CFA Institute Research Challenge

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North Dakota State University

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North Dakota State University

Date: January 1st, 2020
Sector: Industrial
Industry: Commercial & Service Industry
NASDAQ – TNC

Current Price: $77.71
Recommendation: **BUY**
Target Price: $92.70
Upside: 18.71%

Executive Summary

Key Statistics	
Current Price	$77.21
52-Week High/Low	$80.44/51.36
Dividend Yield	1.10%
Market Cap	$1,455.0M
Enterprise Value	$1,773.5M
Beta	1.25
Institutional Holdings	94.20%
Insider Holdings	1.90%
SI / % of Float	455.3K / 2.68%
Financial Metircs	
Gross Margin	40.35%
Operating Margin	5.79%
Net Margin	5.20%
ROA	4.22%
ROE	13.17%
Net Debt / EBITDA	2.35%
P/E (2019E)	27.64x
EV/EBITDA (2019E)	13.02x

Source: Bloomberg & Team Calculations

Figure 1: Valuation Summary

Valuation Summary		
DCF	$	92.70
EV/EBITDA	$	79.31
EV/Sales	$	95.74
Forward P/E	$	45.34
Monte Carlo (Median)	$	92.16
Ben Graham	$	80.62
DDM	$	45.41

Source: Team Calculations

Tennant Company ("Tennant", "The Company", "TNC") is a Minneapolis, Minnesota based organization that specializes in the design and manufacturing of floor maintenance equipment. The Company was founded by George H. Tennant in 1870.

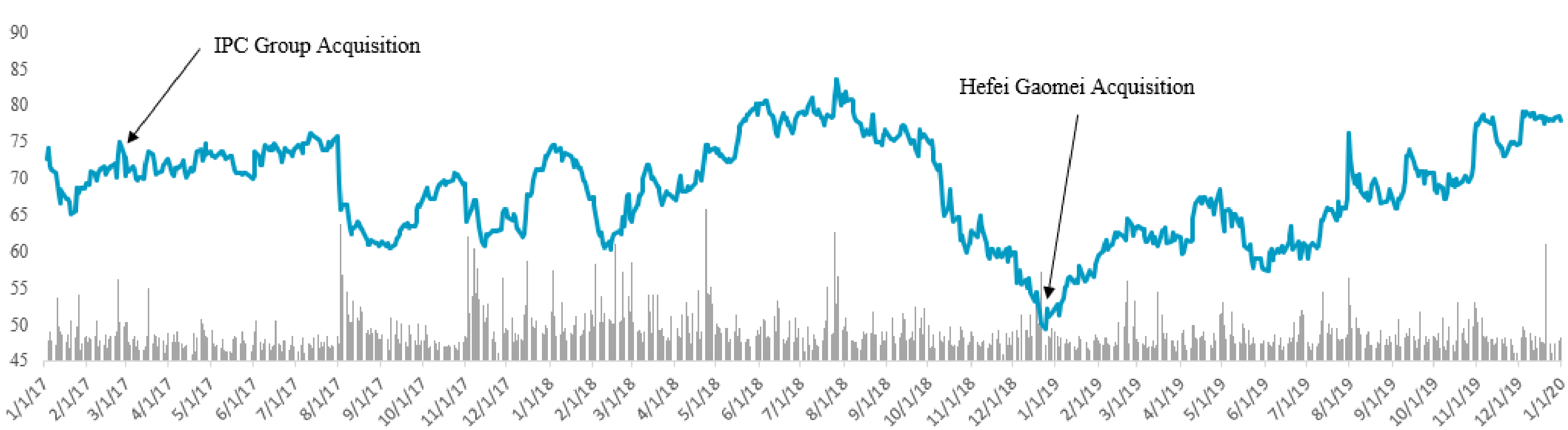
Investment Thesis | We issue a **BUY** recommendation with a target price of $92.70, representing an ***18.71% upside*** from the current market price of $77.71. Our recommendation is based on Tennant's established service and sales network, limited risk compared to their manufacturing peer group, and ability to capture revenue through market trends. Long-term value will be driven by the Business's expansion into new markets, specifically China. The Company will create short term value through increasing operational efficiencies and expanding bottom-line growth.

Sustainable, Defensible Business Model | Tennant has established itself globally as the premier manufacturer of floor cleaning equipment with over 100 years of experience. The team conducted phone interviews nationwide to distributors that offered Tennant brand products as well as competitors (See Appendix Z). The results from these interviews saw a consistent trend. Tennant manufactures the best cleaners and their reputation upholds that. The end markets that the company operates within are non-cyclical in business operations (ex. Fortune 500's, schools, hospitals), and therefore create a natural hedge as they supply crucial necessities to its consumers. The company has been able to transition its customers to higher-end products with better margins despite its end market. This can be seen with Walmart's order to supply 1,500 Autonomous Mobile Robots (AMR) in 2019.

Valuation | Various valuation methods were conducted to converge upon a target price of $92.70. The team completed a discounted cash flow, a Monte Carlo simulation, dividend discount, Ben Graham formula, and used a multiples approach. Our final value was determined using a DCF, with other methods supporting our intrinsic value. Results from various methods are shown in Figure 1.

Growth Drivers | Tennant has recently made acquisitions to expand its global footprint in the EMEA and APAC regions to increase revenue growth and capture market share. We see the acquisition to enter the APAC region as the main catalyst for long-term growth due to the expansion of the mechanized cleaning market in China. As of today, Tennant's serviceable market is valued at $350M. Market expansion in China is expected to grow at a 5-year CAGR of 12.47%, which implies a market size of $630M. In the short term, the company has prioritized increasing its operational efficiencies to create profitable growth. SG&A expenses and cost of revenue will be the company's two main drivers to achieve profitable growth. SG&A has decreased by 158bps to 31.80% of revenue since 2017 and Gross Margin has been expanded by 70bp to 40.3% over the same period.

Figure 2: 3 Year Stock Price & Volume History



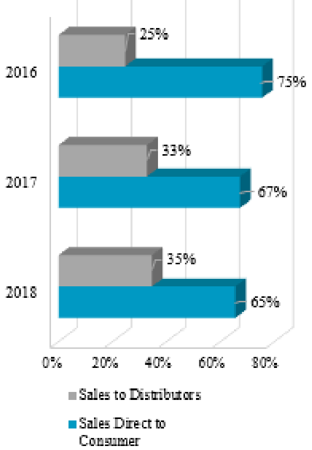
Source: Bloomberg

Figure 3: TNC by the Numbers

Tennant Info	
Employees	4,300+
MFG Plants	13
Customers	40,000+
Sales Reps	300+
Distributors	400+
Countires	100+

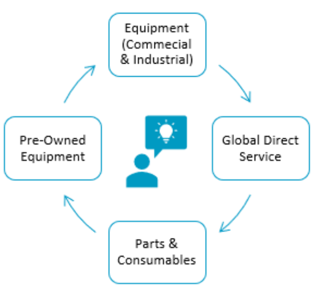
Source: Company Filings

Figure 4: Sales by Sales Channel



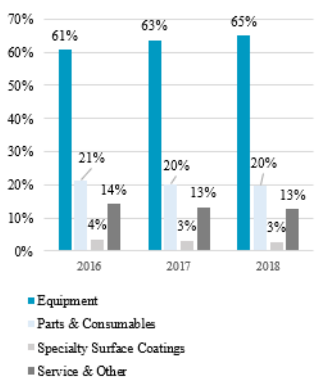
Source: Company Filings

Figure 5: Business Model



Source: TNC Investors Presentation

Figure 6: Sales by Segment



Source: Company Fillings

Business Description

Tennant Company is a world leader in manufacturing industrial floor machines and cleaning solutions. As of 2018, revenue is comprised of 65% Equipment, 19.8% Parts & Consumables, 12.6% Service, and 2.6% Specialty Surface Coating. The Company offers a broad portfolio of solutions that range from mid-tier to premium products. As of December 31st, 2018 Tennant, employed 4,341 employees globally.

Strategy

In 2018 The Company adopted the strategy to focus on three pillars of profitable growth. The first strategic pillar is winning where they have a competitive advantage. The second is reducing complexity and building scale, while the third is building their position as an innovative leader. Tennant plans to achieve the first pillar by leveraging its service network. The second pillar will be achieved by expanding manufacturing facilities around the globe through acquisitions and strategic product divestitures to exit product lines that do not lie with The Company's core competencies. We view Tennant's annual R&D expenditure of ~3% of revenue key for holding its position as the innovative leader in the industry.

Transitioning Path to End Market | The Company has seen recent success in attempts to increase margins by changing the strategy used to get products to its end markets. Net sales by sales channel have seen a 10% increase in sales to distributors (B2B), directly correlating to a 10% decrease in sales to consumers (B2C) from 2016 to 2018 (Figure 4). Before the change in strategic distribution, Tennant was utilizing its sales force as a significant portion of the Company's selling strategy, thereby increasing yearly SG&A expenses. Since the shift in strategy, the Company has seen SG&A expenses decrease 170bps to 31.70% of revenue from 2017 to 2018. We expect this trend of using a larger number of distributors to continue based on its ability to significantly decrease SG&A expenses.

Holistic Business Model | Although Tennant is transitioning towards a sale to distributor model, the structure of their business allows them to maintain their customer-facing advantage through its service network. This is a win-win scenario allowing them to reduce expenses within their SG&A and maintain their ability to cross-sell customers into more profitable business segments. They can also utilize their vast global direct service sector of its business that has over 900 employees to provide regular maintenance contributing consistent cash flow to the business. Tennant will then repurchase used machinery to refurbish and eventually resell through its Tennant RECON™ Program (Figure 5).

Product Lines | Tennant currently operates under the brand names Tennant®, Nobles®, Alfa Uma Empresa Tennant™, IRIS®, VLX™, Superior Anodes, IPC Group, and Hefei Gaomei Cleaning Equipment Co Ltd. Tennant offers cleaning machines such as extractors, scrubbers, sweepers, and vacuums. The Company also offers parts and supplies, with a maintenance and repair service segment. Tennant Company brand has over 50 unique products in its portfolio, as well as the products from all other brand names owned by Tennant.

- **Product Mix** | TNC has cleaning products that include autonomous scrubbers, walk-behind and stand-on scrubbers, walk-behind and ride-on sweepers, floor polishers and burnishers, carpet extractors, vacuums, and specialty machines such as commercial fans and multi-surface cleaners. These products range from premium (Tennant) to mid-tier products (IPC Group, Hefei Gaomei). To accomplish the second pillar of growth, management has divested away from certain product lines deemed not to lie within the company's core competencies. These product exits will help TNC reduce complexity and build scale going forward. In 2019 Tennant exited from four products. Of those, three were large outdoor street sweepers that were capital intensive and had limited consumer demand.

- **Maintenance and Repair Services** | Tennant offers seven different service plans in the United States, ranging anywhere from "pay as you go" preventative maintenance, to full-service and fixed-fee plans (Appendix E). They also offer similar service options in the EMEA region, although consumer options are currently limited to four different plans spanning the same types of coverage.

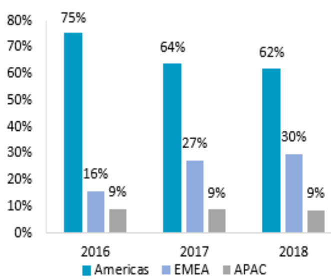
- **Parts and Supplies** | The Company's parts segment was responsible for 19.8% of revenue in 2018. Tennant*True*® brand parts are offered that are specially made parts specifically manufactured for Tennant machines. This is significant because consumers have no substitutes for parts, forcing them to use Tennant*True*®.

- **Tennant RECON™** | Tennant operates a reconditioning division that purchases used products from customers, repairs the machines, and then resells them. This allows Tennant to reach a new set of customers that are looking for the high-quality machines that Tennant offers but may not be willing to spend the amount that a new machine costs. This segment will also reach people who are new to the brand and do not yet want

Figure 7: T7AMR Robotic Floor Scrubber

Source: tennantco.com

Figure 8: Revenue by Geography

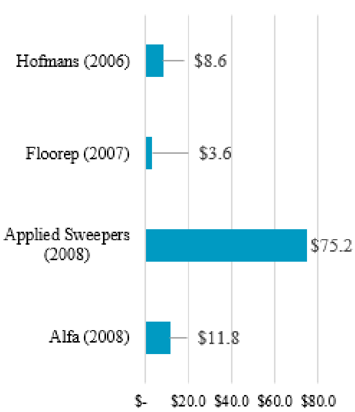


Source: Company Filings

Figure 9: Notable Customers

Source: TNC Investor Relations

Figure 10: Historical Transaction Prices (In Millions)



Source: Company Filings

to commit to the large purchase of a new machine. Tennant RECON™ offers services in North America and in the EMEA region.

Innovation | Tennant is dedicated to providing its customers with long-lasting premium products. To do this they have placed a strong emphasis on the innovation and advancement of their products to maintain their positioning in the market. Tennant has employed various methods including the use of internal R&D efforts, outside contracting, and joint ventures. Their preference is to develop their products internally. However, when necessary they have shown the willingness to utilize outside contracting and joint ventures to obtain technology. In 2017 The Company partnered with Brain Corp to power its T7AMR (Figure 7).

