RESEARCH REPORT

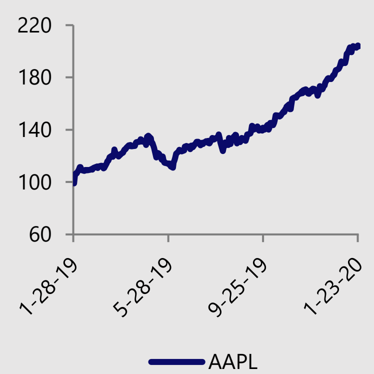
January 27, 2020

Stock Rating	SELL
Price Target	$162.85

Bear Case	Price Target	Bull Case
$146.64	$162.85	$198.97

Ticker	AAPL
Market Cap (T)	$1.395
EV/EBITDA (LTM)	18.3x
P/TBV	15.6x

52 Week Performance



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Apple Inc.

An Overvalued Star

Despite being the largest constituent of TMT's coverage universe, the Team has historically neglected Apple, believing that its size and coverage precluded differentiated analysis. However, the company had grown too big to ignore.

The Team's analysis, contained herein, has validated its initial concerns. The company's heroic rally over the past year has taken it far beyond the price range at which we would feel comfortable accumulating a position. The Team remains fairly confident in the underlying strength of the business model. Consequently, the Team will avoid the Company until it reaches a more terrestrial valuation range.

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Company Overview

History

Apple was founded in 1977 by Steve Jobs and Steve Wozniak, who set out to create the first user-friendly desktop computers. The company has since grown to over 130,000 employees and is the world's most valuable company by market capitalization.

Today, Apple designs, manufactures, and markets an assortment of consumer electronics such as smartphones, tablets, computers, and accessories. The company also has a strong presence in the streaming industry, with services in the music, video, and gaming niches. Furthermore, the company makes money from services such as mobile payments, extended warranties, and royalties on sales in its application store.

Strategic Direction

In March 2019, CEO Tim Cook unveiled a new strategic direction at a media event. In light of stagnating growth in the company's core product segments, the company made a push towards streaming and services. Apple would leverage its captive customer base and proprietary software to attract customers to their services.

So far, the service-oriented strategy seems to be working. Over the last year, Apple's stock price increased by 162%, with the service segment itself growing by double digits. Given this massive appreciation, it appears that investors are confident that this approach will pay off.

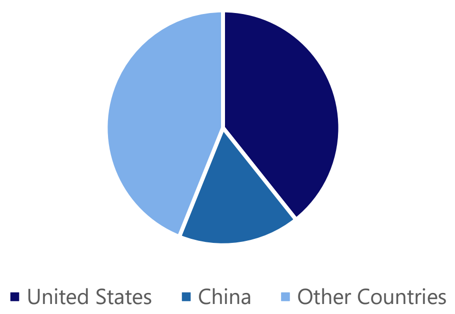
Trade Risks

Earlier in the year, trade tension with China posed a major threat to Apple. Since the vast majority of Apple products are manufactured in China and sold in America, tariffs would have had a pronounced impact on Apple's bottom line. The proposed tariffs would have added 30% to the cost of desktop Macs, headphones, and the Apple Watch as well as a 15% tariff to virtually all other hardware products. Fortunately, an agreement signed on January 15, 2020 ensured that these would not go into effect.

New trade threats are constantly arising, however. France recently proposed a tax on revenue for multinationals but backed down amidst retaliatory pressure. While there may not be pressing trade threats present, there is no guarantee that threats will not emerge in the future.

