TransDigm Group Inc.

NYSE: TDG
Share Price: $504.92
Target Price: $728.18

Implied Upside: 44.2%

Associate: ***Thomas Dixon***

Director of Research: ***Samuel Thomas***

Director of Trading: ***Mathew Vanderhoeff***

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1.0 Introduction:

TransDigm Group Incorporated is the market leading manufacturer of proprietary components used to build aircrafts in the aerospace and defense industry. TransDigm primarily supplies major original equipment manufacturers (OEMs) and defense companies, earning revenue from both one-time sales and long-term service contracts, to replace and maintain the parts they sell. This allows their customers to focus on their core-competencies and realize cost efficiencies as a result. TransDigm is currently facing attractive growth opportunities, via accretive M&A activity, a shifting business focus into the higher margin aftermarket business, and emerging macroeconomic tailwinds. This has led to the initiation of coverage on TransDigm Group Incorporated (TDG: NYSE) with a **BUY** recommendation.

1.1 Investment Thesis:

The investment thesis of TransDigm is driven by the company's significant scale and scope advantages present in the aerospace and defense supplier market, allowing TransDigm to gain market share going forward. The valuation of TransDigm will be driven by overall market growth and market share gains, in combination with opportunities for margin expansion. Several components make up this investment thesis, including:

1) Economic moat drives sustainable pricing power and margin expansion

TransDigm operates in a defensible business with extremely high barriers to entry and a sticky customer base where a growing majority of revenues are derived through long-term, contractual agreements. Company focus has shifted to aftermarket sales, where they incur less incremental costs, driving margin expansion and creating predictable cash flows. This weathers industry cyclicality and aids in servicing debt. Pricing power is driven by the industry's focus on performance and quality over price and TransDigm's product positioning, as they are the sole supplier for 70% of their products. Additionally, the cost of their components are insignificant relative to the cost of building an entire aircraft, meaning price increases often have no material impact on total costs for their customers. Due to their positioning and mandatory nature of products, TransDigm has been able to continually increase pricing.

2) Growing end markets driven by strong global trends increase demand for aerospace components

Aircraft production will grow substantially, driven by rising global revenue passenger miles (RPMs), massive commercial backlogs, and rising defense budgets. Projected increases in U.S. and non-NATO defense budgets increases the demand for military equipment, increasing sales and long-term service contracts for TransDigm's defense segment. This will increase both the volume of aircraft components demanded and the frequency of maintenance aircrafts require, as parts wear and tear faster with increases in aircraft mileage.

3) Acquisition-focused growth strategy leads to dominant market positioning and sustainable value creation

Due to the fragmented nature of the supplier industry, TransDigm is able to create significant value through rolling up smaller suppliers via acquisitions. Large OEMs are facing pressure to cut costs and increase production, and are outsourcing more activities, increasing demand on suppliers. As OEMs grow, M&A consolidation will be encouraged up and down the supply chain, because there will be a reduced quantity of higher value contracts given to a select group of reliable suppliers. TransDigm has an established market position, a large and growing installed base and scale advantages to benefit from future consolidation, to increase the volume and size of customer contracts.

1.2 Roadmap:

This report will present a description of TransDigm's business model, discuss industry trends, and highlight valuation techniques utilized. Much of the focus will be placed on the quality of TransDigm's competitive advantage, management quality and value the business offers given its market positioning.

2.0 Company Description:

TransDigm Group, headquartered in Cleveland, Ohio, is a market-leading producer, designer and supplier of proprietary aerospace components used in almost every commercial and defense aircraft in service today. TransDigm focuses on highly engineered aviation parts, that are mandatory in the assembly of aircrafts, operating in three specialized segments within the industry: power and control, airframe and non-aviation components. TransDigm has created a strong brand with an established reputation for creating high performance parts, demonstrated by their sustainably high gross margins and premium pricing on products.

Quality assurance is a major selling point for aircraft manufacturers, as they want the peace of mind that they're sourcing dependable components that won't break down or malfunction. TransDigm's value proposition focuses on being the sole supplier for high-quality performance parts, used to build technologically advanced and safe aircrafts, directly interacting with end users in the aerospace and defense industry.

2.1 Company History:

TransDigm recently celebrated their 25th anniversary as a company, in which they have followed the same consistent, long term strategy of:

- Owning and operating a wide range of proprietary niche aerospace businesses with significant aftermarket content
- Following a simple, well-proven value based operating methodology
- Maintaining a decentralized organization structure and a unique compensation plan that aligns management with shareholders
- Executing a focused and disciplined acquisition process with a clear path the value creation
- Closely manage the capital structure to optimize value creation

2.2 Customer and Product Mix:

TransDigm sources raw materials through creating long-term relationships with suppliers and leveraging their bargaining power to maintain the lowest possible input prices. Price increases of raw materials are not a legitimate concern as TransDigm is able to pass along price increases to their customers quite easily. Additionally, if their current suppliers are unable to meet production requirements or run into other business issues, TransDigm is able to identify and source from alternative suppliers to meet production requirements.

TransDigm predominantly serves customers in the commercial jet and general aviation market, the commercial aerospace OEM market, the defense market and non-aerospace market. Customers include some of the largest aircraft OEMs, defense companies and aerospace manufacturers in the world. TransDigm generates revenue streams via one-time sales and aftermarket sales from service contracts. Overall, they have a diverse revenue base, supplying parts for the top 20 airlines globally, that account for around 50% of total RPMs. TransDigm's largest customers include Boeing (10% of net sales) and Airbus (11% of net sales), with over 11,600 planes currently in backlog combined. In the defense segment, TransDigm has contracts with the US government and supplies large defense companies, including Lockheed Martin, Northrop Grumman, and Raytheon. Concentration within their buyers is relatively high, with TransDigm's top ten customers accounting for 43% of their net sales.

Historically, 36% of TransDigm's revenue has been derived from the OEM segment, 24% from aftermarket sales, 35% in defense sales with the remaining 5% of sales from the non-aerospace segment. A strong driver of company growth moving forward will from commercial OEM sales and aftermarket services. This will be as a result from the rising production demand on OEMs, as airlines looking to purchase newer and more technologically advanced aircrafts, and increases in global demand for flight. These macroeconomic factors will increase the volume of TransDigm's direct sales of components as well as the frequency for service and replacement of parts due to higher levels of wear and tear.

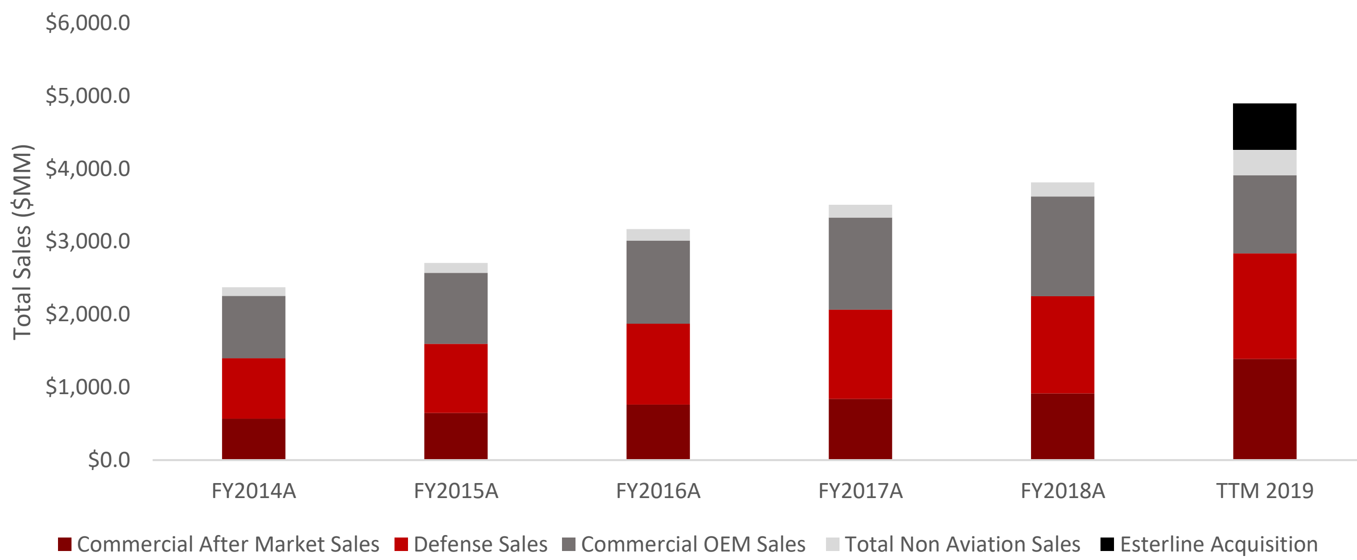
2.2.1 Differentiation Versus Competition:

TransDigm differentiates itself from competition through producing uniquely engineered products with high quality and timely delivery. Customers often choose TransDigm's products over other competitors largely because they are the sole supplier for some of the components they require, and because TransDigm's brand provides quality assurance. High quality parts optimize the performance of the aircraft, and reduce the uncertainty for airlines of planes malfunctioning, through the reassurance that planes have been manufactured to be as safe and reliable as possible.

2.2.2 Go to Market Strategy:

TransDigm structures their sales team by assigning a business unit manager to certain products, and giving this manager a high degree of accountability to meet targets and responsibility to be familiar with customers and the sales process. Sales personnel interact and sell directly to customers, and are largely evaluated by their bookings and ability to identify and obtain new business opportunities. Once sales are made, TransDigm delivers the components to customers through direct distribution, taking accountability of the timeliness and quality of delivery. They focus the majority of their efforts on products and programs that will lead to high margin, repeatable sales in the aftermarket.

Figure 1: Historical Revenue Breakdown by Segment



Source: Company Filings

2.3 Business Economics:

TransDigm makes money through bidding on long-term RFP contracts to engineer parts for specific aircrafts that are manufactured by OEMs and defense companies. In order for TransDigm to win contracts with customers they must bid at competitive pricing, translating to thin margins on initial contract sales. By nature, contracts are often set at fixed prices and extend over long periods. TransDigm generates revenue from these up-front contact sales, and also earns recurring revenue in the aftermarket once the initial products have been sold and installed into the aircrafts.

