49 | 0.44 |
| Discounted FCFE | | $5.03 | $6.30 | $9.49 | $8.19 | $8.69 | $9.21 | $11.25 |
| | | | Third Stage | | | | | |
| **Terminal value P/E** | | | | | | | | |
| Net income | $553 | $684 | $901 | $1,123 | $1,326 | $1,564 | $1,846 | $2,141 |
| *% of sales* | *15.6%* | *14.8%* | *15.9%* | *16.5%* | *16.5%* | *16.5%* | *16.5%* | *16.5%* |
| EPS | $8.82 | $10.91 | $14.37 | $17.92 | $21.15 | $24.95 | $29.44 | $34.16 |
| *Growth* | *58.2%* | *23.7%* | *31.8%* | *24.7%* | *18.0%* | *18.0%* | *18.0%* | *16.0%* |
| Terminal P/E | | | | | | | | 29.00 |
| * Terminal EPS | | | | | | | | $34.16 |
| Terminal value | | | | | | | | $990.52 |
| * Discount factor | | | | | | | | 0.44 |
| Discounted terminal value | | | | | | | | $432.96 |
| **Summary (using P/E multiple for terminal value)** | | | | | | | | |
| First stage | $11.32 | Present value of first 2 year cash flow | | | | | | |
| Second stage | $46.82 | Present value of year 3-7 cash flow | | | | | | |
| Third stage | $432.96 | Present value of terminal value P/E | | | | | | |
| Value (P/E) | **$491.10** | | | | | | | |

## Appendix 9: Comp Sheet:

| Ticker | Name | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Pst 5yr | Beta | LT Debt/ Equity | S&P Rating | LTM Dividend Yield | Payout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| GNRC | GENERAC HOLDINGS INC | $403.57 | $25,461 | (4.2) | (20.2) | (8.0) | 25.4 | 89.5 | 77.5 | 10.0 | 31.0% | 34.5% | 71.1% | 21.7% | 15.8% | | 0.99 | 47.3% | | 0.00% | 0.0% |
| CMI | CUMMINS INC | $209.12 | $29,911 | (0.3) | (14.8) | (11.0) | (20.1) | (9.2) | (7.9) | 15.4 | 9.0% | -19.9% | 24.4% | 21.1% | 11.5% | | 1.05 | 48.6% | B+ | 2.67% | 36.2% |
| ENPH | ENPHASE ENERGY INC | $236.86 | $31,955 | (5.3) | (1.1) | 34.3 | 69.9 | 83.8 | 35.0 | 36.5 | 140.0% | 44.2% | 67.2% | 34.1% | 29.3% | | 1.53 | 147.1% | | 0.00% | 0.0% |
| CAT | CATERPILLAR INC | $191.47 | $103,574 | (1.0) | (6.8) | (7.9) | (21.1) | 10.5 | 5.2 | 25.8 | 22.0% | -40.7% | 58.7% | 18.4% | 17.6% | | 0.77 | 162.9% | B+ | 2.21% | 44.9% |
| ETN | EATON CORP PLC | $161.47 | $64,362 | (0.4) | (1.7) | (3.2) | 10.4 | 33.8 | 34.4 | 12.4 | 39.6% | -26.4% | 56.6% | 12.2% | 10.1% | | 1.11 | 55.5% | | 1.88% | 58.4% |
| VICR | VICOR CORP | $140.34 | $6,142 | (2.2) | (6.8) | 13.3 | 50.4 | 67.3 | 52.2 | 20.0 | 81.2% | 20.6% | 297.6% | 62.6% | 35.1% | | 0.85 | 0.9% | C | 0.00% | 0.0% |
| **Average** | | | $43,568 | (2.2) | (8.6) | 2.9 | 19.1 | 45.9 | 32.7 | 20.0 | 53.8% | 2.1% | 95.9% | 28.3% | 19.9% | | 1.05 | 77.0% | | 1.13% | 23.2% |
| **Median** | | | $30,933 | (1.6) | (6.8) | (5.5) | 17.9 | 50.6 | 34.7 | 17.7 | 35.3% | 0.3% | 62.9% | 21.4% | 16.7% | | 1.02 | 52.1% | | 0.94% | 18.1% |
| **SPX** | S&P 500 INDEX | $4,513 | | (1.2) | (2.2) | (0.2) | 7.4 | 23.2 | 20.2 | | | -13.9% | 46.2% | 8.3% | 9.3% | | | | | | |

| Ticker | Website | 2022 ROE | P/B | P/E 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | 2021 NPM | 2021 P/S | NM | OM | ROIC | EV/ EBIT | P/CF Current | Sales Growth NTM | STM | Pst 5yr | Book Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **GNRC** | http://www.generac.com | 41.3% | 14.29 | 24.1 | 40.9 | 42.3 | 49.1 | 37.5 | 34.6 | 29.8 | 16.4% | 6.87 | 14.1% | 19.2% | 16.7% | 31.1 | 38.7 | 29.1% | 14.6% | | $28.25 |
| **CMI** | http://www.cummins.com | 32.3% | 3.70 | 11.8 | 18.6 | 14.3 | 13.8 | 12.6 | 11.5 | 10.3 | 9.0% | 1.25 | 9.0% | 9.3% | 16.7% | 19.3 | 11.6 | 5.2% | 5.8% | | $56.48 |
| **ENPH** | http://www.enphase.com | 63.9% | 49.30 | 27.5 | 126.2 | 102.6 | 206.0 | 85.8 | 77.2 | 59.7 | 22.6% | 23.33 | 17.3% | 24.1% | 30.2% | 131.8 | 99.3 | 42.0% | 30.6% | | $4.80 |
| **CAT** | http://www.caterpillar.com | 40.3% | 6.27 | 13.4 | 27.4 | 18.9 | 20.5 | 16.8 | 15.5 | 13.2 | 11.3% | 2.07 | 7.2% | 11.9% | 7.2% | 25.8 | 14.2 | 12.2% | 11.7% | | $30.56 |
| **ETN** | http://www.eaton.com | 18.6% | 4.03 | 16.4 | 28.1 | 25.1 | 31.3 | 22.5 | 21.7 | 19.7 | 13.4% | 3.25 | 7.9% | 13.0% | 6.1% | 24.1 | 24.0 | 1.9% | 6.7% | | $40.07 |
| **VICR** | http://www.vicorpower.com | 28.2% | 14.93 | 137.4 | 224.8 | 86.8 | 106.8 | 59.0 | 53.0 | 39.2 | 19.3% | 16.60 | 6.0% | 5.9% | 6.4% | 221.0 | 94.8 | 27.3% | 26.0% | | $9.40 |
| **Average** | | 37.4% | 15.42 | 38.4 | 77.7 | 48.3 | 71.2 | 39.0 | 35.6 | 28.7 | 15.3% | 8.89 | 10.3% | 13.9% | 13.9% | 75.5 | 47.1 | 19.6% | 15.9% | | |
| **Median** | | 36.3% | 10.28 | 20.3 | 34.5 | 33.7 | 40.2 | 30.0 | 28.1 | 24.8 | 14.9% | 5.06 | 8.5% | 12.5% | 11.9% | 28.5 | 31.3 | 19.8% | 13.1% | | |
| **SPX** | S&P 500 INDEX | | | 19.8 | 26.6 | 22.3 | | | 20.3 | 18.6 | | | | | | | | | | | |

## Appendix 10: Market Opportunity Calculation:

| | Year | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Year | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 |
| **Sales (in millions)** | $3,500 | $4,655 | $6,191 | $8,234 | $10,952 | $14,566 | $19,372 | $25,765 | $34,267 | $45,576 | $60,616 |
| *Gr. %* | *33%* | *33%* | *33%* | *33%* | *33%* | *33%* | *33%* | *33%* | *33%* | *33%* | *33%* |
| *FCFE Margin %* | *9.5%* | *9.5%* | *9.5%* | *9.5%* | *9.5%* | *9.5%* | *9.5%* | *9.5%* | *9.5%* | *9.5%* | *9.5%* |
| FCFE | 333 | 442 | 588 | 782 | 1,040 | 1,384 | 1,840 | 2,448 | 3,255 | 4,330 | 5,758 |
| *Discount Factor* | *1.00* | *1.13* | *1.27* | *1.43* | *1.61* | *1.81* | *2.04* | *2.29* | *2.58* | *2.91* | *3.28* |
| Discounted FCFE | 333 | 393 | 464 | 548 | 647 | 764 | 903 | 1,067 | 1,260 | 1,488 | 1,758 |

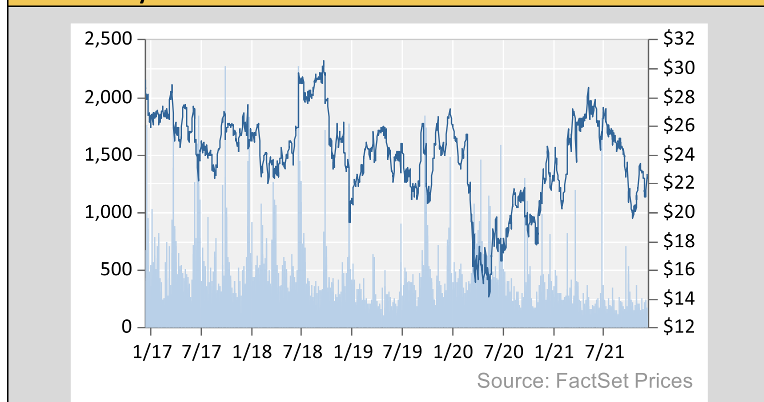
| | | |
|---|---|---|
| Terminal Value | $ | 75,830 |
| **Discounted Terminal ** | | 23,145 |
| Terminal Growth Rate | | 2.50% |
| **NPV** | | 45,346 |
| **Summary** | | |
| Value for GNRC | $ | 45,345,706,847 |
| Shares Outstanding | | 64,000,000 |
| **Value Per Share** | $ | 709 |

Industrials

# Enerpac Tool Group Corp.

| Recommendation: Buy | | | | |
|---|---|---|---|---|
| Current Price | **$19.86** | --- | Ticker | EPAC |
| 1 Year Bear | $18 | *-9%* | Sh. Out. (M) | 60.2 |
| 1 Year Base | **$24** | ***21%*** | M. Cap. ($B) | 1.2 |
| 1 Year Bull | $26 | *31%* | EV ($B) | 1.3 |

## Price History




| | 5Y | 3Y | 2Y | LTM | YTD | 3M | 1M |
|---|---|---|---|---|---|---|---|
| **Return** | -30% | -1% | -28% | -10% | -10% | -14% | -14% |

## Financials

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| Sales($B) | **$1.1** | **$1.1** | **$0.7** | **$0.5** | **$0.5** | **$0.6** | **$0.6** |
| *Gr. %* | -4.3% | *7.9%* | *-44.6%* | *-24.7%* | *7.2%* | *6.0%* | *8.7%* |
| *v. Cons.* | | | | | | 11.3% | 6.7% |
| *Industry* | 5.3% | 5.3% | 5.3% | 5.3% | 5.3% | 8.2% | 8.2% |
| **EPS** | -$1.11 | -$0.36 | -$4.07 | $0.02 | $0.63 | $0.75 | $0.83 |
| *Gr. %* | | *-67.2%* | *1017.0%* | *-100.4%* | *3700.0%* | *18.9%* | *9.7%* |
| *v. Cons.* | | | | | | 79.4% | 10.6% |
| *Industry* | 7.8% | 7.8% | 7.8% | 7.8% | 7.8% | 7.8% | 7.8% |

## Ratios

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| **NPM** | -6.0% | -1.9% | -38.0% | 0.2% | 7.2% | 8.1% | 8.1% |
| *Industry* | 6.2% | 8.0% | 10.0% | 11.6% | 12.2% | | |
| **ROE** | -13.0% | -4.2% | -57.9% | 0.3% | 9.9% | 10.4% | 10.4% |
| *Industry* | 10.6% | 14.0% | 15.5% | 18.2% | 18.7% | | |
| **ROA** | -4.47% | -1.5% | -19.1% | 0.1% | 4.6% | 5.4% | 5.6% |
| *Industry* | 5.5% | 6.8% | 7.5% | 8.7% | 9.3% | | |
| **A T/O** | 0.74 | 0.79 | 0.50 | 0.51 | 0.64 | 0.67 | 0.68 |
| **A/E** | 2.90 | 2.83 | 3.03 | 2.95 | 2.13 | 1.94 | 1.86 |

## Valuation

| | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F |
|---|---|---|---|---|---|---|---|
| P/E | - | - | - | 1733.33 | 39.91 | 22.2 | 19.1 |
| *Industry* | 25.5 | 33.2 | 25.5 | 33.2 | 24.8 | 19.4 | 16.6 |
| P/S | 1.30 | 1.51 | 2.07 | 2.54 | 2.87 | | |
| P/B | 2.87 | 3.21 | 4.46 | 3.46 | 3.68 | | |
| P/CF | 16.27 | 16.78 | 25.22 | -369.47 | 28.05 | | |
| EV/EBITDA | 15.11 | 14.24 | 16.81 | 28.00 | 19.71 | | |
| DPS | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 | 0.04 |

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## Summary

I recommend a buy rating with a target of $24. EPAC has an opportunity to maximize its already established networks and create a new brand. The completion of its restructuring creates opportunites for better profit margins and growth. Despite this, the growing tensions between China and United States, inflation, a pandemic, and supply chain problems all make investors hesitant. After the restructuring, the company will be easier to evaluate and estimates will narrow. At this time, the stock is undervalued based on a DCF analysis and relative analysis.

