



**Apple**

For the Gordan Spellman Portfolio

Final Report

## Executive Summary

### Apple (AAPL):

Recommendation	Partial Sell
Current price (Market close 12/9/21)	\$174.61
Valuation price	\$119.86

#### Reason for Recommendation:

Apple is a strong stock that has performed well in the past. However, the stock is currently overvalued, and their growth opportunities are limited. Because of this, we are recommending selling 118 shares.

#### Company Overview:

- Founded in 1976, based in Cupertino, California
- Design, produce, sell, and provide a variety of consumer electronics and services for those products
- Apple is the largest consumer electronics company globally

#### Business Segments

- iPhone
- Mac
- iPad
- Wearables, home, and accessories
- Services

#### Key Drivers

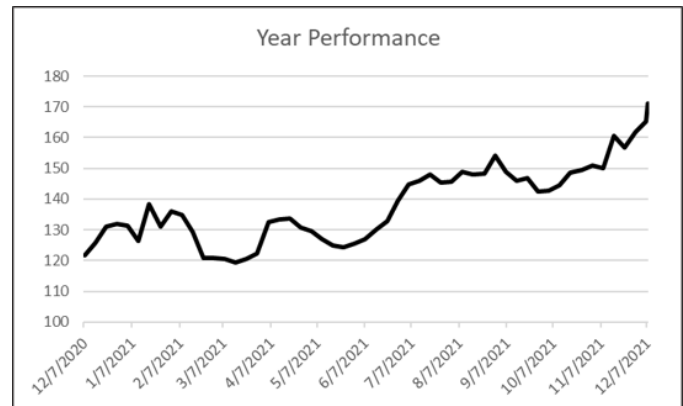
- iPhone Sales
- Apple TV+

#### Board Makeup

- Apple has nine board members
- Tim Cook is the only Apple employee on the board
- Three out of the nine board members are female

#### Strengths:

- Customer loyalty
- Size of the company
- Product integration



- North America market share

#### Weaknesses

- Overreliance on the iPhone
- Lack of recent innovation
- Price of their products

#### EPS Projections

<b>Figure 1:</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Baseline</b>	5.67	5.83	6.05	6.27	6.55
<b>Pessimistic</b>	5.67	5.72	5.83	5.99	6.07
<b>Optimistic</b>	5.67	5.98	6.33	6.65	6.96

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## Company Background

- Apple specializes in creating and selling phones, tablets, computers, and accessories for those products
- Founded in 1976 by Steve Jobs and Steve Wozniak
- Sales jumped from \$7.8 million in 1978 to \$117 million in 1980, the year Apple went public
- The iPhone, first released in 2007, is one of the world's most successful products (Library of Congress, 2020)
- Apple also offers services for their products, such as: Apple TV+, Apple Pay, Apple Card, Apple Music, Apple Arcade, and iCloud
- 40% of revenue comes from North and South America
- iPhones were responsible for 49% of revenues in 2021 Q3
- Apple has nine board members, some notable board members are Tim Cook (CEO), Albert Gore (former vice president), and Susan Wagner (co-founder of Blackrock).

Apple was founded in 1976 by two college dropouts, Steve Jobs and Steve Wozniak. To fund the start of this company, Wozniak and Jobs sold their van and two calculators, raising \$1,300. Their first project was the Apple 1 computer. Jobs and Wozniak ended up selling 200 Apple 1's to computer hobbyists for \$666 each, well making back the initial \$1,300 investment to start the company (Reference for Business).

Jobs wanted to grow their company before the release of Apple II and consulted Mike Markkula, who formerly managed marketing for Intel Corporation and Fairchild Semiconductor. Markkula purchased a 1/3<sup>rd</sup> position in Apple for \$250,000, and from there aided Job's with the business plan and assisted with the hiring of Mike Scott as president in 1977. Jobs also recruited Regis McKenna, who owned one of the most successful advertising firms in Silicon Valley. With Apple's new buffed up team, Apple II was now positioned in the place to grab the attention of the public, instead of just reaching the small market of computer hobbyists in Silicon Valley. This investment on personnel and marketing paid off fast, the public was fascinated by the idea of personal computers, and by June 1977 Apple had already exceeded one million in sales. While the Apple II was revolutionary, it faced the long-time issue of having to use cassette tapes for information storing, which was slow and unreliable. Wozniak shifted the playing field by developing the Apple Disk II, which became by far the cheapest and fastest disk drive available at the time. This helped boost Apple's success to the next level, by the end of 1978, Apple was one of the fastest growing companies in the U.S. (Reference for Business)

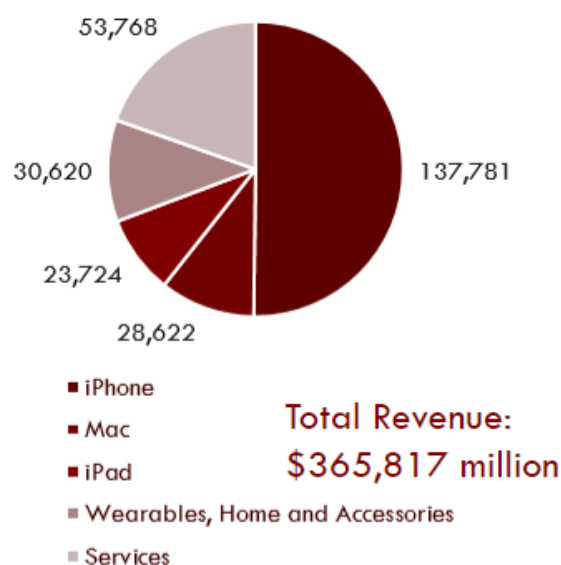
It wasn't all smooth sailing after Apple II's unprecedented success. The Apple III was anticipated to take over IBM's hold of the office computer sector, but it was released without adequate testing and failed terribly. This resulted in the stock price falling more than half its previous high (Apple III Chaos: Apple's First Failure, 2016). The Macintosh was introduced in 1984 and pitched itself as the first quality in-home personal computer. At first, feedback and sales were extremely

positive, but outside issues overshadowed the initial success of the Macintosh (issues included: conflict between divisions in Apple, poor inventory tracking leading to overproduction, and managements fear of memory chip shortage caused them to purchase way too many at too steep of a price).

