



RESEARCH REPORT

October 4, 2020

Stock Rating **HOLD**
Price Target **CAD \$16.36**

Ticker	CAE
Market Cap (MM)	\$5,421
P/E	39.7x
EV/EBITDA	11.9x

52 Week Performance



Industrials

Deven Chander
dchander@quiconline.com

Max Bernardi
mbernardi@quiconline.com

Callum Dye
cdye@quiconline.com

Andrew Horner
ahorner@quiconline.com

CAE Inc. Revisiting CAE: Report II

Introduction

CAE Inc. (TSX: CAE) is the market leader in training for the civil aviation, defense and security, and healthcare markets worldwide. With fiscal year 2018 revenues of \$2.8 billion, the company is the recognized global training partner of choice to enhance safety, efficiency, and readiness for its various segments.

After completing a purchase and initial memo of CAE in 2018, the Industrials team revisits the stock given new developments in the macroeconomic environment. The team evaluates its initial theses to determine if they still hold, or whether the competitive advantages of the business have eroded over the past two years.

The two main investment arguments underlining the purchase of CAE in 2018 were its recurring revenue profile and strong capital allocation. The team revisits both of these theses and evaluates new developments in the broader market that affect future growth opportunity. The report also delves into both market headwinds and tailwinds that have the potential to move the stock over the next fiscal year. The Industrials team also takes a deep dive into the business model of pilot simulation training, which includes a look at the supply of pilots over the foreseeable future and its affect on CAE's ability to sell training simulators. Another important factor in assessing the business' strength is demand for pilots, which is also evaluating at great length using a top-down approach.

After evaluating our initial rationale and assessing the current market space, the Industrials team has determined that CAE is a stock we would like to purchase more of. However, after an intrinsic valuation, we have determined that we will wait for a better entry opportunity. As such, the Industrials team will hold its current position and seek to purchase more when the stock drops to a more attractive level.

The information in this document is for EDUCATIONAL and NON-COMMERCIAL use only and is not intended to constitute specific legal, accounting, financial or tax advice for any individual. In no event will QUIC, its members or directors, or Queen's University be liable to you or anyone else for any loss or damages whatsoever (including direct, indirect, special, incidental, consequential, exemplary or punitive damages) resulting from the use of this document, or reliance on the information or content found within this document. The information may not be reproduced or republished in any part without the prior written consent of QUIC and Queen's University.

QUIC is not in the business of advising or holding themselves out as being in the business of advising. Many factors may affect the applicability of any statement or comment that appear in our documents to an individual's particular circumstances.

Table of Contents

Company Overview	3-4
Industry Overview	5
Industry Outlook	6
Revisiting Thesis I: Strong Recurring Revenue Profile	7
Revisiting Thesis II: Capital Allocation Drives Shareholder Value	8
Welcome to Flight School: How to Become a Pilot 101	9
Moving Forward: Headwinds & Tailwinds	10
Valuation Summary & Conclusion	11
References	12

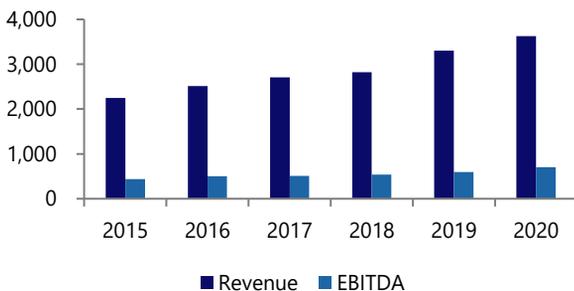
Company Overview

Company Introduction

CAE Inc. is a pure-play simulation and training company based in Montreal, Canada. As one of the world's leading providers of flight simulators and training services, the company trains more than 220,000 civil and defence crewmembers, including more than 135,000 pilots, through a global network of 160+ sites in 35 countries.