## Key Drivers

- Management changes: The restructuring was initiated to break up what used to be a conglomerate that had little unified direction. This restructuring was done to pursue better profit margins and sales growth. A new CEO will guide the company in its new direction.
- Restructuring: The uncertainty that the restructuring created has kept EPAC's stock price trading down over the past five years.
- International expansion: This could help revenue growth in the future, especially since the restructuring is mostly behind the firm. The market does not seem optimistic.
- Macroeconomic trends: EPAC's correlation with consumer confidence greatly increased as its restructuring neared completion and the company stabilizbes.

## Valuation

Using a relative valuation approach, EPAC appears to be quite undervalued. A DCF analysis implies that the stock is worth $23 and is moderately undervalued. A combination of the approaches suggests that EPAC is over 20% undervalued as the stock's value is approximately $24 and its shares trade at $19.86.

## Risks

- Tariffs between China and U.S. would hurt margins
- Continued supply chain delays
- Labor shortages could slow inventory turnover

## Company Overview

The company made a choice to specialize in industrial tools in 2017. The change was made to pursue better profit margins and sales growth.

Enerpac Tool Group Corporation (EPAC), formerly known as Actuant Corporation, is an industrial tools and services company with customers in over 100 nations. The company is a global leader in the engineering and manufacturing of high-pressure hydraulic tools and assisting engineers and industrial workers with the precise movement of heavy loads.

The company began a large-scale change to its products, services, and corporate structure in 2017. This process has been ongoing but near completion with the change of name, ticker symbol, and corporate structure taking place in late 2019. EPAC made many acquisitions and divestitures since 2013 with an intent to become exclusively an industrial tools and services company. These changes caused a 41.5% revenue loss in 2018. The company's revenue has not yet recovered.

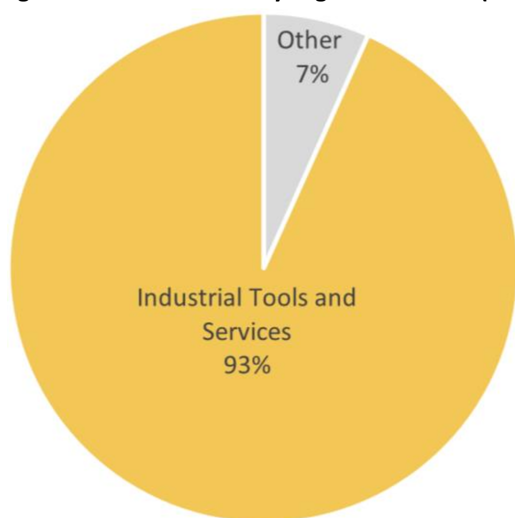
EPAC has two operating segments: Industrial Tools & Services and Other. Industrial Tools and Services supplies both products and services to different markets including energy, mining, large ships, and infrastructure markets. The Other operating segment currently focuses on the design and manufacturing of high-performance synthetic ropes and biomedical assemblies. The firm was founded in 1910 and its headquarters are in Menomonee Falls, Wisconsin.

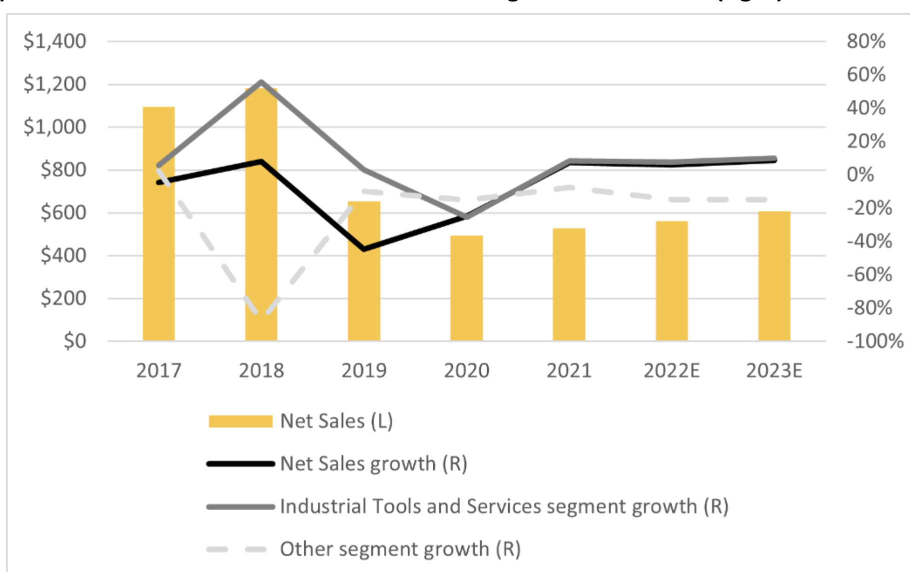
The firm changed its name, ticker symbol, and websites all in 2019-20 in conjunction with its largest divestiture.

**Industrial Tools and Services:** 93.3% of the company's revenue is made from sale of products and services in this segment. This includes hydraulic tools, force products, electric pumps, torque or tension tools, and aerospace and nuclear tools (Appendix 3). The company also provides training on all its machinery. The products are used in heavy machinery operations in mines, oil rigs, large ships, and in building bridges and skyscrapers. The firm has tool training centers in six countries. EPAC has been growing Industrial Tools and Services, including the 55.6% revenue growth in 2018.

**Other:** 6.7% of the company's revenue is from a subsidiary called Cortland Company. Its operations focus on a patented high performance synthetic rope used internationally on large ships, in aerospace, on oil and gas rigs, and in construction (Appendix 4). This product is stronger and lighter than similar steel products on the market. EPAC has been divesting this segment of its company, most recently in 2018 when the revenue declined 87.6%.

**Figures 1 & 2: Revenue by segment in 2021 (left) and total revenue in millions & YoY revenue growth since 2016 (right)**




*Source: Company reports*

## Business/Industry Drivers

Though several factors may contribute to Enerpac Tool Group Corp.'s future success, the following are the most important business drivers:

1) Management
2) Restructuring
3) International expansion
4) Macroeconomic trends

EPAC is nearly complete with its restructuring.

EPAC has been restructuring since 2017 to become a pure play industrial tools and services corporation. A new CEO was hired in September 2021. The company has been selling its industrial products to many developed countries for over 23 years. The firm has an established global presence in the industry of heavy machinery and in tools that support infrastructure and construction. The company formerly had a different business model, products, management, and name. EPAC is now nearly complete with its restructuring, and the following are the most important drivers of stock price. Management and restructuring have been the historical drivers for the past five years. International expansion and macroeconomic trends will be large drivers of the stock price into the future.

Management

The restructuring was initiated to break up what used to be a conglomerate that had little unified direction, and it was done to pursue better profit margins and sales growth. Mr. Randal Baker guided EPAC through the restructuring from 2016 to 2021. Mr. Paul Sternlieb was hired in September 2021 to lead the company into the future.

Mr. Randal Baker was CEO from 2016 to 2021 and guided EPAC through its restructuring.

Mr. Baker was hired in 2016 at the beginning of this restructuring. His degree and background are in mining and technology. Mr. Baker served at the top of numerous mining companies before assuming his position as CEO of Enerpac Tool Group Corp. EPAC currently serves industries including mining, oil, gas, and maritime transport.

Mr. Baker had been involved to varying degrees in mergers, acquisitions, and divestitures in his previous positions as the COO of two companies that had ongoing changes that required his attention and oversight. He was hired at the beginning of the restructuring and retired as it neared completion.

Mr. Paul Sternlieb was hired as CEO in September 2021 to lead the company in the future.

The current CEO, Paul Sternlieb, was hired in September 2021. He holds dual bachelor's degrees in economics and computer science. He also earned an MBA from the Wharton School of Economics. For the first ten years of his career, he worked in management and strategy consulting at various levels for American Management Systems and McKinsey & Company. For these companies he worked in growth strategy, marketing, and engagement. He has held senior marketing, management, and strategy roles since 2006 in mostly food equipment companies until he became EPAC's CEO in 2021.

His experience in marketing and growth consulting will be a great asset to a company that is completing a long transformation of its goods and services. The company has recently rebranded and is prepared to utilize its network in over 100 countries, and he has experience that likely will support the company's growth into the future.

Restructuring

In 2016, 2017, and 2018 the company spent $15 million, $7 million, and $13 million, respectively, on restructuring. The focus was on reducing the employee count and removing overlapping duties for

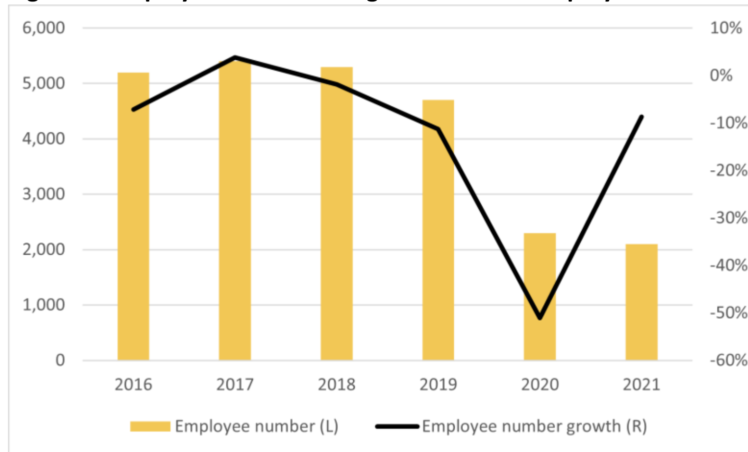
executives. A portion of the budget was spent automating manufacturing jobs. EPAC also spent money on consolidating locations and offices that were underperforming.

In the end of 2019, the company renamed itself from Actuant Corporation to Enerpac Tool Group Corporation, sold its Engineered Components & Systems segment that had been renamed a few times over the years, created a new ticker symbol, and changed its websites.

In 2016, the company laid out a plan to cut employee numbers from top to bottom. In 2016, it had 5,100 employees and by August 2019, the firm had 4,700 employees. EPAC announced that it would reduce employees by another 40% with the divestiture of its Engineered Components & Systems division. This would result in 2,820 employees by 2020. In August 2020, after the divestiture, EPAC had 2,300 employees, a reduction of 51.1%.

EPAC sold its Engineered Components and Systems sector in 2019. This halved the number of employees working for EPAC.