Growth Drivers

Acquisitions | Tennant Company has made two significant acquisitions in the last three years to expand both product offerings and their global footprint. We view these positively as they expand Tennant's product line into mid-tier product offerings, strengthen its global diversification of revenue, and unlock cross-selling synergies. Through global acquisitions, The Company has expanded its global manufacturing locations by five resulting in thirteen in total. The IPC acquisition in 2017 increased its revenue in the EMEA region by $144 million from 2016 to 2017, representing an 11% increase in the EMEA region as a percentage of sales. Tennant entering the APAC region with the Gaomei acquisition has enabled them to increase revenue in that region by 25.2% over the two years which resulted in $96 million in revenue. Through successful global acquisitions, The Company has expanded its product offerings while maintaining its core competencies and diversifying revenue geographically as shown in Figure 8.

- **IPC Group** | The IPC Group acquisition represents another step toward global diversification of revenue for Tennant. This $353 million purchase was the largest in company history. The IPC Group produces machines and equipment for the professional cleaning sector, with similar product offerings and end markets in relation to Tennant. The addition of IPC doubled the business for The Company in the EMEA market. IPC offers a mid-tier value proposition, coupled with Tennant's premium brand offerings. IPC reported revenue and adjusted EBITDA of €192M and €28M, which implies a 14.6% EBITDA margin. This transaction resulted in a ~100bps increase to Tennant's EBITDA Margins in 2017.

- **Hefei Gaomei Cleaning Equipment Co Ltd.** | Gaomei offers a range of cleaning machines and equipment based out of China. The Gaomei acquisition allows Tennant to target their growth aspirations in the Chinese market while offering highly complementary product portfolios and differentiated go-to-market approaches. Gaomei's portfolio consists of mid-tier market products that sell at a 40 – 60% discount compared to the Tennant Company brand. We see this price discount on Gaomei's product as an opportunity to increase prices and create organic growth within the APAC region. Gaomei has a 13,000 square meter factory plant that produces 400-500 sets of floor scrubbers every month. This acquisition allowed Tennant to enter 58 sales networks in China.

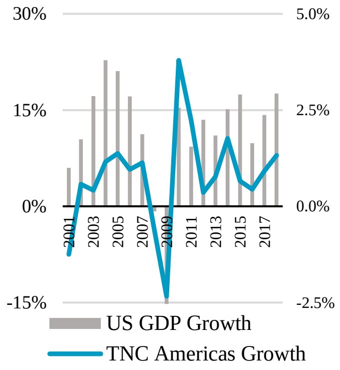
- **Other Notable M&A Transactions** | Tennant has also acquired Dofesa Barrido Macanizado. This transaction allowed them the ability to provide equipment, parts, and service directly to distributors and customers. In 2016 Tennant purchased Florock Polymer Flooring. This expanded product offering in its Specialty Surface Coatings Segment which made up 2.7% of revenue in 2018.

  The Company purchased Sociedade Alda Ltda. ("Alfa") in 2008 which resulted in Tennant's first surge into emerging markets and expanding its global operations. It is our view that the size, location, and product offering acquired from Alfa lends itself well as a blueprint to Tennant's recent acquisition of Hefei Gaomei. Since 2008, Tennant's revenue in the Americas has grown at a 4.83% CAGR. This has largely been attributed to TNC's investments in Brazil and the acquisition of Alfa.

Increasing Innovative Product Offerings | In Q4 2018, Tennant introduced its first autonomous cleaning machine to the market in North America, with expansion reaching the EMEA and APAC regions by early 2020. The Autonomous T7 Scrubber is currently Tennant's only autonomous mobile robot in its product portfolio. However, management guidance includes working plans to expand the technology to a more versatile fleet of machines, naturally increasing the number of potential end-market consumers. To develop the necessary technology to manufacture the AMR machine, Tennant contracted the services of Brain Corp to develop the software necessary to operate their AMR products

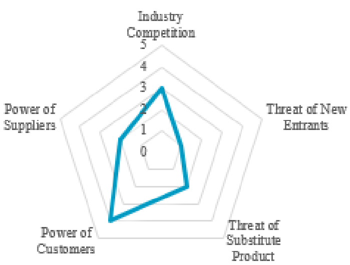
Tennant introduced the i-Mop in 2016, which was a creation via a joint venture with the team from i-team Global. In 2017 the Company announced an exclusive agreement to distribute i-Mop in North America. This machine enables the user to clean with the flexibility and efficiency that no company has been able to match.

Figure 11: US GDP Growth & TNC Americas growth



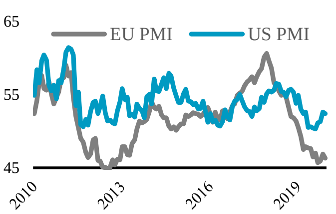
Source: Bloomberg

Figure 12: Porter's Five Forces



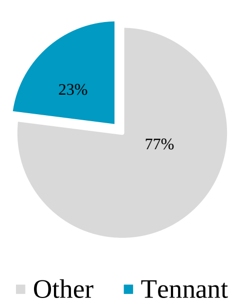
Source: Team Calculation

Figure 13: EU & US Manufacturing PMI



Source: IHS Markit & Bloomberg

Figure 14: Expected Market Share in 5 Years



Source: Team Calculation

Industry Overview and Competitive Positioning

TNC is a member of the industrial machinery hierarchy under the commercial and services sector, servicing companies ranging from schools, hospitals, airports, and government. This sector is largely dependent on the performance of its end markets, which are typically non-cyclical in business. The industry is many times usually influenced by the state of the overall economy.

Economic and Industry Overview

Companies within the global industrial machinery sector are estimated to carry a combined market cap of $990B - $1T. More specifically Tennant is in the mechanized cleaning industry. This industry is highly fragmented. Tennant's management believes the total market size is ~$5B, and that only 4 companies own more than 3% of the market share.

Domestic Outlook | United States GDP in the last five years has been growing at 2.5%; a healthy rate for a mature economy. However, it is starting to slow down and the Fed predicts that to continue. The real GDP growth in Q3 of 2019 was 1.9% which is just lower than the 20 year average of 2.1%. The Federal Reserve estimates that GDP will grow at 2.0%, and 1.8% in 2020, and 2021 respectively. The US Congressional Budget Office projects a 1.8% average growth rate over the next 10 years. The US CBO has estimated that the tariffs have reduced the Real GDP growth by 0.3%, and has also projected the current tariffs levels to lower the Real GDP growth by 0.1% per year. Currently, the United States has imposed tariffs on 11% of the goods entering the country. Many of these tariffs targeting raw materials, and intermediate goods. Tennant's management has stated that tariffs have impeded upon its gross margins.

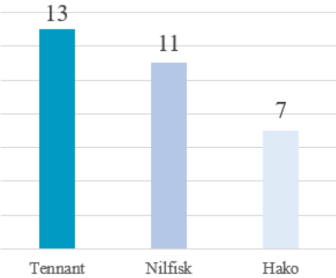
The domestic market that Tennant operates in is very resistant to new entrants due to a large amount of capital needed to enter the industrial market space. We do not expect the Company to see an increase in competition in America's in the coming years. Tennant has created a stronghold in America's in terms of revenue, with help from its industry-leading sales and service team throughout the region. The Company has not seen significant pressure from competition or consumers in the domestic market. Signifying Tennant's strength compared to its competitors, specifically in the United States.

International Market | China has been highlighted by Tennant as the region that will experience the most sales growth for industrial floor cleaners. With many factories in China seeing modernization; factory cleaning methods will also see advances. However, China's GDP growth in Q3 2019 was 6.0%, its lowest level since 1990. Although the economy and manufacturing of China seem to be slowing down, many of the companies moving from the country are simply relocating to other Asian countries like Malaysia, India, Thailand, etc. This should present a similar opportunity for a company to pursue growth in the region.

The EMEA region has experienced significant headwinds. Largely due to trade uncertainties and potential Brexit consequences. Real GDP in Europe has been projected to be 1.4 % in 2019, the lowest rate since 2013. In 2020 real GDP is projected to slightly rebound from the poor results the year prior with a real GDP of 1.8%. The European Union has also seen its manufacturing sector struggle in recent years. The Manufacturing PMI hit 45.7 in September of 2019, a 7-year low. Although the Eurozone Manufacturing PMI is expected to recover in 2020, the IMF expects it to stay slightly below the 10-year average of 52.0.

Expected Industry Trends | The Mechanized Cleaning Industry is currently valued at $5B. The market size of the industry in the U.S.A. and China was $1,100M and $350M respectively. As of 2019, the population of the U.S.A. and China was 327M and 1,386M respectively. We believe that this industry will grow at 1.55% 5-year CAGR. This will be driven by the modernization of workplaces and the advancement of technology used within its products. We referenced population when determining industry growth to provide a realistic gauge of the runway available in China. Tennant is currently the only company with a market share larger than 3% that has an APAC Headquarters. We expect the Company to achieve a higher market share as a result of its recent acquisitions within the APAC and EMEA markets. By 2025 we estimate Tennant will hold 23% of the mechanized cleaning market by taking market share from smaller companies and pulling revenue from new market trends, as referenced in Figure 14 (See Appendix N for Growth Analysis).

Figure 15: Global Manufacturing Facilites



Source: Company Websites

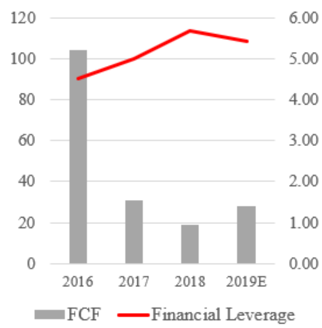
Competitive Advantages

Brand Recognition | The Company has come to be known as best in class within their respective product fields. Tennant machines are priced with an average 10% price premium compared to competitors. With this premium, consumers can expect to get longer-lasting machines, lower maintenance costs, and a more user-friendly product. Management estimates 40% of the parts that are used in the manufacturing process are designed in house by Tennant's engineering team. The Team conducted a round of distributor interviews nationwide resulting in a consensus opinion that Tennant brand products are at the top of the industry. See Appendix Z and AA for testimonials of Tennant brand products.

Customer Facing Capabilities | Tennant reaches customers through the industry's largest direct sales and service segment and a wide network of distributors worldwide. The Company can market new products to already existing customers through its established service network. Tennant's market share and book of business allow them access to customers that competitors do not have.

Business Scale | With 13 manufacturing facilities Tennant can fulfill large orders faster and more efficiently compared to competitors. To fulfill orders, such as Walmart's contract to provide 1500 autonomous floor cleaner T7AMR throughout the nation by 2020, scaled manufacturing is necessary. Tennant has been able to scale its manufacturing to a global production via acquisitions, now holding the highest number of global facilities when compared to competitors as represented in Figure 15.

Figure 16: Nilfisk FCF & Leverage



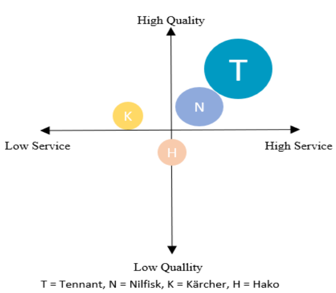
Source: Bloomberg

Competitive Landscape

The Mechanized Cleaning Industry is highly fragmented with few companies that excel in one area. Rather, companies are expanded into many different cleaning categories. Tennant's main competition for market share comes from companies out of the EMEA market, which expands their footprint globally and creates competition in the Americas, APAC, and throughout the EMEA markets. TNC's main competitor Nilfisk has had significant struggles driving revenue growth in recent years, which we believe to be a business-specific result, and an opportunity for Tennant to capture more market share.

Nilfisk | Nilfisk Holding is the closest competitor with a market cap of $574.1M and a market share of 18%, compared to Tennant's 20%. They produce, sell and distribute floor care equipment and cleaning products such as floor cleaners, vacuum cleaners, pressure washers, and detergents. The Denmark company became publicly traded on the Copenhagen NASDAQ in 2017 and has experienced a decline of 50.40% since its Initial Public Offering. Nilfisk has experienced negative growth in both the EMEA and APAC markets over the last three years while remaining steady in the Americas. We believe these are not short term trends but reflect a new norm for NLFSK's performance. In 2018 Nilfisk had divested 40% of its portfolio of products which reduced its product mix by 109 product offerings. They have continued their effort to develop and distribute their autonomous scrubber, the *Nilfisk Liberty SC50*, which is a partnered creation with Carnegie Robotics. This company has seen a significant deterioration in FCF and an increase in Financial Leverage, as seen in Figure 16.