TransDigm's largest expenses arise from the cost of raw materials used to create their products, and selling and administrative costs to compensate the sales team and perform normal business functions. Labour costs remain relatively high within the industry, as there are high levels of competition to attract and retain high-end talent that can manufacture and engineer innovative aircraft parts. TransDigm's research and development (R&D) expenditure remains a smaller portion of total costs due to the volume of acquisitions they've made (acquired companies have already invested into R&D for their current products).

A downside of their business strategy is the high levels of leverage they employ to operate, and acquire other businesses. TransDigm currently has a 6.1x net debt to EBITDA ratio, which is two times more levered than the industry average. Management believes their strategic view on leverage is a distinguishing factor versus competition, aiming for a "private equity like capital structure", and is confident in their ability to continue to service debt, due to their ability to consistently generate cash flow. Additionally, TransDigm believes their shift of focus into more aftermarket activity will ensure debt repayments can be made in recessionary periods when commercial sales may decrease.

TransDigm operates in a capital-intensive industry, raising barriers to entry, as new entrants need to make substantial investments into purchasing equipment and machinery to manufacture competitive aircraft components, and to certify products. Due to economies of scale, it would be extremely difficult to operate profitably for the first few years of operations. Additionally, it would be difficult to create products that offer similar quality to incumbents in a short time period, as new entrants would need time to work out issues, decreasing the attractiveness of their value proposition.

2.4 Growth Strategy:

TransDigm executes a three-pronged strategy to facilitate growth and garner additional market share:

1) **Obtaining profitable new business**

   This consists of leveraging in-depth knowledge of the niche customer base and utilizing their unique technical expertise to identify and develop aftermarket and OEM products to drive growth.

2) **Improving cost structure**

   TransDigm has continuously improved their cost structure by focusing solely on their core operations, stripping away unnecessary costs, implementing lean organizational structures with small management teams and maintaining a detailed attention to reducing the cost of every product.

3) **Providing highly engineered value-added products to customers**

   They have maintained focus on manufacturing and marketing highly engineered niche products and succeeded in communicating the value of their products to customers. This enables TransDigm to price products in alignment with the value they provide to end users and benefit from continual pricing power.

2.5 Management Team:

Nicholas Howley was the co-founder of TransDigm in 1993 currently serves as the Executive Chairman on the Board of Directors after leaving a long-standing role as CEO. Mr. Howley played a key role in establishing and implementing core value drivers in the business and captaining TransDigm's strategic growth strategy. In April of 2018 the CEO position was transferred to Kevin Stein, the current President and CEO. The two men worked on the succession for around four years, ensuring a seamless transition, as TransDigm's long-term vision and strategy remains unchanged. Mr. Stein focuses on running operations and executing on key drivers of value, while Mr. Howley invests more time into making capital allocation decisions and driving strategic initiatives (see Appendix 6.1 for additional Key Management Profiles and Operating Structure).

2.5.1 Management Compensation and Alignment:

TransDigm's management has a unique goal, aiming to provide the liquidity of a public company while offering "private equity like" returns to shareholders. The executive compensation plan has been designed with this private equity philosophy in mind. TransDigm's Compensation Committee has designed a total compensation package that enables the company to attract and retain qualified personnel while incentivizing executives to focus on high performance and act in the best interest of shareholders. TransDigm utilizes unique metrics that lend to strong management alignment, high levels of insider ownership and inspire sustainable and long-term value creation. Their executives are paid well below peer medians in base salary, but there is a considerable upside if superior performance is attained (see Appendix 6.2 for Detailed Compensation Information and Appendix 6.3 for Ownership Analysis).

2.5.2 Capital Allocation Record:

One of the businesses primary strengths is their excellent history of making capital allocation decisions that generate substantial value for shareholders, very similar to how an "Outsider" CEO would allocate capital. TransDigm's Board of Directors regularly evaluates their capital allocation policy, and makes collective decisions to allocate capital where it can generate the highest returns and compound over time. Historically, capital allocation decisions have been thoughtful and intentional, generating immense shareholder value in result. The primary uses of capital are:

1) **Investing in existing businesses that have high returns on capital**
2) **Making accretive bolt on acquisitions (as per their growth strategy)**
3) **Repurchasing shares**

   When acquisitions are not available at fair prices, TransDigm will elect to return capital to shareholders. Management repurchases shares opportunistically, when they believe shares are undervalued because the stock is trading at a low price to earnings (P/E) multiple or is discounted relative to their intrinsic valuation, determined through a discounted cash flow (DCF) model.

4) **Paying a special dividend**

   Due to their historic high levels of cash flow and strategic view of leverage, TransDigm often pays special dividends that are unusually large and difficult to predict. They recently issued a \$1.7B special dividend, equivalent to \$30 cash per share.

2.6 Competitive Advantage:

TransDigm has created a wide economic moat, to protect its excess returns from reverting to their cost of capital for an extended period of time, through establishing high barriers to entry and a distinctive competitive advantage in niche markets. TransDigm's moat consists of a combination of three components:

1) **Valuable intangible assets with high barriers to entry**
   a. **Intellectual property rights**

      TransDigm has protected the ingenuity of their highly-engineered proprietary products with a series of strict patents, as they actively own and defend intellectual property. This ensures they remain the sole supplier of certain products, maintaining their pricing power.

   b. **Human resources**

      The ability of companies to adapt to rapidly changing technology and attract customers through creating new and advanced products relies solely on their ability to attract and retain high-end engineering talent. TransDigm has made significant investments to have market-leading human resources, placing a large focus on talent management. This raises large barriers for new entrants as they would not have the specialized knowledge or experience to create components of the same quality or technological complexity.

c. Established industry relationships

TransDigm has also allocated a lot of time and effort into building and maintaining strong industry relationships with customers and suppliers, which allows them to lock in and maintain long-term contracts. Newer entrants do not have an established industry reputation, meaning customers would be taking a gamble on trusting them to provide aircraft parts. Additionally, TransDigm has spent considerable time forming positive relationships with regulators and law makers, to push for more favourable policies. The niche market they specialize in has natural barriers to entry, due to the stringent government regulations companies must comply with, making entrance even more difficult.

2) Extremely high switching costs baked into the business model complimented by a large installed base

OEMs want the most qualified and trusted company to provide components and service their planes. Once TransDigm supplies components, many of the parts require consistent maintenance and replacement. New entrants do not have the specialized knowledge to service these parts, and customers will not risk trusting a competitor company to service foreign parts. This means the majority of OEMs and defense companies will pay higher prices in the aftermarket, due to the high switching costs and lower bargaining power. For a customer to leave TransDigm they would have to completely change their manufacturing process and put a ton of effort into sourcing new suppliers and risk additional issues when selling their final product.

3) Efficient scale due to high capital intensity and advantageous market positioning

The high level of capital intensity in the industry raises barriers for new entrants. TransDigm benefits from being a market incumbent, as their scale, maturity, and large installed base create strong business economics. These high barriers allow management to fend of competition more easily and compound capital at high rates of return, translating to a high return on capital that has displayed sustainable growth.

Competitors are unable to replicate TransDigm's competitive advantage because they do not have the scale advantages and intellectual property to own and control the same unique products TransDigm solely supplies. No other competitor has as large of an installed base, and therefore does not benefit as greatly from switching costs and barriers to entry.

As a result of their economic moat and high barriers to entry, a new entrant with unlimited resources and management talent would still have a lot of difficulty to disrupt TransDigm. They would have to invest a lot of capital and time into learning the specialized knowledge to create similar portfolio of diverse products, having to recruit high end talent and pay massive salaries. Furthermore, the entrant would have to ensure their new products do not infringe on any existing patents and all products are certified by various regulatory agencies. New entrants would also have to establish an extremely high level of trust with customers, and convince them to take on the risk of using unproven products. Customers would then have to invest their own capital and time to overhaul their manufacturing process to adjust to a new supplier. The typical disruption strategy of undercutting prices significantly with a cheaper product would be ineffective as customer decisions are based on quality, performance and durability, paying little attention to price.

2.6.1 Barriers to Entry:

Demand Side Barriers: TransDigm has access to demand in the aftermarket that competitors have an extremely difficult time breaching due to high switching costs to find a new supplier and high search costs to find a supplier that provides to same components and quality assurance.

Supply Side Barriers: TransDigm's intellectual property on highly engineered proprietary components is protected by strict patents. Additionally, company employees have cultivated internalized specialized knowledge over the past 50 years that is inaccessible to new entrants. Employees are retained through a stringent focus on talent management, limiting the spread of information.