EXHIBIT I

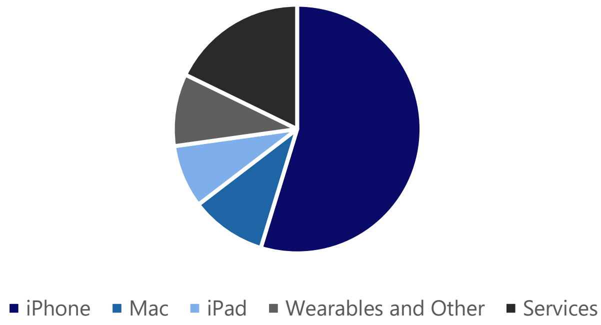
Revenue by Geography



Source(s): Company Filings

EXHIBIT II

Revenue by Segment



Source(s): Company Filings

Legacy Segments

iPhone

The mobile handset market is a mature, slow growth industry. There was a total of 1.371B units shipped in 2019, with Apple shipping roughly 177.9M units. The iPhone has a 13% global market share in this industry, down from 17% in 2013. Apple differentiates itself from the Android competition by targeting the more profitable high-end segment of the market. The average selling price (ASP) of iPhones in Q4 2018 was $793, compared to the industry average of $295 and Androids ASP of $254. Through concentration on selling higher-priced smartphones, Apple manages to generate iPhone gross margins in excess of 50% (for example, iPhone X gross margin is 64%). The downside to Apple's strategy of tailoring to high-end consumers is that they have a low market share in developing countries. Apple differentiates their iPhone offerings by creating a product ecosystem with elegant user interfaces. This closed-end ecosystem creates economies of scope and switching costs.

iOS has only one relevant competitor in the mobile market: Android. As the Android OS is open-source, it has historically been inferior to iOS. However, Alphabet's new Pixel phone has disrupted this dynamic. While the Pixel has not been a blockbuster product for Alphabet, this was not the product's purpose (as evidenced by Alphabet investing heavily in neither marketing nor distribution for the Pixel). Rather, it was intended to raise the bar for quality among all Android devices and improve consumers perceptions of quality. Whether this strategy will be successful as an "iPhone killer" remains to be seen. While it will likely hurt the iPhone in the long run, the Team feels confident in iPhone users' brand loyalty over the short to medium term.

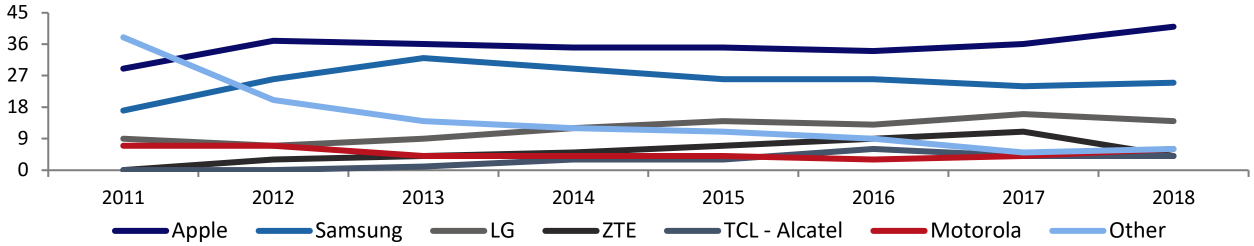
Mac

There was a total of 71.8M PC units shipped in 2019, with Apple shipping 4.7M units. The Mac has a 6.6% global market share in this industry, down from 7% in 2018. Apple saw its shipments fall 2.2%, despite industry shipments growing 2.7% in 2019. Apple differentiates itself from the other PC competition by targeting the more profitable high-end segment of the market. The average selling price (ASP) of Macs was greater than $1,300, compared to the industry average of $632. This strategy is reflected in the Mac's 19% average gross margins, which are significantly higher than those of Dell and HP (4%).

The PC market in recent years has increasingly seen more competition. Google has released their ChromeOS operating system, which has gained market share. The ChromeOS has taken market share from both Windows and Apple as they have targeted school boards, which was historically a stronghold for Apple. ChromeOS ultimately does not pose a large threat to MacOS as they have targeted the niche ultra-budget shoppers and school boards, whereas Mac PCs are targeted at more affluent shoppers. Microsoft's Surface lineup poses a real threat to the Mac as they target the similar customers. Sales for the Surface lineup grew 39% in Q2 2019, and forecasted to grow 20% in 2020, compared to 2.2% decrease for Mac OS. Going forward, should Surface sales remain strong, Apple's market share could be diminished. The Team feels marginally less confident in this segment's growth prospects than the iPhone segment.