EXHIBIT I

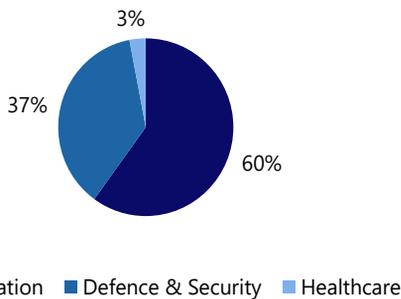
Revenue and EBITDA (\$M)



Source(s): Capital IQ

EXHIBIT II

Segmented Revenue



Source(s): Company Filings

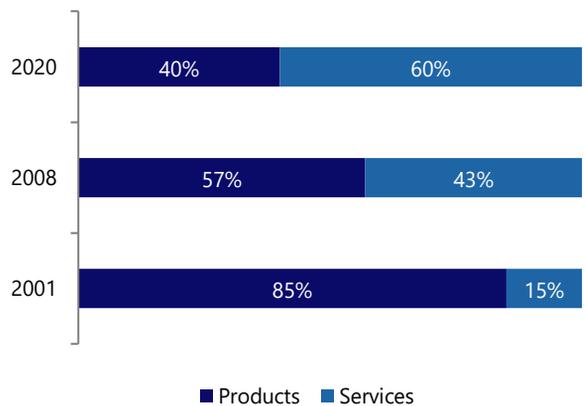
CAE company operates in three reportable segments: civil aviation, defence & security, and healthcare. Given that only 3% of CAE's revenue is derived from its healthcare segment, this report will only focus on the company's civil aviation and defence operations.

Business Model Overview

CAE makes money through both products and services. However, for more than a decade, CAE has been consciously increasing its dependence on service revenues. In FY2020, more than 60% of CAE's revenue was derived from the provision of services, a stark contrast to the infancy of CAE when the company used to source more than 85% of its revenue from the sales of products. This is a favourable trend for the company – CAE's service packages offer reoccurring revenue that is locked in with long-term contracts, reducing the volatility that is normally associated with providing capital equipment to the airline industry. Management has expressed that this trend towards a higher proportion of service revenue will continue to play out in the future.

EXHIBIT III

Increased Proportion of Recurring Revenue



Source(s): Company Filings

Company Overview

Civil Aviation Training Solutions

Civil aviation is CAE's bread and butter, making up around 60% of revenue and 80% of operating income. This segment also generates significantly higher margins than its defence & security operations due to its dominance of the civil aviation training solutions market. CAE boasts a 38% market share of the \$4.3 billion civil aviation training solutions market, making the company the largest player in a highly fragmented industry.

Essentially, CAE operates a network of long-term training centers that offer comprehensive aviation training solutions. These solutions include training for flight crews in commercial, business, and helicopter aviation, ab initio (introductory) pilot training, as well as a complete range of flight simulation training devices. These training centers can be bucketed into two categories: CAE's centers and joint ventures (JVs).

Within its own training centers, CAE offers services available to any customer (and in some cases, individuals). However, because CAE has the unique capability and global scale to address the total lifecycle needs of the professional pilot, many companies try to embed the company into their operations. To do this, major airline and aircraft operators will have training centers developed and operated exclusively by CAE. These buildings are built specifically or the customer when a long-term contract is signed – this includes the development of FFSS specific to the aircraft type. In many cases, CAE's customers enter JVs with the company and share in the costs of these center's development.

CAE's civil aviation customer base varies based on offering. CAE manufactures simulators for the majority of civil aircraft produced globally including those from Boeing, Airbus, Bombardier, and Gulfstream. These civil simulators are intended to cover the entire range of training requirements for pilots and other flight crew members. Additionally, simulators can be found in both CAE's joint ventures and its independent training centers. CAE also has contracts with several airlines to

supply them with pilots through its ab initio flight training network, which is the largest in the world.