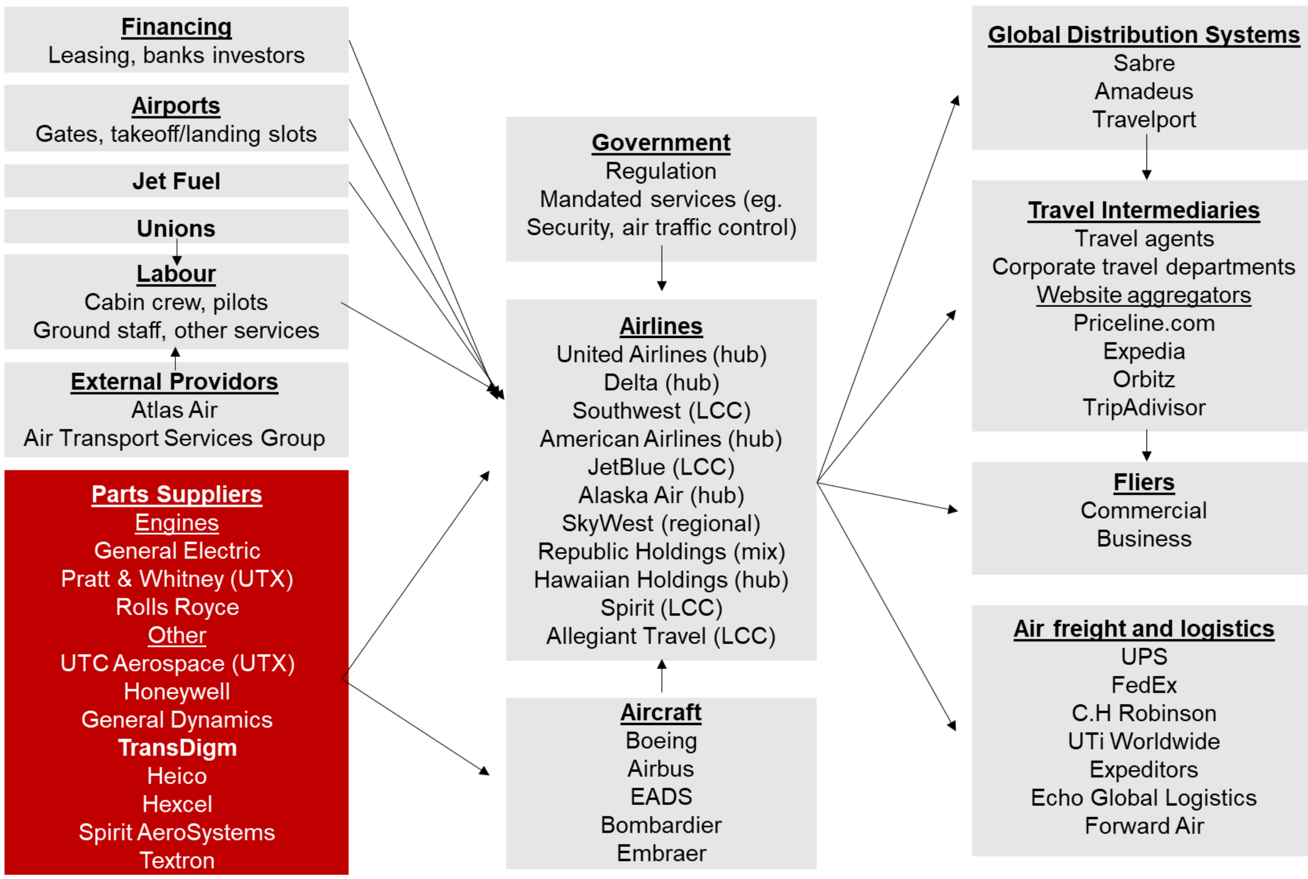
Economies of Scale Barriers: TransDigm's business has high fixed costs, from both equipment and regulatory certification, that make it difficult for smaller competitors to compete at similar costs. Their company focus aims to dominate local markets and eliminate the risk of disruption or competition from emerging players.

Additional Barriers: As an incumbent, TransDigm benefits from high levels of governmental regulations, with extensive government policies businesses must conform with and strict product requirements.

3.0 Industry Description:

TransDigm operates primarily within the aircraft and parts manufacturing subsector. Other types of suppliers within this industry include engine manufactures and materials providers. Large OEMs and defense companies often do not look to vertically integrate, opting to outsource more peripheral activities to focus on their core competencies. Many of the OEMs are under immense pressure to ramp up production and meet tight deadlines. Additionally, due to the fragmented nature of the supply chain, OEMs frequently experience cost overruns. They are beginning to shift towards awarding a smaller number of fixed price contracts that are higher in value to larger suppliers that provide more certainty within their supply chains. This increase in aircraft production and shift to consolidated suppliers will be a key industry driver in TransDigm's growth in market share for the upcoming years.

Figure 2: U.S Airline Industry Map



Source: Vision 2050, Industry Report

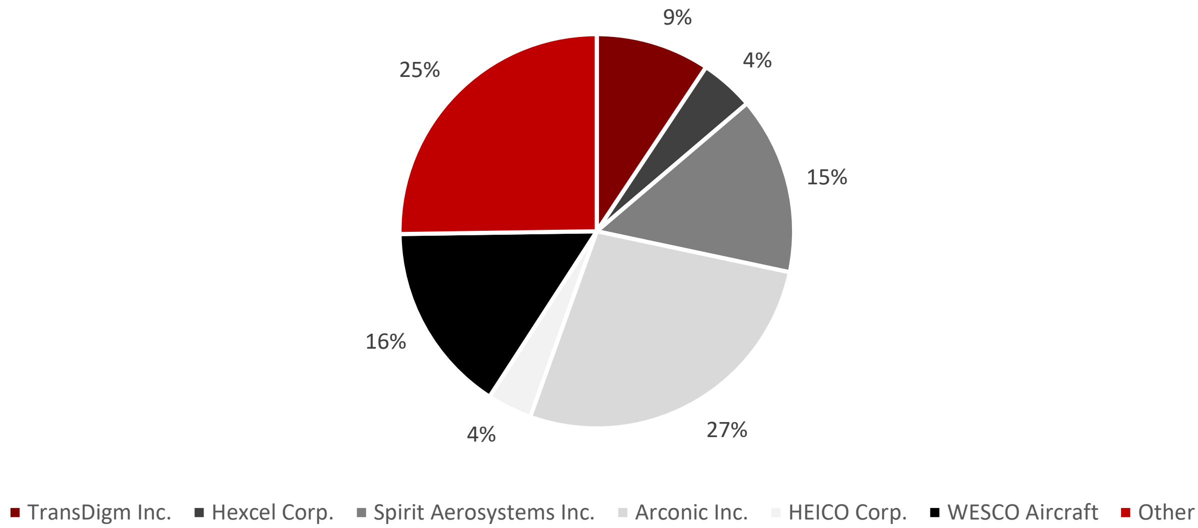
3.1 Market Share Analysis:

The aerospace supply chain is complex and very fragmented, with over 1000 small to medium sized suppliers serving a much smaller number of large OEMs. In aggregate, the entire supplier industry is worth over $215B USD and is projected to grow at an annualized rate of 2.5%, as the demand for air travel is often in line with economic growth.

Although TransDigm has no pure-play competitors, as they focus on dominating smaller niche markets, they still hold a fairly large market share of 9% in the broader market. TransDigm's addressed market for the commercial aftermarket is $29B in which they hold a 4% market share. Compared to larger players, TransDigm's strategy differs, as they focus on increasing pricing power and expanding margins in niche markets, opposed to entering the largest markets to boost sales volume.

Given the fragmented nature of the market, there continue to be promising and unique consolidation opportunities for TransDigm to take advantage of. Due to their acquisition-based growth strategy and scale relative to players within individual markets, it is expected that TransDigm will continue to steal market share from smaller competitors going forward.

Figure 3: Aerospace and Defense Market Share Analysis



3.2 Industry Landscape:

TransDigm remains to be the best positioned company to benefit from the compelling consolidation opportunities in the aerospace and defense supplier industry. Smaller operators have significant disadvantages to grow in an industry where economies of scale and high capital intensity create large barriers to entry. As large OEMs grow, it is extremely difficult for smaller suppliers to handle the large contracts that come with serving massive clients, especially when they are expected to meet growing production demands while remaining within the strict price ranges stated on contracts.

There are three overarching themes of the industry TransDigm currently operates in:

1) **Stable Industry with Moderate Cyclicality** – There is apparent stability in the demand for aircraft production and in the nature of interaction between market players, as fluctuations in market share have not been very volatile. Airplane production is a fairly cyclical industry, as most people choose to fly in aircrafts less often in recessionary periods. Historically, sales to manufacturers of large commercial aircrafts have experiences periodic downturns, in which TransDigm's sales are impacted by decreased airline profitability. Internally, TransDigm is dampening the impact of economic cycles on sales through shifting their business focus to aftermarket sales, that have more consistent demand throughout cycles. Historically, TransDigm's pricing power has demonstrated consistent growth throughout economic cycles.
2) **Outsourcing High Value Contracts –** OEMs and defense companies constantly face pricing squeezes and benefit immensely from outsourcing the production of components to large suppliers because they realize cost efficiencies and it reduces the complexity of operations.
3) **High Fragmentation –** Management believes there will continue to be accretive acquisition opportunities, contributing to strong growth, for larger players with the scale and financial means to complete acquisitions. The market still has hundreds of players operating in very niche markets, with low revenues and product diversification, that offer promising consolidation opportunities.

3.2.1 Current Cycle Positioning:

A global recession would decrease TransDigm's sales, as they have approximately a 25% exposure to customers affected heavily by cyclicality. In the case of a recession, they could have the opportunity to leverage their scale to increase market share and emerge stronger through buying distressed assets. TransDigm could acquire smaller suppliers that are dependent on OEM customers and suffer serious losses at a heavily discounted price.

The overall demand for large commercial aircrafts and related components is supported by strong global trends. Aircraft and defense production is projected to continue to climb at a strong rate in the next 10 years due to rising defense budgets globally, massive backlogs for large OEMs, demand for newer, technologically advanced aircrafts, and strong growth in RPMs. The increase in RPMs is largely driven by a massive population of people in foreign countries that will begin to travel by plane. Currently, the industry is in a temporary stall within a long-term expansion cycle.

3.3 Competitive Landscape:

Industry players compete on the basis of quality, performance and longevity of aircraft components sold, with successful companies locking in long-term service contracts with customers. The current competitive dynamic for aerospace component manufacturing is highly beneficial for TransDigm, as smaller players offer accretive consolidation and market penetration opportunities.

Due to the global nature of the aircraft industry TransDigm faces competition from both U.S and foreign companies. These companies range from divisions of large public corporations to small, privately held businesses with only one or two components in their product portfolio. TransDigm competes on the basis of their ability to engineer, manufacture and market high quality products, ensure consistent and timely delivery of components and offer superior customer service and support. High barriers to entry in niche markets disincentivize competitors to compete with TransDigm.

Management believes if they continue to meet and exceed customer expectations and performance standards, customers have less incentive to certify another supplier because of the cost and time required for the design and certification process (see Appendix 6.4 for a Porter's Forces Analysis).

The two primary competitors in the U.S aerospace and defense supplier market include HEICO Corp. ("HEICO") and Hexcel Corp. ("Hexcel"). HEICO operates a similar business model to TransDigm, owning a network of subsidiaries and designing, manufacturing and selling aerospace and defense components to end users. Both companies serve defense contractors, but TransDigm has a stronger presence in the commercial OEM market. Hexcel also follows a similar business model, but differ in product offerings, as they have a large composite materials segment. Competition is fairly rational because it is not economically sensible to compete with established players in more niche markets, as there simply isn't the space and barriers remain high. Co-evolution frequently emerges, as there is a stronger trend in businesses allocating resources to invent new technology and keep customers satisfied through consistently meeting their needs, rather than attempting to tear other competitors down.