EXHIBIT III

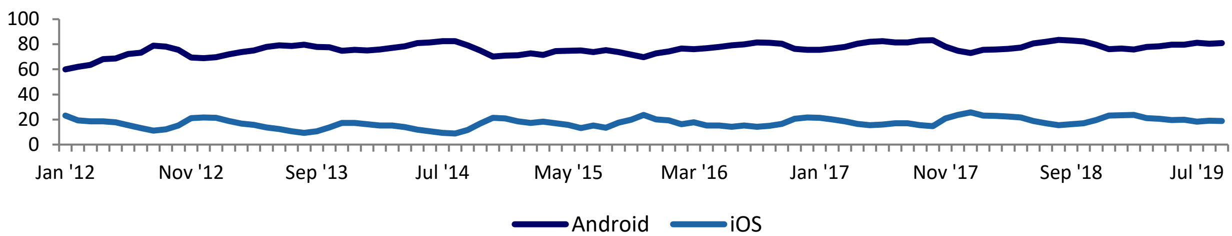
Smartphone Market Share by Manufacturer, US



Source(s): Statista

EXHIBIT IV

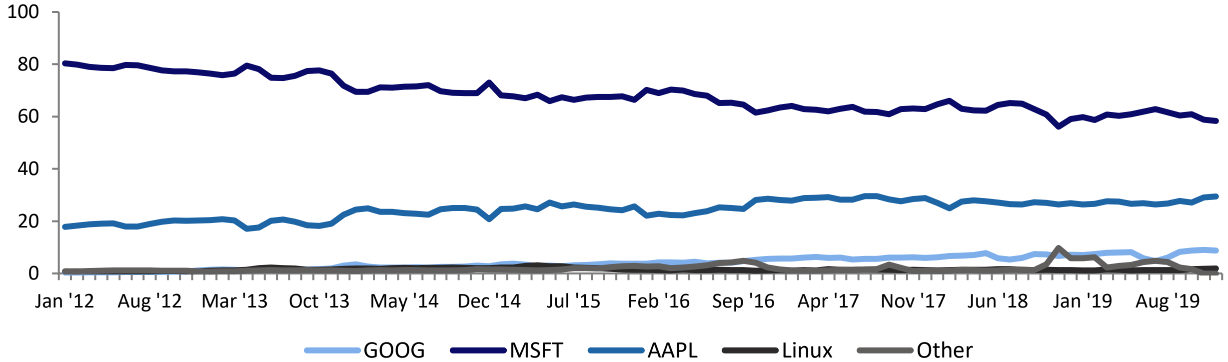
Android and iOS Market Share, Germany



Source(s): Statista

EXHIBIT V

PC Market Share by Manufacturer, US



Source(s): Statista

Legacy Segments

iPad

The iPad segment includes the iPad Pro, iPad Air, iPad, and iPad Mini product lines. In the past year, the iPad segment has seen stable revenue growth, growing 16% in Q4 2019 and 15% for FY 2019. The segment generated $21.2B of revenue in 2019, which is Apple's smallest reportable segment.

Growth Prospects

One catalyst for future growth in the iPad segment is the expanded use cases for the tablets. Apple has been adding many productivity features to the iPadOS, which now allows greater multi-tasking features. Furthermore, Apple has created many new accessories such as the Apple Pencil and the Smart Keyboard. These accessories greatly add to the use cases for the iPad, enabling it to compete against products such as the Microsoft Surface tablet. These added use cases provide the iPad segment an additional runway for growth.

A challenge when determining the growth prospects of the iPad segment is the lack of transparency from Apple. While there are numerous third-party reports available with estimates on unit sales, Apple has not released any detailed unit breakdowns and has refused to comment on unit sales in their earning calls. It is therefore hard to determine if this year's growth is due to cyclical upgrades, or if the growth stems from a new set of users in the expanded iPad lineup.

Competitive Landscape

Apple's products are consistently well-received; all of the iPad products rank within the top 5 best tablets, according to TechRadar. The quality of these products combined with Apple's powerful brand recognition allows for premium prices to be commanded; Apple's average tablet selling price is $413, compared to the industry average of $266.

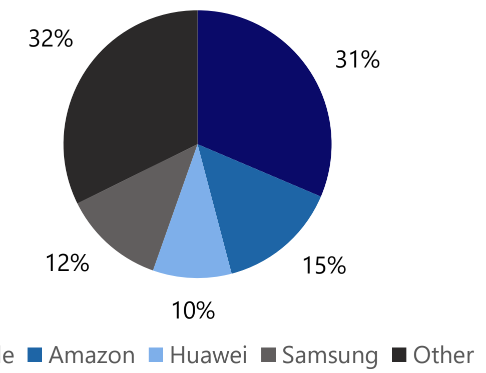
While there is immense competition in this segment, Apple is generally unaffected by this competition. Apple manages this by creating an ecosystem that works very well together and incentivizes consumers who own iPhones or Macs to purchase an iPad instead of an Android tablet. Furthermore, the iPads compete in the higher end segment where competition is not as heavy.