**Figure 3: Employee number and growth rate of employee number by year**




*Source: Company reports*

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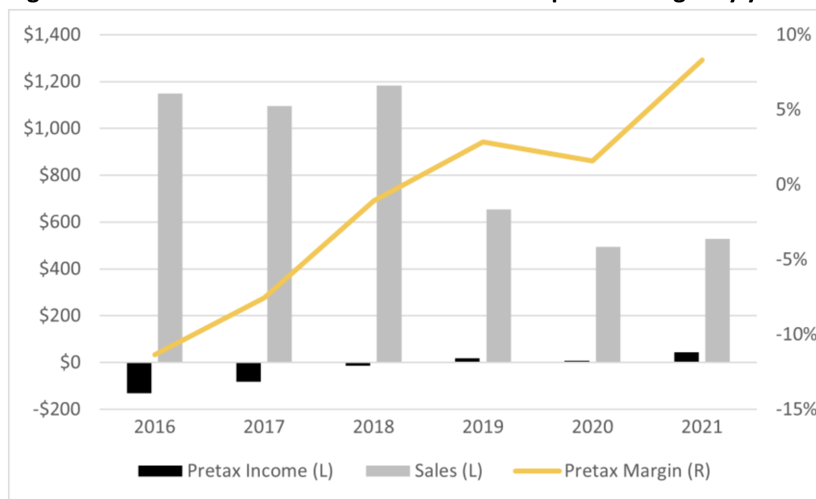
Since 2016, sales fell 54.0% while before tax income increased from -130.3 million to 44.0 million; the pre-tax margin rose from -11.3% to 8.3%. This means the restructuring has paid off.

Since 2016, sales fell while before tax income increased; the pre-tax margin rose from -11.3% to 8.3%. This means the restructuring has paid off.

**Figure 4: Pretax income and sales in millions and pretax margin by year**




*Source: Company reports*

Since 2013, the firm has transitioned from four divisions to two. The company had Industrial, Energy, Engineered Solutions, and Electrical segments. It renamed, acquired, and divested to its current Industrial Tools and Services, and Other.

Many former brands, companies, and products were deemed “non-core assets” as the company began to restructure.

In 2017, the company sold its Viking Seatech brand (Energy division), an offshore large ships equipment and services company, to Acteon Group Limited for $12 million. It simultaneously acquired Mirage, an industrial and energy maintenance tool company from Acteon for $16 million.

In 2018, the company acquired Equalizer International for $5.8 million, which is a provider of industrial and energy maintenance tools. They also divested Cortland Fibron BX Ltd for $15.8 million, which is an offshore cables and hoses corporation supporting subsea projects and offshore oil rigs.

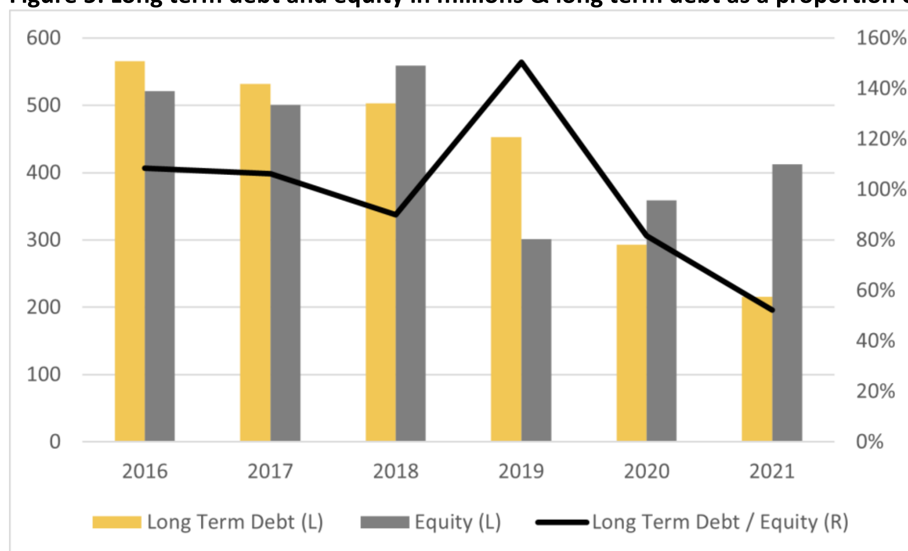
In the period of 2019-20, EPAC sold its Engineered Components & Systems segment to a New York private equity firm for $214.5 million. This segment had been consolidated and renamed a few times over the years, but it was responsible for 50.0% of EPAC’s sales the fiscal year before the sale.

In 2020, the firm acquired HTL Group which had revenues of $17 million in 2019, other terms of the acquisition were not disclosed. It specialized in power tools, calibration and repair services, and tool rental services.

Over the past three years, the debt-to-equity ratio fell from 150.4% to 52.3%. EPAC’s debt is 61.9% down from 2016.

Long term debt is at a six-year low. The debt-to-equity ratio is down from 1.5 to 0.52 over the past three years.

**Figure 5: Long term debt and equity in millions & long term debt as a proportion of equity**



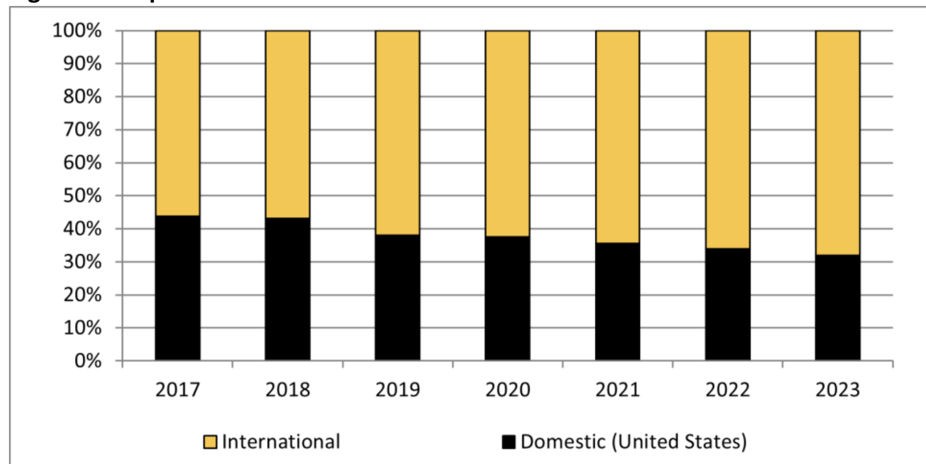

*Source: Company reports*

International expansion

EPAC generated 37.6% of net sales from the United States in 2020. This has declined from 41.5% in 2016. The mining, oil, and shipping industries of which Enerpac Tool Group is heavily invested, are global businesses. While sales in the United States are declining, the closest country by proportion of sales is the United Kingdom with less than 8% of net sales. Germany, China, Australia, Saudi Arabia, Canada, and Brazil occupy between 2.5% and 6.1% of sales.

Since 2016, greater than half of EPAC sales have been outside of the United States.

**Figure 6: Proportion of sales domestic or international**




*Source: Company reports*

International expansion could help revenue growth, especially since the restructuring is mostly complete. The stock has traded down over the past five years, so the market does not appear optimistic yet.

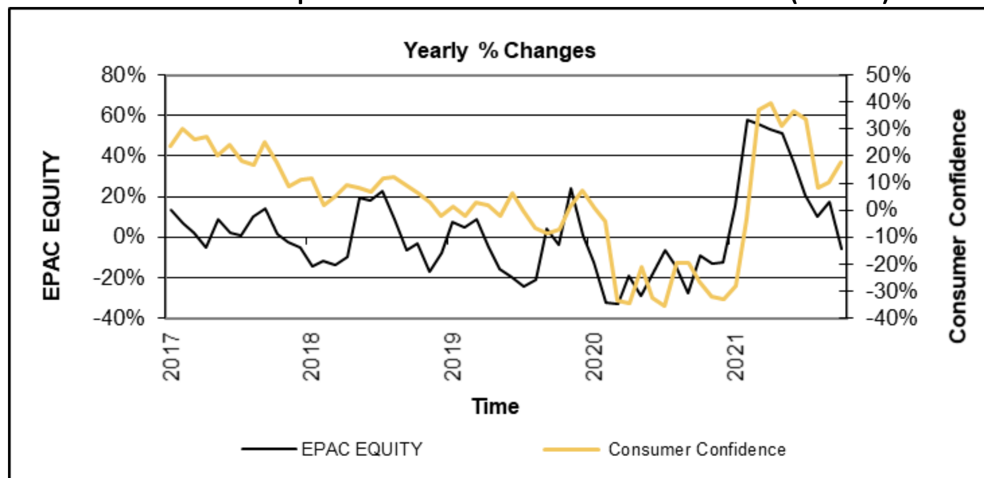
<u>Macroeconomic trends</u>

Consumer confidence is often used to gain insight into the cyclicality of a business or industry. EPAC's stock is positively correlated with the change in consumer confidence on both an absolute and relative basis.

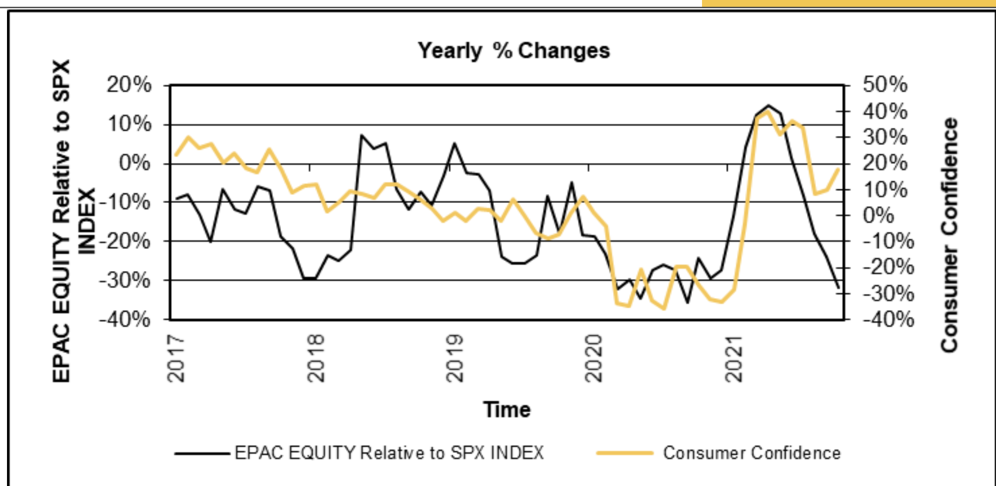
The correlation with consumer confidence has increased over time. The correlation was lower from 2017 to positive correlation in 2020-21. This indicates that macroeconomic trends were a lower proportion driving stock price until about 2020. Until then, restructuring news was the main driver of stock price. This will continue and increase in the future as the company stabilizes.

EPAC is becoming more cyclical and correlated with consumer confidence as it completes its restructuring.

**Figures 7 & 8: YoY % change in consumer confidence compared to EPAC (top); YoY % change in consumer confidence compared to EPAC relative to the S&P 500 index (bottom)**




*Source: Bloomberg, IMCP*

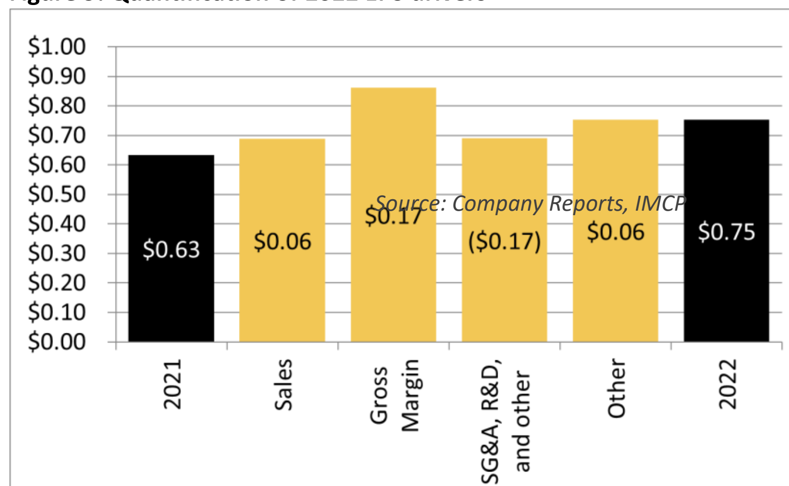



*Source: Bloomberg, IMCP*

## Financial Analysis

I anticipate EPS grows by $0.12 in FY 2022. The purpose of the restructuring is partially to increase sales. I anticipate a 6.0% growth in sales, which would increase EPS by $0.06. The other purpose of restructuring is to increase gross margin. I anticipate gross margin reaching 48.0% of sales, which would increase EPS by $0.17. The firm attributes its success in the past to its continuous pursuit of innovation. As the company moves towards its goal of becoming the best supplier of its product, management discusses R&D being instrumental to that. I expect that the gross margin increase will be negated by the research and development dedication. I believe that intangible factors, such as announcements and establishing brand recognition, could result in an increase of $0.06. I anticipate the company reaches a net EPS increase of $0.14 by the end of FY 2022.