Figure 4: Competitor Analysis and Capabilities

Competitor	Est. Revenues FY2019 ($MM)	Geographic Coverage	Plants	Segments
HEICO Corp.	2028	Global	35	Flight Support and Electronic Technologies
Hexcel Corp.	2428	Americas, Europe, Asia Pacific, Russia, Africa	17	Composite Materials, Engineered Products
TransDigm Inc.	**8082**	**Global**	**80**	**Power & Control, Airframe and Non-Aviation**

Source: CapIQ, Company Filings

4.0 Valuation:

The primary method of valuation utilized was a discounted cash flow (DCF) analysis, complemented with other methods that serve to double check the intrinsic valuation performed.

4.1 Key Drivers Business Drivers:

The most important modelling drivers of the business include:

1) **TransDigm's increase in market share**
2) **TransDigm's margin expansion and continual pricing power**

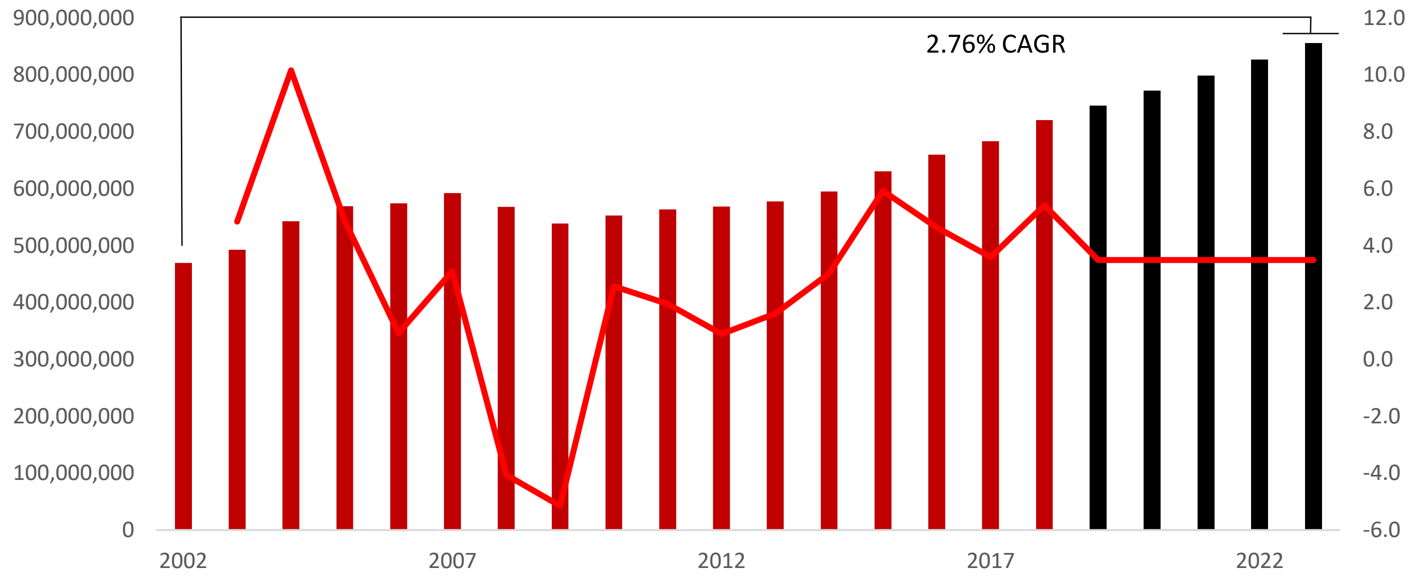
   Continued improvements in margins were projected due to their ability to improve their cost structure over time and exercise pricing power with customers in the aftermarket. Increased competition can erode margins, but barriers to entry and the extremely sticky nature of TransDigm's products and aftermarket service provides a sufficient moat to protect economic returns for a substantial period of time.

3) **TransDigm's continued ability to generate value via accretive acquisitions and organic growth**

   Management invests time into searching for promising acquisition opportunities in target markets (see Appendix 6.5 for a Detailed Acquisition Strategy). TransDigm has demonstrated their ability to make bold acquisitions and integrate companies with their existing businesses to create value (see Appendix 6.6 for the Esterline Acquisition Commentary). The assumption was made that TransDigm's acquisition growth will persist, but decrease in value creation due to inflated market price levels and increased difficulty to find compatible companies.

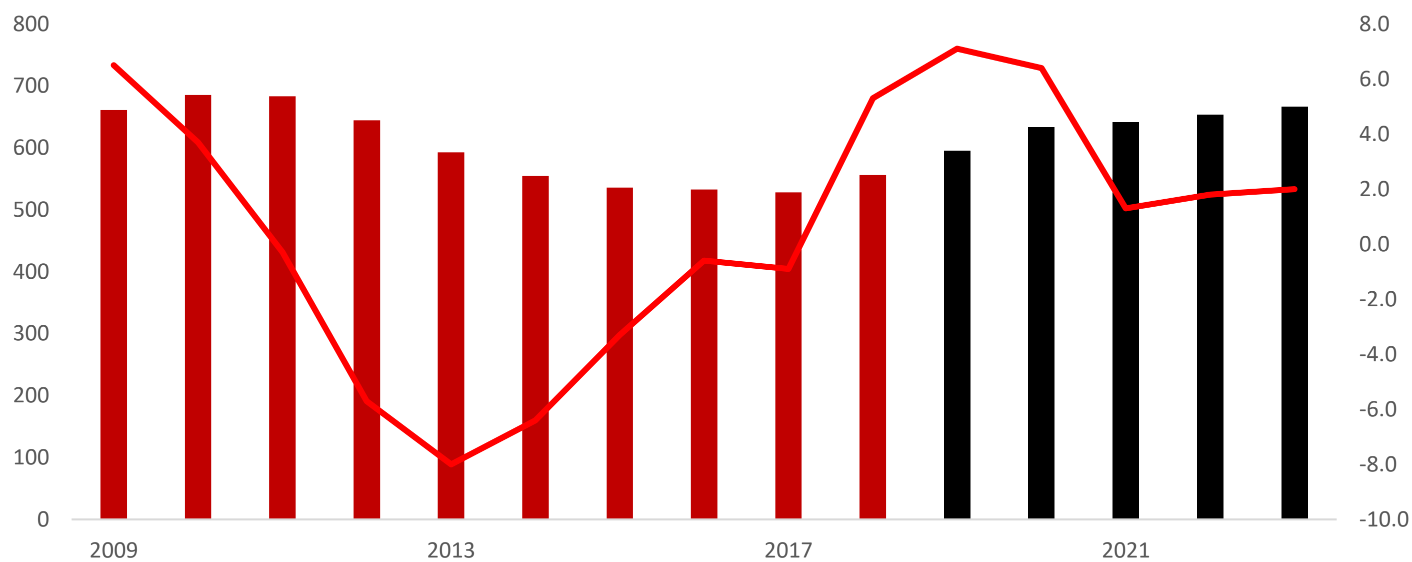
4) **The strong and growing demand within aerospace and defense market driven by:**
   a. Increasing global Revenue Passenger Miles (RPMs)
   b. Rising U.S and non-NATO defense budget

Figure 5: United Stated Domestic Revenue Passenger Miles (RPM's) vs. RPM Growth



Source: IBIS World

Figure 6: United States Federal Defense Budget vs Growth



Source: IBIS World

4.2 Market Valuation:

The market is currently valuing TransDigm favourably, as they are currently at 95% of their 52-week high (as of writing), following a strong earnings report and a $30 special cash dividend per share. It is highly probable there is a substantial amount of investor optimism and speculation factored into their current market price, as investors have seemed to be unbothered by the risks of increasing governmental regulation and a potential economic downturn.

In the short term, price is expected to fall slightly due to a continued Department of Defense (DoD) investigation and tariff pressures that could impact their sourcing and profitability. However, TransDigm has promising results in the long-run. For an investor, they would be best suited to be placed on a "Dream Team" list (companies that are too expensive to be purchased currently) until TransDigm's share price falls into a region with a larger margin of safety.

4.3 DCF Valuation Results:

An intrinsic valuation for TransDigm provided an intrinsic value per share of $729.70 in a base case scenario, providing a 44.2% margin of safety (as of writing). This scenario assumed the ongoing DoD investigation would not significantly impact their pricing strategies, TransDigm would continue to find accretive acquisitions and their economic moat persists over time (see Appendix 6.6 for the DCF Valuation Details and Appendix 6.7 for Other Valuation Methodologies).

5.0 Conclusion:

TransDigm seems to be a wide-moat business that aligns well with a value-investing philosophy. Given its significant scale advantages, the inherent demand for commercial and defense aircrafts and high barriers to entry, they should be able to earn excess economic returns for an extended period of time. There are also significant consolidation opportunities, as scale will lead to larger and more valuable supplier contracts.

While market valuation remains relatively steep, any future decline in price presents a lucrative buying opportunity. I see this business as stable, defensible and predictable, able generate strong and consistent cash flows into the future. Opportunity lies within taking a position with an adequate margin of safety and allow management to continue their capital allocation excellence and execute operationally as they have in the past. Given where TransDigm trades today, I reinstate a **BUY** recommendation with a base-case target price of $729.70.

5.1 Business Risks:

1. **Exposure to general economic, geopolitical and world conditions –** Airline demand affected by world conditions that are subject to changes based on unpredictable events.
2. **Cyclical OEM sales may decline in an economic downturn**
3. **Heavy customer concentration –** Material reduction in a large customer could impact sales and net income (See Appendix 6.8 for the Impacts of the Boeing Scandal)
4. **Risk of cost overruns –** TransDigm has long-term fixed contracts that can be suddenly terminated by customers or become financially damaging if raw material prices rise.
5. **U.S Military spending dependent on the U.S Defense budget**
6. **Difficulty finding and/or integrating acquisitions –** A future inability to find suitable candidates at reasonable prices may damped growth or acquisitions of ill-suited companies may dilute margins and complicate execution.
7. **Unique business risks from supplying equipment and supplies to the U.S Government**
8. **Loss of government or industry approvals or more stringent government regulations**
9. **High levels of leverage –** Reduces TransDigm's ability to react to changes in the industry and prevent their ability to consistently service debt.

6.0 Appendices:

6.1 Key Management Profiles and Operating Structure:

President & CEO – Kevin Stein

Mr. Stein was appointed President, CEO and Director in April 2018. Prior to that he served as the President and COO and COO – Power for numerous years, dating back to October 2014. Prior to joining TransDigm, Mr. Stein served as the Executive VP and President of the Structurals division of Precision Castparts Corp.