Defence & Security

While the defence training market (~\$22B) is significantly larger than the civil aviation training market (~\$4.3B), CAE has a much smaller footprint in the former with a ~6% market share. This is largely because military customers have more diverse training needs than commercial customers. As such, they must rely on multiple vendors to serve their needs. Essentially, CAE provides training and mission support solutions for defence forces across the air, land, and naval domains, and for government organizations responsible for public safety. For example, CAE will provide live training on actual platforms, virtual training in simulators, and constructive training using computer-generated simulations to defence customers.

The company derives its revenue through large, long-term contracts with a few key military customers: the U.S. military (including the army, navy, and air force), the Royal Canadian, Australian, and U.K. Air Forces, and the UAE Defence Forces. Over 50% of defence revenue comes from contracts with various U.S. military bodies. Similar to its civil aviation business, these defence contracts are often massive and require the development of training centers for particular customers. Additionally, the majority of these contracts are fixed-price, with only a small number of cost-plus contracts. This is unfavourable for CAE; given the nature of simulator manufacturing, cost overruns, particularly related to R&D, are common and must be absorbed by the contractor (CAE).

Impacts of COVID-19

Most governments have classified the defence market as an essential service and determined that training requirements are still necessary in support of national security. As such, only six defence operational site were closed, meaning that over 90% of CAE's sites where the company provides services remained open.

Industry Overview

Manufacturing

The industry is one where Original Equipment Manufacturer (OEMs) do not create simulation equipment for their model planes. Instead, they hand this task out to manufacturers like CAE, who purchase or receive software, and hardware components to help design their simulators. Some manufactures such as Lockheed Martin have made base simulator software opensource to encourage the development of simulators. Others, such as Boeing have taken a more traditional approach to licensing by charging for the issuance of “data packs” or mock hardware components. Given that only the OEM can create the original data packages and hardware, they have significant pricing power over the simulator-makers. In a period where manufacturers are struggling to sell planes, raising the prices of simulator-parts may be an easy way to boost revenues.

Simulators can range in complexity; the most complex being Full Flight Simulators (FFS), which are full mock cockpits that move in all 6 degrees of freedom. Given the relative complexity of FFS simulators, this is an extremely difficult market to enter, as years are spent on developing numerous components. By contrast, Fixed Flight Training Devices (FTDs) are more basic, often with limited visual displays or simply running on a desktop computer.

Service Offerings

Aside from manufacturing, simulator builders have focused on building out their service and training offerings. These offer a more stable source of revenue with many customers signing contracts with guaranteed revenue requirements. The industry is far more fragmented as different customers can require niche or specific training requirements. Major aerospace companies such as Boeing, and Airbus also operate training centers. Others such as Hawker Beechcraft, Embraer, and Dassault enter into joint partnerships with CAE and its competitors. In either

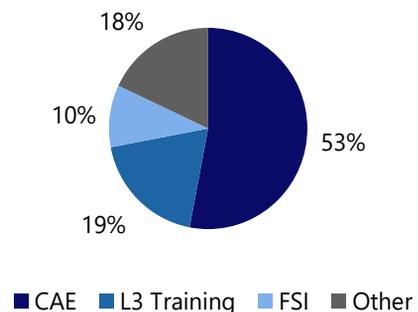
case, simulator companies operate the facility and subsequent electronics, while the customer will use the facility for training purposes

Key Competitors

The relative complexity of flight simulators results in a highly concentrated industry amongst builders. Over 82% of the market is controlled by three main competitors: CAE, L3Harris, and Flight Safety International (FSI). The contract-based ordering system, often with years of backlog, make it extremely difficult for customers to switch to other competitors. Down payment forfeits and financial penalties due to cancellations are common clauses in most ordering contracts. Subsequent training and customization of systems for the airline also further increase switching costs. Plane-makers who also compete in the simulator market often have first mover advantage when developing new simulation products, as they can design simulators alongside new aircraft, or quickly re-configure existing simulators to match new aircraft variants. In the Military, competitors also need to be mindful of certain security-clearance regulations, or restrictions on foreign suppliers. This was what led CAE to purchase BEA Training Solutions, as it had a high security classification status with the U.S. Air Force.