**Figure 9: Quantification of 2022 EPS drivers**




*Source: Bloomberg, IMCP*

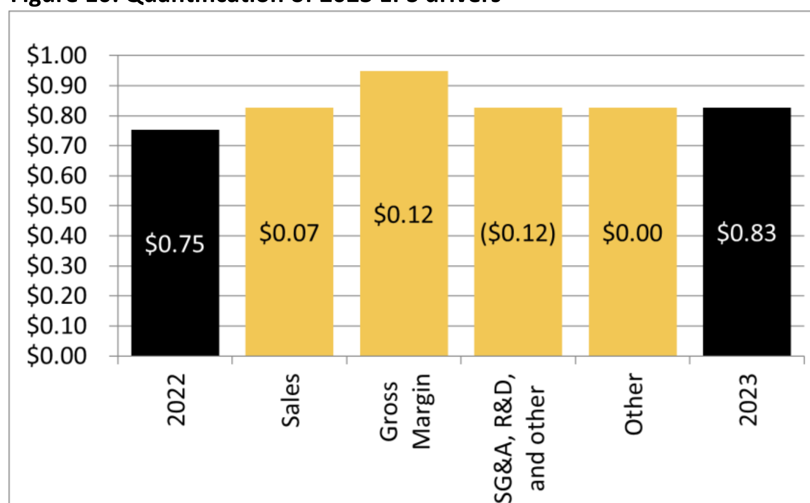
The increase in gross margin is a result of the company's transition from its diversified focus to the higher margins available in Industrial Tools & Services.

I anticipate EPS grows by $0.07 in FY 2023. The restructuring is scheduled to be completed before 2023. I anticipate an 8.7% growth in sales which would increase EPS by $0.07. I anticipate gross margin reaching 49.5% of sales, which would increase EPS by $0.12. I expect that the gross margin increase will be negated by research and development costs. This would lead to a loss of $0.12. The company could reach a net EPS increase of $0.07 by the end of FY 2023.

The restructuring is scheduled to be completed before 2023.

I am more pessimistic than the consensus estimates. I anticipate an overreaction after restructuring that significantly overvalues the company.

**Figure 10: Quantification of 2023 EPS drivers**




*Source: Bloomberg, IMCP*

As shown by Figure 11, I am more pessimistic than the consensus estimates on growth of EPS and revenue for 2022 and 2023. I anticipate an overreaction from the market at completion of restructuring that significantly overvalues the company. My estimate could change greatly due to the large number of risks influencing the stock in either direction. I believe that the company is greatly at risk due to tension between China and the United States, as well as supply chain problems. I anticipate growth, but slower and more consistent than those predicted by consensus for 2022 and 2023.

**Figure 11: EPS and YoY growth estimates by year**

| | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|
| Revenue - Estimate | $493 | $529 | $560 | $609 |
| *YoY Growth* | *-25%* | *7%* | *6%* | *9%* |
| EPS | $0.02 | $0.63 | $0.75 | $0.83 |
| *YoY Growth* | *100%* | *3700%* | *19%* | *10%* |
| EPS Consensus | 0.02 | 0.63 | 0.99 | 1.15 |
| *YoY Growth* | *100%* | *3700%* | *57%* | *16%* |

*Source: Company reports, FactSet*

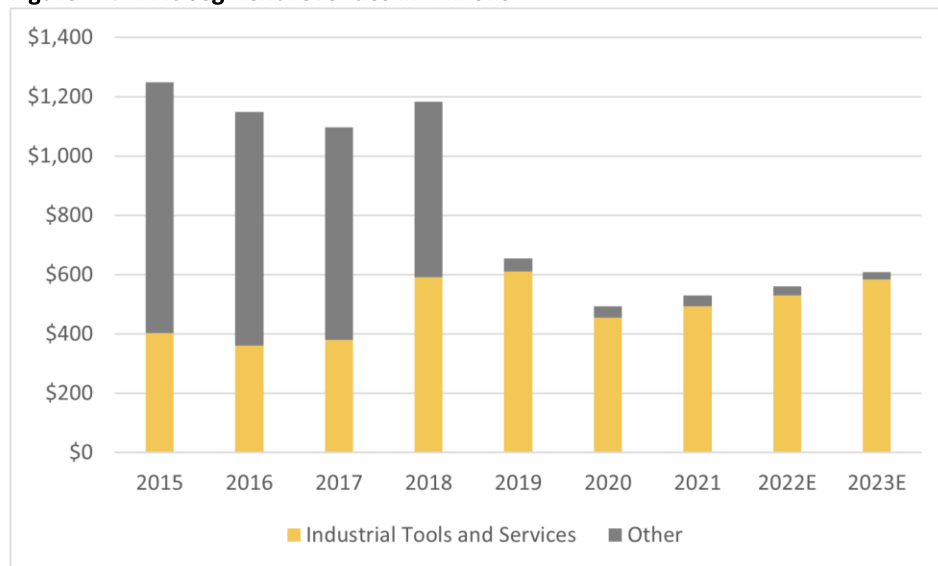
<u>Revenues</u>

EPAC's restructuring has decreased revenue significantly since 2015. The company is primed to regain much of the lost revenue due to an already established network internationally. I anticipate continuous growth in domestic and international sales, with international sales growing the most.

The firm has announced that it has seen its largest growth in revenue in the United States, followed by countries in Asia. The company has seen diminished sales in Europe, but the growth in sales far outpaces the loss. I expect moderate growth of approximately 10% per year until the company matures and saturates the market with its product, at which point the growth will slow.

I expect sales growth of approximately 10% per year.

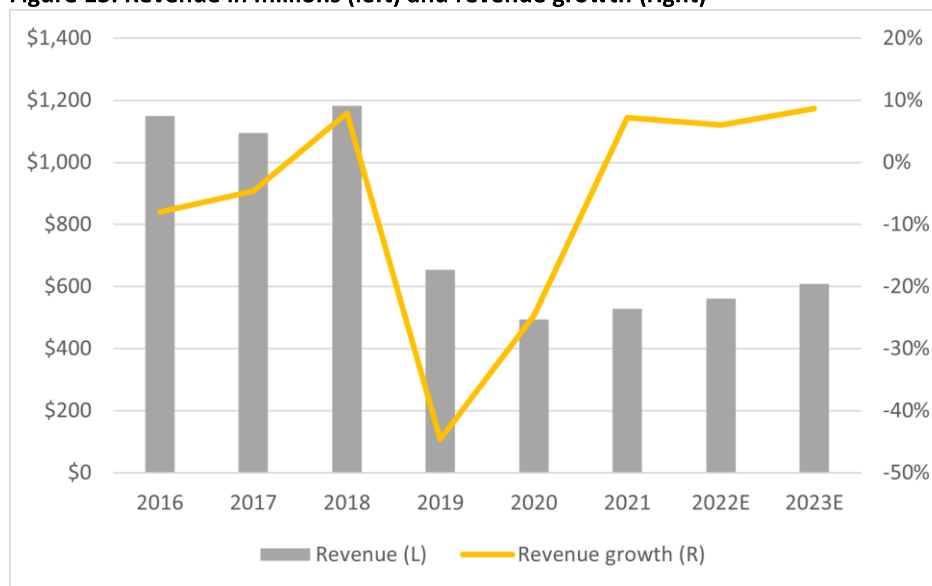
**Figure 12: EPAC segment revenues in millions**




*Source: Company reports*

EPAC's sales are involved in infrastructure, oil, and gas. As countries spend more money on those things, we can expect to see fluctuations in sales accordingly. This also means that unless EPAC plans to replace its oil and gas buyers with another source of revenue, it will also see a decline in sales as electric vehicles become more accessible.

**Figure 13: Revenue in millions (left) and revenue growth (right)**




*Source: Company reports*

Return on Equity

Enerpac Tool Group Corporation has had a very turbulent ROE since 2018 due to the restructuring. A three-stage DuPont analysis shows that profit margin is the strongest driver of ROE. The company has expressed its intent to pay off debt and lower leverage in the future. EPAC has also made changes to continue to increase profit margins, which is promising in terms of increasing ROE.

DuPont analysis shows that profit margin is the strongest driver of ROE.

**Figure 14: 3-stage DuPont analysis**

| DuPont Analysis | 2018 | 2019 | 2020 | 2021 | 2022E | 2023E |
|---|---|---|---|---|---|---|
| **3-stage** | | | | | | |
| Net income / sales | -1.9% | -38.0% | 0.2% | 7.2% | 8.1% | 8.1% |
| Sales / avg assets | 0.79 | 0.50 | 0.51 | 0.64 | 0.67 | 0.68 |
| ROA | -1.5% | -19.1% | 0.1% | 4.6% | 5.4% | 5.6% |
| Avg assets / avg equity | 2.83 | 3.03 | 2.95 | 2.13 | 1.94 | 1.86 |
| ROE | -4.2% | -57.9% | 0.3% | 9.9% | 10.4% | 10.4% |

*Source: Company reports*

I anticipate a slower change in profit margins, sales, and ROE than consensus in 2022-23 due to the various economic risks that I believe will slow growth of company in coming years.

Free Cash Flow

**Figure 15: Free cash flow calculations**

| Free Cash Flow | | | | | | | |
|---|---|---|---|---|---|---|---|
| ***With cash and debt*** | | | | | | | |
| FCFF per share | | $1.52 | $7.79 | $2.99 | $1.07 | $0.14 | $0.14 |
| *Growth* | | | *413.5%* | *-61.5%* | *-64.4%* | *-87.3%* | *0.0%* |
| FCFE per share | | $0.54 | $5.74 | ($1.09) | ($0.06) | $0.04 | $0.04 |
| *Growth* | | | *966.1%* | *-119.0%* | *-94.3%* | *-164.6%* | *0.0%* |
| ***With cash and debt*** | | | | | | | |
| NOPAT | $101 | $93 | $57 | $23 | $55 | $51 | $55 |
| *Growth* | | *-8.3%* | *-38.5%* | *-58.7%* | *135.7%* | *-8.0%* | *8.7%* |
| NOWC | 488 | 539 | 545 | 300 | 311 | 326 | 330 |
| Net fixed assets | 870 | 820 | 394 | 483 | 463 | 492 | 534 |
| Total net operating capital | $1,358 | $1,359 | $939 | $783 | $774 | $817 | $864 |
| *Growth* | | *0.1%* | *-30.9%* | *-16.6%* | *-1.1%* | *5.5%* | *5.8%* |
| - Change in NOWC | | 51 | 6 | (245) | 11 | 14 | 5 |
| - Change in NFA | | (50) | (426) | 89 | (20) | 29 | 43 |
| FCFF | | $92 | $476 | $180 | $64 | $8 | $8 |
| *Growth* | | | *420.3%* | *-62.3%* | *-64.4%* | *-87.3%* | *0.0%* |
| - After-tax interest expense | | 27 | 21 | 15 | 5 | 6 | 6 |
| + Net new short-term and long-term debt | | (32) | (104) | (230) | (63) | - | - |
| FCFE | | $33 | $351 | -$65 | -$4 | $2 | $2 |
| *Growth* | | | *980.2%* | *-118.6%* | *-94.3%* | *-164.6%* | *0.0%* |

*Source: Company reports*

EPAC's free cash flow has been very volatile since 2017; however, it has been positive due to asset sales. The firm has been paying off debt, borrowing to make acquisitions, and divesting large sections of the company. EPAC has expressed that it would like to focus on continuing to pay off debt.

I expect both FCFF and FCFE to decline 87% and 164%, respectively, in 2022 as the firm starts to invest in assets. FCF was high due to large divestitures in 2019, 2020, and 2021.