Executive Chairman – W. Nicholas Howley

Mr. Howley was appointed Executive Chairman of the Board of Directors of TD Group April 2018 after previously serving as Chairman of the Board of Directors (July 2003 – April 2018) and CEO of TD Group (December 2015 – April 2018). He is a renowned capital allocator, and has been recognized as an "Outsider"-style CEO.

CFO – Michael Lisman

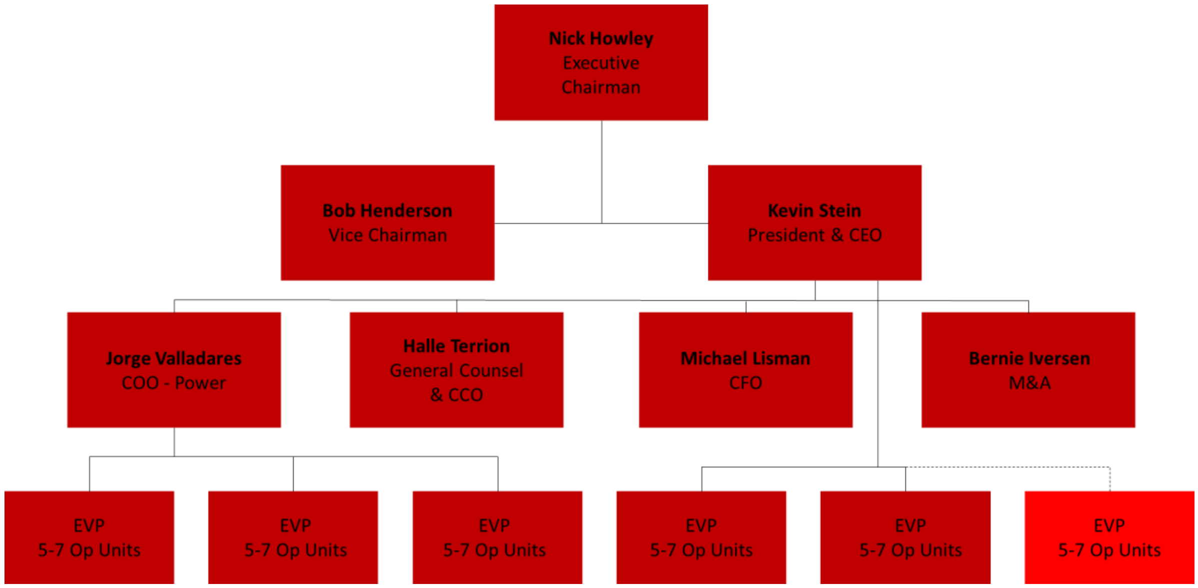
Mr. Lisman was appointed Chief Financial Officer in July 2018. He drives significant shareholder value, specializing in working capital management, macro intelligence and tax strategy. Prior to that, Mr. Lisman served as VP—Mergers and Acquisitions (M&A) from January 2018 through June 2018, Business Unit Manager for the Air & Fuel Valves business unit at Aero Fluid Products, a wholly-owned subsidiary of TransDigm Inc. (January 2017 - January 2018) and Director of M&A of the Company from November 2015 to January 2017. Prior to joining TransDigm, Mr. Lisman was a Vice President at Warburg Pincus from 2011 to 2015.

COO – Jorge Valladares

Mr. Valladares was appointed Chief Operating Officer—Power in June 2018. Prior to that, Mr. Valladares served as Executive Vice President from October 2013 to May 2018, as President of AvtechTyee, Inc. a wholly-owned subsidiary of TransDigm Inc. (August 2009 - September 2013) and as President of AdelWiggins Group, a division of TransDigm Inc. (April 2008 - July 2009).

Revised Structure Scalable with Future Growth

- Structure: smaller operating units, focus on products and customers, few management layers



6.2 Detailed Compensation Plan:

- **Incentives are 100% performance based**

  Both annual and long-term incentives are derived by comparing company performance with Annual Operating Performance (AOP) growth each year. AOP was chosen by management to focus on EBITDA growth, management of capital structure, cash generation and acquisition performance. It essentially measures value creation by taking in multiple aspects of the company's performance without solely focusing on a single measure. AOP eliminates the need for several different metrics and achieves a high level of pay-for-performance alignment through emphasizing long-term shareholder value. Short term incentives factor in AOP and EBITDA growth, while long term incentives are based on the achievement of cumulative growth targets, thus mitigating the risk of using the same metric for both short and long-term incentives.

- **Robust performance conditions for options**

  Management has set high hurdle rates for any options to vest, with the minimum threshold for any option to vest at 10% AOP growth. To achieve this level of growth, TransDigm must focus heavily on underlying business operations, capitalization and growth through acquisitions.

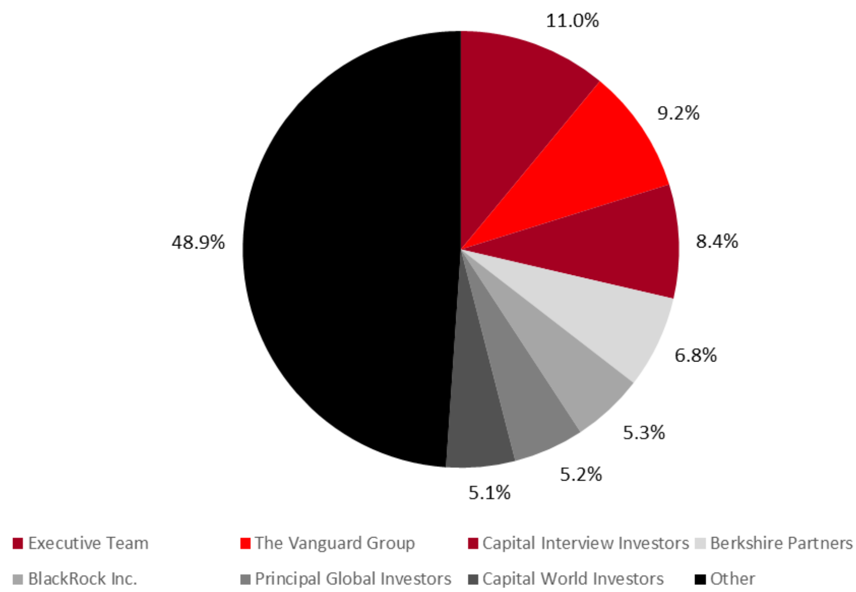
- **Incentivize long-term executive stock ownership**

  To ensure the continued alignment of management interests with those of stockholders, TransDigm's Compensation Committee created strict requirements for the amount of common equity and stock company executives are required to hold. This solidifies the responsibility of the executive team, as they have and will continue to have a significant amount of value held in TransDigm's stock.

- **Limited cash compensation**

Fixed cash executive compensation represents a small percentage of total compensation, paying 25-35% of the salary and bonus that industry competitors pay.

6.3 Ownership Analysis:



As a collective group, all directors and executive officers (21 persons) own 11.0% of TransDigm Group Inc. collectively. Management is the largest stakeholder in the business, and designs ownership criteria to ensure long-term alignment with shareholders.

Current institutional investors include: The Vanguard Group (9.19%), Capital International Investors (8.43%), Berkshire Partners (6.84%), BlackRock Inc. (5.30%), Principal Global Investors (5.23%), and Capital World Investors (5.10%).

6.4 Porter's Forces Analysis:

The aerospace and defence industry has apparent barriers to entry. Given TransDigm's established positioning in this market, this provides a very attractive industry dynamic they can capitalize on. The lower levels of rivalry within smaller, niche markets allow TransDigm to benefit from a greater share of industry economics into the foreseeable future.

Threat of Industry Substitutes:

The nature of business within many of the markets TransDigm operates within diminishes the possibility of substitutes. Companies primarily compete on quality and performance, meaning a substitute offering lowering prices (inherently offering lower quality) does not provide as attractive of a value proposition. Furthermore, a substitute company would not be able to service TransDigm parts installed in aircrafts, raising massive barriers for their aftermarket business.

Bargaining Power of Buyers:

TransDigm serves a substantial number of large commercial OEMs and defense contractors, with multiple suppliers fighting for their business. In making one-time sales, TransDigm must provide a highly attractive value proposition to win customers. Though, this is eliminated for the products companies require for which TransDigm is the sole supplier. Additionally, buyers have dramatically less bargaining power in the aftermarket, as only TransDigm can service their products, and once worn out or broken, they need to be replaced for the aircraft to function and remain safe. This aligns with the impressive pricing power on products they are the sole supplier of and higher margins experienced within the aftermarket.

Threat of New Entrants:

The aerospace and defense industry supplier is extremely difficult to penetrate given both the natural barriers to entry and the barriers TransDigm's business model creates to protect returns. In the aftermarket, TransDigm has formed long-term relationships with clients, with the consistent renewal of contracts given the "stickiness" associated with the business model. The minimal entrance of new entrants protects TransDigm's margins, and will continue to allow TransDigm to earn high incremental returns on their invested capital, generating positive economic value.

Given TransDigm's established position in the global aerospace and defense supplier industry, and the attractiveness of the industry they operate in, it is believed that they will be able to earn higher returns on their invested capital relative to competitors, driving shareholder value going forward.

6.5 Acquisition Criteria:

TransDigm follows a disciplined acquisition process, only acting when management sees a clear path to value creation. They have acquired 64 businesses since 1993, including 49 since their IPO.

They target a specific type of business, displaying strong economic characteristics and checks the following boxes:

- Profitable businesses
- Offer sole source products in commercial or defense aerospace
- High aftermarket sales
- Individual products with relatively low revenues (underutilized pricing power)
- Bloated cost structures

TransDigm actively avoids many traps other companies look for in acquisition targets, including:

- Synergies
- Market share
- Excess capacity
- Access to markets
- Globalization and diversification

Through their acquisition strategy, they are able to roll-up smaller suppliers and consolidate product offerings to attract larger customers.

Following the acquisition, TransDigm's management works quickly to slash unnecessary costs, often laying off a large portion of the target's management team, and increase their pricing to reflect the value the product offers. TransDigm is able to plug smaller companies into their existing subsidiary network, significantly reducing costs, and focuses on exiting non-core operations to create efficiencies. Through this strategy, they have historically been very successful at quickly and dramatically improving the profitability of acquired companies, with an average lift to a 50% EBITDA on acquired businesses, providing logic for future acquisitions.