Conclusion

The iPad segment has been extremely successful over the past year. Moving forward, however, there are several possible outcomes that the segment can take. The most bullish outlook is that growth will continue as the added use cases for the iPad will draw new customers or customers who previously would not have considered the iPad. A more bearish possibility is that the segment shrinks as this recent growth experienced was an upgrade cycle and sales will fall going forward as customers will not need to upgrade their iPads again for several years.

Exhibit VI

Tablet Market Share by Vendor



Source(s): IDC

Growth Segments

Wearables, Home, and Accessories

The Wearables, Home, and Accessories category encompasses Apple's non-core hardware products such as AirPods, Apple TV, Apple Watch, Beats products, and HomePod. The segment also includes Apple-manufactured and licensed accessories across all product lines.

In the last two years, the Wearables, Home and Accessories segment has seen incredible growth; the segment grew 41% and 36% in 2019 and 2018, respectively. The segment generated $24.4 billion in revenue in 2019, which rivals the size of the Mac segment. The combination of size and growth make wearables, home and accessories one of the most valuable parts of the company.

While the segment is extremely competitive, Apple's products are consistently well-received; the Apple TV 4K was described by CNET as "the best TV streamer", the Apple Watch 5 was praised by The Guardian as "the king of smartwatches". The quality of these products combined with Apple's powerful brand allows for premium prices to be commanded.

Growth Prospects

A major challenge with assessing the growth prospects of the Wearables, Home and Accessories segment is the lack of transparency from Apple. While there are numerous third-party reports available with estimates on unit sales, Apple has not released any detailed unit breakdowns and has refused to comment on unit sales in their earning calls. It is therefore difficult to trace where specifically growth is coming from. In an ideal scenario, the assorted products in the segment would all be experiencing strong growth and have a large runway for future success. If all the growth is concentrated in one product line such as Airpods, the market may quickly become too saturated to support further expansion.

A second challenge in assessing the segment's growth prospects is uncertainty regarding the upgrade cycle for these products. Since the segment is relatively new, Apple does not have enough data to establish a clear upgrade pattern. If Apple can persuade customers to continuously upgrade their wearable products with each release – referred to as a 'supercycle' – growth will likely be able to persist for many years. On the other hand, if products are purchased and held for an extended period, sales may slow down dramatically. This is especially true since most wearable sales are to new users; approximately 75% of Apple Watch sales were sold to first-time buyers.

Finally, the lack of reporting transparency makes it difficult to assess the impact of political risk on the segment. The European Commission is currently in the process of standardizing the charging cables on select electronics so that they all utilize the USB standard. Since Apple currently licenses its own Lightning port, this proposal would likely cut into their segment revenue. Without information, however, it is challenging to assess whether this proposal will have a material impact on the firm.

In conclusion, the Wearables, Home, and Accessories category has been extremely successful over the last three years. Moving forward, however, there are several possible outcomes that the segment can take. The most bullish outlook is that growth will persist for years to come as the segment attracts new customers while continuing to upsell its existing base. A more bearish possibility is that the segment shrinks as the market becomes saturated and existing customers do not upgrade their devices.

The TMT team's perspective lies in the middle of these alternatives. While we are skeptical that the segment will be able to maintain 50%+ annual growth, we think that the segment still has a runway for expansion in the short to medium term. In the long run, growth will likely taper off as sales become driven by repeat customers.

Growth Segments

Services

Apple's Services segment is broad, as it encompasses all non-product revenue. Key components of the segment include the App Store (Apple's proprietary application platform), Apple Music, and AppleCare (the extended warranty service). More recent additions to the services portfolio include Apple Arcade and Apple TV+, which are subscription services for games and television, respectively, as well as Apple Pay.