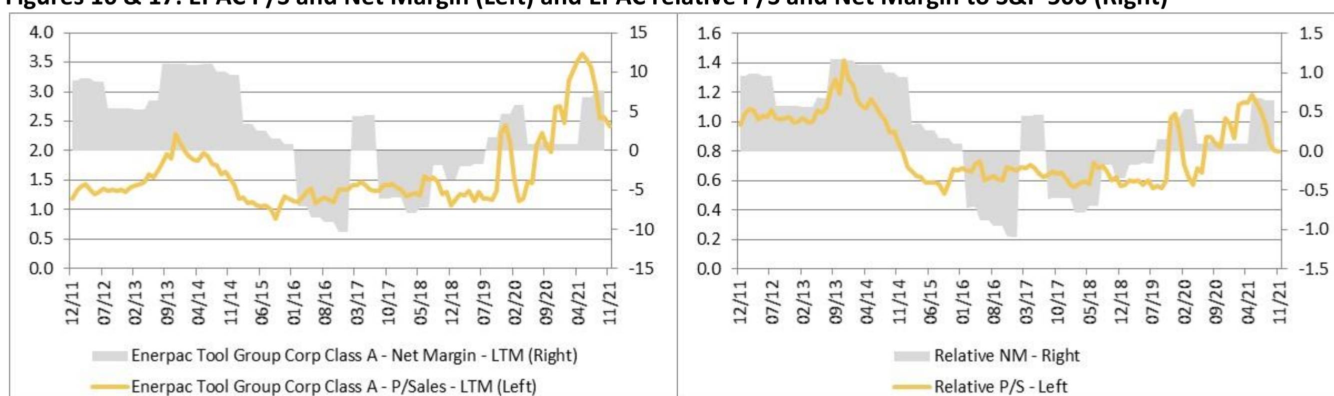
## Valuation

EPAC was valued using multiples and a 3-stage discounted cash flow model. Based on P/S, the stock is worth about $26, or more than 30% undervalued. Based on relative P/E, its 6% undervalued, and based on a composite of multiples and fundamentals, it is significantly undervalued. A detailed DCF analysis values EPAC at $23.41. Overall, a fair value is about $24.

Trading History

EPAC's P/S ratio has risen over the last few years as the firm's profitability has improved (figure 15). It's P/S has also risen relative to the S&P 500 (figure 16). I'm forecasting net profit margin to rise from 7.2% to 8.1% over the current fiscal year, so we can assume the P/S ratio may continue rising. It's currently 2.41, down from over 3.5 earlier in 2021.

**Figures 16 & 17: EPAC P/S and Net Margin (Left) and EPAC relative P/S and Net Margin to S&P 500 (Right)**




*Source: IMCP, Company reports*

Assuming the P/S rises back to 3.0 by the end of 2022, it should trade at $18.23 by the end of the year:

- Price = P/S x Sales per share = 3.0 x $9.61 = $28.83.

Discounting $28.83 back to today at a 11.72% cost of equity (explained in Discounted Cash Flow section) yields a price of $25.80. Given the current price of less than $20, this indicates it the stock is significantly undervalued.

Relative Valuation

Enerpac Tool Group Corporation is currently trading at a higher price-to-book than the median of its competitors despite its lower ROE. Also, it has an average P/S with a below average margin. Thus, the market seems to be pricing in improvement.

**Figure 18: EPAC comparable companies**

| | Current | Market | Price Change | | | | | | Earnings Growth | | | | | | | LT Debt/ | S&P | LTM Dividend | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | Price | Value | 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | LTG | NTM | 2020 | 2021 | 2022 | 2023 | Beta | Equity | Rating | Yield | Payout |
| EPAC | $21.97 | $1,325 | (1.4) | (4.5) | (5.4) | (13.1) | (2.3) | (2.8) | 0.0 | 58.0% | -75.3% | 250.0% | 57.1% | 16.2% | 1.51 | 52.3% | B- | 0.19% | 6.4% |
| SWK | $183.70 | $29,949 | (4.0) | (5.2) | (1.4) | (6.0) | 0.9 | 2.9 | 11.8 | -5.7% | 7.6% | 20.2% | 8.9% | 8.9% | 1.35 | 44.3% | A- | 1.71% | 25.8% |
| SNA | $209.35 | $11,208 | (3.5) | (3.8) | (2.0) | (2.7) | 22.3 | 22.3 | 10.1 | 2.4% | -5.1% | 24.5% | 4.6% | 4.6% | 1.19 | 30.1% | A+ | 2.48% | 33.6% |
| TTNDY | $100.39 | $36,768 | (5.6) | (8.3) | (2.0) | 13.2 | 45.8 | 40.7 | 24.1 | | 29.8% | 36.7% | 19.5% | 19.5% | 1.14 | | | 1.00% | |
| **Average** | | $19,812 | (3.6) | (5.4) | (2.7) | (2.2) | 16.7 | 15.8 | 11.5 | 18.2% | -10.8% | 82.9% | 22.5% | 12.3% | 1.30 | 42.2% | | 1.34% | 21.9% |
| **Median** | | $20,578 | (3.8) | (4.8) | (2.0) | (4.3) | 11.6 | 12.6 | 10.9 | 2.4% | 1.2% | 30.6% | 14.2% | 12.5% | 1.27 | 44.3% | | 1.35% | 25.8% |
| **SPX** | $4,621 | | (1.0) | (1.5) | 4.2 | 9.4 | 24.1 | 23.0 | | | -18.8% | 35.0% | -14.3% | -100.0% | | | | | |

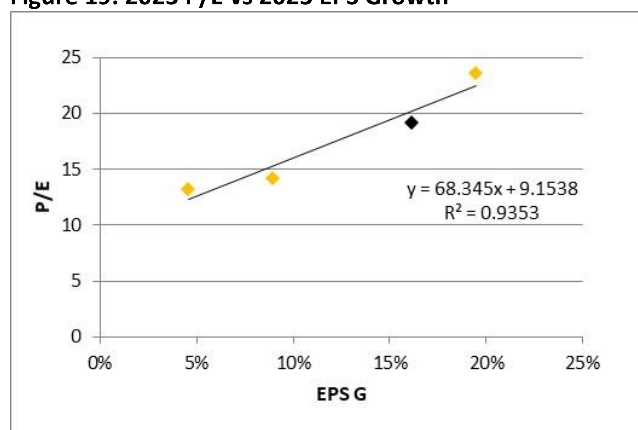
| | 2022 | | P/E | | | | | | | 2021 | 2021 | | | | P/CF | Sales Growth | | | Book |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ticker | ROE | P/B | 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | NPM | P/S | NM | OM | ROIC | Current | NTM | STM | Pst 5yr | Equity |
| **EPAC** | 14.5% | 3.21 | 35.7 | 125.0 | 34.9 | 34.9 | 22.1 | 22.2 | 19.1 | 7.2% | 2.51 | 7.6% | 11.3% | 6.3% | 17.9 | 10.9% | 4.7% | | $6.80 |
| **SWK** | 18.0% | 2.79 | 19.7 | 19.7 | 16.9 | 16.4 | 17.4 | 15.5 | 14.2 | 10.3% | 1.74 | 8.5% | 14.5% | 8.7% | 16.1 | 11.8% | 8.3% | | $65.73 |
| **SNA** | 20.1% | 2.78 | 13.8 | 14.7 | 14.5 | 14.3 | 14.0 | 13.8 | 13.2 | 18.4% | 2.66 | 15.9% | 22.6% | 13.3% | 13.1 | -5.9% | 4.5% | | $75.33 |
| **TTNDY** | 30.6% | 8.61 | 24.4 | 33.5 | 33.7 | | | 28.2 | 23.6 | 8.4% | 2.82 | 8.2% | 10.0% | 16.9% | 31.1 | 10.2% | 5.2% | | $11.65 |
| **Average** | 20.8% | 4.35 | 23.4 | 48.2 | 25.0 | 21.9 | 17.8 | 19.9 | 17.5 | 11.1% | 2.43 | 10.0% | 14.6% | 11.3% | 19.5 | 6.7% | 5.7% | | |
| **Median** | 19.1% | 3.00 | 22.1 | 26.6 | 25.3 | 16.4 | 17.4 | 18.9 | 16.7 | 9.3% | 2.58 | 8.3% | 12.9% | 11.0% | 17.0 | 10.5% | 5.0% | | |
| **SPX** | | | 216.3 | 307.8 | 282.3 | | | 329.3 | | | | | | | | | | | |

*Source: Company reports, IMCP*

Since there does not seem to be a direct relationship between P/B and ROE or P/S and net profit margin, the market seems to care more about growth for these companies. A more thorough analysis of 2023 P/E and 2023 EPS growth is shown in Figure 16. The calculated R-squared of the regression shows that 93.57% of the companies' P/E is explained by its EPS growth. EPAC has the second highest P/E and also the second highest EPS growth, and is below the line so it is slightly undervalued compared to competitors. The estimated P/E for EPAC for 2022 is 3.21.

- Estimated P/E = 68.345 * 16.2% 2023 EPS growth + 9.1538 = 20.2
- Using consensus estimates (mine are lower), the stock price should rise 5.7% = estimated P/E of 20.2 / current P/E of 19.1 - 1

**Figure 19: 2023 P/E vs 2023 EPS Growth**




*Source: IMCP, 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. The fundamental score includes 20% weight for 2022 and 2023 EPS growth, 30% for ROE, and 30% for the debt-to-equity ratio (where low values rate better). This was compared to an equal weighting of

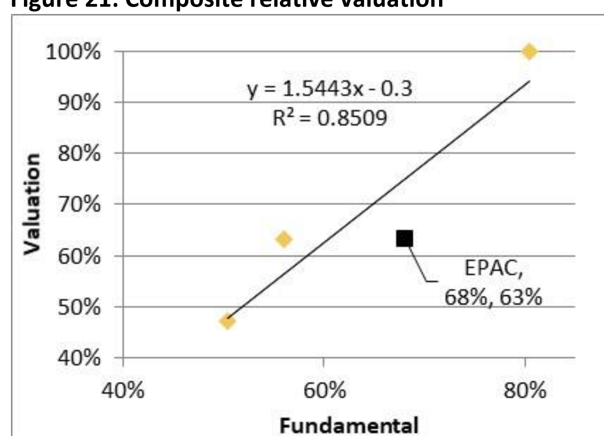
P/B and P/S. The resulting regression has an 85% R-squared. Since EPAC is below the line of best fit, this means it is a good value based on its fundamentals.

**Figure 20: Composite valuation, % of range**

| | | | | Fundamental | | | | Valuation | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Weight | 20.0% | 20.0% | 30.0% | 30.0% | 50.0% | 50.0% |
| | | Weighted | | Earnings Growth | | 1/(LTD | 2022 | | |
| Ticker | Name | Fund | Value | 2022 | 2023 | Equity) | ROE | P/B | P/S |
| **EPAC** | ENERPAC TOOL GROUP CORP | 68% | 63% | 100% | 83% | 58% | 47% | 37% | 89% |
| **SWK** | STANLEY BLACK & DECKER INC | 50% | 47% | 16% | 46% | 68% | 59% | 32% | 62% |
| **SNA** | SNAP-ON INC | 56% | 63% | 8% | 23% | 100% | 66% | 32% | 94% |
| **TTNDY** | TECHTRONIC INDUSTRIES CO LT | 80% | 100% | 34% | 100% | 79% | 100% | 100% | 100% |

*Source: IMCP*

**Figure 21: Composite relative valuation**




*Source: IMCP*

Discounted Cash Flow Analysis

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

For this analysis, the company's cost of equity was calculated to be 11.72% 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 1.41%.
- A ten-year beta of 1.20 is based on the average of comparable companies. These companies have a slightly higher risk than the market, and given the EPAC's improvements, I don't believe a higher beta is warranted like the past (1.51).
- 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 11.72% = (1.41 + 1.20 (10.0 – 1.41)).

*Stage One* - The model's first stage discounts FY 2022 and 2023 free cash flow to equity (FCFE). These per share cash flows are forecasted to be $0.07 and -$0.15, respectively. Discounting these cash flows, using the cost of equity calculated above, results in a value of -$0.06 per share. Thus, stage one of this discounted cash flow analysis takes away $0.06 in value.

*Stage Two* - Stage two of the model uses estimates for FY 2024 to 2028 based on the following. During this period, FCFE is calculated on projections of revenue growth, NOPAT margin, and capital growth. The

resulting cash flows are then discounted using the company's 11.72% cost of equity. I assume 8.8% sales growth in 2024, rising to 9.6% through 2028 because of new initiatives internationally, growth rates of the comparables, and new infrastructure growth. The ratio of sales to NWC will fall slightly to 3.0 from 3.05 in 2023 and then stabilize, and sales to NFA to remain unchanged from 2023 levels. I expect the NOPAT margin to rise to 9.3% in 2024 from 10.3% in 2028.