6.6 Historical Results:

Although TransDigm's results in the past have no impact or influence on their ability to achieve success in the future (past performance is not indicative of future results), they do play a key role in understanding the company's history and previous success utilizing the identical strategy they are currently implementing.

Financial Highlights:

- Revenue: FY93 – FY18 CAGR 20%
- EBITDA: FY93 – FY18 CAGR 24%
- Enterprise Value: FY93 – FY18 CAGR 30%
- Worldwide Installed Base: FY93 – FY18 CAGR 4.1%

6.7 Discounted Cash Flow Valuation Details:

TransDigm Group Inc. - Free Cash Flow Projections
($ in Millions, Except per Share Values)

	Historical			Projected									
September 30,	FY 2016A	FY 2017A	FY 2018A	FY 2019A	FY 2020A	FY 2021A	FY 2022A	FY 2023A	FY 2024A	FY 2025A	FY 2026A	FY 2027A	FY 2028A
Revenue:	$ 3,171	$ 3,505	$ 3,811	$ 8,082	$ 8,878	$ 9,371	$ 9,780	$ 10,182	$ 10,570	$ 10,931	$ 11,263	$ 11,561	$ 11,819
Revenue Growth Rate:	*17.2%*	*10.5%*	*8.7%*	*112.1%*	*9.9%*	*5.5%*	*4.4%*	*4.1%*	*3.8%*	*3.4%*	*3.0%*	*2.6%*	*2.2%*
Operating Income (EBIT):	1,326	1,512	1,683	3,779	4,172	4,371	4,575	4,728	4,872	5,001	5,122	5,232	5,320
Operating Margin:	*41.8%*	*43.1%*	*44.2%*	*46.8%*	*47.0%*	*46.6%*	*46.8%*	*46.4%*	*46.1%*	*45.7%*	*45.5%*	*45.3%*	*45.0%*
Growth Rate:	*19.4%*	*14.1%*	*11.3%*	*124.5%*	*10.4%*	*4.8%*	*4.7%*	*3.3%*	*3.0%*	*2.6%*	*2.4%*	*2.1%*	*1.7%*
Less: Taxes, Excluding Effect of Interest:	(278)	(318)	(354)	(794)	(876)	(918)	(961)	(993)	(1,023)	(1,050)	(1,076)	(1,099)	(1,117)
Net Operating Profit After Taxes (NOPAT):	1,047	1,194	1,330	2,985	3,296	3,453	3,614	3,735	3,849	3,951	4,046	4,133	4,203
Adjustments for Non-Cash Charges:													
Plus: Depreciation	43	51	56	52	65	81	97	114	131	149	168	187	207
Plus: Amortization	94	111	96	95	95	95	95	95	95	95	95	95	95
Plus: Stock-Based Compensation	48	46	59	121	136	146	155	164	173	183	191	197	204
% Revenue:	*5.9%*	*5.9%*	*5.5%*	*3.3%*	*3.3%*	*3.4%*	*3.5%*	*3.7%*	*3.8%*	*3.9%*	*4.0%*	*4.2%*	*4.3%*
Less: Changes in Non-Cash Working Capital:	(111)	(86)	(5)	(1,303)	(185)	(130)	(77)	(95)	(80)	(92)	(78)	(73)	(49)
% Change in Revenue:		*(25.9%)*	*(1.5%)*	*(30.5%)*	*(23.2%)*	*(26.5%)*	*(18.9%)*	*(23.6%)*	*(20.8%)*	*(25.5%)*	*(23.6%)*	*(24.4%)*	*(19.1%)*
% Revenue:	*(3.5%)*	*(2.5%)*	*(0.1%)*	*(16.1%)*	*(2.1%)*	*(1.4%)*	*(0.8%)*	*(0.9%)*	*(0.8%)*	*(0.8%)*	*(0.7%)*	*(0.6%)*	*(0.4%)*
Less: Capital Expenditures	(44)	(71)	(73)	(191)	(209)	(221)	(231)	(240)	(249)	(258)	(266)	(273)	(279)
% Revenue:	*1.4%*	*2.0%*	*1.9%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*	*2.4%*
Unlevered Free Cash Flow	**$ 1,078**	**$ 1,245**	**$ 1,463**	**$ 1,760**	**$ 3,199**	**$ 3,424**	**$ 3,653**	**$ 3,773**	**$ 3,919**	**$ 4,028**	**$ 4,156**	**$ 4,268**	**$ 4,381**
Growth Rate:		*15.4%*	*17.5%*	*20.3%*	*81.7%*	*7.0%*	*6.7%*	*3.3%*	*3.9%*	*2.8%*	*3.2%*	*2.7%*	*2.6%*
Discount Period:				*1.0*	*2.0*	*3.0*	*4.0*	*5.0*	*6.0*	*7.0*	*8.0*	*9.0*	*10.0*
Discount Rate (WACC):				9.37%	9.37%	9.37%	9.37%	9.37%	9.37%	9.37%	9.37%	9.37%	9.37%
Cumulative Discount Factor:				0.91	0.84	0.76	0.70	0.64	0.58	0.53	0.49	0.45	0.41
PV of Unlevered FCF:				1,609	2,674	2,617	2,553	2,411	2,289	2,151	2,029	1,905	1,788
EBITDA:	**$ 1,512**	**$ 1,720**	**$ 1,894**	**$ 4,047**	**$ 4,469**	**$ 4,693**	**$ 4,922**	**$ 5,101**	**$ 5,272**	**$ 5,428**	**$ 5,576**	**$ 5,712**	**$ 5,826**
Growth Rate:		*13.8%*	*10.1%*	*113.7%*	*10.4%*	*5.0%*	*4.9%*	*3.6%*	*3.3%*	*3.0%*	*2.7%*	*2.4%*	*2.0%*
Net Profit After Tax:	**$ 586**	**$ 598**	**$ 957**	**$ 2,459**	**$ 2,762**	**$ 2,915**	**$ 3,072**	**$ 3,190**	**$ 3,301**	**$ 3,400**	**$ 3,493**	**$ 3,578**	**$ 3,646**

Terminal Value - Multiples Method:	
Median EV / EBITDA of Comps:	12.5 x
Baseline Terminal EBITDA Multiple:	11.2 x
Baseline Terminal Value:	$ 65,252
Implied Terminal FCF Growth Rate:	2.5%
(+) PV of Terminal Value:	26,634
(+) Sum of PV of Free Cash Flows:	22,026
Implied Enterprise Value:	**$ 48,660**
% of Implied EV from Terminal Value:	*54.7%*
(+) Cash & Cash-Equivalents:	$ 6,152
(+) Other Non-Core-Business Assets	3,317
(-) Total Debt:	(16,530)
(-) Other Funding Sources:	(86)
Implied Equity Value:	**41,513**
Diluted Shares Outstanding:	57.0
Implied Share Price from DCF:	**$ 727.70**
Premium / (Discount) to Current:	**44.1%**

Terminal Value - Gordon Growth Method:	
Expected Long-Term GDP Growth:	2.5%
Baseline Terminal FCF Growth Rate:	2.5%
Baseline Terminal Value:	$ 65,320
Implied Terminal EBITDA Multiple:	11.2 x
(+) PV of Terminal Value:	26,662
(+) Sum of PV of Free Cash Flows:	22,026
Implied Enterprise Value:	**$ 48,687**
% of Implied EV from Terminal Value:	*54.8%*
(+) Cash & Cash-Equivalents:	$ 6,152
(+) Other Non-Core-Business Assets	$ 3,317
(-) Total Debt:	$ (16,530)
(-) Other Funding Sources:	$ (86)
Implied Equity Value:	**$ 41,541**
Diluted Shares Outstanding:	57.0
Implied Share Price from DCF:	**$ 728.18**
Premium / (Discount) to Current:	**44.2%**

6.7.1 WACC Calculation:

Comparable Companies - Unlevered Beta Calculation:

Name	Ticker	Levered Beta	Debt	% Debt	Preferred Stock	% Preferred	Equity Value	% Equity	Tax Rate	Unlevered Beta
Heico Corp.	HEI	0.70	$556	2.7%	$ -	–	$ 20,079	97.3%	21.0%	0.69
Arconic Inc.	ARNC	2.08	$6,643	37.6%	55	0.3%	10975	62.1%	21.0%	1.40
Spirit Aerosystems Inc.	SPR	1.27	$2,101	21.1%	-	–	7845	78.9%	21.0%	1.05
Hexcel Corp.	HXL	1.11	$1,123	13.3%	-	–	7326	86.7%	21.0%	0.99
Median:		**1.19**	**$ 1,612**	**17.2%**	**$ -**	**–**	**$ 9,410**	**82.8%**	**21.0%**	**1.02**
TransDigm Group Inc.	**TDG**	**1.10**								

TransDigm Group Inc. - Levered Beta & WACC Calculation

	Ticker	Unlevered Beta	Debt	% Debt	Preferred Stock	% Preferred	Equity Value	% Equity	Tax Rate	Levered Beta
Current Capital Structure:	TDG	1.02	$17,279	37.5%	$ -	–	$ 28,804	62.5%	21.0%	1.50
"Optimal" Capital Structure:	TDG	1.02	$7,928	17.2%	$ -	–	$ 38,155	82.8%	21.0%	1.19

Cost of Equity Based on Comparables, Current Capital Structure:	**9.6%**
Cost of Equity Based on Comparables, "Optimal" Capital Structure:	**8.0%**
Cost of Equity Based on Historical Beta:	**7.5%**
WACC, Current Capital Structure:	**7.96%**
WACC, "Optimal" Capital Structure:	**7.50%**
WACC, Current Capital Structure and Historical Cost of Equity:	**6.67%**
Average WACC Produced by All Methods:	**7.37%**
Risk Factor	**2.0%**
WACC	**9.37%**