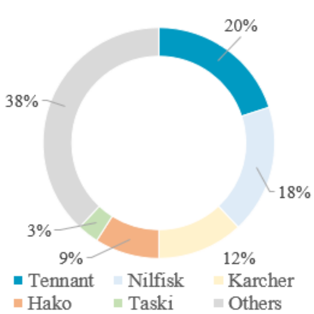
Figure 17: Positioning Matrix



Source: Team Analysis

Kärcher | Kärcher is one of the leading manufacturers and sellers of cleaning devices for home use, as well as commercial and industrial cleaning equipment. In the year 2018, Kärcher added 100 new products to their portfolio which gave them over 3,000 total products. Kärcher's Annual Review states that 85% of total sales are outside of Germany, where they are headquartered. According to their Annual Review, Kärcher was able to increase revenue by 1% in 2018 to €2.525 billion, or a 5.5% increase adjusted for currency and non-reoccurring effects. It is estimated that approximately 20% of revenue is in products and services that are directly competing with Tennant. Kärcher has further established itself as a competitor with Tennant due to its dedication to research and development within the mechanized cleaning industry. In 2018, Kärcher filed for more than 100 new patents.

Figure 18: Market Share

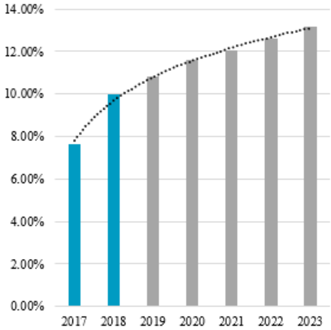


Source: TNC Investors Presentation

Taski | Taski is a subsidiary of Diversey, located in Charlotte, North Carolina. Taski specializes in cleaning product solutions and innovation. Tennant believes that they hold 3% of the market in Tennant related products. Taski machines include vacuums, disc machines, carpet care machines, and floor scrubbers. They currently offer an autonomous scrubber that is powered by their technology, Diversey Intellibot®.

Hako | Hako is a German-based company that manufactures and supplies cleaning equipment and municipal technology. Compared to Tennant, they have a much larger portfolio of cleaning products that range from cleaning vehicles for road use to floor scrubbers. According to Hako, they have annual revenue of €440 million, with sales coming from 60 different counties. Tennant reports that Hako currently has a 9% market share in related products. Hako's primary subsidiary Minuteman International is based out Pingree Grove, Illinois and is one of Tennant's main competitors in the Americas region. Minuteman International is currently using the same software developed by Brain Corp that Tennant also uses in its T7AMR.

Figure 19: EBITDA Margins



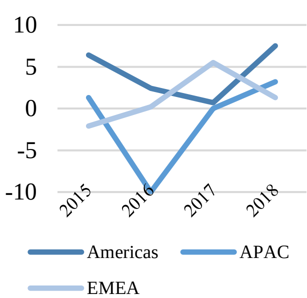
Source: Bloomberg & Team Estimates

Figure 20: Management Track Record

Track Record	
Increasing Yearly Dividend	✓
$1B Annual Revenue	✓
< 3.0 Leverage	*In Progress*
EBITDA Margin > 15.00%	*In Progress*

Source: Team Analysis

Figure 21: Organic Growth



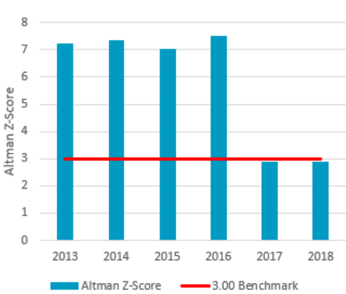
Source: Bloomberg

Figure 22: Bond Rating ($300M)

Coupon: 5.625	
Maturity: 5/01/2025	
Moody's	B2
S&P	BB
Composite	B+

Source: Bloomberg

Figure 23: Altman Z-Score



Source: Team Calculations

Investment Summary

We issue a **BUY** recommendation on Tennant based on its ability to capture revenue through market trends, cross-selling opportunities created through acquisitions, and The Company's dedication to bringing innovative products to market. Management has shown a strong track record of hitting goals that are placed for The Company, resulting in the belief that this trend will continue. Current goals and initiatives to create profitable revenue by expanding margins have resulted in an increase of EBITDA margin by 80 basis points through 2019. Our thesis relies on Tennant achieving higher revenue growth through market-trends, specifically through growth in the APAC region. While continuing the trend of creating profitable revenue in the short-term.

Merits

Continue Growing Synergies from Acquisitions | Tennant estimated synergies of $12M from the IPC Group acquisition to be recognized by 2019. Manufacturing facilities increased by 3 after the purchase of IPC Group, which leaves Tennant at 13 manufacturing plants globally. We believe synergies from acquisitions will help Tennant increase profits and grow in the future. These synergies include complimentary sales channels, cross-selling to new customers, and the expansion of their mid-tier product platform.

Management has retained key executives and personnel from the IPC and Gaomei acquisitions. We see this as an opportunity to expand knowledge in the regions that Tennant did not previously operate. The key executives and managers from the IPC Group and have been the catalyst in driving down SG&A expenses and expanding margins by implementing a more company friendly approach in selling. The markets that we expect to grow the most are located in the APAC region and we believe keeping the expertise that came with Gaomei will be the key to maximizing growth through the APAC region.

Increased EBITDA Margins | Management has temporarily shifted focus to increasing EBITDA margins and de-levering the business after its acquisition in Q1 2019. Tennant plans to achieve 15% EBITDA margins by reducing operating expenses and becoming more efficient in their operations. In Q3 2019, Tennant adjusted year-end 2019 guidance for EBITDA margins to 11.8%, which would be a significant increase from 10.73%, 7.60%, and 10.00% in 2016, 2017, and 2018, respectively (Figure 19). The 2.40% increase from 2017 to 2018 was impacted by the acquisition of IPC Group which had an incoming EBITDA margin of 14.60%, significantly higher than Tennant's overall EBITDA margin. Management is still in the early stages of this strategy as of 2019 Q3.

Leading Market Share | Tennant is the current global leader within their market space (Figure 18). This will create a competitive advantage with the introduction of new technology to the marketplace. TNC is believed to have the highest quality machines compared to any competitor and holds a great reputation with over 100 years of experience making floor cleaning equipment.

Growing Global Footprint | The Company has successfully expanded its global footprint through acquisitions. We believe the expansion into emerging markets, such as China, will present long-term growth opportunities. The team projects business in emerging markets to increase drastically as consumers in the APAC region transition to more modern methods of cleaning technology.

Managements Proven Track Record | TNC's management team has shown the ability to consistently hit goals that they set for The Company. In 2014 management launched its goal to reach $1B in revenue, which was obtained after the acquisition of The IPC Group in 2017. Since then Tennant has set initiatives to include new product innovation, improved sales and marketing techniques, and continued organic growth. We have seen the release of the T7AMR, SG&A expenses declining, and positive organic revenue growth in 2 out of the 3 key regions that the Company operates. This leads us to believe that management is setting and committing to reasonable goals that will help forward-looking growth of this company. Current goals that management has set that we believe will be attained include a leverage ratio under 3.0 and an EBITDA Margin above 15.00% (Figure 20). We believe management's experience and ability to create growth will be one of the key catalysts in Tennant's future potential.

Concerns

Organic Revenue Growth | Organic growth has not been the catalyst for overall growth in recent years, with a 3.1% organic growth rate over the last 4 years. Before the acquisition strategy put into place, Tennant saw a 1.1% and 1.4% organic growth rate in 2016 and 2017, respectively. Tennant was able to increase that to 5.5% in 2018, but inorganic growth still outpaced organic growth at 6.5% in 2018, creating a total growth rate of 12%. Year by year organic growth can be seen in Figure 21.

Figure 24: WACC Analysis

WACC Calculations	
Equity	
Cost of Equity	8.54%
Risk Free	2.66%
Market Return	7.50%
Market Premium	4.84%
Equity Structure	82%
Debt	
Cost of Debt	2.40%
Tax Rate	20%
Debt Structure	18%
Adjustment	
Market Adjustment	0.65%
WACC	8%

Source: Team Calculations

Long-Term Debt Liability | Debt was decreased to $355.1 million in 2018, from $376.8 million in 2017. Before the IPC Group acquisition in 2017 debt levels were held very low at $36.2 million in 2016. As of its Q3 Earnings, Tennant's Leverage Ratio (LTM) was 3.19. Compared to the comparable companies determined by our equity screener (See Appendix P) Tennant is just marginally above the mean of 3.11. Due to the sharp increase of debt taken on from the acquisitions Tennant has experienced an Altman Z-Score below 3.0 in both 2017 and 2018 (Figure 23). Tennant issued a $300M bond as debt for the acquisition of IPC Group and was rated with a score that would determine Tennant has substantially high credit risk (Figure 22).

Loss of Brand Control | TNC has shifted strategic direction in the way that it gets its products to their end markets. Tennant currently has 400+ distributors that are used worldwide. We believe with this new strategy TNC is putting itself at risk of losing brand control to its consumers, which has the potential to negatively impact their industry-leading reputation.

Valuation

We placed the most weight on the value derived from the Discounted Cash Flow Model (DCF) when calculating our target price. We believe this was appropriate due to the limited number of direct competitors that are publicly traded, thus limiting the reliability of any multiples valuation method. We chose to use a 5-year timeline to forecast excess returns due to the Company's brand recognition and high barriers of entry associated with its business model.

Figure 25: Peer Group

Manufactured Peer Group	
Woodward Inc.	WWD
Donaldson Company Inc	DCI
ITT Inc.	ITT
Rexnord Corp.	RXN
Watts Water Technologies	WTS
Kennametal Inc.	KMT
Albany International Corp	AIN
Altra Industrial Motion Corp.	AIMC
Welbilt Inc.	WBT
Enpro Industries Inc.	NPO
Columbus Mckinnon Corp.	CMCO
Nilfisk Holding	NLFSK US
Industrial Machinery (GICS)	20106020

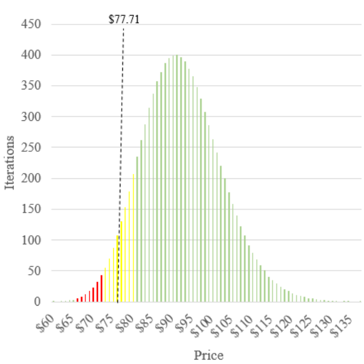
Source: Equity Screener

DCF Model | The DCF model reveals an undervalued share price. The model projects out the future cash flows up to 2024. The model utilized an 8.0% WACC and 2.00% terminal growth rate. To take into consideration the extensive variables that can be manipulated within a DCF model we performed a sensitivity analysis to various calculations within the model including Terminal Growth, Weighted Average Cost of Capital (WACC), short-term revenue growth, and long-term revenue growth. The intrinsic price determined by the model reached a value of $92.70.

Multiples Valuation | Due to the low number of direct competitors that are public we determined the best way to complete a multiple analysis was to use an equity screener (Figure 25). Our valuation was based on industry multiples calculated within the Industrial Machinery GICS Code sector with certain variable limits placed (Appendix P). We chose to analyze Forward P/E ratios, EV/Sales, and EV/EBITDA. See Figure 27 for values.

Monte Carlo Simulation | A Monte Carlo simulation of the DCF model was performed for sensitivity analysis. The team ran 10,000 iterations resulting in a mean, median, and mode of $92.31, $92.16, and $91.05 respectively. The parameters that were changed throughout the simulation included Revenue Growth, Cost of Revenue, SG&A Expenses, EBITDA Margins, Tax Rate, WACC, and Terminal Growth. We decided on the variables based on what we felt would significantly alter the performance of The Company. This method resulted in a "BUY" recommendation 74.6% of the time (Figure 26).

Figure 26: Monte Carlo Simulation



Source: Team Calculations

Benjamin Graham Formula | A Benjamin Graham approach was taken to create a value based on an EPS method. A 5-year CAGR of 4.8% was used with our estimated 2019 EPS of 2.73. The same discount rate of 8.00% was used that we inserted into our DCF calculations. This method gave us an intrinsic value of $49.41, representing a downside of 36.41%.

Dividend Discount Model | The dividend discount model reveals the stock to be overvalued at a value of $29.20. Although Tennant is a company known for its consistent growing dividend, our view is that the growth rate of the dividend does not reflect the true value of the company. We projected dividend growth by using the sustainable dividend growth rate. We then used the same discount rate of 8.00% as used in the DCF model. Our calculations resulted in a value of $45.41, implying a downside of 41.56%.

Figure 27: Multiples Analysis

Valuations	Price	Upside / Downside
Industry EV/EBITDA	79.31	2%
Historical EV/EBITDA	94.67	22%
Forward P/E	45.34	-42%
EV/Sales	95.74	23%

Source: Team Calculations

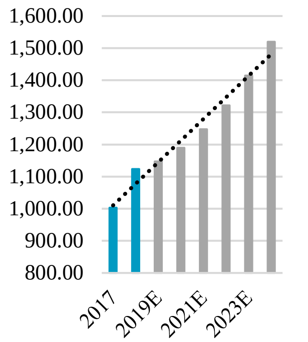
Figure 28: DCF Inputs & Outputs

DCF Assumptions	Results
PV of Future Free Cash Flows	1,984.50
Net Debt	269.50
Equity Value	1,715.00
Diluted S/O	18.50
Intrinsic Value/Share	92.70
WACC	8.00%
Terminal Growth	2.00%

Source: Team Calculations

Assumption Metrics

Figure 29: TNC Revenue Growth

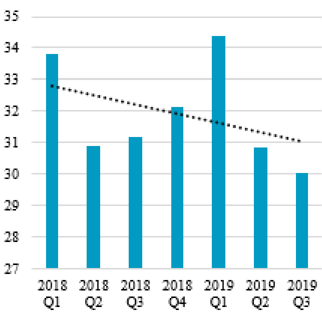


Source: Bloomberg & Team Estimates

Revenue Growth | Tennant's revenue increased at a CAGR of 6.45% from 2014-2018. Revenue was projected considering the expansion into international markets, continued innovation within their product lines, and development of the company's service segment. We project revenue to grow at a 4.9% CAGR, upon consideration of the market potential and the historical performance of the business. Some key assumptions that are noteworthy: the team projects revenue to increase at a 9.62% CAGR in the APAC region by 2024. The company's service segment to grow at 6.5% CAGR from 2019-2024 to eventually account for 19% of total revenue by 2024 (Figure 29).