In 2019, the Services segment generated $46 billion in revenue, growing 16% year over year. The segment now accounts for 17.8% of total revenue, which is roughly the size of the Mac and iPad segments combined. What makes this segment particularly important, however, is its gross margin. The segment's margin has made a significant climb from 55% in 2017 to 63.7% in 2019. Meanwhile, margins in the Product segment declined in the same period from 35.7% to 32.2%.

The business lines within the Services segment face different levels of competitiveness. The App Store has a monopoly over mobile applications for Apple devices, which grants it stability. While Apple Pay technically does have competitors (Google Pay can be installed on an iOS device), the company essentially has a monopoly on iOS mobile payments. AppleCare has some third-party competitors, but Apple has a distinct advantage due to its reputation and access to sales channels and parts. Apple Music and Apple TV+ operate in fiercely competitive segments with numerous incumbents and challengers (Exhibit VII).

Growth Prospects

As with the Wearables, Home, and Accessories segment, it is difficult to ascribe performance to subsegments due to reporting opacity. What is promising, however, is Apple's commentary on their 2019 performance. On the 2019 earnings call, Tim Cook commented on the breadth of the Service segment's success; all five geographic regions and numerous legacy categories such as the App Store, AppleCare, Music, and cloud services set all-time service revenue records. This means that segment growth is one subcategory is not compensating for deteriorating performance across the board.

Apple's newer services – Apple Arcade, Apple TV+, and to a lesser extent Apple Music – are a greater source of uncertainty for investors. Early third-party reports suggest that the firm has been successful in attracting users to the platform, but it is unclear how many of these users will become paying customers and maintain their subscriptions. A good example of this is Apple Music; while the firm has reached 60 million subscribers, it is unclear what portion of these users are leveraging the free trial. Similarly, Apple TV+ is reported to have 33 million subscribers, but researchers predict that most of these are currently in the trial period. While this presents itself as a risk, it could also provide Apple with a significant revenue boost if these users convert to paying customers.

When evaluated holistically, the TMT team has a positive outlook on the Services segment. Apple has been extremely successful in their legacy service businesses, and efforts in music and television subscriptions appear to be promising. Renewal risk and pricing pressure from competition somewhat damper this outlook, but the team believes that service-oriented strategy is strong.

EXHIBIT VII

Select Competitors

Apple Music

Apple TV+

Source(s): Forbes, Wired, Company Filings

Valuation & Conclusion

Overview & Output

The TMT team valued AAPL using a 5-year discounted cash flow model. Given that the company has more than doubled in value in the past year without significant changes to its core business lines, it was unsurprising that the valuation of AAPL produced an implied loss of 48.8% with a target price of $162.85. As discussed previously, AAPL lacks transparency when disclosing segment performance. The company doesn't share hardware units sold anymore, blending units and pricing into one final revenue output instead.

Approach

The TMT team built out each revenue segment and assessed the overall industry as well as AAPL's current and future positioning in the respective industries. While the team holds a strong conviction in AAPL's ability to leverage its extremely loyal customer base for future sales, consumers can still be unforgiving for underwhelming products. The phone, computer, and tablet hardware markets are overly saturated, with more devices at lower price ranges being able to fulfill customer needs. The TMT team believes that the iPhone, Mac, and iPad lines will be able to retain a large portion of its current customer base but experience little growth in the long-term.

The TMT team believes that AAPL will continue to enjoy strong double-digit growth for its Wearables, Home and Accessories and Services segments. The closed Apple ecosystem has helped form a large, loyal userbase with much greater willingness to pay for additional Apple products and services to optimize the value they derive from the hardware.