**Figure 22: FCFE and discounted FCFE per share**

| | First Stage | | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| FCFE | ($0.26) | $0.07 | ($0.15) | $0.13 | $0.23 | $0.27 | $0.30 | $0.34 |
| Discounted FCFE | | $0.06 | ($0.12) | $0.10 | $0.15 | $0.15 | $0.16 | $0.16 |

*Source: IMCP*

Added together, second stage 2024 through 2028 discounted cash flows total $0.71.

*Stage Three* – Net income for the years 2022 – 2028 is calculated using the same margin and growth assumptions used to determine FCFE in stage two. Dividends are not expected to rise and share count is expected to be unchanged. Based on this, book value per share is expected to grow from $7.58 in 2022 to $14.13 in 2028.

**Figure 23: EPS estimates for 2017 – 2023**

| | First Stage | | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|
| Year ending August | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| **Book value per share** | $6.87 | $7.58 | $8.37 | $9.26 | $10.27 | $11.41 | $12.69 | $14.13 |
| Book value | $412 | $455 | $502 | $555 | $616 | $684 | $761 | $848 |
| *Growth* | *14.8%* | *10.4%* | *10.4%* | *10.6%* | *10.9%* | *11.1%* | *11.3%* | *11.3%* |
| *ROE (EOY book)* | *9.2%* | *9.9%* | *9.9%* | *10.0%* | *10.2%* | *10.3%* | *10.4%* | *10.4%* |
| Net income | $38 | $45 | $50 | $55 | $63 | $71 | $79 | $89 |
| Dividends | $2 | $2 | $2 | $2 | $2 | $2 | $2 | $2 |
| *Growth* | *0.8%* | *-0.3%* | *0.0%* | *-16.7%* | *0.0%* | *13.0%* | *-11.5%* | *12.0%* |
| Shares | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 |
| Price | $22.92 | $22.92 | $22.92 | $25.60 | $28.90 | $32.65 | $36.52 | $40.90 |
| *Growth* | | *0.0%* | *0.0%* | *11.7%* | *12.9%* | *13.0%* | *11.8%* | *12.0%* |
| Net issuance | | $0 | $0 | $0 | $0 | $0 | $0 | $0 |

*Source: IMCP*

Stage three of the model uses estimates based on the company's terminal price-to-book ratio. For this analysis, it is generally assumed that as the company's growth materializes and as margins rise that its P/B ratio will rise toward the average of the industry. The median of the four companies is 3.0 and the average is 4.35. EPAC's current multiple is 3.21. A P/B ratio of 3.5 is assumed at the end of EPAC's terminal year.

Given the assumed terminal BPS of $14.13 and a price-to-book ratio of 3.5, a terminal value of $49.44 per share is calculated. Using a discount factor of 0.46, this number is discounted back to a present value of $22.76.

*Total Present Value* – given the above assumptions and utilizing a three stage discounted cash flow model, an intrinsic value of $23.41 is calculated (-0.06 + 0.71 + 22.76). Given EPAC's current price of $19.86, this model indicates that the stock is moderately undervalued.

Scenario Analysis

Enerpac Tool Group Corporation is hard to forecast because of no relevant history give the various restructurings, low brand recognition, and few comparable companies. Most of its sales are international and it was negatively impacted when COVID and its variants shut down travel and commerce.

*Bull case* – In this first scenario, COVID and its variants subside as the world becomes more immune to the virus. This allows travel and commerce to resume as trade routes resume normal activity. Labor shortages have little impact on EPAC and customers respond well to the company's rebranding. United States and China maintain their trade agreements and tariffs remain the same. In this bull case, I can see revenue meeting or slightly exceeding the estimates provided by consensus in 2022 and 2023.

Adjusting sales to meet and exceed consensus, 2021 EPS is adjusted to reach 60% growth in 2022, and 20% growth in 2023. The growth slows in the following years as the company begins to mature. If we use the same price-to-book DCF analysis, this would make EPAC greatly undervalued. The value of the stock discounted to today based on this bull case would be $26.41.

**Figure 24: 3 stage Discounted Cash Flow, bull case**

| 3 Stage Discounted Cash Flow | | First Stage | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|
| Year ending August | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | *7.2%* | *60.0%* | *20.0%* | *18.0%* | *16.0%* | *14.0%* | *12.0%* | *10.0%* |

*Bear case* – In this scenario, COVID and its variants continue to put pressure on the world economies. Labor shortages have a moderate impact on EPAC and customers respond neutrally or negatively to the company's rebranding. Inflation in the United States continues or increases. United States and China's business tensions increase, and tariffs are established. In this bear case, I can see revenue growth halting or declining in 2022 and 2023.

Adjusting sales to halt and decline, 2021 EPS is adjusted to reach 0% growth in 2022, and -10% growth in 2023. The growth adjusts in the following years as the company adapts and finds new opportunities to make money. If we use the same price-to-book DCF analysis, this would make EPAC overvalued. I also assume the beta rises to 1.4 from 1.2. The value of the stock discounted to today based on this bear case would be $20.16.

**Figure 25: 3 stage Discounted Cash Flow, bear case**

| 3 Stage Discounted Cash Flow | | First Stage | | Second Stage | | | | |
|---|---|---|---|---|---|---|---|---|
| Year ending August | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | *7.2%* | *0.0%* | *-10.0%* | *0.0%* | *2.0%* | *4.0%* | *6.0%* | *8.0%* |

## Business Risks

Although Enerpac Tool Group Corporation has a lot to be optimistic about, at this time there are several risks that I believe may be concerning analysts and could impact my projections and recommendation.

Current supply chain delays could worsen or remain an issue for longer. This would slow growth and push away customers.

COVID-19 pandemic:

EPAC earns a portion of its revenue from the oil and gas industries. If the COVID risk persists, the oil and gas industries may continue to be hurt by the decrease in travel. This could temporarily result in a noticeable negative impact on sales. I estimate that this could delay projected sales growth until travel returns to baseline.

Dependance on China:

EPAC's main supplier is China. If tensions and tariffs increase, we could see EPAC's profit margins drop.

Supply chain problems:

The disruptions in the supply chain, delayed delivery of product, and delayed materials to manufacture product, can have an adverse impact on the corporation. This would negatively impact sales, as well as hurt its relationship with customers. Trying to avoid these delays may result in higher costs to the company. This would lower the profitability of the business. If this problem persists or worsens from its current state, I estimate that it could seriously delay growth and cause the company to lose customers.

Integration problems from restructuring, acquisitions, and divestitures could slow growth.

Unrealized savings from individual restructuring actions:

Not all restructuring actions may have been optimal for the company. Enerpac Tool Group may be projecting higher cost savings than it will earn from the near complete restructuring. This would mean that some of its estimates may be too optimistic.

Imperfect results of acquisitions and divestitures:

The company may come to realize that some divestitures were more critical elements of its business, or some acquisitions may not be perfectly integrated into the business model. In 2019, EPAC sold its Milwaukee Cylinder, Connectors, and UNI-LIFT product lines from its remaining Industrial Tools & Services segment. This may be a more important part of its business than management expects. This could result in a suboptimal return and slow the company's progress.

Labor shortage:

The firm has expressed concern in its ability to attract, develop, and retain qualified employees. The labor shortages have created a lot of pressure on companies. The firm has reduced its employee count by greater than 50% in the past six years, but the employees that it has retained are critical to the success of the company. This could slow growth and cause the firm to lose customers if its effectiveness is impacted.

## Appendix 1: SWOT Analysis

| Strengths | Weaknesses |
|---|---|
| International network<br>Few competitors | Dependent on China<br>Supply chain delays |
| **Opportunities** | **Threats** |
| Brand recognition<br>Higher margins | Tariffs<br>COVID |

## Appendix 2: Porter's 5 Forces

Threat of New Entrants – Low

The barriers of entry for industrial companies are high. EPAC plans to spend a lot of money innovating its technology and has spent substantial time building an international network. Capital requirements in the industry are high, so it is difficult for new entrants to enter the market.

Threat of Substitutes – Low

EPAC has a good amount of bargaining power because of its network. Most of its products have few competitors. Buyers are unlikely to switch to substitutes if EPAC's products are reliable.

Supplier Power – Moderate

EPAC has a moderate dependence on its suppliers in China. The cost of changing suppliers is high.

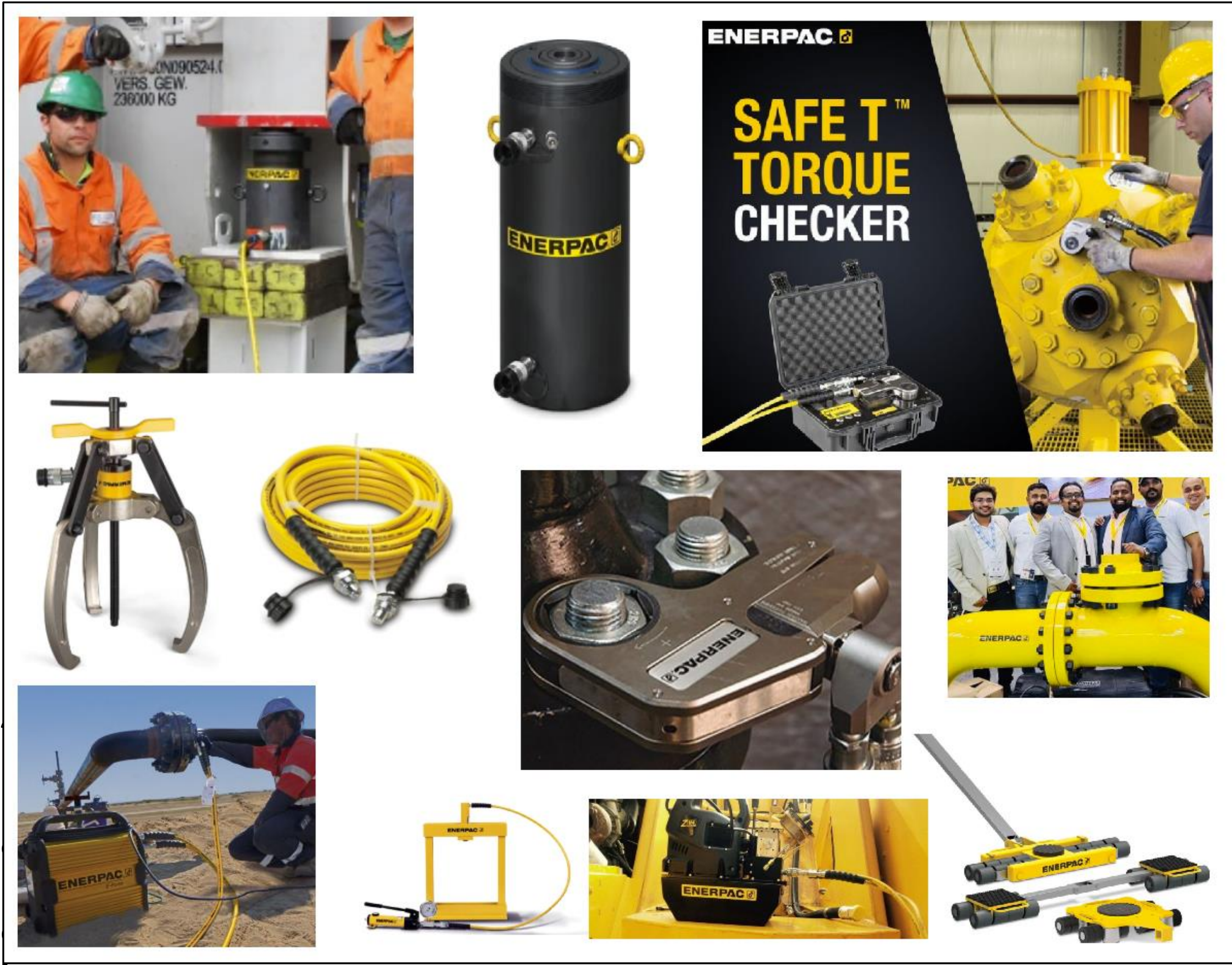
Buyer Power – Low

There is a high cost to switching brands and a low number of substitutes for most products EPAC offers.

Intensity of Competition – Low

EPAC is established as a major competitor. Capital requirements are high, deterring competition.