Margins | Gross Margin is expected to increase by 3.2% over the next 5 years. This will be driven by the company's expanded use of distributors and the continued growth within its industrial product lines. The EBITDA margin is projected to reach 13.7% in 5 years. We expect margin expansion to be aided by reduced expenses, specifically lowered SG&A expenses. The team has projected SG&A expenses will decrease to 29.8% of total revenue by 2024, compared to 31.7% in 2018 (Figure 30).

Figure 30: SG&A as % of Sales



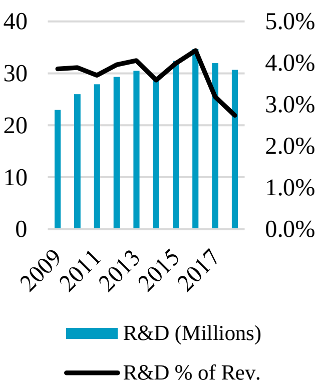
Source: Bloomberg

Beta, Weighted Cost of Capital (WACC) | To find a discount rate, we calculated the weighted average cost of capital. Tennant is financed by just under 80% equity and over 20% debt. To find the cost of equity, we used the capital asset pricing model. Our beta was calculated by using the average price change comparison of the S&P 500 to Tennant's stock price over a five-year period. The current yield for the 5-year Treasury Bond was used for the risk-free rate. With the expected market return being based on the long-term S&P 500 average. We then added a 0.65% market adjustment to our calculated WACC of 7.35%. This gave us a WACC of 8.00%.

Financial Analysis

Selected Financials						
Operating Metrics	2016	2017	2018	*2019E*	*2020E*	*2021E*
EBITDA Margin	10.73%	7.60%	10.00%	11.50%	12.50%	14.50%
Net Profit Margin	5.76%	-6.20%	2.97%	4.20%	3.80%	3.80%
Gross Margin	43.48%	39.86%	39.61%	41.00%	41.00%	42.00%
Return Metrics						
ROIC	16.43%	2.98%	7.59%	9.90%	11.14%	11.69%
ROA	10.33%	-0.85%	3.36%	4.21%	4.53%	4.98%
ROE	17.57%	-2.15%	10.94%	12.74%	12.51%	12.39%
Liquidity Analysis						
Current Ratio	2.24	1.79	1.88	1.70	1.70	1.70
Quick Ratio	1.53	1.11	1.18	1.11	1.11	1.11
Financial Leverage	1.70	2.55	3.25	2.94	2.77	2.50
Per Share Metrics						
Diluted Earnings Per Share	2.59	-0.35	1.83	3.11	3.38	5.00
Dividend Yield	1.18%	1.16%	1.69%	1.13%	1.16%	1.18%

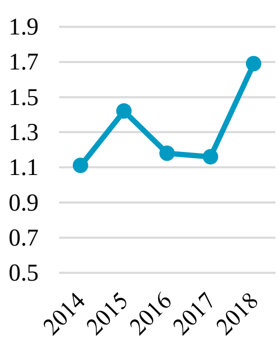
Figure 31: R&D



Source: Bloomberg

Overview | Tennant has garnered significant revenue growth over the last two years primarily due to its recent acquisitions of IPC and Gaomei. These acquisitions have been part of the company's larger plans to diversify revenue streams geographically. Prior to those acquisitions, Tennant experienced a decrease in revenue in 2015 and 2016. This occurred primarily due to its declining performance in the EMEA and APAC regions. From 2014-2016, revenue in the EMEA and APAC region declined by 11.77% and 8.87% CAGR respectively.

Figure 32: Dividend Yield

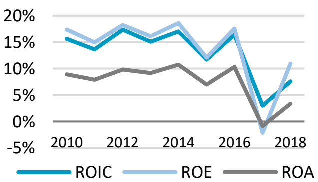


Source: Bloomberg

Margin Analysis | Tennant has seen a 387 bps decrease in Gross Margins since 2016, primarily due to impacts from raw material inflation, tight labor markets, higher freight costs, and ongoing tariff implications. EBITDA Margins experienced a decrease of 73 bps over the same two-year period, much lower than the decline in Gross Margins. This was due to the strategic move to focus on lowering operating expenses, specifically SG&A expenses (Figure 30). Tennant was able to achieve a Q4 EBITDA margin of 11.2%, which signified the third straight quarter with EBITDA Margin improvement. Although margin has been compressed since 2016, we believe the company is on the right track to improve these results.

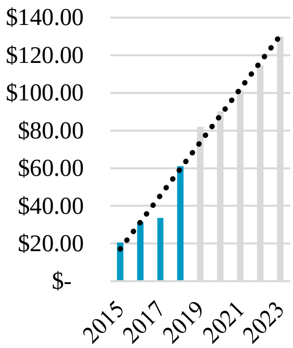
Capital Deployment | Tennant has posted a dividend for the past 74 years. It has been increasing for the last 47 years. This has displayed the company's dedication to offering a healthy dividend to investors (Figure 32). Over the past two years, Tennant has limited its share repurchase program due to the debt that it acquired in its recent acquisitions of IPC and Gaomei. Management has expressed interest in resuming share repurchases when debt

Figure 33: Return Metrics



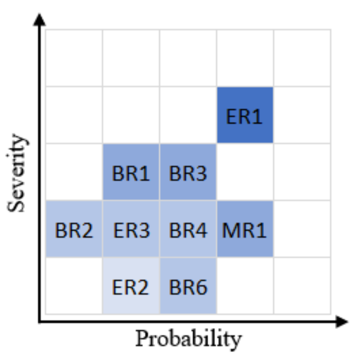
Source: Bloomberg

Figure 34: Free Cash Flow



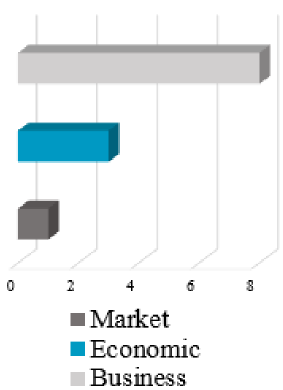
Source: Bloomberg & Team Estimates

Figure 35: Risk Matrix



Source: Team Calculations

Figure 36: Risk Association



Source: Team Calculations

has been paid down to an appropriate level. We believe that the current leverage ratio indicates that repurchases may resume within the year of 2020, with estimates of a leverage ratio below 3.0 by Q3 of 2020.

Return Metrics | ROIC, ROE, and ROA remained fairly constant until 2017 when all three return metrics decreased significantly due to large one-time fees associated with the acquisition of IPC. In 2018 the return metrics rebounded slightly to levels below that of which before they declined in 2017 (Figure 33). We believe that as the cost synergies are realized, their metrics should return to levels similar to that of which they were prior to 2017.

Free Cash Flow | FCF increased at a 43.99% CAGR over the three year period from 2015 to 2018. From 2017 to 2018 we have seen FCF increase 81.6%, primarily from the revenue gained after the acquisition of The IPC Group. Now that the revenue has been realized to Tennant's FCF statement we believe with the economic climate in the EMEA and APAC regions trending downwards that FCF will increase at a 4.78% CAGR through 2023.

Long Term Debt | As a result of recent acquisitions beginning in 2017, Tennant has increased its leverage ratio from 1.70x to 3.25x. The company has stated that it would like to reduce their leverage to a sub 3.0x level. We view their willingness to increase leverage as a positive, it emphasizes the company's belief in itself to take on debt to maximize its return to shareholders.

Investment Risks

Business Risk | Inability to Capture Revenue Through Market Trends (BR1) | The Team is projecting that the industrial cleaning sector will grow at a 1.55% CAGR over the next 5 years. The main catalyst will be the advancement of mechanized cleaning globally. If Tennant is unable to capture revenue in the markets that they have used extensive capital resources to enter their business model will experience significant headwinds to achieve reasonable and profitable growth.

Business Risk | Inability to Pay Debt (BR2) | In 2017, Tennant issued debt to acquire the IPC Group resulting in a debt-to-capital ratio of 56%. Tennant may not be able to generate sufficient funds to service their debt, potentially negatively affecting their ability to find favorable financing opportunities in the future. The Company is required to allocate 25% to 50% of FCF from the preceding fiscal year towards de-leveraging, unless they attain a net leverage ratio less than or equal to 3.0.

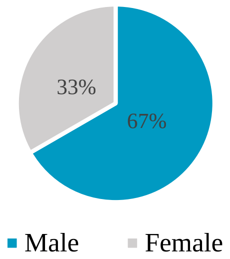
Business Risk | Jeopardize Reputation (BR3) | Tennant has created a positive brand reputation globally. This could be at risk with a change in strategy to utilizing more distributors then they have historically. The Company now has less control of its brand image when compared to the direct to consumer model. If Tennant were to lose its brand recognition and superior reputation in the industry TNC would lose a key competitive advantage.

Business Risk | Innovation Competition (BR4) | As mechanized cleaning modernizes in emerging markets Tennant will be forced to keep up technological advances. Should Tennant's R&D fail to keep up with competitors, inferior products could drive market share loss. Currently, Tennant has a company goal to spend 3% of Revenue on R&D related expenses. In 2018 they fell short of that goal and should that trend continue Tennant has the possibility of losing its reputation as an industry leader in innovation if its R&D efforts fail to maintain pace with competitors.

Business Risk. | Management Compensation (BR6) | Due to the extensive debt acquired, The Company incurred substantial noncash amortization expenses. This negatively affected operating profit, the performance metric used to determine the executives' Short-Term Incentive Program (STIP). The STIP was altered to replace operating profit with EBITDA which would exclude the noncash amortization expenses. If this compensation model continues to be used once its leverage ratio returns to historical averages it could result in executives being overpaid if they do not return to using operating profit.

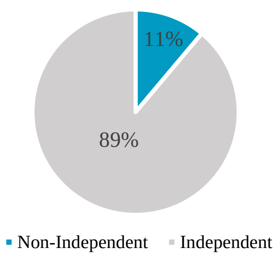
Economic Risk | International Market Exposure (ER1) | Tennant has made two significant acquisitions that lie in economies that have not had favorable outlooks. Both the EMEA and APAC regions have experienced periods of slowdowns recently (See Economic and Industry Overview). IPC Group's revenue was primarily made of sales in the EMEA region, accounting for 77% of revenue. This increased Tennant's global market share by ~2-3%, which increases economic risk in these regions. The acquisition of Gaomei has not substantially affected Tennant's global market share. If conditions in the APAC region worsen it could pose a significant risk given our projected growth in the region. Tennant has directly voiced the plan and initiative to keep key personal from the IPC and Gaomei acquisitions and use their knowledge in their respective markets to continue growth initiatives

Figure 37: Board Gender Diversity



Source: Proxy Statement

Figure 38: Director Independence



Source: Proxy Statement

Figure 39: Climate Change CDP Score Report

2018 CDP Score Report	
Score	A-
Sector Average	D
Regional Average	D

Source: CDP Disclosure Insight Action

Economic Risk | Wage Inflation (ER2) | The current U.S. unemployment rate is at 3.6%, the lowest its been since 1969, labor shortage and wage competition could potentially burden margins and damage consumer demand through product markups. Tennant employed 4,431 individuals globally at year-end 2018. Management has stated that labor markets and productivity directly related to a decrease in margin performance for year-end results in 2018.

Economic Risk | Raw Materials and Components (ER3) | Current tariffs have caused increases in the cost of materials needed for manufacturing and have negatively affected Tennant's gross margin in recent years. Raw material and labor shortages in the EMEA region have the ability to continue to deteriorate.

Market Risk | Overvalued Market (MR1) | The equity markets' current valuations are expensive compared to historical data. The S&P 500 to U.S GDP has hit 124.29%, which is high compared to historical marks. Tennant is close to an all-time high in price and a market adjustment may impact the Company's stock price in a negative manner. The global economy is currently in its longest period of expansion on record and has displayed signs that we may be reaching end of cycle. In March 2019 the 10-year Treasury Note dropped below the 3-month paper. An inverted yield curve is often viewed as a consistent leading indicator of a recession.

Corporate Governance and Management

Corporate Governance and Management | Management's philosophy at Tennant is to keep the world clean and provide leading innovation in the floor cleaning industry. The Company is focused on creating a cleaner, safer, healthier world. Tennant strives to increase its use of recycled materials and reduce safety incidents globally, this has resulted in an exceptional rating from the CDP. The Company received a rating of an A-, which is exceptional above the sector average of a D. (Figure 39).