In the 1990's, Apple felt threatened by their low profit margins and began to rework their business strategies. They boldly released 10% of their workforce, while simultaneously consolidating facilities, outsourcing production, and drastically reorganizing their corporate organizational chart. Apple was able to profit on continuous technological innovations throughout the 1990's that kept customers frequently coming back, but this was less important than the issue Apple faced in the regarding management, which were criticized for being inconsistent and incompetent (Reference for Business). The management issue was largely resolved when Jobs returned as Apple's CEO in 1997, bringing with him the same passion and ingenuity that initially launched Apple towards success.

With Jobs back in charge, Apple enters the 2000's with a much leaner business model. Jobs had cut 15 of the 18 products produced by Apple, but the introduction of the iPod in 2001 made it well worthwhile. Users could now store and listen to around 1,000 songs on a device smaller than a deck of cards. This product became one of the most sought out innovations in the first part of the 21<sup>st</sup> century (Reference for Business). Apple has since expanded to become the largest smartphone provider with nearly a 15% market share. However, most of their efforts have focused on North American growth, where they hold over 40% market share of smartphones (Statistica, 2021). Apple is most recently trying to gain market share in various service industries. Below is a breakdown of revenue streams for 2021.

□ Revenue Streams for Most Recent Year (2021) in Millions



## Environmental, Social, and Governance Factors

### Environmental Factors:

#### Positives:

- Apple is carbon neutral for all of their corporate facilities
- Will invest up to 200 million to help the climate which is called their Restore Fund
- 15 million tons of emissions was avoided due to carbon reduction strategies
- 65% less of single-use plastics in packaging compared to 2015
- Goal of being carbon neutral by 2030 (*Apple Inc.*)

#### Negatives:

- In one iPhone 13 Max life cycle, 73 kg of carbon emissions are released
- Produced 22.6 million metric tons of carbon emissions in 2020. This includes from mining the materials to the end of life for Apple's products. (*Compare and Recycle*).

### Social Factors:

#### Positives:

- Over 2 million people are covered in Apple's supply chain are covered in Apple's health and safety protocols
- Require all suppliers to provide their employees of their workplace rights which is 21.5 million people

#### Negatives:

- Not-repair friendly, which causes customers to buy new products compared to repairing their owned products
- Apple agreed to pay a settlement of 2013 over allegations of secretly slowing down older phones (*Allyn*).

### Governance Factors:

#### Negatives:

- Apple has avoided paying taxes. Between 2008 and 2015, Apple made 305 billion dollars before taxes and only paid only a 5.8% foreign tax rate between the span of time.
- Only 3 out of 9 board members on Apple's board of directors are female (*Apple Inc.*)

- The lowest key executive's compensation in 2020 was 14.7 million dollars and it was Tim Cook (*Apple Inc.*)

As discussed above, there were more positives in the environmental factors category compared to the others. There were only negatives when it came to the governance factors. Apple has made an effort to improve their environment but is lacking in the social and governance categories. After looking at all three ESG factors, we rate Apple as an unfavorable company based on ESG rating.

## Strengths and Weaknesses

- **Strengths:** customer loyalty, size, product integration, North America market share
  - Customer loyalty: Many people (especially in North America) refuse to use anything other than an iPhone. This speaks to Apple's customer loyalty and creates repeat customers.
  - Size: Apple topped the Forbes' list in 2020 for most valuable brand (\$241.2 billion), their sheer size allows them flexibility as to which markets to enter
  - Product integration: Apple's products are very well integrated into other Apple products. Meaning that whenever a repair or accessory is desired, people are forced to go to Apple for a solution.
  - North American market share: Around 47% of smartphones in the United States are iPhones. Apple has dominated the North American smartphone industry.
- **Weaknesses:** overreliance on the iPhone, recent innovation, price
  - With the iPhone making up nearly half of their revenues, the threat of smartphone competitors seeking to take Apple's market share could be devastating.
  - Innovation in smartphones is beginning to slow down. The last truly innovative iPhone release occurred in 2017, with the recent releases just containing minor updates. This trend has led to consumers purchasing smartphones less often, which obviously hurts Apple.
  - Apple products are often very expensive compared to competitors. Their smartwatch showcases this, the Apple Watch Series 7 sells for around \$400, while some competitors offer smartwatches for less than \$100.
  - Apple has also proved reluctant to offer foreign markets the same price on their products compared to North America. The iPhone 12 Pro Max is offered in Brazil for \$2,535, compared to \$1,399 in the United States (See Figure-2) (9to5mac.com, 2020). Apple's reluctance to make their products an attractive option in emerging markets may prove very costly long-term.