EXHIBIT V

Global Flight Simulator Market Shares



Source(s): FlightGlobal

Industry Outlook

COVID-19

With the global airline industry facing a severe and abrupt drop in air passenger travel and with airline and jet operators having to ground most of their aircraft, CAE has experienced a significant drop in demand for its training services. Commercial airline customers are deferring initial training for new pilots and, in some cases, airlines have sought temporary deferrals of pilot recurrent training requirements from local authorities. Additionally, airlines are deferring new aircraft deliveries – this will likely result in significantly lower simulator orders until the commercial aerospace industry returns to pre-COVID levels.

The CARES Act, a U.S. stimulus bill, temporarily prevented airlines from furloughing pilots and staff in exchange for tens of billions of dollars in stimulus. With the deadline of October 1st having now passed, American carriers will begin laying off thousands of pilots. This will result in a substantial amount of pilot resignments, or younger co-pilots being promoted to pilots (as older pilots often take early retirement). These reassignments often require pilots to proceed through many hours of training in simulators – potentially increasing demand in the coming months.

Changing Training Preferences

As technology in the industry has progressed, commercial and military operators have become increasingly reliant upon this virtual training to satisfy certification requirements. Virtual training offers operators the ability to save on fuel costs and frees up aircraft to be used for revenue generating purposes. Moreover, by outsourcing training to specialized providers such as CAE, operators can save up to 50% on training costs compared to running their own in-house training.

Furthermore, aircraft operators have increasingly focused on FTDs for training purposes and are

becoming less reliant on FFS. FTDs are significantly less expensive both to acquire and operate, since they can often be used with simpler hardware set-ups. The regulatory environment has become increasingly supportive of this shift, and the FAA now permits up to 50% of pilot training to be conducted with FDS style simulators.

Aircraft manufacturers have also helped support the shift and are designing aircraft to require less overall training for pilots. Both the 737 Max and A320NEO were designed to be similar enough so that pilots who were trained on the previous models required minimal training. 737 Max pilots, for example, simply needed to take a quick course which could be completed on an iPad. As manufacturers continue to streamline products in this way, demand for comprehensive training could be expected to fall in this regard.

Long Term Outlook

Demand for simulators is closely tied to aircraft deliveries and orders. While 2020 saw net decreases in orders for both major manufacturers, order backlogs are still at historical highs. This could help stabilize simulator demand in the coming years. In the post pandemic world, analysts expect the industry to grow at a CAGR of 4.5%, extremely similar to aerospace growth rates. Importantly, however, FFS simulators are expected to grow less when compared to FDS products.

Military training demand is expected to increase over the coming years. Concerns over national security and increased military spending will require more pilots to be trained. The rise of unmanned ariel vehicles (UAVs) will also require simulator equipment to help train operators. UAVs are expected to be a major growth point for the industry over the next decade.

Revisiting Thesis I: Strong Recurring Revenue Profile

The first thesis in the original report was the strong recurring revenue profile of CAE. As a result of the service driven sales model, long-term contracts in regulated industries and close customer relationships, CAE has developed a high proportion of recurring revenue.

The ability to operate in 35 countries with over 60 training locations has given CAE a very diversified customer base. CAE has developed many joint ventures with 40 leading airlines to provide customized services, creating a very high switching cost.

Pilots are required to complete training certifications every 6 to 12 months to ensure that they are fit to fly commercial airlines. By having contracts in place with some of the largest airlines these recurring training certifications are a relatively stable revenue stream that CAE can expect to realize far into the future. Further, since pilots are required to go through additional

training when switching aircraft or role, CAE is able to cater to all pilots throughout their entire careers.

The company also enjoys a high degree of financial visibility through the strong order backlog. Although backlog growth has slowed since the original report, the Industrials Team is still confident in the ability for CAE to continue to serve clients and meet order volumes.