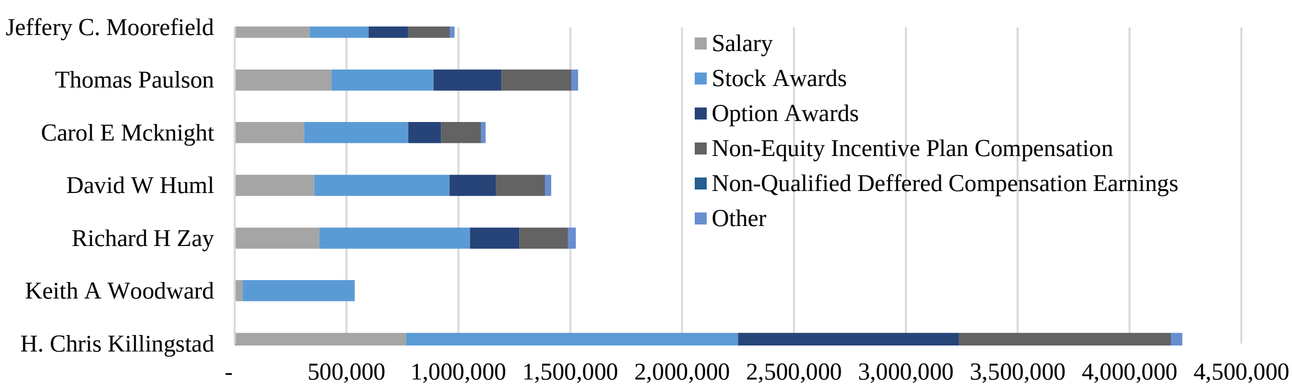
Board of Directors | Tennant's Board of Directors is an experienced group of individuals, specializing mainly in the industrial sector. Six of their nine board members have been there for ten years or more, working for companies like Ingersoll-Rand, General Mills, UnitedHealth Group, and Innocor Inc. Steve Sonneberg has been the Chairman of the Board since 2016 and is also the longest standing member since 2005.

Executive Compensation | Tennant's executive compensation plan focuses on a healthy mix of short term and long-term reward packages. The mix of salary, stock and option awards, and non-equity incentive plans provide the executive team with a structure that is made to benefit the short-term incentive and long-term retention. These are rewarded off of a performance-based scale. The performance metrics used in the short term are operating profit in dollars, operating profit as a percentage of net sales, and total revenue. Long term metrics are broken down as follows: Incentive ROIC, organic revenue, and cumulative earnings per share.

Cash Incentive Opportunities | The elements provided for executives to earn cash or short-term incentives are aligned in a few key ways. The base salary is calculated by the value of the executive role and is subject to yearly increases according to market conditions. The short-term incentive aspect is rewarded through the achievement of annual goals and is tracked by Tennant's annual operating plan.

Long-Term Opportunities | Goals for long-term rewards are given in the form of Performance-Based Restricted Stock Units (PRSUs) which are typically evaluated on the basis of three-year periods. PRSUs are given in the form of common stock. Stock options and restricted stock awards are also set on three-year periods.

Figure 40: Executive Compensation



Source: Proxy Statement

Appendix

A: Stock History

B: Stock Forecast

C: Machine Lineup

D: Industry Autonomous Floor Scrubber Specs

E: Service Offerings

F: Pro Forma Income Statement

G: Pro Forma Balance Sheet

H: TNC Key Executives

I: CEO Ownership

J: TNC Board Members

K: Compensation

L: Porter's Five Forces

M: SWOT Analysis

N: Market Growth Analysis

O: Valuation - DDM

P: Valuation – Multiple Peer Group Selection

Q: Valuation – Multiple

R: Valuation – Monte Carlo Simulation

S: Valuation - DCF

T: Sensitivity Analysis

U: Sales Per Employee

V: Altman Z-Score Analysis

W: Manufacturing Data

X: Surprise vs. Actual Revenue & EPS

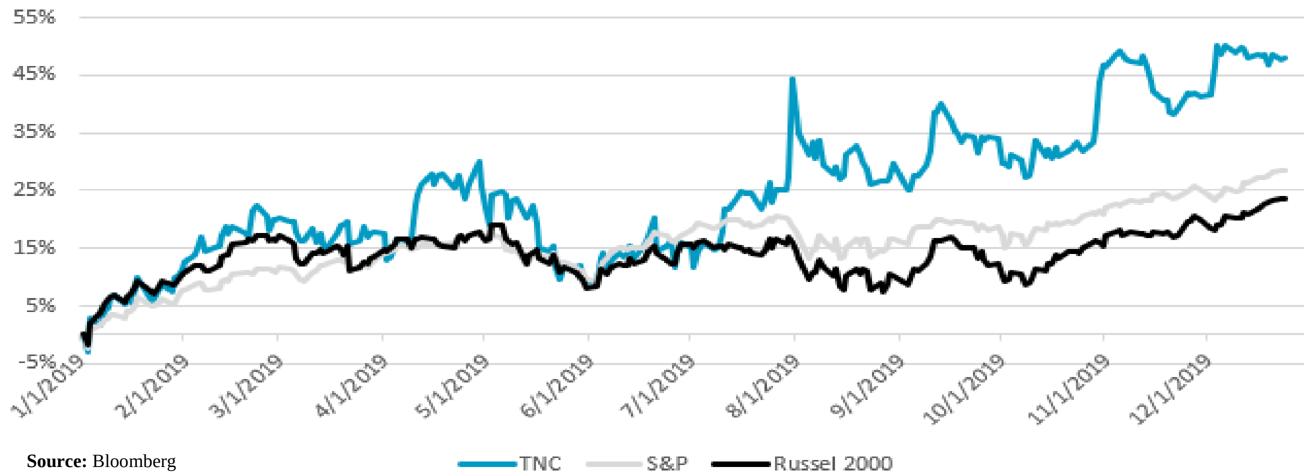
Y: Global Locations

Z: Interviews

AA: Testimonials

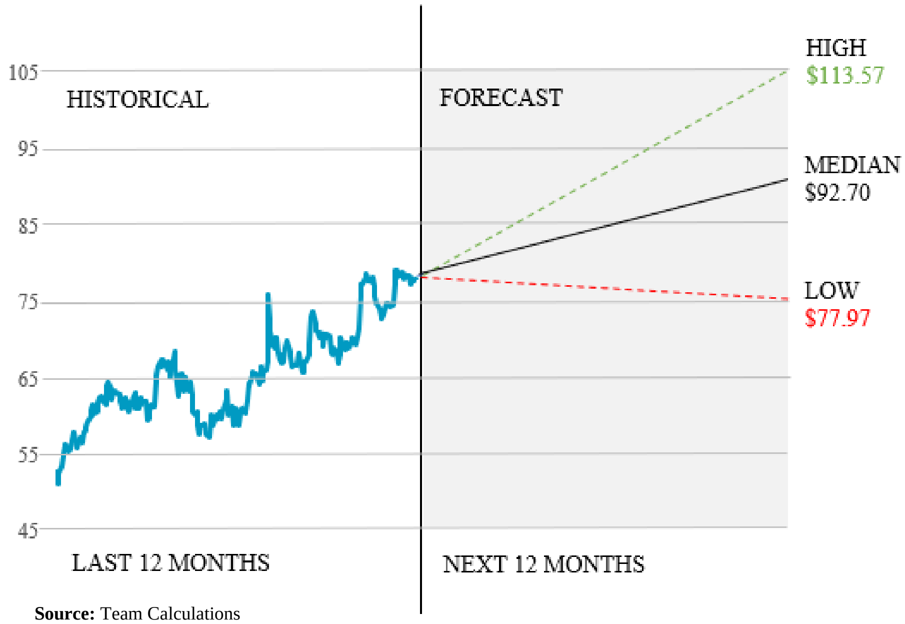
BB: Work Cited

Appendix A: 12 Month TNC vs. S&P 500 vs. Russel 2000



Source: Bloomberg

Appendix B: Price Forecast



Source: Team Calculations

Appendix C: Line-up of Tennant (Blue), Gaomei (Grey), and The IPC Group (Green) Machines

Source: Tennant Investor Relations

Appendix D: Industry AMR Floor Scrubber Specs

Company	Cleaning Width	Max. Brush Pressure	Cleaning Area/Hour	Run Time/Charge
Tennant	26 in	160 lbs	25,978 sq.ft./hr	3.7 hours
NSS	26 in	160 lbs	9,643 sq.ft./hr	3.2 hours
Minuteman	20 in	(No Data)	19,303 sq.ft./hr	3.5 hours
ICE	26 in	165 lbs	25,457 sq.ft./hr	4 hours
Taski	28 in	94 lbs	13,563 sq.ft./hr	4 hours
Karcher	26 in	(No Data)	15,069 sq.ft./hr	3 hours

Appendix E: Service Offerings Synopsis

Full Service			
Pro24	Assures complete peace of mind, a response time within 24 hours including optional weekend coverage, maintenance and breakdown coverage, predictability of costs and help to maximise uptime and equipment lifetime.	***Pro48***	Provides 48 hour response during weekdays, maintenance and breakdown coverage, predictability of costs and help to maximise uptime and equipment lifetime.
Preventative Maintenance			
ProFix	Preventative maintenance at fixed price with reduced call-out and labor rates for repair visits.	***ProVar***	Pay as you go preventative maintenance plan with reduced call out and labor rates.

Source: Tennant Investor Relations

Appendix F: Historical & Forecasted Income Statement

In Millions of USD Except Per Share 12 Months Ending	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E
Revenue	**811.80**	**808.57**	**1003.07**	**1123.51**	1147.16	1189.51	1247.33	1321.70	1414.53	1519.73	1634.23	1758.01	1891.89	2036.77	2193.66
- Cost of Revenue	462.74	456.98	603.25	678.48	680.27	703.00	734.68	774.52	803.34	831.83	931.51	1002.07	1078.38	1160.96	1250.38
Gross Profit	**349.06**	**351.60**	**399.81**	**445.03**	**466.89**	**486.51**	**512.65**	**547.18**	**611.19**	**687.90**	**702.72**	**755.95**	**813.51**	**875.81**	**943.27**
- Operating Expenses	280.94	282.95	331.29	378.53	394.62	402.05	418.48	440.13	455.41	470.41	536.03	576.63	620.54	668.06	719.52
Operating Income (Loss) (EBIT)	**68.12**	**68.65**	**68.53**	**66.50**	**72.27**	**84.46**	**94.17**	**107.06**	**155.78**	**217.48**	**166.69**	**179.32**	**192.97**	**207.75**	**223.75**
	0.00	0.00	0.00	0.00	17.10	22.14	22.14	22.14	22.14	22.14	22.14	22.14	22.14	22.14	22.14
Basic EPS from Cont Ops	1.78	2.66	-0.35	1.86	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Pretax Income (Loss), Adjusted	**66.34**	**65.99**	**68.88**	**64.64**	**55.17**	**62.32**	**72.04**	**84.92**	**133.65**	**195.35**	**144.56**	**157.18**	**170.84**	**185.61**	**201.62**
- Abnormal Losses (Gains)	14.94	0.15	35.51	8.52	3.60	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52	8.52
Pretax Income (Loss), GAAP	**51.40**	**65.84**	**33.37**	**56.12**	**51.57**	**53.80**	**63.52**	**76.40**	**125.12**	**186.83**	**136.03**	**148.66**	**162.31**	**177.09**	**193.09**
- Income Tax Expense (Benefit)	18.34	19.88	4.91	2.43	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30	2.30
Net Income GAAP Adj.	**33.06**	**45.96**	**28.46**	**53.69**	**49.27**	**51.49**	**61.21**	**74.10**	**122.82**	**184.52**	**133.73**	**146.36**	**160.01**	**174.79**	**190.79**