In addition to those strengths and weaknesses, the company also has positives and negatives relating to their stock. One positive is their return on invested capital over the past couple of years. In 2020, Apple's return on invested capital was 30.11% and in 2019, it was 25.75%. Return on invested capital has continually grown since 2017. Another positive regarding Apple stock is that the Covid-19 pandemic did not seem to hurt their stock price. In fact, Apple stock thrived during Covid-19 pandemic.

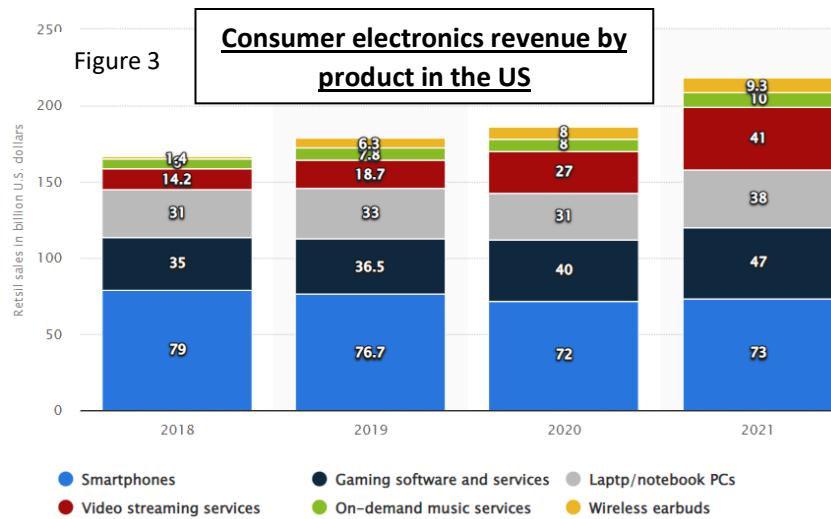
The main issue with Apple stock (and the company as a whole) is their reliance on iPhones. If Apple's iPhone sales do not meet estimates, their stock could downturn dramatically. Premium phones are cyclical so if people are financially struggling, they may turn to more affordable cell phone options, negatively affecting Apple's stock price.

## Industry Summary

Apple has a very wide reach across the technology industry; however, it would be most accurate to place them in the consumer electronics industry considering this is how Apple brings in the majority of their revenue. The consumer electronic industry comprises of companies that operate by manufacturing, designing, producing, supplying, and distributing electronic goods, accessories, equipment, and appliances. Included in this industry is streaming services, Apple has recently introduced Apple TV+ and we will further analyze this growth opportunity later in this report. This is an extremely competitive market, with many new players (specifically from China) seeking to gain market share.

- Five largest companies in consumer electronic industry by revenue (MBA Skool, 2020):
  - Apple: \$269 billion USD
  - Samsung: \$197 billion USD
  - Microsoft: \$138 billion USD
  - Dell: \$91 billion USD

- Hitachi: \$82 billion USD
- Smartphones lead the consumer electronic industry (Figure 3)



- Compared to competitors within the industry, Apple has a relatively high P/E and P/B ratio. Apple also has a high ROE compared to their competitors, which is likely driven by Apple's margins on their products and services. (See below for full analysis of previous financials and competitors)
- Apple also has a lower Debt to Equity ratio than their competitors. It is also worth noting that Apple's D/E ratio has been increasing the past few years.
- Apple's profit margins are significantly higher than their competitors. Their profit margin is also well above the industry average.

Figure 4:	2018	2019	2020	TTM	Samsung	Dell	Industry Average
P/E	19.4	18.2	33.9	27.96	13.83	11.61	24.95
PEG (past growth)	.8	2.7	2.9	1.03	.89	.61	1.20
PEG (future growth)				5.84			
P/B	9.33	10.49	30.54	37.74	2.06	8.93	27.37
ROE	55.56%	61.06%	87.86%	135.03%	12.45%	55.75%	101.55%
ROA	16.27%	16.32%	17.77%	26.31%	7.44%	2.98%	19.79%
NPM	21.63%	17.38%	19.59%	22.38%	11.02%	3.18%	19.71%
D/E	2.41	2.74	3.95	4.13	7.55	6.35	

## Growth Stories

### Global iPhone Sales

Apple's main revenue source has been their iPhone for many years. In the United States, Apple has consistently maintained about 40% of the smartphone market. Globally, Apple has historically held an average of 14.86% of global smartphone average market share (Statistica, 2021). In order to successfully continue to grow their smartphone market share, Apple would need to find a way to expand its international presence. The fastest growing markets for smartphones are the Asian markets and South American Markets. Apple's premium pricing on their cell phones has made the product too expensive for the average consumer in these markets.

According to Statistica, the global smartphone market is expected to grow by 4% in 2022 and 2023. It is supposed to slow down to under 3% in 2024 and 2025. iPhone sales are expected to grow at these rates as well. This will lead their profits to decrease in the future.