This thesis has remained fundamentally intact since CAE was first pitched. The company still has many close relationships with key clients who will require training for many years. The service model gives the team high conviction in the ability for CAE to continue to generate stable revenue streams into the future.

The bottom line is that as long as airplanes are flying, pilots need to be trained and CAE is the best in the business.

EXHIBIT V

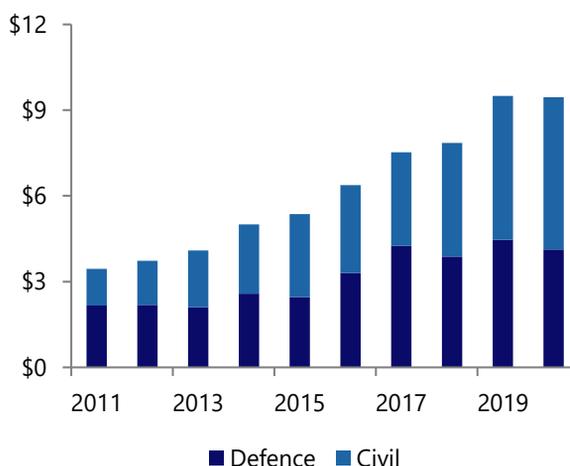
Notable Contract Awards in Fiscal Year 2020

Contract	Duration	Customer
Extension	6.5 Years	LATAM
Purchase	5 Years	SAS
Purchase	10 Years	JetSmart
Extension	5 Years	Sunwing
Renewal	3 Years	TAG Aviation
Purchase	3 Years	Western Air Charter

Source(s): Annual Report

EXHIBIT VI

Total Order Backlog (\$B)



Source(s): Annual Report

Revisiting Thesis III: Capital Allocation Drives Shareholder Value

As outlined in the first report, capital allocation decisions are guided by three strategic imperatives: grow by providing the most comprehensive training solutions globally, protect leadership position by ensuring operational excellence and innovate by driving new technology and offerings that advance training.

A recent example of CAE advancing training to adapt to current circumstances is the investments in Remote Training. CAE has been working with pilots to simplify the FFS process by gamifying the training to limit in-person contact as a result of COVID-19. Historically, a pilot in the simulator is accompanied by a check pilot who would grade the trainees actions on a scale from

1-4 to inform future training sessions. Once the project is complete, the simulator will be able to perform the grading activity by comparing actions taken by the trainee to recommended actions that have been performed by a certified trainer.

Today, management continues to make strategic investments while at the same time, returning capital to shareholders. Management made over \$80M of share repurchases during Q4 of FY2020 and Q1 of FY2021 as the COVID pandemic had dramatic impacts on the company's share price (Exhibit VII).

EXHIBIT VII

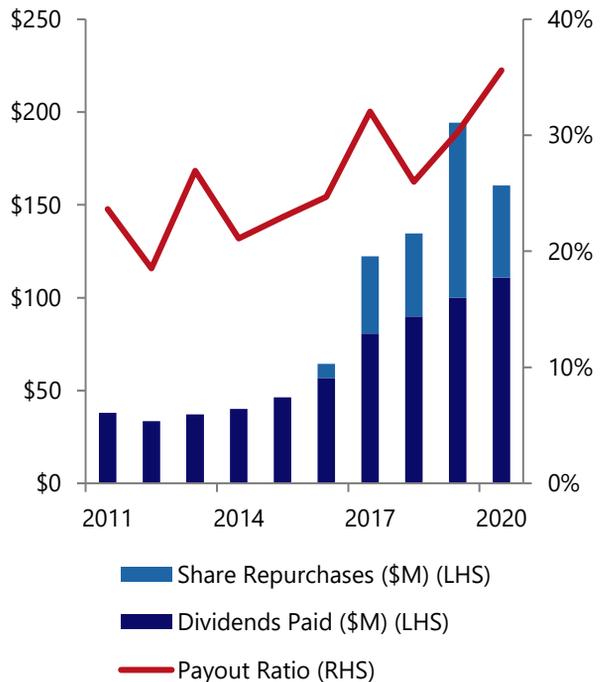
CAE Share Price Chart



Source(s): S&P Capital IQ

EXHIBIT VIII

Capital Allocation Returns Capital to Shareholders



Source(s): S&P Capital IQ

Welcome to Flight School! How to Become a Pilot 101

In order to understand the opportunities and risks of investing in CAE throughout COVID, it is critical to understand the training programs for pilots.