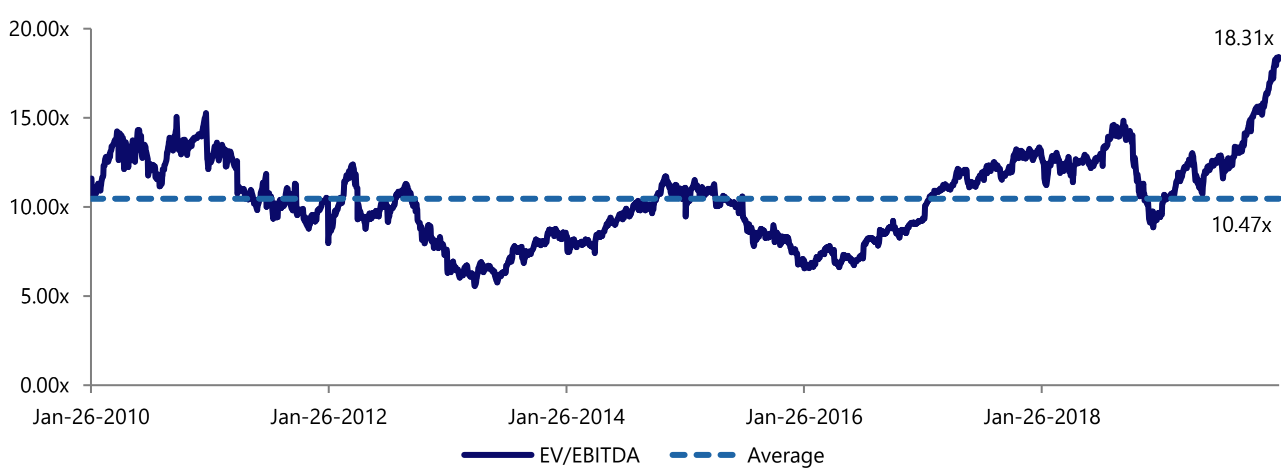
Gross margin is the weighted average of the Services gross margin (expected to increase) and Product gross margin (expected to slightly decrease). The valuation applied a WACC of 12.0% and an exit multiple of 16.0x.

Conclusion

While the TMT believes that AAPL is a great company, we believe that it is overvalued at current prices, and plan to watch it closely with the intention to enter closer to our target price.

EXHIBIT VIII

10-Year Historical EV/EBTIDA Multiples



Source(s): Company Filings, S&P Capital IQ

EXHIBIT IX

5-Year Unlevered Free Cash Flow Projection

Unlevered Free Cash Flow Projection										
	Historical					Projection Period				
	2015	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**
Revenue	**$233,715**	**$215,639**	**$229,234**	**$265,595**	**$260,174**	**$288,769**	**$320,911**	**$355,598**	**$391,177**	**$431,656**
% growth		*-7.7%*	*6.3%*	*15.9%*	*-2.0%*	*11.0%*	*11.1%*	*10.8%*	*10.0%*	*10.3%*
iPhone	**$155,041**	**$136,700**	**$141,319**	**$166,699**	**$142,381**	**$149,500**	**$156,228**	**$162,477**	**$167,351**	**$171,535**
% growth		*-11.8%*	*3.4%*	*18.0%*	*-14.6%*	*5.0%*	*4.5%*	*4.0%*	*3.0%*	*2.5%*
Mac	**$25,471**	**$22,831**	**$25,850**	**$25,484**	**$25,740**	**$26,255**	**$26,649**	**$26,915**	**$27,184**	**$27,456**
% growth		*-10.4%*	*13.2%*	*-1.4%*	*1.0%*	*2.0%*	*1.5%*	*1.0%*	*1.0%*	*1.0%*
iPad	**$23,227**	**$20,628**	**$19,222**	**$18,805**	**$21,280**	**$22,344**	**$23,349**	**$24,283**	**$25,012**	**$25,637**
% growth		*-11.2%*	*-6.8%*	*-2.2%*	*13.2%*	*5.0%*	*4.5%*	*4.0%*	*3.0%*	*2.5%*
Wearables, Home and Accessories	**$10,067**	**$11,132**	**$12,863**	**$17,417**	**$24,482**	**$33,051**	**$42,966**	**$53,707**	**$64,449**	**$77,339**
% growth		*10.6%*	*15.5%*	*35.4%*	*40.6%*	*35.0%*	*30.0%*	*25.0%*	*20.0%*	*20.0%*
Services	**$19,909**	**$24,348**	**$29,980**	**$37,190**	**$46,291**	**$57,619**	**$71,720**	**$88,215**	**$107,181**	**$129,689**
% growth		*22.3%*	*23.1%*	*24.0%*	*24.5%*	*24.5%*	*24.5%*	*23.0%*	*21.5%*	*21.0%*
Cost of Goods Sold	140,089	131,376	141,048	163,756	161,782	177,348	195,081	214,046	231,327	251,155
Gross Profit	**93,626**	**84,263**	**88,186**	**101,839**	**98,392**	**111,420**	**125,830**	**141,552**	**159,850**	**180,502**
% margin	*40.1%*	*39.1%*	*38.5%*	*38.3%*	*37.8%*	*38.6%*	*39.2%*	*39.8%*	*40.9%*	*41.8%*
SG&A	3,072	3,689	5,104	5,802	5,698	6,324	7,028	7,788	8,567	9,454
R&D Expense	8,067	10,045	11,581	14,236	16,217	17,904	19,896	22,403	25,035	28,058
EBITDA	**82,487**	**70,529**	**71,501**	**81,801**	**76,477**	**83,743**	**93,064**	**103,123**	**113,441**	**125,180**
% margin	*35.3%*	*32.7%*	*31.2%*	*30.8%*	*29.4%*	*29.0%*	*29.0%*	*29.0%*	*29.0%*	*29.0%*
Depreciation & Amortization	11,257	10,505	10,157	10,903	12,547	11,354	12,024	12,284	13,711	14,369
EBIT	**71,230**	**60,024**	**61,344**	**70,898**	**63,930**	**72,389**	**81,040**	**90,839**	**99,730**	**110,811**
% margin	*30.5%*	*27.8%*	*26.8%*	*26.7%*	*24.6%*	*25.1%*	*25.3%*	*25.5%*	*25.5%*	*25.7%*
Tax Expense	19,121	15,685	15,738	13,372	10,481	13,030	14,587	16,351	17,951	19,946
EBIAT	**52,109**	**44,339**	**45,606**	**57,526**	**53,449**	**59,359**	**66,453**	**74,488**	**81,779**	**90,865**
Plus: Depreciation & Amortization	11,257	10,505	10,157	10,903	12,547	11,354	12,024	12,284	13,711	14,369
Less: Capital Expenditures	(11,247)	(12,734)	(12,451)	(13,313)	(10,495)	(11,551)	(12,836)	(14,224)	(15,647)	(17,266)
Less: Δ in NWC		8,168	(29,666)	1,072	(6,853)	(1,305)	(2,473)	(2,715)	(3,377)	(3,796)
Unlevered Free Cash Flow	**52,119**	**50,278**	**13,646**	**56,188**	**48,648**	**57,857**	**63,167**	**69,833**	**76,466**	**84,172**
Discount Period						0.5	1.5	2.5	3.5	4.5
Discount Factor						0.94	0.84	0.75	0.67	0.60
Present Value of Free Cash Flow						**$54,670**	**$53,293**	**$52,604**	**$51,429**	**$50,546**