Figure 5: Global iPhone projections

Year	2021	2022	2023	2024	2025
Global Smartphone Sales	1,618,683,390	1,603,231,931	1,602,286,400	1,586,633,743	1,582,232,699
Apple Market Share	15.00%	14.30%	13.75%	13.25%	13.00%
Apple iPhone Revenue	175,773,440,203	174,273,506,847	174,273,506,847	172,947,556,199	174,264,208,033
Apple Profit Margin	35.3%	35.3%	35.3%	35.3%	35.3%
Net Profit	62,048,024,391	61,518,547,916	61,518,547,916	61,050,487,338	61,515,265,435
iPhone Profit Growth		-0.85%	0.00%	-0.76%	0.76%
Shares Outstanding	16,701,272,000	16,701,272,000	16,701,272,000	16,701,272,000	16,701,272,000
iPhone EPS	\$3.72	3.68	\$3.68	\$3.66	\$3.68

For iPhone EPS calculations, the following assumptions were made:

- The iPhone will lose some of its global market share in the coming years
- The profit margin on the iPhone will remain at 35.3%

### Apple TV+

Apple is looking to expand their growth in their streaming service with AppleTV+. In 2019, they invested \$6 billion in content, making them the third highest spender in the streaming industry; Netflix spent \$15 billion and Amazon spent \$6.5 billion (Martins & Reis, 2021). The current market size of the streaming industry is \$59.14 billion in 2021 and in 2028 is projected to be \$223.98 billion (Grand View Research, 2021). To get the four-year projection, we add these values and divide by two to get \$140.06 billion. Apple has a 3% market share in the content

streaming market (Haslam, 2021), and multiplying this by the \$140.06 projection we get \$4.202 billion.

Netflix averaged a profit margin of 6.27% from 2017-2020, so multiplying this by \$4.202 billion, we see that a four-year projection is \$263 million in net income. Now, depending on if Apple grows its market share, it will see increased net income. Currently, the net income is \$150 million for Apple TV+ and then it will rise to \$263 million in four years. However, to do this it will need to pool significant resources into original content or on rights to existing movies and shows.

Figure 6: Apple TV+ projections

	Streaming Industry Market Size (in billion USD)	Apple Market Share	Netflix Profit Margin	Net Income	EPS	EPS Growth %
2021	\$59.14	3.0%	6.27%	\$111,242,340	\$0.0068	
2022	\$82.69	3.5%	6.27%	\$181,461,011	\$0.0111	0.631
2023	\$106.24	4.0%	6.27%	\$266,449,920	\$0.0162	0.468
2024	\$129.79	4.5%	6.27%	\$366,202,485	\$0.0223	0.374
2025	\$153.33	5.0%	6.27%	\$480,689,550	\$0.0293	0.313

## Services

Apple has created several new services in the past few years in addition to Apple TV+. Some of these include: Apple Music, iCloud, Apple Pay, Apple Care, Apple Fitness +, and Apple News. One important service they came out with late in 2020 was Apple One. For a monthly fee, consumers can enjoy access to Apple Music, Apple TV+, Apple Arcade, iCloud +, Apple News +, and Apple Fitness+.(Apple Support, 2021)

These services will prove to be a key factor for Apple's success in the coming years. Services have shot past Apple computers, iPads, and the wearables, home and accessories in terms of the proportion of revenue they generate for Apple. Currently, Apple's service sector makes up approximately 19% of the company's revenue.

Furthermore, services can be highly profitable and provide consistent revenue for the company. Once Apple moves past the initial start-up costs, services require minimal maintenance costs while continuing to collect monthly payments.

Apple's service sector averaged a 21% CAGR over the last five years. Starting with this figure, then decreasing the growth rate slightly over time to adjust for market saturation, we can project revenues. It did not seem realistic to breakdown the service sector to an EPS basis because margins

would be difficult to estimate because Apple currently provides 12 services, each of them with varying margins.

	Growth Rate	Revenue (in millions USD)
2021	21%	\$ 68,425
2022	20%	\$ 82,110
2023	19%	\$ 97,711
2024	18%	\$ 115,299
2025	17%	\$ 134,900

Figure 7: Growth Projections for Revenues from Apple's Services

The downfall with relying on services as a main revenue source is eventually, there will be a limit on the amount of money Apple can make off their services, especially since their services are unavailable to non-Apple users. As the market becomes saturated and Apple runs out of new customers, their revenue from services will be capped. At a certain point, if they raise prices, customers will just choose not to utilize the services anymore. Luckily, Apple still has a lot of room for growth before they reach this point.

## Financials

Figure 8

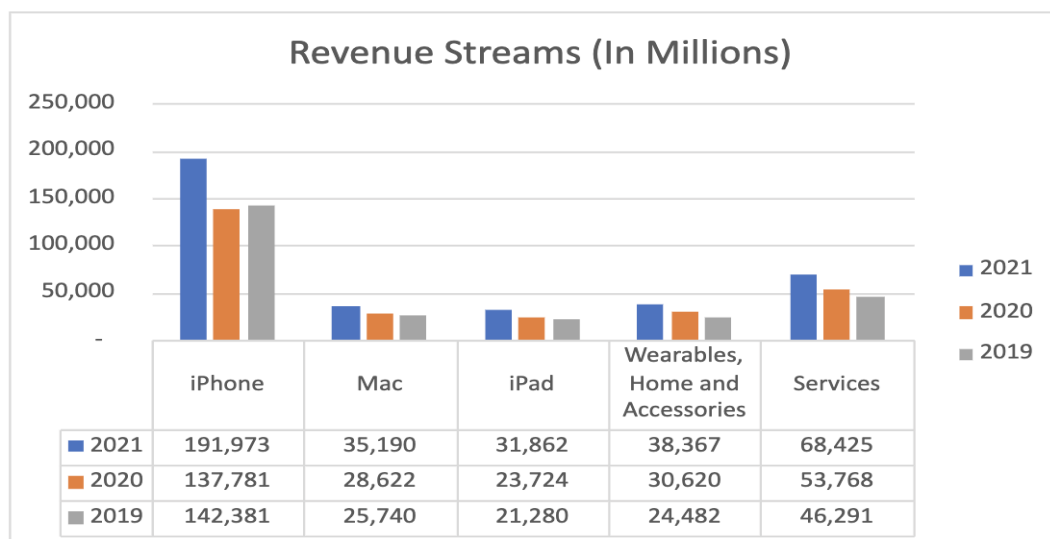


Figure 9:

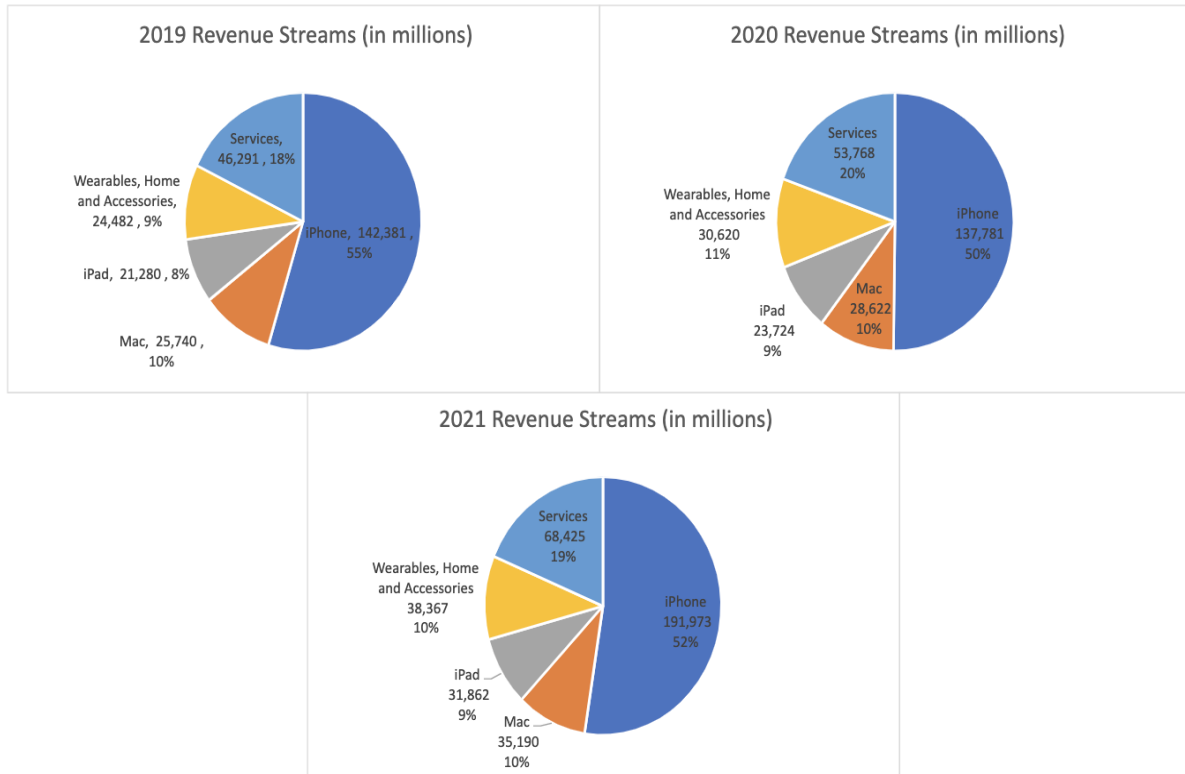


Figure 10:

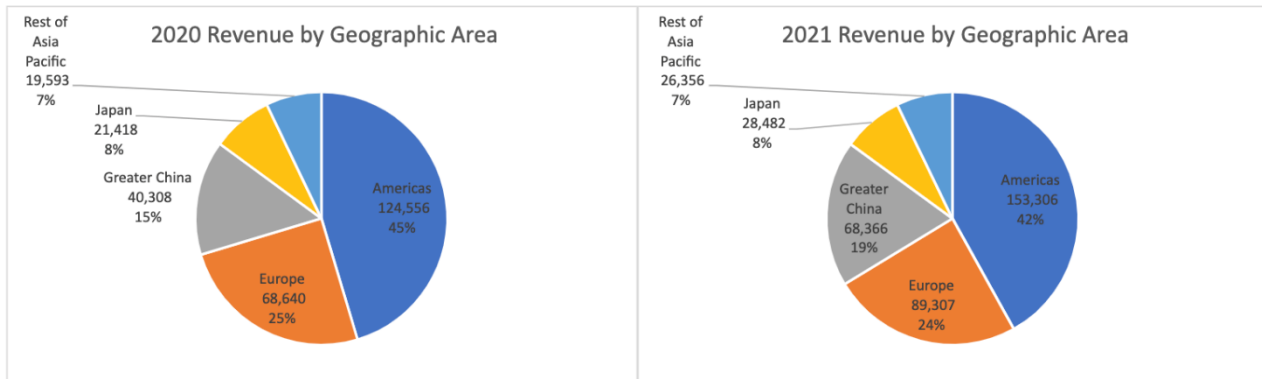
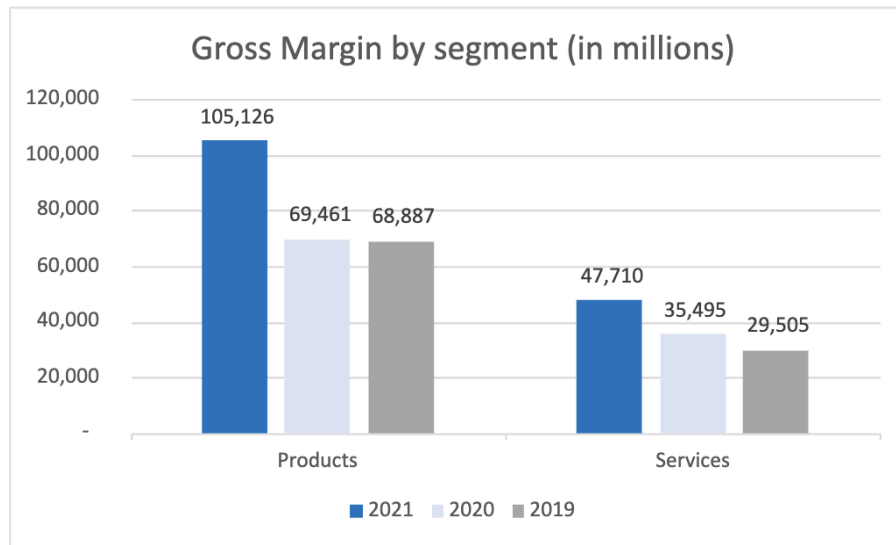