6.8 Other Valuation Methodologies:

6.8.1 Comparable Companies Analysis:

Operating Statistics

		Capitalization			Revenue			EBITDA			EPS			Projected	EBITDA Margin		
		Share	Equity	Enterprise										Revenue			
Company Name	Ticker	Price	Value	Value	TTM	2019-09-30	2020-09-30	TTM	2019-09-30	2020-09-30	TTM	2019-09-30	2020-09-30	Growth	TTM	2019-09-30	2020-09-30
Heico Corp.	HEI	$ 138.01	$ 20,079	$ 20,837	$ 1,925	$ 2,028	$ 2,254	$ 469	$ 532	$ 601	$ 2.36	$ 2.27	$ 2.58	11.1%	24.4%	26.2%	26.7%
Arconic Inc.	ARNC	$ 24.36	10,975	16,366	14,110	14,347	14,834	1,867	2,261	2,376	1.88	1.85	2.10	3.4%	13.2%	15.8%	16.0%
Spirit Aerosystems Inc.	SPR	$ 75.50	7,845	8,645	7,633	7,800	7,900	1,167	1,215	1,264	6.79	6.90	7.25	1.3%	15.3%	15.6%	16.0%
Hexcel Corp.	HXL	$ 81.29	7,326	8,393	2,320	2,428	2,591	515	593	646	3.50	3.58	3.98	6.7%	22.2%	24.4%	24.9%
Maximum		$ 138.01	$ 20,079	$ 20,837	$ 14,110	$ 14,347	$ 14,834	$ 1,867	$ 2,261	$ 2,376	$ 6.79	$ 6.90	$ 7.25	11.1%	24.4%	26.2%	26.7%
75th Percentile		95.47	13,251	17,484	9,252	9,437	9,633	1,342	1,477	1,542	4.32	4.41	4.80	7.8%	22.7%	24.9%	25.4%
Median		**$ 78.40**	**$ 9,410**	**$ 12,506**	**$ 4,977**	**$ 5,114**	**$ 5,245**	**$ 841**	**$ 904**	**$ 955**	**$ 2.93**	**$ 2.93**	**$ 3.28**	**5.0%**	**18.7%**	**20.1%**	**20.5%**
25th Percentile		62.72	7,715	8,582	2,221	2,328	2,506	503	578	635	2.24	2.17	2.46	2.9%	14.8%	15.7%	16.0%
Minimum		24.36	7,326	8,393	1,925	2,028	2,254	469	532	601	1.88	1.85	2.10	1.3%	13.2%	15.6%	16.0%
TransDigm	**TDG**	**$ 504.92**	**$ 28,804**	**$ 40,328**	**$ 4,219**	**$ 8,082**	**$ 8,878**	**$ 2,109**	**$ 4,047**	**$ 4,469**	**$ 17.24**	**$ 47.63**	**$ 53.63**	**9.9%**	**50.0%**	**50.1%**	**50.3%**

Valuation Statistics

		Capitalization			Enterprise Value / Revenue			Enterprise Value / EBITDA			P / E Multiple		
		Share	Equity	Enterprise									
Company Name		Price	Value	Value	TTM	2019-09-30	2020-09-30	TTM	2019-09-30	2020-09-30	TTM	2019-09-30	2020-09-30
Heico Corp.	HEI	$ 138.01	$ 20,079	$ 20,837	10.8 x	10.3 x	9.2 x	44.4 x	39.1 x	34.7 x	58.6 x	60.8 x	53.5 x
Arconic Inc.	ARNC	24.36	10,975	16,366	1.2 x	1.1 x	1.1 x	8.8 x	7.2 x	6.9 x	12.9 x	13.2 x	11.6 x
Spirit Aerosystems Inc.	SPR	75.50	7,845	8,645	1.1 x	1.1 x	1.1 x	7.4 x	7.1 x	6.8 x	11.1 x	10.9 x	10.4 x
Hexcel Corp.	HXL	81.29	7,326	8,393	3.6 x	3.5 x	3.2 x	16.3 x	14.2 x	13.0 x	23.2 x	22.7 x	20.4 x
Maximum		$ 138.01	$ 20,079	$ 20,837	10.8 x	10.3 x	9.2 x	44.4 x	39.1 x	34.7 x	58.6 x	60.8 x	53.5 x
75th Percentile		95.47	13,251	17,484	5.4 x	5.2 x	4.7 x	23.3 x	20.4 x	18.4 x	32.1 x	32.2 x	28.7 x
Median		**$ 78.40**	**$ 9,410**	**$ 12,506**	**2.4 x**	**2.3 x**	**2.2 x**	**12.5 x**	**10.7 x**	**9.9 x**	**18.1 x**	**17.9 x**	**16.0 x**
25th Percentile		62.72	7,715	8,582	1.2 x	1.1 x	1.1 x	8.4 x	7.2 x	6.9 x	12.5 x	12.6 x	11.3 x
Minimum		24.36	7,326	8,393	1.1 x	1.1 x	1.1 x	7.4 x	7.1 x	6.8 x	11.1 x	10.9 x	10.4 x
TransDigm	**TDG**	**$ 504.92**	**$ 28,804**	**$ 40,328**	**9.6 x**	**5.0 x**	**4.5 x**	**19.1 x**	**10.0 x**	**9.0 x**	**29.3 x**	**10.6 x**	**9.4 x**

6.8.2 Sum of the Parts Analysis:

TransDigm Group Inc. - Sum of the Parts Valuation Based on Estimated Revenue Multiples	Projected FY 2019E	Low Multiple	High Multiple	Low EV	High EV
Revenue by Segment:					
Power & Control:	$ 3,267	9.0 x	10.0 x	$ 29,407	$ 32,674
Airframe:	2,630	6.0 x	7.0 x	15,779	18,408
Non-Aviation:	147	1.0 x	3.0 x	147	440
Acquisition-Based:	2,038	6.0 x	7.0 x	12,227	14,265
Other Revenue:	-	0.0 x	0.0 x	-	-
Total:	**$ 8,082**	**22.0 x**	**27.0 x**	**$ 57,559**	**$ 65,787**
		Implied Share Value:		**$ 804.66**	**$ 943.50**

6.8.3 Future Share Price Analysis:

Present Value of TransDigm Group Inc. Share Price - Assumptions		
Current Share Price:	$	504.92
TTM Pro Forma EPS:	$	17.24
09/30/2019 Pro-Forma EPS:	$	47.63
TTM Pro-Forma P/E:		29.3 x
Median Pro-Forma P/E of Comparables:		18.1 x

Implied Share Price Based on P/E of Comparables				
Median P/E of Comparables		TransDigm Group Inc. 2019-09-30 Pro-Forma EPS		Implied Future Share Price
18.1 x	$	47.63	$	861.35

TransDigm Group Inc. - Present Value of Share Price at Range of Discount Rates																
P/E		Implied Future Share Price		10.0%		11.0%		12.0%		13.0%		14.0%		15.0%		16.0%
15.0 x	$	714.42	$	649.47	$	643.62	$	637.87	$	632.23	$	626.68	$	621.23	$	615.88
17.0 x	$	809.67	$	736.07	$	729.44	$	722.92	$	716.53	$	710.24	$	704.06	$	697.99
18.1 x	**$**	**862.06**	**$**	**783.69**	**$**	**776.63**	**$**	**769.70**	**$**	**762.89**	**$**	**756.20**	**$**	**749.62**	**$**	**743.16**
19.0 x	$	904.93	$	822.66	$	815.25	$	807.97	$	800.82	$	793.80	$	786.89	$	780.11
21.0 x	$	1,000.18	$	909.26	$	901.07	$	893.02	$	885.12	$	877.36	$	869.73	$	862.23
23.0 x	$	1,095.44	$	995.85	$	986.88	$	978.07	$	969.42	$	960.91	$	952.56	$	944.35
25.0 x	$	1,190.70	$	1,082.45	$	1,072.70	$	1,063.12	$	1,053.71	$	1,044.47	$	1,035.39	$	1,026.46
27.0 x	$	1,285.95	$	1,169.05	$	1,158.52	$	1,148.17	$	1,138.01	$	1,128.03	$	1,118.22	$	1,108.58
27.7 x	**$**	**1,319.29**	**$**	**1,199.36**	**$**	**1,188.55**	**$**	**1,177.94**	**$**	**1,167.51**	**$**	**1,157.27**	**$**	**1,147.21**	**$**	**1,137.32**
29.0 x	$	1,381.21	$	1,255.64	$	1,244.33	$	1,233.22	$	1,222.31	$	1,211.59	$	1,201.05	$	1,190.70
31.0 x	$	1,476.46	$	1,342.24	$	1,330.15	$	1,318.27	$	1,306.60	$	1,295.14	$	1,283.88	$	1,272.81
33.0 x	$	1,571.72	$	1,428.84	$	1,415.96	$	1,403.32	$	1,390.90	$	1,378.70	$	1,366.71	$	1,354.93
35.0 x	$	1,666.97	$	1,515.43	$	1,501.78	$	1,488.37	$	1,475.20	$	1,462.26	$	1,449.54	$	1,437.05
37.0 x	$	1,762.23	$	1,602.03	$	1,587.59	$	1,573.42	$	1,559.50	$	1,545.82	$	1,532.37	$	1,519.16
39.0 x	$	1,857.49	$	1,688.62	$	1,673.41	$	1,658.47	$	1,643.79	$	1,629.37	$	1,615.21	$	1,601.28
41.0 x	$	1,952.74	$	1,775.22	$	1,759.23	$	1,743.52	$	1,728.09	$	1,712.93	$	1,698.04	$	1,683.40
43.0 x	$	2,048.00	$	1,861.82	$	1,845.04	$	1,828.57	$	1,812.39	$	1,796.49	$	1,780.87	$	1,765.51
45.0 x	$	2,143.25	$	1,948.41	$	1,930.86	$	1,913.62	$	1,896.68	$	1,880.05	$	1,863.70	$	1,847.63