Appendix G: Historical & Forecasted Balance Sheet

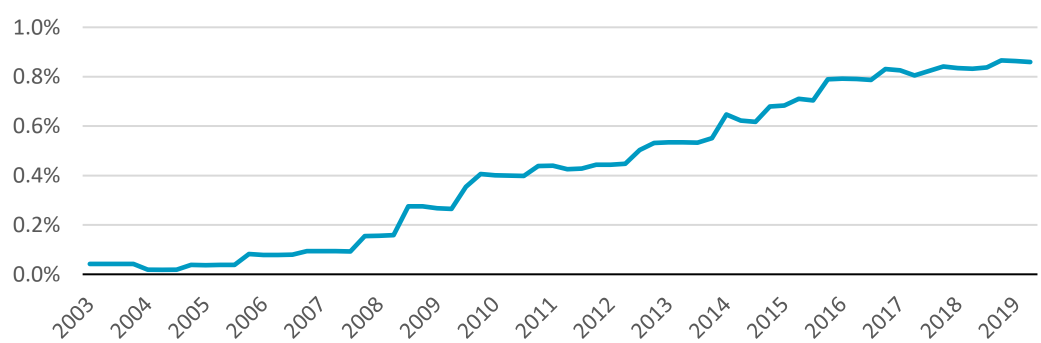
In Millions of USD except Per Share 12 Months Ending	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E
Total Assets															
+ Cash, Cash Equivalents & STI	51.30	58.03	58.40	85.61	82.83	85.89	90.07	95.44	102.14	109.74	118.01	126.94	136.61	147.07	158.40
+ Accounts & Notes Receivable	136.34	145.30	203.28	207.95	208.67	216.37	226.89	240.42	257.30	276.44	297.27	319.78	344.13	370.49	399.02
+ Inventories	77.29	78.62	127.69	135.13	112.49	116.64	122.31	129.60	138.70	149.02	160.25	172.38	185.51	199.72	215.10
+ Other ST Assets	28.71	15.97	33.74	39.95	40.62	42.12	44.16	46.80	50.08	53.81	57.86	62.25	66.99	72.12	77.67
Total Current Assets	**293.64**	**297.92**	**423.12**	**468.64**	444.61	461.02	483.43	512.25	548.23	589.00	633.38	681.35	733.24	789.39	850.20
+ Property, Plant & Equip, Net	94.96	112.10	180.02	163.45	151.82	157.43	165.08	174.92	187.21	201.13	216.28	232.66	250.38	269.56	290.32
+ Other LT Assets	43.69	60.02	390.84	360.45	407.51	422.55	443.09	469.51	502.49	539.86	580.53	624.50	672.06	723.53	779.26
Total Noncurrent Assets	**138.65**	**172.12**	**570.86**	**523.90**	**559.33**	**579.98**	**608.17**	**644.43**	**689.69**	**740.99**	**796.82**	**857.17**	**922.44**	**993.09**	**1,069.58**
Total Assets	**432.30**	**470.04**	**993.98**	**992.54**	**1,003.94**	**1,041.00**	**1,091.60**	**1,156.68**	**1,237.93**	**1,329.99**	**1,430.20**	**1,538.52**	**1,655.69**	**1,782.48**	**1,919.78**
Liabilities & Shareholders' Equity															
+ Payables & Accruals	86.28	85.75	136.18	149.97	154.43	160.13	167.92	177.93	190.43	204.59	220.00	236.67	254.69	274.19	295.31
+ ST Debt	3.46	3.46	30.88	27.01	31.45	32.61	34.19	36.23	38.78	41.66	44.80	48.19	51.86	55.83	60.13
+ Other ST Liabilities	43.48	43.62	69.45	71.90	76.42	79.24	83.09	88.04	94.23	101.24	108.86	117.11	126.03	135.68	146.13
Total Current Liabilities	**133.22**	**132.83**	**236.51**	**248.88**	262.30	271.98	285.20	302.20	323.43	347.48	373.67	401.97	432.58	465.70	501.58
+ LT Debt	21.19	32.74	345.96	328.06	311.09	295.00	279.74	265.27	251.54	238.53	226.19	214.49	203.40	192.88	182.90
+ Other LT Liabilities	25.68	25.93	113.04	99.26	87.16	76.53	67.20	66.08	70.73	75.99	81.71	87.90	94.59	101.84	109.68
Total Noncurrent Liabilities	**46.87**	**58.67**	**459.00**	**427.32**	**398.25**	**371.53**	**346.94**	**331.35**	**322.27**	**314.52**	**307.91**	**302.39**	**297.99**	**294.71**	**292.58**
Total Liabilities	**180.09**	**191.49**	**695.50**	**676.20**	**660.54**	**643.51**	**632.14**	**633.56**	**645.70**	**662.00**	**681.57**	**704.36**	**730.57**	**760.42**	**794.16**
+ Share Capital & APIC	6.65	10.29	21.79	35.35	32.93	34.14	35.80	37.94	40.60	43.62	46.91	50.46	54.30	58.46	62.96
+ Retained Earnings	293.68	318.18	297.03	316.27	355.40	410.01	472.68	537.25	607.48	687.01	771.91	862.24	958.56	1,061.52	1,171.81
+ Other Equity	(48.13)	(49.92)	(22.32)	(37.19)	(46.86)	(48.59)	(50.95)	(53.99)	(57.78)	(62.08)	(66.76)	(71.82)	(77.29)	(83.20)	(89.61)
Equity Before Minority Interest	**252.21**	**278.54**	**296.50**	**314.42**	**341.46**	**395.56**	**457.53**	**521.20**	**590.29**	**668.55**	**752.06**	**840.88**	**935.58**	**1,036.78**	**1,145.17**
+ Minority/Non Controlling Interest	-	-	1.97	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93	1.93
Total Equity	**252.21**	**278.54**	**298.47**	**316.35**	**343.39**	**397.49**	**459.46**	**523.13**	**592.22**	**670.48**	**753.99**	**842.81**	**937.51**	**1,038.71**	**1,147.10**
Total Liabilities & Equity	**432.30**	**470.04**	**993.98**	**992.55**	**1,003.94**	**1,041.00**	**1,091.60**	**1,156.68**	**1,237.93**	**1,332.49**	**1,435.56**	**1,547.17**	**1,668.08**	**1,799.13**	**1,941.25**

Source: Team Calculations

Appendix H: TNC Key Executives

Chris Killingstad	Current President/CEO of Tennant, Mr. Killingstad has held the position since 2005. Prior, He was the VP of North America operations from 2002 to 2005. Chris also worked at Pillsbury Co. from 1990 to 2002. Chris has also been on the board of directors since 2005.
Keith A Woodward	Joining Tennant in December of 2018, the Senior VP/CFO/IR Keith Woodward is one of the newest executives. Prior to joining the company, Mr. Woodward was a senior VP/Treasurer at General Mills Inc from 2008 to 2018. Keith was also a senior financial analyst at General Mills Inc from 1991 to 2008.
Carol E Mcknight	Carol E Mcknight joined Tennant in 2014 as the Global Human Resources and retained the position until 2017. She became the senior VP/CAO in that same year and currently holds the position. Prior to joining the company, Carol worked at SilverStone Group inc from 1994 to 2000.
Mary E Talbott	Mary is the newest executive at Tennant, joining the company in January of 2019. She is currently the senior VP/Secy/General Counsel. Prior to joining Tennant, Mary worked for General Cable Corp as the VP/Assistant Secry/Assistant General Counsel from 2017 to 2018. She was also the Senior VP/Deputy General Counsel at Scripps Network Interactive from 2008 until 2014.
David W Huml	David W Huml has been with the company since 2016 and is the Senior VP: Global Marketing and Operations, which he started in June of 2018. Before David was only the Senior VP: Global Marketing and carried that title from 2016 up until the start date of his current role.
Richard H Zay	Senior VP: Americas & R&D Richard H Zay has been a long-standing member of the executive team. Richard has held this position since 2014 and before he was the Senior VP: Global Marketing Starting back in 2010, making him the second longest-tenured executive at Tennant.
Tom Stueve	From 2008 until 2014, Tom was Director of Corporate tax at Tennant. He then became the VP/Treasurer: Global Tax & Treasury, and currently holds that position.

Appendix I: CEO Chris Killingstad Ownership Percentage



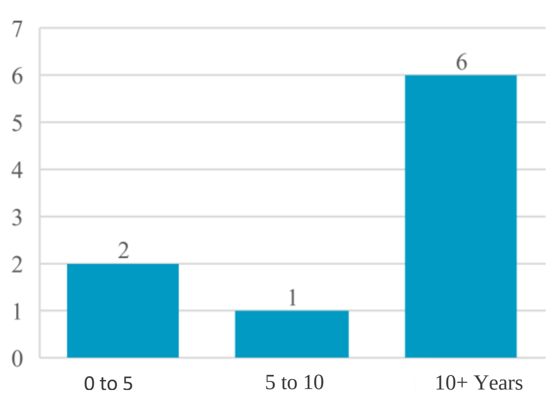
Source: Bloomberg

Appendix J: TNC Board Members

Steven Sonnenberg	Steve is the Lead Director for the Board of Directors and has been since August of 2016. He has also been on the board since 2005, making him the longest active board member to date. Mr. Sonnenberg is currently a senior advisor at Emerson electric and had previously been the VP/President of process management. It is also important to note that Steve is also on the board at Steel Dynamics Inc. since October of 2018.
H Chris Killingstad	See Executive Summary
William F Austen	The President/CEO of Bemis Co Inc has been on Tennant's board of directors since 2007. During this time William has worked at Bemis Co Inc, he was the President: United States from 2002 to 2013, and then reprised the role of Executive VP/COO from 2013 to 2014.
Carol S Eicher	Carol was the former VP: Business Group for Dow Chemical Co from 2010 to 2012 and the President: Coating Materials from 2012 to 2014. She then went on to become the President/CEO of Innocor Inc and retained the position from 2014 to 2017. Carol has been a Member of Tennant's board since 2008 and is also a member of Advanced Emissions Solutions board, and has been since April of 2019.
David Wichman	The current UnitedHealth Group Inc. CEO has been on the board since 2009. He became the CEO in 2017 and is also the CEO of SCA Holdings LLC, starting in 2017 as well. He is currently on the board of directors for UnitedHealth group as well.
Donal Mulligan	Donal or Don has been the General Mills Inc Executive VP/CFO since 2007. Starting in 2020 Donal will no longer be CFO and will remain with General Mills as an advisor. He has been on Tennant's board since 2009.
Azita Arvani	Azita Arvani is the Head of Partnering & Alliances at Nokia Solutions & Networks. She has held this position since 2014. Azita is also a consultant for GLG and is the founder of Arvani Group. She has been on the board of Tennant since 2012.
David Windley	Windley is listed as not having a current position at any company. He previously was the Executive VP/Chief Human Resources Officer at Fusion-IO Inc from 2013 to 2014. David was also the former Executive VP/Chief HR Officer for Yahoo! Inc from 2008 to 2012. He is a current Tennant board member since 2016 and recently joined the board for DHI Group Inc, March of 2019.
Maria C Green	Maria C Green is the former Senior VP/General Counsel of Ingersoll-Rand PLC from 2015 to 2019. She also held the same title With Illinois Tool Works Inc from 2011 to 2015. In March of 2019, Maria became a board member of Tennant. She also joined the board of Wec Energy Group Inc in October of 2019.

Source: Bloomberg

Board Member Tenure



Source: Proxy Statement

Appendix K: Compensation

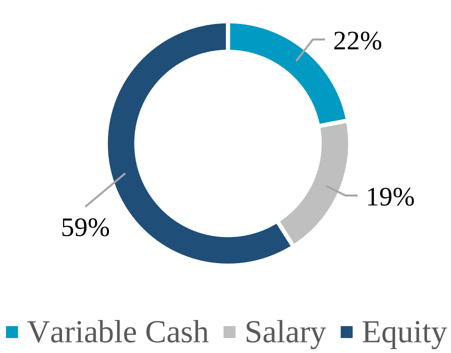
Executives

Name	Year	Salary	% of Comp	Stock Awards	% of Comp	Option Awards	% of Comp	Non-Equity Incentive Plan Compensation	%of Comp	Non-Qualified Deffered Compensation Earnings	% of Comp	Other	% of Comp	Total Comp
H. Chris Killingstad	2018	765,653	18.07%	1,483,646	35.02%	989,213	23.35%	945,345	22.32%	2,046	0.05%	50,288	1.19%	**4,236,191**
	2017	726,375	23.01%	1,406,538	44.56%	938,059	29.72%			5,978	0.19%	79,558	2.52%	**3,156,508**
	2016	710,517	18.01%	1,399,771	35.49%	933,141	23.66%	783,359	19.86%	946	0.02%	116,782	2.96%	**3,944,516**
Keith A Woodward	2018	35,135	6.56%	499,987	93.30%							753	0.14%	**535,875**
Richard H Zay	2018	378,127	24.79%	673,508	44.16%	222,381	14.58%	215,512	14.13%	138	0.01%	35,508	2.33%	**1,525,174**
	2017	345,645	38.30%	310,148	34.36%	206,843	22.92%			364	0.04%	39,537	4.38%	**902,537**
	2016	314,324	30.24%	286,056	27.52%	190,692	18.34%	189,403	18.22%	46	0.00%	59,074	5.68%	**1,039,595**
David W Huml	2018	355,912	25.16%	603,826	42.68%	209,908	14.84%	217,539	15.38%	208	0.01%	27,344	1.93%	**1,414,737**
	2017	322,337	36.75%	289,213	32.97%	192,899	21.99%	46,027	5.25%	593	0.07%	26,090	2.97%	**877,159**
Carol E Mcknight	2018	311,730	256.30%	464,269	381.71%	146,325	120.31%	178,347	146.63%	43	0.04%	20,914	17.20%	**121,628**
Thomas Paulson	2018	431,905	28.14%	457,178	29.79%	304,802	19.86%	310,698	20.25%	986	0.06%	29,070	1.89%	**1,534,639**
	2017	411,241	35.08%	435,540	37.15%	290,501	24.78%		0.00%	2,925	0.25%	32,085	2.74%	**1,172,292**
	2016	402,020	27.74%	433,094	29.88%	288,742	19.92%	258,554	17.84%	392	0.03%	66,508	4.59%	**1,449,310**
Jeffery C. Moorefield	2018	335,094	34.07%	264,030	26.84%	176,016	17.90%	186,148	18.93%	30	0.00%	22,272	2.26%	**983,590**
	2017	314,861	41.22%	249,466	32.66%	166,363	21.78%			48	0.01%	33,055	4.33%	**763,793**
	2016	301,154	34.40%	231,749	26.47%	154,503	17.65%	152,180	17.38%			35,935	4.10%	**875,521**