Figure 11:



\*Financial Calculations based on Apple Annual 10-K report

Key notables:

- In 2021, 52% of Apple's sales consisted of iPhone sales
- Every revenue stream increased their sales from 2020 to 2021, with the iPhone being the largest
- 42% of Apple's revenue came from the Americas in 2021
- Every year, Apple's gross margin by segment increased from the prior year
- In 2021, the product segment increased the most from the prior year

## Scenario Analysis

### EPS Estimates

Figure 12:

	2021	2022	2023	2024	2025
<b>Baseline</b>	5.67	5.83	6.05	6.27	6.55
<b>Pessimistic</b>	5.67	5.72	5.83	5.99	6.07
<b>Optimistic</b>	5.67	5.98	6.33	6.65	6.96

- EPS estimates are based on a combination of 3 things.
  - iPhone- iPhone EPS makes up over half the overall EPS for Apple.
  - Apple TV+ was included in their calculations (very small percentage of EPS).
  - Other factors that impact EPS (wearables, accessories, other services, etc.).

The Earnings Per Share Models were used as the input values on Value Line in order to create valuation and pricing models for Apple Stock. The valuation utilized the free cash flow to firm (FCFF), free cash flow to equity (FCFE), and price-to-earnings (P/E) models. Estimates for all variables except for EPS estimates, and P/E ratios were taken directly from Value Line. EPS estimates were taken from our calculations (pictured above). 2021 EPS values were 5.67 which was used for the starting place for the baseline, pessimistic, and optimistic outlooks. The baseline growth rate is about 3-4%. This is an amount we derived as an average rate from historical data with the inclusion of the above mentioned combinations of EPS estimates. Next, the pessimistic estimate grows at a rate about 1%. This was derived by taking a bearish stance on the growth of Apple's services and iPhone sales. On the opposite side, the optimistic EPS growth rate was estimated to be around 5%. This rate was determined by taking a bullish stance on the possible growth opportunities of Apple.

### P/E Estimates

Figure 13:

	<b>Baseline</b>	<b>Optimistic</b>	<b>Pessimistic</b>
<b>2022 P/E Estimate</b>	24.5	28	20

The above P/E estimates were based on our calculations, historical P/E ratios, and typical P/E ratios for the industry. We believe that the downtrend of AAPL's P/E will continue into next year which is the foundation for the baseline estimate. Technology sales skyrocketed for virtual work environments during the height of the pandemic and have been slowing down since. So, estimating their P/E at 24.5 compared to the current trailing twelve month of 28 seems to be an accurate assumption. Even more so when taking a look at the previous year P/E of 33 during the explosion of tech sales. Moving onto the optimistic outlook, we estimated that AAPL would maintain their current P/E ratio. It seems unlikely that another boom in sales to the level it was at before will occur again, but it does seem possible to maintain their ratio by continued sales. Then, as for a pessimistic outlook, an estimate of 20 was crafted from the assumption that technology sales could majorly slow.



## Valuations and Target Price

Figure 14:

Scenario	FCFF Valuation	FCFE Valuation	P/E Method	Combined Target Price
Baseline	\$74.37	\$80.12	\$142.83	\$119.86
Low Growth/ Pessimistic	\$68.73	\$74.30	\$114.40	\$101.53
High Growth/ Optimistic	\$79.11	\$84.92	\$167.44	\$123.67

To come up with the target price for the stock, each of the three methods was taken into consideration. Weights were assigned to each method in order to determine the combined target price. More weight, 75%, was placed on the P/E method while 25% of the target price valuation was based on the FCF method. The P/E method is more heavily weighted because historically its valuation is more consistent with Apple's market stock price than the FCF method. The FCF valuation calculates a stock value of between \$74 and \$80. This is historically way too low compared to what Apple trades at. Therefore, the P/E method was weighted significantly higher for the valuation models.

The range of optimistic and pessimistic values from the P/E valuation to the FCF valuation is much greater. This is largely because of the smaller growth rates projected by Value Line and the higher variability of the price to earnings ratio. Pictured below is the baseline values from the valuations methods and the 2022 price estimate.