6.9 Sensitivity Analysis:

Terminal EV / EBITDA Multiple (Terminal Value Calculated Using the Multiples Method):	Weighted Average Cost of Capital (WACC):	7.00%	7.50%	8.00%	8.50%	9.00%	**9.50%**	10.00%	10.50%	11.00%	11.50%	12.00%
	12.20 x	$ 769.39	$ 769.39	$ 769.39	$ 769.39	$ 769.39	**$ 769.39**	$ 769.39	$ 769.39	$ 769.39	$ 769.39	$ 769.39
	11.80 x	752.71	752.71	752.71	752.71	752.71	**752.71**	752.71	752.71	752.71	752.71	752.71
	11.60 x	744.38	744.38	744.38	744.38	744.38	**744.38**	744.38	744.38	744.38	744.38	744.38
	11.40 x	736.04	736.04	736.04	736.04	736.04	**736.04**	736.04	736.04	736.04	736.04	736.04
	11.20 x	**727.70**	**727.70**	**727.70**	**727.70**	**727.70**	**727.70**	**727.70**	**727.70**	**727.70**	**727.70**	**727.70**
	11.00 x	719.36	719.36	719.36	719.36	719.36	**719.36**	719.36	719.36	719.36	719.36	719.36
	10.80 x	711.03	711.03	711.03	711.03	711.03	**711.03**	711.03	711.03	711.03	711.03	711.03
	10.60 x	702.69	702.69	702.69	702.69	702.69	**702.69**	702.69	702.69	702.69	702.69	702.69
	10.40 x	694.35	694.35	694.35	694.35	694.35	**694.35**	694.35	694.35	694.35	694.35	694.35

Terminal FCF Growth Rate (Terminal Value Calculated Using the Gordon Growth	Weighted Average Cost of Capital (WACC):	7.00%	7.50%	8.00%	8.50%	9.00%	**9.50%**	10.00%	10.50%	11.00%	11.50%	12.00%
	4.00%	$ 867.37	$ 867.37	$ 867.37	$ 867.37	$ 867.37	**$ 867.37**	$ 867.37	$ 867.37	$ 867.37	$ 867.37	$ 867.37
	3.70%	833.65	833.65	833.65	833.65	833.65	**833.65**	833.65	833.65	833.65	833.65	833.65
	3.40%	803.31	803.31	803.31	803.31	803.31	**803.31**	803.31	803.31	803.31	803.31	803.31
	3.10%	775.87	775.87	775.87	775.87	775.87	**775.87**	775.87	775.87	775.87	775.87	775.87
	2.80%	**750.94**	**750.94**	**750.94**	**750.94**	**750.94**	**750.94**	**750.94**	**750.94**	**750.94**	**750.94**	**750.94**
	2.50%	728.18	728.18	728.18	728.18	728.18	**728.18**	728.18	728.18	728.18	728.18	728.18
	2.20%	707.33	707.33	707.33	707.33	707.33	**707.33**	707.33	707.33	707.33	707.33	707.33
	1.90%	688.15	688.15	688.15	688.15	688.15	**688.15**	688.15	688.15	688.15	688.15	688.15
	1.60%	670.45	670.45	670.45	670.45	670.45	**670.45**	670.45	670.45	670.45	670.45	670.45

6.10 Net Operating Loss Valuation:

TransDigm Group Inc. - Net Operating Loss Valuation

Discount Rate:	9%
Federal NOLs:	$ 46,487
State NOLs:	$ 1,011
Total NOLs:	$ 47,498

	Historical			Projected									
	FY 2016A	FY 2017A	FY 2018A	FY 2019E	FY 2020E	FY 2021E	FY 2022E	FY 2023E	FY 2024E	FY 2025E	FY 2026E	FY 2027E	FY 2028E
Pre-Tax Income:	$768	$807	$981	$3,195	$3,589	$3,788	$3,992	$4,145	$4,289	$4,418	$4,539	$4,649	$4,737
Normal Taxes:	$182	$209	$24	$736	$827	$872	$919	$955	$988	$1,018	$1,045	$1,071	$1,091
NOL-Adjusted Pre-Tax Income:				$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Post-NOL Taxes:				$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Remaining NOLs:				$44,303	$40,713	$36,925	$32,933	$28,789	$24,500	$20,082	$15,543	$10,894	$6,157
Tax Savings:				$736	$827	$872	$919	$955	$988	$1,018	$1,045	$1,071	$1,091
NPV of Tax Savings:	$3,316.6												

6.11 Summary of Financial Statements:

TransDigm Group Inc. - Summary of Financial Statements
($ in Millions, Except per Share Values)

Operating Case: **Base**

	Historical			Projected									
September 30,	FY 2016A	FY 2017A	FY 2018A	FY 2019E	FY 2020E	FY 2021E	FY 2022E	FY 2023E	FY 2024E	FY 2025E	FY 2026E	FY 2027E	FY 2028E
Net Revenue:	**$ 3,171**	**$ 3,505**	**$ 3,811**	**$ 8,082**	**$ 8,878**	**$ 9,371**	**$ 9,780**	**$ 10,182**	**$ 10,570**	**$ 10,931**	**$ 11,263**	**$ 11,561**	**$ 11,819**
Revenue Growth:	17.2%	10.5%	**8.8%**	112.1%	9.9%	5.5%	4.4%	4.1%	3.8%	3.4%	3.0%	2.6%	2.2%
Operating Income:	1326	1512	**1683**	3779	4172	4371	4575	4728	4872	5001	5122	5232	5320
Operating Margin:	41.8%	43.1%	**44.2%**	46.8%	47.0%	46.6%	46.8%	46.4%	46.1%	45.7%	45.5%	45.3%	45.0%
Net Income:	**$ 586**	**$ 598**	**$ 957**	**$ 2,459**	**$ 2,762**	**$ 2,915**	**$ 3,072**	**$ 3,190**	**$ 3,301**	**$ 3,400**	**$ 3,493**	**$ 3,578**	**$ 3,646**
Earnings Per Diluted Share:	$ 10.39	$ 7.90	**$ 15.83**	$ 42.39	$ 48.02	$ 51.03	$ 54.15	$ 56.59	$ 58.94	$ 61.10	$ 63.18	$ 65.13	$ 66.78
Owner Earnings:	$ 680	$ 689	$ 1,036	$ 1,680	$ 1,887	$ 1,998	$ 2,114	$ 2,204	$ 2,290	$ 2,369	$ 2,445	$ 2,517	$ 2,578
Invested Capital:	$ 8,611	$ 8,813	$ 9,560	$ 10,813	$ 11,038	$ 11,209	$ 11,321	$ 11,443	$ 11,542	$ 11,644	$ 11,722	$ 11,782	$ 11,805
ROIC:	**7.9%**	**7.8%**	**10.8%**	**15.5%**	**17.1%**	**17.8%**	**18.7%**	**19.3%**	**19.8%**	**20.3%**	**20.9%**	**21.4%**	**21.8%**
Cash Flow from Operations:	683	790	**1022**	1364	2813	3046	3281	3407	3559	3674	3808	3925	4042
Cash Flow from Investing:	(1443)	(287)	**(684)**	(191)	(209)	(221)	(231)	(240)	(249)	(258)	(266)	(273)	(279)
Cash Flow from Financing:	1632	(1444)	**1086**	(1791)	(163)	(163)	(1313)	(163)	(163)	(163)	(663)	(713)	(163)
Total Assets:	10726	9977	**12199**	14377	16543	16187	18815	21677	23590	26771	30061	33429	36382
Total Debt + Preferred:	10279	11793	**12878**	11998	11503	8357	8044	7836	6561	6447	6349	6249	5664
Cash & Cash-Equivalents:	1587	652	**2086**	2468	4286	3670	6112	8776	10515	13520	16669	19924	22804
EBITDA:	**1512**	**1720**	**1894**	**4047**	**4469**	**4693**	**4922**	**5101**	**5272**	**5428**	**5576**	**5712**	**5826**
EBITDA Margin:	47.7%	49.1%	**49.7%**	50.1%	50.3%	50.1%	50.3%	50.1%	49.9%	49.7%	49.5%	49.4%	49.3%

TransDigm Group Inc. - Valuation Multiples
($ in Millions, Except per Share Values)

		Historical			Projected									
September 30,	*Units:*	FY 2016A	FY 2017A	FY 2018A	FY 2019E	FY 2020E	FY 2021E	FY 2022E	FY 2023E	FY 2024E	FY 2025E	FY 2026E	FY 2027E	FY 2028E
EV / Revenue:				**10.5 x**	4.9 x	4.5 x	4.3 x	4.1 x	3.9 x	3.8 x	3.7 x	3.5 x	3.5 x	3.4 x
EV / EBITDA:				**21.1 x**	9.9 x	8.9 x	8.5 x	8.1 x	7.8 x	7.6 x	7.4 x	7.2 x	7.0 x	6.9 x
P / E:				**28.1 x**	10.9 x	9.7 x	9.2 x	8.7 x	8.4 x	8.1 x	7.9 x	7.7 x	7.5 x	7.4 x

6.12 Impact of the Boeing Scandal:

Boeing remains to be one of TransDigm's largest customers (accounting for roughly 10% of their net sales) and a material decline in their success as a business could have significant negative impacts on TransDigm's revenue, cash flow and net earnings.

The issue emerged on March 10, 2019 when a Boeing 737 plane leaving Addis Ababa, Ethiopia, faltered and crashed soon after taking off, killing all 157 people on board. This came only month after the first crash, where a Boeing plane of the same model took off from Jakarta, Indonesia, and crashed, killing all

189 passengers. Following the subsequent crashes, regulators grounded the 371 Boeing 737 planes currently in service to launch an investigation.

Boeing's reputation has been tarnished, and has a long and difficult process of winning back customers and convincing people that their planes are safe. They have faced a bevy of lawsuits, and recently agreed to pay over $100 million dollars to families affected by the two crashes. Many airlines have postponed and cancelled orders for Boeing planes, as customer fear of crashing could hurt the airlines bottom line. They have delayed flights involving the plane, some to as late as the start of 2020. Internally, Boeing has struggled with fixing issues with the 737, first looking to fix the design that tilted the airplane at a faulty angle, and then running into software issues. Currently, Boeing is still working to fix the multiple problems that the 737 has.

Boeing's management has decreased sales and production forecasts due to uncertainty about the future. There are many important questions that remain unanswered and are almost impossible to predict. This scandal also has future implications for Boeings long term plans to engineer and sell newer aircrafts, due to their internal manufacturing issues and loss of industry trust. Over the long-term, Boeing is most probable to bounce back from this extended rough patch and return to their previous track record of beating production records and selling high-quality aircrafts.

Their decreased production may temporarily decrease TransDigm's sales, but I am confident in Boeings ability to recover. If they are unable to do so, TransDigm has the capability to increase sales through other customer, as a large number of aircrafts still need to be produced, and this scandal does not affect the fact that TransDigm is the sole supplier for 70% of their products, many that are mandatory for the production of certain aircrafts.

Grounded Boeing Planes in the Boeing Factory Parking Lot