Summary		
	Return	*Target Price*
Base Case Return	**(49%)**	**$162.85**
Bear Case Return	(54%)	$146.64
Bull Case Return	(37%)	$198.97

Source(s): Company Filings, S&P Capital IQ

EXHIBIT X

Implied Return Calculations

Implied Equity Value and Share Price	
Enterprise Value	$721,439
Less: Total Debt	(108,047)
Less: Preferred Securities	-
Less: Noncontrolling Interest	-
Add: Cash & ST Invesmtents	100,557
Implied Equity Value	**$713,948.99**
Diluted Shares Outstanding	4,384
Implied Share Price	$162.85
Current Share Price	$318.00
Implied Return	**(48.8%)**

Enterprise Value	
Cumulative PV of FCF	$262,541
Terminal Value	
Terminal Year EBITDA 2024E	$50,546
Exit Multiple	16.0x
Terminal Value	$808,735
Discount Factor	0.57
PV of Terminal Value	**$458,898**
% of Enterprise Value	63.6%
Enterprise Value	**$721,439**

Source(s): Company Filings, S&P Capital IQ

EXHIBIT XI

Sensitivity Analysis

		Exit Multiple					
		10.0x	12.0x	14.0x	16.0x	18.0x	20.0x
Discount Rate	4.0%	*(36%)*	*(28%)*	*(20%)*	*(11%)*	*(3%)*	*5%*
	6.0%	(44%)	(37%)	(30%)	(23%)	(16%)	(9%)
	8.0%	(51%)	(45%)	(39%)	(33%)	(28%)	(22%)
	10.0%	*(56%)*	*(52%)*	*(47%)*	*(42%)*	*(37%)*	*(32%)*
	12.0%	(61%)	(57%)	(53%)	(49%)	(45%)	(41%)

Source(s): Company Filings, S&P Capital IQ

References

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