### Baseline Valuation Numbers

Figure 15:

P/E Multiple Valuation	FCF Baseline Valuation	12-Month Target Price
\$142.83	\$77.25	\$119.86

### Current Price as of market close 12/9/21

- \$174.61

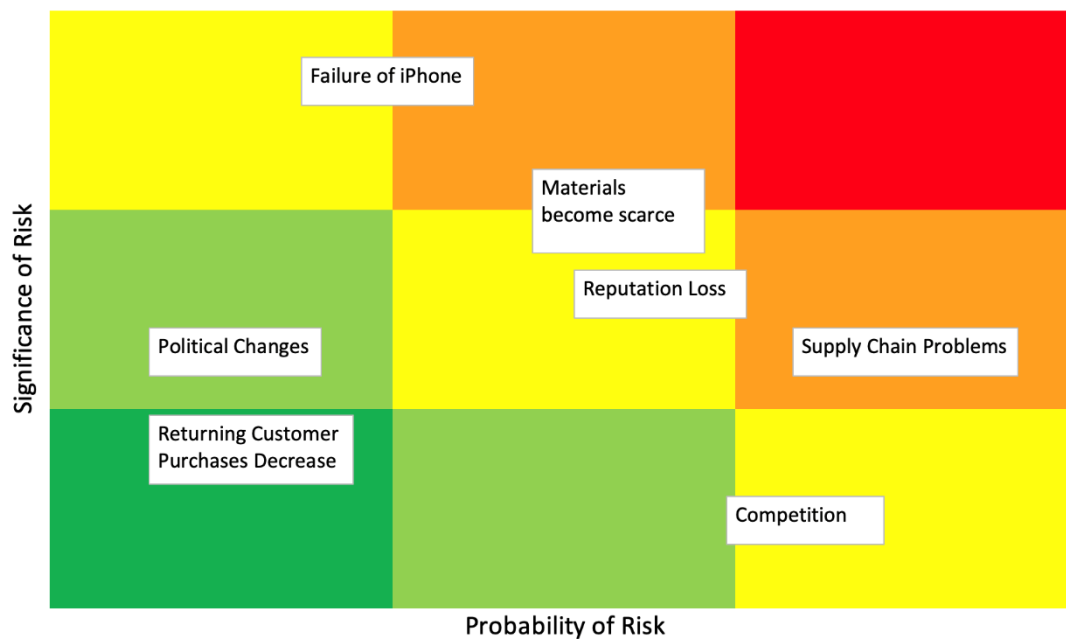
### Target Return for Baseline Valuation

- -30.92%

Apple stock seems to be overvalued right now in comparison to its intrinsic value. It is currently trading near \$175 while it should be trading closer to \$120. It is worth noting that the current price is above even the highest estimate which is the optimistic P/E formulation. For these valuation reasons, we believe AAPL is a good sell candidate.

## Risk Matrix

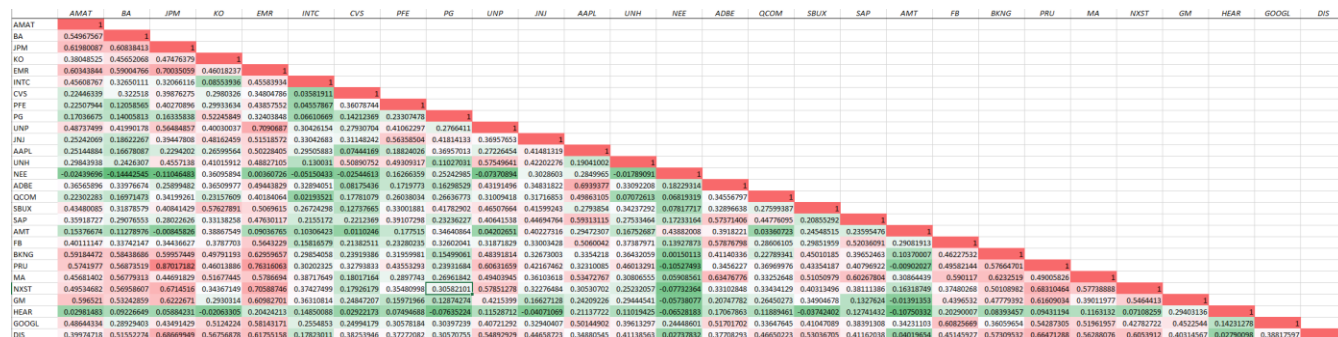
Figure 16:



Failure of iPhone	Apple is very dependent on iPhone sales so if one iPhone does not sell well, Apple could be in danger of losing a lot of money
Materials become scarce	If minerals used to produce Apple products become even more scarce, this could lead to a shortage of Apple products
Reputation loss	Apple is built on having reliable products and if one is not reliable, this could cause people to not use Apple in the future
Supply Chain Problems	By having supply chain problems, it could cause a shortage among Apple products
Political Changes	Could cause problems with Apple's operations in other countries or lead to higher prices because of taxes or tariffs
Returning Customer Purchases Decrease	Customers may start to use their products longer which will cause Apple to lose on sales
Competition	If a competitor introduces a successful product, that could decrease Apple's revenue

## Correlation Matrix

Figure 17:



As seen in the correlation matrix, Apple has a moderate correlation with many of the other stocks in the Spellman Fund. Out of the 28 other stocks in the fund, there are six with a correlation of .50 or higher and four less than .20. The highest ones were under .70 and the lowest ones were above 0. Over half, 18 to be exact, have a correlation between .2 and .5. The following tables are Apple's highest and lowest correlations, respectively.