## Appendix 3: "Industrial Tools and Services" Segment Products



## Appendix 4: "Other" Segment Products

## Appendix 5: Sales

| Sales | | | | | |
|---|---|---|---|---|---|
| Items | Aug-17 | Aug-18 | Aug-19 | Aug-20 | Aug-21 |
| Sales | 1,096 | 1,183 | 655 | 493 | 529 |
| *Growth* | | *7.9%* | *-44.6%* | *-24.7%* | *7.2%* |
| | | | | | |
| Industrial Tools and Services | 380 | 591 | 610 | 455 | 493 |
| *Growth* | | *55.6%* | *3.1%* | *-25.4%* | *8.4%* |
| *% of sales* | *34.7%* | *50.0%* | *93.1%* | *92.2%* | *93.3%* |
| Other | 716 | 592 | 45 | 38 | 36 |
| *Growth* | | *-17.4%* | *-92.4%* | *-15.1%* | *-7.5%* |
| *% of sales* | *65.3%* | *50.0%* | *6.9%* | *7.8%* | *6.7%* |
| | | | | | |
| Total | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| Domestic (United States) | 481 | 510 | 250 | 185 | 188 |
| *Growth* | | *6.1%* | *-51.0%* | *-25.8%* | *1.5%* |
| *% of sales* | *43.9%* | *43.1%* | *38.1%* | *37.6%* | *35.6%* |
| International | 615 | 673 | 405 | 308 | 341 |
| *Growth* | | *9.4%* | *-39.8%* | *-24.0%* | *10.6%* |
| *% of sales* | *56.1%* | *56.9%* | *61.9%* | *62.4%* | *64.4%* |

## Appendix 6: Sales Forecasts

| Base Case | | Bull Case | | Bear Case | |
|---|---|---|---|---|---|
| Aug-22 | Aug-23 | Aug-22 | Aug-23 | Aug-22 | Aug-23 |
| 560 | 609 | 575 | 641 | 533 | 551 |
| *6.0%* | *8.7%* | *8.8%* | *11.4%* | *0.8%* | *3.4%* |
| | | | | | |
| 530 | 583 | 542 | 610 | 508 | 533 |
| *7.5%* | *10.0%* | *10.0%* | *12.5%* | *3.0%* | *5.0%* |
| *94.6%* | *95.8%* | *94.3%* | *95.3%* | *95.3%* | *96.8%* |
| 30 | 26 | 33 | 30 | 25 | 17 |
| *-15.0%* | *-15.0%* | *-7.5%* | *-7.5%* | *-30.0%* | *-30.0%* |
| *2.0%* | *4.2%* | *5.7%* | *4.7%* | *4.7%* | *3.2%* |
| | | | | | |
| 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| 191 | 195 | 190 | 199 | 186 | 190 |
| *1.3%* | *2.3%* | *0.9%* | *4.6%* | *-0.8%* | *1.9%* |
| *34.0%* | *32.0%* | *33.0%* | *31.0%* | *35.0%* | *34.5%* |
| 370 | 414 | 385 | 442 | 346 | 361 |
| *8.6%* | *11.9%* | *13.2%* | *14.7%* | *1.7%* | *4.2%* |
| *66.0%* | *68.0%* | *67.0%* | *69.0%* | *65.0%* | *65.5%* |

## Appendix 7: Income Statements

| Income Statement | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Aug-17** | **Aug-18** | **Aug-19** | **Aug-20** | **Aug-21** | **Aug-22** | **Aug-23** |
| Sales | $1,096 | $1,183 | $655 | $493 | $529 | $560 | $609 |
| Direct costs | 720 | 767 | 362 | 276 | 286 | 291 | 307 |
| Gross Margin | 376 | 415 | 293 | 217 | 243 | 269 | 301 |
| SG&A, R&D, D&A, and other | 302 | 310 | 218 | 188 | 184 | 206 | 233 |
| EBIT | 74 | 105 | 75 | 29 | 60 | 63 | 69 |
| Interest | 30 | 31 | 28 | 19 | 5 | 7 | 7 |
| EBT | 44 | 74 | 47 | 10 | 55 | 56 | 62 |
| Taxes | (16) | 9 | 11 | 2 | 4 | 11 | 12 |
| Income | 60 | 65 | 36 | 8 | 51 | 45 | 50 |
| Other | 126 | 87 | 285 | 7 | 13 | - | - |
| Net income | (66) | (22) | (249) | 1 | 38 | 45 | 50 |
| Basic Shares | 59.4 | 60.4 | 61.2 | 60.0 | 60.0 | 60.0 | 60.0 |
| Fully Diluted Shares | 59.4 | 60.4 | 61.6 | 60.3 | 60.4 | 60.4 | 60.4 |
| EPS | ($1.11) | ($0.36) | ($4.07) | $0.02 | $0.63 | $0.75 | $0.83 |
| EPS Fully Diluted | ($1.11) | ($0.36) | ($4.04) | $0.02 | $0.63 | $0.75 | $0.82 |
| DPS | $0.04 | $0.04 | $0.04 | $0.04 | $0.04 | $0.04 | $0.04 |

## Appendix 8: Balance Sheets

| Balance Sheet | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Aug-17** | **Aug-18** | **Aug-19** | **Aug-20** | **Aug-21** | **Aug-22** | **Aug-23** |
| Cash | 230 | 251 | 211 | 152 | 140 | 142 | 131 |
| Operating assets ex cash | 417 | 410 | 519 | 189 | 217 | 230 | 250 |
| Operating assets | 647 | 661 | 730 | 341 | 357 | 372 | 381 |
| Operating liabilities | 159 | 122 | 185 | 41 | 46 | 47 | 51 |
| NOWC | 488 | 539 | 545 | 300 | 311 | 326 | 330 |
| NOWC ex cash (NWC) | 258 | 288 | 334 | 148 | 171 | 184 | 200 |
| NFA | 870 | 820 | 394 | 483 | 463 | 492 | 534 |
| *Invested capital* | *$1,358* | *$1,359* | *$939* | *$783* | *$774* | *$817* | *$864* |
| Marketable securities | - | - | - | - | - | - | - |
| *Total assets* | *$1,517* | *$1,481* | *$1,124* | *$824* | *$820* | *$864* | *$915* |
| S-T and L-T debt and financing leases | $665 | $634 | $530 | $300 | $237 | $237 | $237 |
| Other liabilities | 192 | 166 | 108 | 124 | 125 | 125 | 125 |
| Debt/equity-like securities | - | - | - | - | - | - | - |
| Equity | 501 | 559 | 301 | 359 | 412 | 455 | 502 |
| *Total supplied capital* | *$1,358* | *$1,359* | *$939* | *$783* | *$774* | *$817* | *$864* |
| *Total liabilities and equity* | *$1,517* | *$1,481* | *$1,124* | *$824* | *$820* | *$864* | *$915* |

# Appendix 9: Ratios

| Ratios | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Items** | **Aug-17** | **Aug-18** | **Aug-19** | **Aug-20** | **Aug-21** | **Aug-22** | **Aug-23** |
| Profitability | | | | | | | |
| Gross margin | 34.3% | 35.1% | 44.7% | 44.0% | 46.0% | 48.0% | 49.5% |
| Operating (EBIT) margin | 6.8% | 8.9% | 11.4% | 5.9% | 11.3% | 11.3% | 11.3% |
| Net profit margin | -6.0% | -1.9% | -38.0% | 0.2% | 7.2% | 8.1% | 8.1% |
| | | | | | | | |
| Activity | | | | | | | |
| NFA (gross) turnover | | 1.40 | 1.08 | 1.12 | 1.12 | 1.17 | 1.19 |
| Total asset turnover | | 0.79 | 0.50 | 0.51 | 0.64 | 0.67 | 0.68 |
| | | | | | | | |
| Liquidity | | | | | | | |
| Op asset / op liab | 4.07 | 5.42 | 3.95 | 8.32 | 7.77 | 7.99 | 7.53 |
| NOWC Percent of sales | | 43.4% | 82.8% | 85.7% | 57.8% | 56.8% | 53.9% |
| | | | | | | | |
| Solvency | | | | | | | |
| Debt to assets | 43.9% | 42.8% | 47.1% | 36.4% | 28.9% | 27.4% | 25.9% |
| Debt to equity | 132.8% | 113.3% | 176.0% | 83.6% | 57.5% | 52.1% | 47.2% |
| Other liab to assets | 12.6% | 11.2% | 9.6% | 15.1% | 15.3% | 14.5% | 13.7% |
| Total debt to assets | 56.5% | 54.0% | 56.8% | 51.5% | 44.2% | 42.0% | 39.6% |
| Total liabilities to assets | 67.0% | 62.3% | 73.2% | 56.4% | 49.8% | 47.3% | 45.1% |
| Debt to EBIT | 8.99 | 6.02 | 7.11 | 10.28 | 3.97 | 3.74 | 3.44 |
| EBIT/interest | 2.47 | 3.40 | 2.66 | 1.54 | 11.94 | 8.91 | 9.68 |
| Debt to total net op capital | 49.0% | 46.6% | 56.4% | 38.3% | 30.6% | 29.0% | 27.4% |
| | | | | | | | |
| ROIC | | | | | | | |
| NOPAT to sales | 9.2% | 7.8% | 8.7% | 4.8% | 10.5% | 9.1% | 9.1% |
| Sales to NWC | | 4.33 | 2.10 | 2.05 | 3.31 | 3.16 | 3.18 |
| Sales to NFA | | 1.40 | 1.08 | 1.12 | 1.12 | 1.17 | 1.19 |
| Sales to IC ex cash | | 1.06 | 0.71 | 0.73 | 0.84 | 0.86 | 0.86 |
| Total ROIC ex cash | | 8.3% | 6.2% | 3.5% | 8.7% | 7.8% | 7.9% |
| | | | | | | | |
| NOPAT to sales | 9.2% | 7.8% | 8.7% | 4.8% | 10.5% | 9.1% | 9.1% |
| Sales to NOWC | | 2.30 | 1.21 | 1.17 | 1.73 | 1.76 | 1.86 |
| Sales to NFA | | 1.40 | 1.08 | 1.12 | 1.12 | 1.17 | 1.19 |
| Sales to IC | | 0.87 | 0.57 | 0.57 | 0.68 | 0.70 | 0.72 |
| Total ROIC | | 6.8% | 4.9% | 2.7% | 7.1% | 6.4% | 6.6% |
| | | | | | | | |
| NOPAT to sales | 9.2% | 7.8% | 8.7% | 4.8% | 10.5% | 9.1% | 9.1% |
| Sales to EOY NWC | 4.24 | 4.10 | 1.96 | 3.33 | 3.09 | 3.05 | 3.05 |
| Sales to EOY NFA | 1.26 | 1.44 | 1.66 | 1.02 | 1.14 | 1.14 | 1.14 |
| Sales to EOY IC ex cash | 0.97 | 1.07 | 0.90 | 0.78 | 0.83 | 0.83 | 0.83 |
| Total ROIC using EOY IC ex cash | 8.9% | 8.3% | 7.8% | 3.7% | 8.7% | 7.5% | 7.5% |
| | | | | | | | |
| NOPAT to sales | 9.2% | 7.8% | 8.7% | 4.8% | 10.5% | 9.1% | 9.1% |
| Sales to EOY NOWC | 2.25 | 2.19 | 1.20 | 1.64 | 1.70 | 1.72 | 1.84 |
| Sales to EOY NFA | 1.26 | 1.44 | 1.66 | 1.02 | 1.14 | 1.14 | 1.14 |
| Sales to EOY IC | 0.81 | 0.87 | 0.70 | 0.63 | 0.68 | 0.69 | 0.70 |
| Total ROIC using EOY IC | 7.4% | 6.8% | 6.1% | 3.0% | 7.1% | 6.2% | 6.4% |
| | | | | | | | |
| ROE | | | | | | | |
| **5-stage** | | | | | | | |
| EBIT / sales | | 8.9% | 11.4% | 5.9% | 11.3% | 11.3% | 11.3% |
| Sales / avg assets | | 0.79 | 0.50 | 0.51 | 0.64 | 0.67 | 0.68 |
| EBT / EBIT | | 70.6% | 62.4% | 34.9% | 91.6% | 88.8% | 89.7% |
| Net income /EBT | | -29.6% | -535.5% | 9.8% | 69.5% | 80.4% | 80.4% |
| ROA | | -1.5% | -19.1% | 0.1% | 4.6% | 5.4% | 5.6% |
| Avg assets / avg equity | | 2.83 | 3.03 | 2.95 | 2.13 | 1.94 | 1.86 |
| ROE | | -4.2% | -57.9% | 0.3% | 9.9% | 10.4% | 10.4% |
| | | | | | | | |
| **3-stage** | | | | | | | |
| Net income / sales | | -1.9% | -38.0% | 0.2% | 7.2% | 8.1% | 8.1% |
| Sales / avg assets | | 0.79 | 0.50 | 0.51 | 0.64 | 0.67 | 0.68 |
| ROA | | -1.5% | -19.1% | 0.1% | 4.6% | 5.4% | 5.6% |
| Avg assets / avg equity | | 2.83 | 3.03 | 2.95 | 2.13 | 1.94 | 1.86 |
| ROE | | -4.2% | -57.9% | 0.3% | 9.9% | 10.4% | 10.4% |
| | | | | | | | |
| Payout Ratio | | -11.1% | -1.0% | 238.8% | 6.3% | 5.3% | 4.8% |
| Retention Ratio | | 111.1% | 101.0% | -138.8% | 93.7% | 94.7% | 95.2% |
| Sustainable Growth Rate | | -4.6% | -58.5% | -0.4% | 9.2% | 9.9% | 9.9% |