Each airline has different standards for pilot training and staffing requirements across trip-lengths. Generally, there are commonalities across geographies. For example, WestJet and Air Canada are likely to have similar training requirements whereas Air Canada and Delta could be different. Regardless of the airline and geography, every pilot goes through a comparable training program.

Generally, the hierarchy of pilots across airlines is as follows: Captain, First Officer, and Augment First Officer or Relief Crew. For a direct flight from Toronto to Hong Kong, there will be 1 Captain, 1 First Officer and 2 Augment First Officers or Relief Crew members. The roles of the Augment First Officer and Relief Crew are exactly the same. The difference in title is due to the fact that Augment First Officers and First Officers have the same training whereas the Relief Crew has fewer training sessions.

EXHIBIT IX

Standard Training Requirements at Air Canada

Role	Training Requirements to Upgrade
Captain	Standard training – 2 sessions every 6 months
First Officer	Standard training + upgrade training (5 sessions if same equipment, 12 if different)
Relief Crew	Standard Training + 4 sessions

EXHIBIT X

Standard Boeing 737 Max Training Program for Air Canada Pilots

Step	Name of Program	Description
1	Online Training	4 days of online training provided by Air Canada that can be completed at home on an iPad
2	Virtual Class Room	5 days of in class training where pilots have 3 computer monitors, keyboard, mouse, and one flight monitor following an instructor at the front of the class
3	Instrument Procedures Trainer (IPT)	8 sessions in a fixed based simulator where pilots are surrounded by touch screens that resemble a cockpit
4	Full Flight Simulator (FFS)	12 sessions in a full flight simulator that has 99% commonality to the aircraft

Source(s): Expert Call with Current Air Canada Pilot

Moving Forward: Headwinds

Will Boeing and Airbus make simulators?

It seems logical that since Boeing and Airbus are responsible for making the aircraft, it would make sense to build the simulator as well. This risk is mitigated due to the manufacturing cost of making simulators and the ongoing maintenance. Over the life of a Full Flight Simulator, it could cost anywhere between \$10M and \$15M to build and service. Additionally, it is unlikely that Boeing and Airbus will enter the industry in the near future due to the current air travel environment. CEO of CAE, Marc Parent said during an analyst call that COVID is easing the competitive pressures of the industry, as Boeing and Airbus will retreat to the companies' core competencies.

If Boeing and Airbus need to sell the data to CAE for the simulators to operate, what is stopping them from raising the prices?

This is a risk that is quite concerning to the Industrials Team considering the limited visibility we have into the prices that the OEMs charge to CAE. Additionally, due to the air travel environment Boeing and Airbus are currently facing, raising data pack prices could be a relatively stable income stream the companies could tap into. However, CAE only needs to purchase data for new aircraft. When the licensing agreement is signed, CAE gets access to all updates for the simulators, similar to iOS updates.

With Fixed Based Simulators (FBS) permitted to account for up to 50% of simulator sessions, will demand diminish for FFS?

Although FBS are cheaper for airlines to train pilots, it is unlikely that this will drastically impact the demand for FFS. Major airlines never provide the minimal training for pilots. It is much more common to see airlines go above and beyond the base FAA requirements to give customers peace of mind and to avoid any catastrophic incidents.