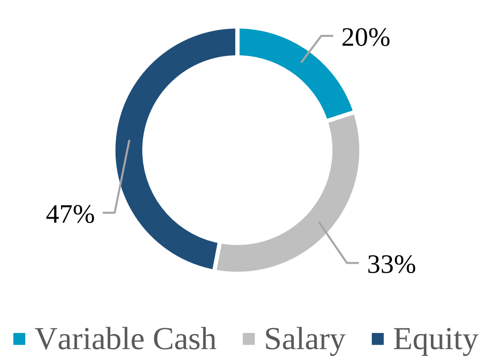
Board Members

Name	Fees Earned or Paid in Cash	Stock Awards	Total
Azita Arvani	$ 66,000.00	$ 99,987.00	$ 165,987.00
William F. Austen	$ 76,000.00	$ 99,987.00	$ 175,987.00
Carol S. Eicher	$ 71,000.00	$ 99,987.00	$ 170,987.00
Donal L. Mulligan	$ 85,000.00	$ 99,987.00	$ 184,987.00
Steven A. Sonnenberg	$ 95,000.00	$ 99,987.00	$ 194,987.00
David S. Wichmann	$ 76,000.00	$ 99,987.00	$ 175,987.00
David Windley	$ 76,000.00	$ 99,987.00	$ 175,987.00

CEO Compensation Mix

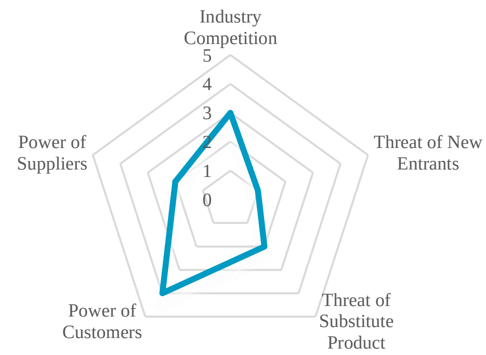


Other NEO's Compensation Mix



Source: Proxy Statement

Appendix L: Porter's Five Forces Analysis



Industry Competition | MODERATE 3
Competition is moderate due to the similarity of the leading products of each of the major market categories. The company is the leading market provider of scrubbers and cleaners and has over 100 years of brand name recognition, therefore although we recognize several competitors we view this as a moderate risk.

Threat of New Entrants | LOW 1
The barrier of entry is rather high due to the complexity and quality of the industry leaders. Manufacturing capabilities at a scale that is relatively the size of Tennant and similar competitors would be very capital intensive. Mechanized cleaning continues to innovate new products that are not easy to replicate, such as the evolution of AI scrubbers and cleaners. Tennant currently has a yearly goal to spend 3% of revenue on Research and Development related expenses to keep their innovation the highest in the industry. Currently, Tennant believes that 59% of the market is absorbed by four major competitors in their market place. All other competitors hold under 3% market share, which defends that thesis that this is a low bearing risk.

Threat of Substitute Products | MODERATE 3
The threat of substitutes is moderate. Tennant faces competition from four major competitors that offer products that can be used as substitutes and many smaller companies that could be used as well. However, when customers using Tennant products switch to a substitute in the market chances are that they will be downgrading their product quality. The company has had the industry-leading quality for over 100 years and their reputation backs that up.

Power of Customers | MODERATELY HIGH 4
The bargaining power of customers is moderately high due to a relatively competitive scene between the four largest companies making up 59% of the market. A larger client such as Walmart, Carrefour, Nestle, Kroger, Pepsi, and Ikea that use Tennant brand machines may have relatively large orders due to the number of stores that need replacements, which may decrease the number of manufacturers that can be readily used. With Tennant shifting sales strategy to a higher number of distributors used Tennant loses the ability to interact with customers face to face and therefor hands the responsibility to the distributor to sell their product over the competition. This gives more power to the customer when determining which brand scrubber or cleaner they would like to purchase.

Power of Suppliers | MODERATELY LOW 2
The bargaining power of suppliers is moderately low with about 40% of Tennant's parts designed and manufactured by Tennant's engineering team. However, with Tennant's focus on high-quality products produced they may subject themselves to higher prices from suppliers. Tennant has stated no previous instances of suppliers strong handing the company into higher prices with the vast options that the company holds for supplies and parts.

Source: Team Analysis

Appendix M: SWOT Analysis

Strengths

- Geographic Footprint
- Premium Product Line
- Diversification of Product Portfolio
- Brand Recognition

Weaknesses

- Exposure to Unknown Emerging Market Economies
- Limited Growth Potential as an industry
- Credit Outlook

Opportunities

- Increased technological advances in Tennant products can lead to greater market share
- Manufacturing growth in developing countries

Threats

- Slowing Industrial Manufacturing PMI
- Competitive labor markets
- Price competition with competitors
- No Trade War Resolutions

Source: Team Analysis

Appendix N: Estimated Mechanized Cleaning Market Growth

In Millions of USD	2019	2024	% Change
Market size	$ 5,000.00	$ 5,400.00	8%

2019	Population	Market Size	Market Size/Person	Market Share
US	327.2	$ 1,100.00	$ 3.36	22%
China	1386	$ 350.00	$ 0.25	7%

2024	Population	Market Size	Market Size/Person	Market Share
US	338.27	$ 1,166.00	$ 3.45	22%
China	1411.02	$ 630.00	$ 0.45	12%

Source: Team Calculations

Appendix O: Dividend Discount Model

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Dividend/Share	0.53	0.59	0.68	0.69	0.72	0.78	0.8	0.81	0.84	0.85	0.88	0.93	0.99	1.05	1.11	1.17
Dividend Growth Rate	1.92%	11.32%	15.25%	1.47%	4.35%	8.33%	2.56%	1.25%	3.70%	1.19%	5.95%	5.95%	5.95%	5.95%	5.95%	5.95%

Dividend Discount Model Assumptions	
2020 Div/Share	0.93
Discount Rate	8.00%
Div Growth Rate	5.95%
Stock Price	$ 45.41

Source: Team Calculations

Appendix P: Multiple Comparison Selection Process

	Matches
Security Universe	1232694
Primary Company Securities	440886
Closed End Fund	438396
Open Trading Status	353041
Sector (GICS): Industrial Machinery	1452
Country of Docile: United States	120
Current Market Cap [USD] <9000 M	89
Current Market Cap [USD] >500 M	44
T12M Revenue < 3000 M	37
T12M Revenue > 500 M	33
Geographic Segment Revenue from The Americas < 80%	27
Geographic Segment Revenue from EMEA > 10%	20
R&D Expenditure to Net Sales > 1.5	12

Due to a minimal amount of Tennant's direct competitors being available publicly we decided the best way to way to identify comparable companies was through the following screener.

We started with Tennant's GICS code (**20106020)** which includes the Industrial Machinery companies then compiled a pool of equities by introducing Market Cap limits, Revenue limits, and Geographic presence, and Research and Development Expense limits all similar to Tennant.

Source: Bloomberg

Appendix Q: Multiple Comparison and Valuation

Company	Ticker	Price	Shares Outstanding	Markate Cap (Billions)	Forward P/E	PEG Ratio	EV/Sales	EV/EBITDA	Price/Book	Dividend Yield	Leverage Ratio (LTM)
Tennant Company	**TNC**	**$ 77.71**	**18.5M**	**$ 1.5**	**26.3**	**2.1**	**1.5**	**12.3**	**4.3**	**1.1%**	**3.15**
Woodward Inc.	WWD	$ 118.41	62.0M	$ 7.5	21.3	1.4	1.4	13.7	4.4	0.5%	2.32
Donaldson Company Inc	DCI	$ 56.79	126.6M	$ 7.1	23.7	2.7	2.6	15.3	7.8	1.5%	2.46
ITT Inc.	ITT	$ 73.52	87.7M	$ 6.4	18.2	2.1	2.1	10.7	3.2	0.8%	2.06
Rexnord Corp.	RXN	$ 32.84	106.0M	$ 3.5	16.0	1.7	2.1	9.2	2.6	0.0%	2.55
Watts Water Technologies	WTS	$ 100.09	27.6M	$ 3.4	22.9	2.9	2.2	13.5	3.6	0.9%	1.80
Kennametal Inc.	KMT	$ 36.04	82.9M	$ 2.9	16.8	3.4	1.5	9.1	2.3	2.3%	2.00
Albany International Corp	AIN	$ 77.51	30.7M	$ 2.5	20.0	1.4	2.5	10.4	3.8	1.0%	2.19
Altra Industrial Motion Corp.	AIMC	$ 36.42	64.6M	$ 2.3	13.3	0.9	2.2	10.7	1.3	1.9%	2.31
Welbilt Inc.	WBT	$ 15.32	141.1M	$ 2.1	17.3		2.1	10.8	9.3	0.0%	9.77
Enpro Industries Inc.	NPO	$ 66.76	20.8M	$ 1.4	21.5	1.3	1.5	9.9	3.6	1.5%	2.17
Columbus Mckinnon Corp.	CMCO	$ 38.78	23.7M	$ 0.9	12.1	1.0		8.2	2.0	0.6%	2.36
Nilfisk Holding	NLFSK	$ 21.45	27.1M	$ 0.6	13.8		1.0	8.4	3.2	0.0%	5.45
Industrial Machinery (GICS)					19.1	3.5	2.2	11.6	2.3	1.5%	2.93
Industry Mean					18.7	2.0	1.9	11.0	3.8	1.0%	3.11
Industry Median					18.7	1.9	2.1	10.7	3.4	1.0%	2.34

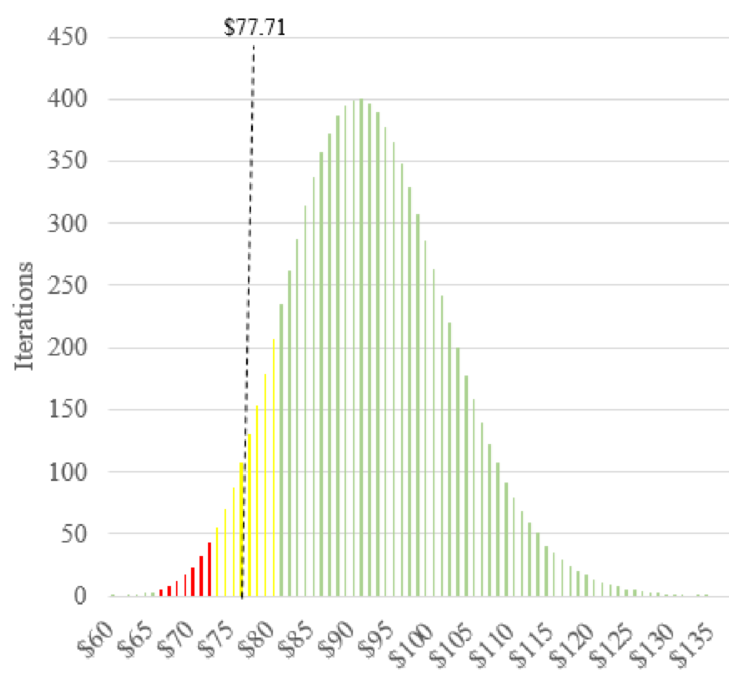
Company	Ticker	Price	Shares Outstanding	Markate Cap (Billions)	10 yr. Avg
Tennant Company	TNC	$ 77.71	18.5M	$ 1.5	13.37

Valuations	Price	Upside / Downside
Industry EV/EBITDA	79.31	2%
Historical EV/EBITDA	94.67	22%
Forward P/E	45.34	-42%
EV/Sales	95.74	23%

Appendix R: Monte Carlo Simulation

Variable	Change
Revenue Growth	+/- 2.5%
Cost of Revenue	+/- 2.5%
SG&A	+/- 2.0%
EBITDA Margin	+/- 2.0%
Tax Rate	+/- 5%
WACC	+/- 2.0%
Terminal Growth	+/- 0.5%

Simulation Statistics	
Iterations	10,000
Mean	92.31
Median	92.16
Mode	91.05
Minimum	60.43
25% Percentile	85.71
75% Percentile	99.1
Maximum	138.21



Source: Team Calculations

Appendix S: Discounted Cash Flow Model

In Millions of USD	2019	2020	2021	2022	2023	2024
Revenue	1,147.16	1,189.51	1,247.33	1,321.70	1,414.53	1,519.73
Growth	2.1%	3.7%	4.9%	6.0%	7.0%	7.4%
COGS	680.27	703.00	734.68	774.52	824.67	881.44
% of Revenue	59.3%	59.1%	58.9%	58.6%	58.3%	58.0%
Operating Expenses	394.62	402.05	418.48	440.13	467.50	498.47
% of Revenue	34.4%	33.8%	33.6%	33.3%	33.1%	32.8%
Tax Expense	8.01	15.44	17.69	20.66	24.16	28.16
Tax Rate	16.0%	25.0%	25.0%	25.0%	25.0%	25.0%
Net income	42.04	46.33	53.07	61.98	72.49	84.49
Operational Cash flow	99.74	105.57	115.19	127.80	142.93	160.17
CAPEX	(22.94)	(23.79)	(24.95)	(26.43)	(28.29)	(30.39)
Free Cash Flow	76.80	81.78	90.24	101.37	114.64	129.78