# Appendix 10: Comparable Companies

| Ticker | Current Price | Market Value | Price Change 1 day | 1 Mo | 3 Mo | 6 Mo | 52 Wk | YTD | Earnings Growth LTG | NTM | 2020 | 2021 | 2022 | 2023 | Beta | LT Debt/ Equity | S&P Rating | LTM Dividend Yield | Payout |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| EPAC | $21.97 | $1,325 | (1.4) | (4.5) | (5.4) | (13.1) | (2.3) | (2.8) | 0.0 | 58.0% | -75.3% | 250.0% | 57.1% | 16.2% | 1.51 | 52.3% | B- | 0.19% | 6.4% |
| SWK | $183.70 | $29,949 | (4.0) | (5.2) | (1.4) | (6.0) | 0.9 | 2.9 | 11.8 | -5.7% | 7.6% | 20.2% | 8.9% | 8.9% | 1.35 | 44.3% | A- | 1.71% | 25.8% |
| SNA | $209.35 | $11,208 | (3.5) | (3.8) | (2.0) | (2.7) | 22.3 | 22.3 | 10.1 | 2.4% | -5.1% | 24.5% | 4.6% | 4.6% | 1.19 | 30.1% | A+ | 2.48% | 33.6% |
| TTNDY | $100.39 | $36,768 | (5.6) | (8.3) | (2.0) | 13.2 | 45.8 | 40.7 | 24.1 | | 29.8% | 36.7% | 19.5% | 19.5% | 1.14 | | | 1.00% | |
| **Average** | | $19,812 | (3.6) | (5.4) | (2.7) | (2.2) | 16.7 | 15.8 | 11.5 | 18.2% | -10.8% | 82.9% | 22.5% | 12.3% | 1.30 | 42.2% | | 1.34% | 21.9% |
| **Median** | | $20,578 | (3.8) | (4.8) | (2.0) | (4.3) | 11.6 | 12.6 | 10.9 | 2.4% | 1.2% | 30.6% | 14.2% | 12.5% | 1.27 | 44.3% | | 1.35% | 25.8% |
| **SPX** | $4,621 | | (1.0) | (1.5) | 4.2 | 9.4 | 24.1 | 23.0 | | | -18.8% | 35.0% | -14.3% | -100.0% | | | | | |

| Ticker | 2022 ROE | P/B | P/E 2019 | 2020 | 2021 | TTM | NTM | 2022 | 2023 | 2021 NPM | 2021 P/S | NM | OM | ROIC | P/CF Current | Sales Growth NTM | STM | Pst 5yr | Book Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **EPAC** | 14.5% | 3.21 | 35.7 | 125.0 | 34.9 | 34.9 | 22.1 | 22.2 | 19.1 | 7.2% | 2.51 | 7.6% | 11.3% | 6.3% | 17.9 | 10.9% | 4.7% | | $6.80 |
| **SWK** | 18.0% | 2.79 | 19.7 | 19.7 | 16.9 | 16.4 | 17.4 | 15.5 | 14.2 | 10.3% | 1.74 | 8.5% | 14.5% | 8.7% | 16.1 | 11.8% | 8.3% | | $65.73 |
| **SNA** | 20.1% | 2.78 | 13.8 | 14.7 | 14.5 | 14.3 | 14.0 | 13.8 | 13.2 | 18.4% | 2.66 | 15.9% | 22.6% | 13.3% | 13.1 | -5.9% | 4.5% | | $75.33 |
| **TTNDY** | 30.6% | 8.61 | 24.4 | 33.5 | 33.7 | | | 28.2 | 23.6 | 8.4% | 2.82 | 8.2% | 10.0% | 16.9% | 31.1 | 10.2% | 5.2% | | $11.65 |
| **Average** | 20.8% | 4.35 | 23.4 | 48.2 | 25.0 | 21.9 | 17.8 | 19.9 | 17.5 | 11.1% | 2.43 | 10.0% | 14.6% | 11.3% | 19.5 | 6.7% | 5.7% | | |
| **Median** | 19.1% | 3.00 | 22.1 | 26.6 | 25.3 | 16.4 | 17.4 | 18.9 | 16.7 | 9.3% | 2.58 | 8.3% | 12.9% | 11.0% | 17.0 | 10.5% | 5.0% | | |
| **SPX** | | | 216.3 | 307.8 | 282.3 | | | 329.3 | | | | | | | | | | | |

# Appendix 11: 3 Stage Discounted Cash Flow Model

| | | Year | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| | | First Stage | | Second Stage | | | | |
| Year ending August | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| *Sales Growth* | *7.2%* | *6.0%* | *8.7%* | *8.8%* | *9.0%* | *9.2%* | *9.4%* | *9.6%* |
| *NOPAT / S* | *10.5%* | *9.1%* | *9.1%* | *9.3%* | *9.6%* | *9.9%* | *10.1%* | *10.3%* |
| *S / NWC* | *3.09* | *3.05* | *3.05* | *3.00* | *3.00* | *3.00* | *3.00* | *3.00* |
| *S / NFA (EOY)* | *1.14* | *1.14* | *1.14* | *1.14* | *1.14* | *1.14* | *1.14* | *1.14* |
| *S / IC (EOY)* | *0.83* | *0.83* | *0.83* | *0.83* | *0.83* | *0.83* | *0.83* | *0.83* |
| *ROIC (EOY)* | *8.7%* | *7.5%* | *7.5%* | *7.7%* | *7.9%* | *8.2%* | *8.3%* | *8.5%* |
| *ROIC (BOY)* | | *8.0%* | *8.2%* | *8.4%* | *8.6%* | *8.9%* | *9.1%* | *9.3%* |
| *Share Growth* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* | *0.0%* |
| Sales | $529 | $560 | $609 | $662 | $722 | $788 | $863 | $945 |
| NOPAT | $55 | $51 | $55 | $62 | $69 | $78 | $87 | $97 |
| *Growth* | *135.7%* | *-8.0%* | *8.7%* | *11.4%* | *12.5%* | *12.6%* | *11.6%* | *11.8%* |
| - Change in NWC | 23 | 13 | 16 | 21 | 20 | 22 | 25 | 28 |
| *NWC EOY* | *171* | *184* | *200* | *221* | *241* | *263* | *288* | *315* |
| *Growth NWC* | *15.6%* | *7.4%* | *8.7%* | *10.6%* | *9.0%* | *9.2%* | *9.4%* | *9.6%* |
| - Chg NFA | -20 | 29 | 43 | 47 | 52 | 58 | 65 | 73 |
| *NFA EOY* | *463* | *492* | *534* | *581* | *633* | *692* | *757* | *829* |
| *Growth NFA* | *-4.1%* | *6.2%* | *8.7%* | *8.8%* | *9.0%* | *9.2%* | *9.4%* | *9.6%* |
| Total inv in op cap | 3 | 41 | 58 | 68 | 72 | 80 | 90 | 100 |
| Total net op cap | 634 | 675 | 734 | 802 | 874 | 954 | 1044 | 1144 |
| FCFF | $52 | $10 | ($3) | ($7) | ($3) | ($2) | ($3) | ($3) |
| *% of sales* | *9.9%* | *1.7%* | *-0.5%* | *-1.0%* | *-0.4%* | *-0.3%* | *-0.3%* | *-0.3%* |
| *Growth* | | *-81.4%* | *-132.1%* | *110.7%* | *-56.6%* | *-17.5%* | *10.4%* | *10.3%* |
| - Interest (1-tax rate) | 5 | 6 | 6 | 6 | 7 | 7 | 8 | 9 |
| *Growth* | *-69.7%* | *23.3%* | *0.0%* | *8.8%* | *9.0%* | *9.2%* | *9.4%* | *9.6%* |
| + Net new debt | -63 | 0 | 0 | 21 | 23 | 26 | 29 | 32 |
| Debt | 237 | 237 | 237 | 258 | 281 | 307 | 336 | 368 |
| *Debt / tot net op capital* | *37.4%* | *35.1%* | *32.3%* | *32.2%* | *32.2%* | *32.2%* | *32.2%* | *32.2%* |
| FCFE w debt | ($16) | $4 | ($9) | $8 | $14 | $16 | $18 | $20 |
| *% of sales* | *-2.9%* | *0.7%* | *-1.5%* | *1.2%* | *1.9%* | *2.0%* | *2.1%* | *2.2%* |
| *Growth* | | *-125.7%* | *-320.9%* | *-191.3%* | *68.3%* | *18.6%* | *12.7%* | *12.9%* |
| / No Shares | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 |
| FCFE | ($0.26) | $0.07 | ($0.15) | $0.13 | $0.23 | $0.27 | $0.30 | $0.34 |
| *Growth* | | *-125.7%* | *-320.9%* | *-191.3%* | *68.3%* | *18.6%* | *12.7%* | *12.9%* |
| * Discount factor | | 0.90 | 0.80 | 0.72 | 0.64 | 0.57 | 0.51 | 0.46 |
| Discounted FCFE | | $0.06 | ($0.12) | $0.10 | $0.15 | $0.15 | $0.16 | $0.16 |
| | | Third Stage | | | | | | |
| **Terminal value P/B** | | | | | | | | |
| **Book value per share** | $6.87 | $7.58 | $8.37 | $9.26 | $10.27 | $11.41 | $12.69 | $14.13 |
| Book value | $412 | $455 | $502 | $555 | $616 | $684 | $761 | $848 |
| *Growth* | *14.8%* | *10.4%* | *10.4%* | *10.6%* | *10.9%* | *11.1%* | *11.3%* | *11.3%* |
| *ROE (EOY book)* | *9.2%* | *9.9%* | *9.9%* | *10.0%* | *10.2%* | *10.3%* | *10.4%* | *10.4%* |
| Net income | $38 | $45 | $50 | $55 | $63 | $71 | $79 | $89 |
| Dividends | $2 | $2 | $2 | $2 | $2 | $2 | $2 | $2 |
| *Growth* | *0.8%* | *-0.3%* | *0.0%* | *-16.7%* | *0.0%* | *13.0%* | *-11.5%* | *12.0%* |
| Shares | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 | 60.0 |
| Price | $22.92 | $22.92 | $22.92 | $25.60 | $28.90 | $32.65 | $36.52 | $40.90 |
| *Growth* | | *0.0%* | *0.0%* | *11.7%* | *12.9%* | *13.0%* | *11.8%* | *12.0%* |
| Net issuance | | $0 | $0 | $0 | $0 | $0 | $0 | $0 |
| Terminal P/B | | | | | | | | 3.50 |
| * Terminal BPS | | | | | | | | $14.13 |
| Terminal value | | | | | | | | $49.44 |
| * Discount factor | | | | | | | | 0.46 |
| Discounted terminal value | | | | | | | | $22.76 |

**Summary (using P/B multiple for terminal value)**

| | | |
|---|---|---|
| First stage | ($0.06) | Present value of first 2 year cash flow |
| Second stage | $0.71 | Present value of year 3-7 cash flow |
| Third stage | $22.76 | Present value of terminal value P/B |
| Value (P/B) | **$23.41** | |