Moving Forward: Tailwinds

The "Training Bubble"

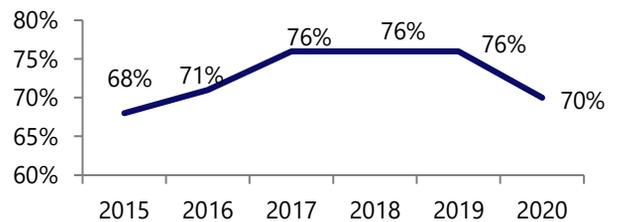
With many airlines furloughing pilots and encouraging older Captains to retire, there will be a training bubble when demand for air travel picks up again. With Air Canada laying off 600 pilots, there will be substantial training requirements in the future in order for the airline to meet demand. When a Captain retires, or leaves the airline, it could trigger anywhere from 36-72 training sessions as a result of the junior pilots being bumped up to a higher rank.

Fleet Restructuring

From 2000 until 2010 most airlines kept their fleets relatively stable, adding new airplane models on an as needed basis. However, with the technological advancements in the past decade, it has dramatically impacted the types of airplanes airlines are flying. Common models today include: Boeing 787 Dreamliner, A350, A220, 737 MAX, A320 NEO and the A330 NEO; all of which were released in the last decade. For example, in 2010 Air Canada had between 45 and 50 Boeing 767s and has since retired that model and now has 36 787 Dreamliners. In fact, the average age of Air Canada's wide-body fleet is only 7.5 years. This trend is expected to continue and coupled with the training bubble, will lead to elevated utilization rates.

EXHIBIT XI

Utilization Rates for Civil FFS



Source(s): Annual Report

Valuation Summary & Commentary

EXHIBIT XII

Valuation Summary

DCF Output							
(In CAD 000s)	2018A	2019A	2020E	2021E	2022E	2023E	2024E
Revenue	2,824	3,304	3,502	3,712	3,935	4,171	4,422
YoY Growth	4.4%	5.0%	6.0%	6.0%	6.0%	6.0%	6.0%
EBITDA	379	421	462	511	568	626	673
% of Revenue	13.4%	12.7%	13.2%	13.8%	14.4%	15.0%	15.2%
EBIT	379	421	462	511	568	626	673
Less: Tax Expense	(27)	(30)	(33)	(36)	(41)	(45)	(48)
NOPAT	352	391	429	475	528	581	625
Plus: Depreciation and Amortization	0	0	0	0	0	0	0
Less: Capital Expenditure	(174)	(205)	(205)	(205)	(205)	(205)	(205)
Less: Change in Working Capital	(103)	(24)	(24)	(24)	(24)	(24)	(24)
Unlevered Free Cash Flow	281	211	249	295	348	401	445
Unlevered Free Cash Flow for Discounting			249	295	348	401	445
Discount Period			0.50	1.50	2.50	3.50	4.50
Discounted Unlevered Free Cash Flow			241	268	298	323	337

Share Price Calculation

Terminal Growth Rate	2.50%
Discount Rate	6.39%
PV of Terminal Rate	6,043
PV of UFCF	1,266
Enterprise Value	7,309
Less: Total Debt	2,771
Implied Equity Value	4,538
Shares Outstanding	266
Implied Share Price	\$17.07
Current Share Price	\$20.40
Dividend Yield	0.00%
All-in Return	(16.34%)

Commentary

After looking at CAE for the second time, the team is still convinced that CAE has a high-quality business model founded on recurring revenue and high switching costs. Although there are some concerns with Boeing and Airbus entering the market and their respective pricing power, the team believes that these will not materialize within the next five years. As a result, we will look to potentially increasing our position in the name after rebalancing the portfolio. However, the valuation level is not attractive at this time, given that CAE is trading at such a low valuation. As such, the Industrials team will watch for a more attractive entry opportunity, and look to expand its position in the name once the stock price comes to a more attractive level.

References

1. Bloomberg
2. Capital IQ
3. Company Filings
4. Defense & Security Monitor
5. FlightGlobal
6. Grandview Research
7. Mordor Intelligence