Year	2019E	2020E	2021E	2022E	2023E	2024E
FCF	76.80	81.78	90.24	101.37	114.64	129.78
Present Value FCF	76.80	75.72	77.37	80.47	84.27	88.33

Discounting Cash Flows	
Present Value 5-year FCF	482.95
Terminal Value	2,206.27

Assumptions	
Terminal Growth	2.00%
Discount Rate	8.00%

Calculation	
Total Enterprise Value	1,984.50
Net Debt	269.5
Total Equity Value	1,715.00
Diluted Shares Outstanding	18.5

Price Per Share	**92.70**

Source: Team Calculations

Appendix T: Sensitivity Analysis

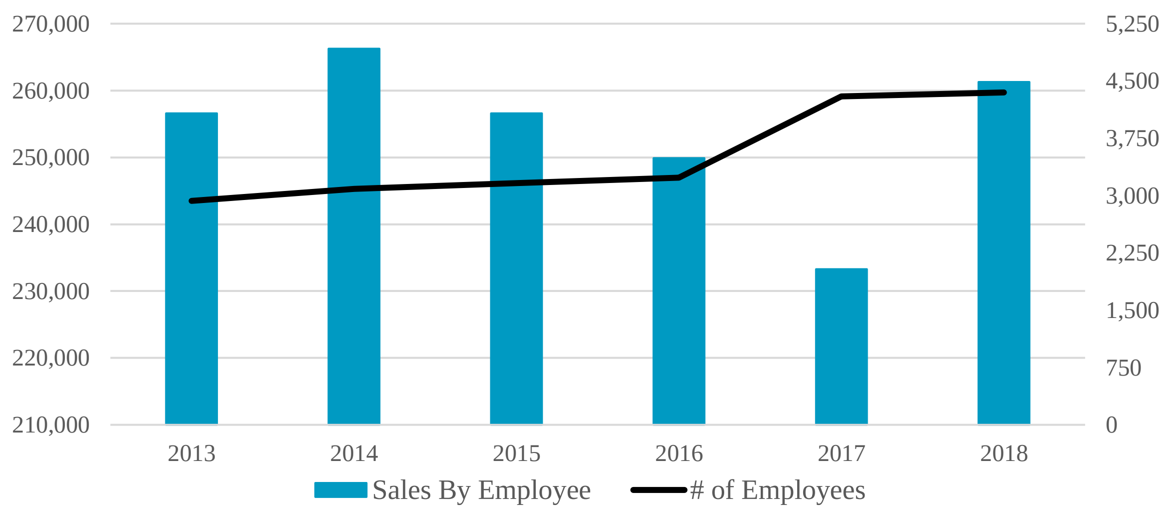
Terminal Growth Rate \ WACC	5.00%	6.00%	7.00%	8.00%	9.00%
1.00%	117.43	95.73	80.43	69.1	60.42
1.50%	129.78	103.84	86.09	73.24	63.55
2.00%	145.21	113.57	92.70	77.97	67.07
2.50%	165.06	125.47	100.52	83.44	71.07
3.00%	191.52	140.33	109.89	89.81	75.63

Short Term Growth (3 year CAGR) \ WACC	7.00%	7.50%	8.00%	8.50%	9.00%
0.83%	107.12	96.06	86.86	79.07	72.4
1.83%	110.7	99.3	89.81	81.78	74.91
2.83%	114.24	102.5	92.70	84.47	77.9
3.83%	117.85	105.77	95.71	87.2	79.92
4.83%	121.54	109.1	98.75	89.99	82.5

Long Term Growth (Year 3 - 6 CAGR) \ WACC	7.00%	7.50%	8.00%	8.50%	9.00%
2.76%	81.65	79.49	77.46	75.29	73.25
3.76%	89.14	86.77	84.54	82.17	79.94
4.76%	97.87	95.27	92.70	90.21	87.75
5.76%	108.21	105.32	102.60	99.71	96.98
6.76%	120.62	117.39	114.35	111.11	108.07

Source: Team Calculations

Appendix U: Sales Per Employee



Source: Bloomberg

Appendix V: Altman Z-Score Analysis

We felt it was necessary to calculate the Altman Z-Score because of the increased debt that was absorbed due to the acquisitions of IPC Group and Hefei Gaomei. The Altman Z-Score determines the likelihood of bankruptcy for a given company. With the below formula, a score is calculated in which below a 1.80 shows a company has a high probability of bankruptcy, while a score of 3.00 and above shows a company has a low probability of going bankrupt.

$$Z = 1.2X1 + 1.4X2 + 3.3X3 + 0.6X4 + 1.0X5$$

Result | Between the periods of 2012 – 2016, Tennant had a steady score that was above the threshold of 3.00. After the acquisition of IPC Group, they have seen a drop in their Altman Z-Score to below 3.00, this signifies that Tennant has a higher probability of being unable to pay down their debt which may result in bankruptcy.

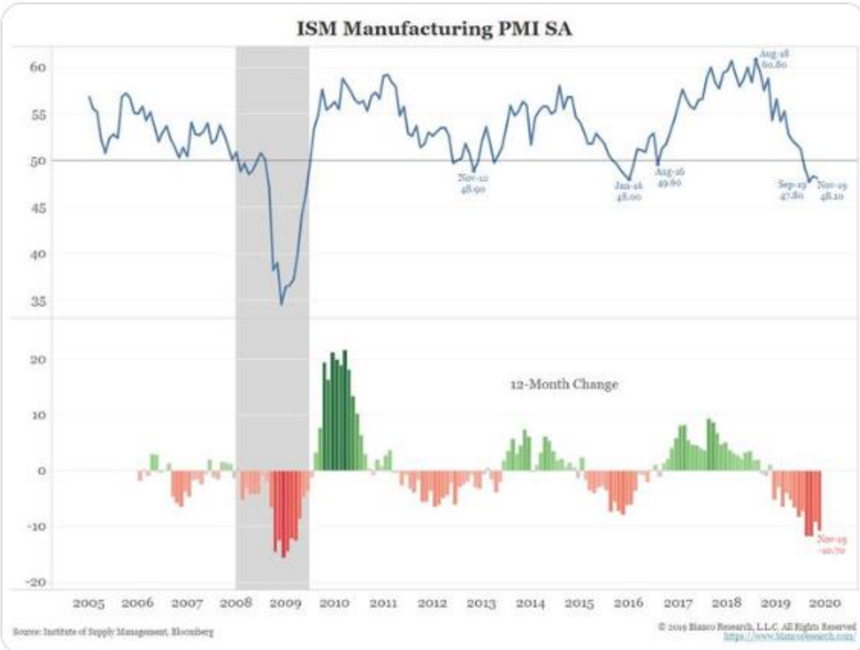
Inputs	2012	2013	2014	2015	2016	2017	2018
Current Assets	273.4	315.3	347.1	293.6	297.9	423.1	468.6
Current Debt	32.3	31.8	28.1	24.7	36.2	383.3	355.1
Total Liabilities	185.7	192.5	206.3	180.1	191.5	695.5	676.2
Total Assets	420.8	456.3	486.9	432.3	470	994	992.5
Revenues	739	752	822	811.8	808.6	1003.1	1123.5
Retained Earnings	236.1	249.9	286.1	293.7	318.2	297	316.3
Working Capital	151.8	183.8	201.5	160.4	165.1	186.6	219.8
EBIT	62.7	62.4	72.1	53.2	68.5	33	58
Market Cap	816.8	1252.6	1327.9	1003.5	1255.3	1296.9	944.5

Calculated Inputs	2012	2013	2014	2015	2016	2017	2018
X1 = Working Capital/Total Assets	0.36	0.40	0.41	0.37	0.35	0.19	0.22
X2 = Retained Earnings/Total Assets	0.56	0.55	0.59	0.68	0.68	0.30	0.32
X3 = EBIT/ Total Assets	0.15	0.14	0.15	0.12	0.15	0.03	0.06
X4 = Market Cap/Total Liabilities	4.40	6.51	6.44	5.57	6.56	1.86	1.40
X5 = Revenue/Total Assets	1.76	1.65	1.69	1.88	1.72	1.01	1.13

Results	2012	2013	2014	2015	2016	2017	2018
Altman Z-Score	6.11	7.25	7.36	7.02	7.50	2.88	2.87

Source: *Team Calculations*

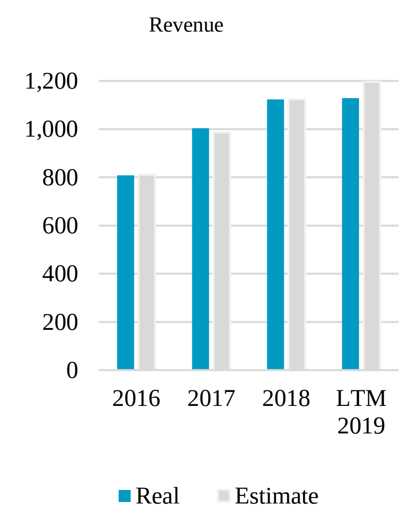
Appendix W: ISM Manufacturing PMI

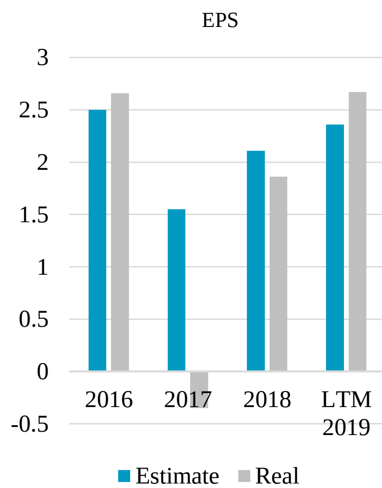


Source: Bianco Research, L.L.C.

This graph illustrates the ISM Manufacturing PMI and the 12-month change that took place over one year period. Historical data shows that the industry is cyclical in nature and that the current cycle is at, or near, the bottom of the cycle. We believe this will bring positive industry trends for TNC.

Appendix X: Surprise vs. Estimated EPS & Revenue





Source: Yahoo Finance

Appendix Y: Global Locations

Minneapolis, Minnesota
World Headquarters
Manufacturing: Tennant & Orbio

Chicago, Illinois
Manufacturing: Florock Coatings

Newbury, Ohio
Manufacturing: WaterStar

Uden, Netherlands
Manufacturing & Distribution Center

Venice, Italy
Manufacturing: IPC Global

Shanghai, China
APAC Headquarters
Manufacturing: Tennant

Aguascalientes, Mexico
Manufacturing: Dofesa

Louisville, Kentucky
Distribution & Brush Manufacturing

Holland, Michigan
Manufacturing: Tennant & Nobles

Limeira, Brazil
Manufacturing: Alfa & Tennant

Antwerp, Belgium
EMEA Headquarters

Yokohama, Japan
Japan Sales & Service Headquarters

Sydney, Australia
Australia Sales & Service Headquarters

Appendix Z: Interviews from Distributors

Process
The Team conducted phone interviews with 37 distributors through the United States to determine market awareness and opinions on Tennant products compared to competitors.

Interviewees that wished to be named
1. Midwest Sweepers and Scrubbers, Inc. (Kansas City, KS) | Sales Representative
2. Brenco Cleaning Equipment & Janitorial Supplies (Fargo, ND) | General Manager
3. Southeastern Equipment and Supply (West Columbia, SC) | Sales Representative
4. Sunbelt Rentals (Fargo, ND) | Equipment Rental Specialist
5. Clean Freak (Appleton, WI) | Sales Representative

Questions Asked
1. What has your experience been with Tennant brand products?
2. Which brand floor scrubber do you feel the most comfortable recommending, and why?

Outcome
The team conducted a round of phone interviews from around the country to understand how industry professionals viewed Tennant brand products (including Nobles, IPC Group, and Hefei Gaomei). If a distributor did not directly sell Tennant the team still asked them the questions listed above.

The results were conclusive from every vendor that Tennant manufacturers the highest quality floor scrubbers, which comes with the premium paid for the machines. One interviewee stated, "With Tennant, you will get what you pay for, which is great quality and a great machine". From the distributors that do not offer Tennant to their customers, they still had great things to say about the brand, such as "Tennant has the best machines for industrial level cleaning".

Appendix AA: Testimonials

Sunbelt Rentals

"Our relationship with Tennant goes back many years, they are what I believe to be the Cadillac of the industry. It sells itself

Premier Floor Care (CEO)

"I have always been a supporter of Tennant for the last 20 years. In fact, one of the reasons Premier has grown so fast and done so well is becuase of relationships like Tennant."

Dalco Enterprises (GM)

"Special is what we have with Tennant"

Source: *YouTube*

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