Figure 18:

Stock	High Correlations
Adobe	.6939
SAP SE	.5931
Mastercard	.5347
Facebook	.5060
Stock	Low Correlations
CVS	.0744
Boeing	.1667
Pfizer	.1882
UnitedHealth Group	.1904

There is an evident pattern in the high correlations section. Adobe, SAP, and Facebook are all technology companies and therefore have similar price movements. Mastercard, although mainly focused on financial services, still plays a significant role in the innovation of payment technology. As for the low correlations, we see an emphasis on the health sector with CVS, Pfizer, and UnitedHealth Group. The outlier is Boeing, but this is also a logical lower correlation as Apple does not compete in the aerospace industry. All of the stocks in the fund are positively correlated with AAPL, which lends itself to the conclusion that many stocks move in similar patterns. Based off of this information, it would be beneficial to reduce our holding in Apple. Then, with the cash from the sale, we can increase our positions in other stocks that are similar to capture any growth in the technology industry. Or we can increase our holdings in companies that are uncorrelated with Apple as to further diversify the portfolio.

The provided optimal portfolio weight for Apple for the fund based on the past five years of returns is 0.59%. This is one of the lowest weights in the portfolio, second to only Coca-Cola with a weight of 0.00%. The optimal portfolio weight is created from points along the efficient frontier. This optimal weight is drastically smaller than the current weight of the fund which is 9.14%.

### **Fit within Spellman Fund**

Taking a look at the whole picture of Apple as a company and the stock performance, we are recommending a partial sell. More specifically, we are advising a sell of 118 shares which is 50% of the total position. Based on the current price, \$174.61, this would yield roughly \$20,645.28. Selling 118 shares would lower the portfolio weight of Apple from 9.14% to 4.79%. As a technology stock, Apple is categorized under the Sensitive classification. The Spellman fund is currently over weighted in this category compared to the S&P 500. The S&P fund weighting of AAPL is 5.9% (Yahoo Finance). So, by decreasing our position by the designated number of shares, the fund would follow the S&P more closely and allow us to branch out to other sectors that are currently underrepresented.

## Appendix

Figure 1:

<b>Figure 1:</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>
<b>Baseline</b>	5.67	5.83	6.05	6.27	6.55
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Figure 2: Sales price of iPhone 12 Pro Max around the world (figures from 9to5mac.com, 2020)



Figure 3: Consumer electronics revenue by product/service in the U.S. (visual from Statista, 2021)

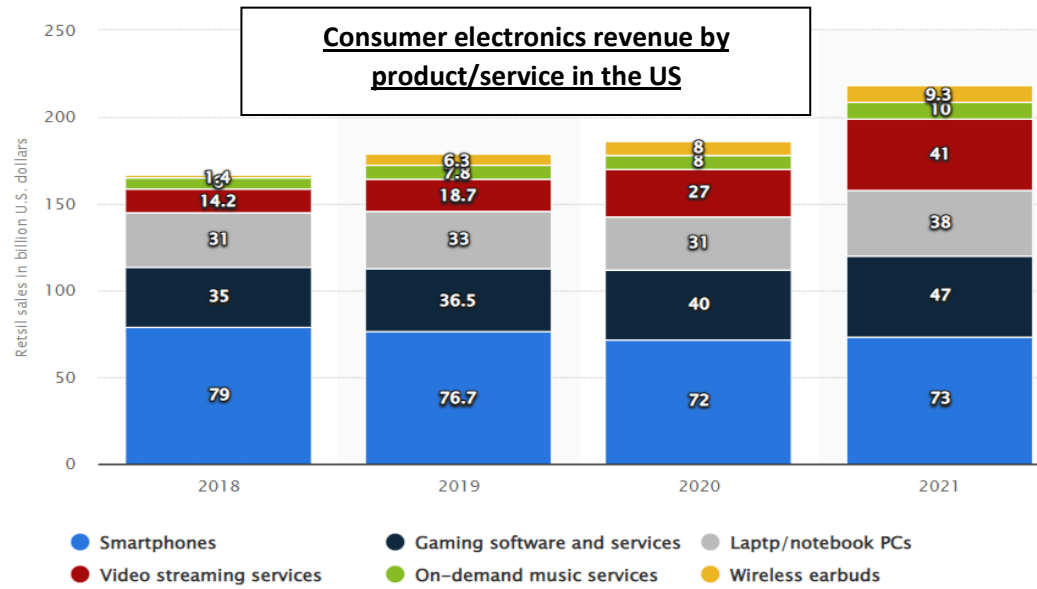


Figure 4:

Figure 4:	2018	2019	2020	TTM	Samsung	Dell	Industry Average
P/E	19.4	18.2	33.9	27.96	13.83	11.61	24.95
PEG (past growth)	.8	2.7	2.9	1.03	.89	.61	1.20
PEG (future growth)				5.84			
P/B	9.33	10.49	30.54	37.74	2.06	8.93	27.37
ROE	55.56%	61.06%	87.86%	135.03%	12.45%	55.75%	101.55%
ROA	16.27%	16.32%	17.77%	26.31%	7.44%	2.98%	19.79%
NPM	21.63%	17.38%	19.59%	22.38%	11.02%	3.18%	19.71%
D/E	2.41	2.74	3.95	4.13	7.55	6.35	

Figure 5: Global iPhone projections (global smartphone sales projections from Statistica)

Year	2021	2022	2023	2024	2025
Global Smartphone Sales	1,618,683,390	1,603,231,931	1,602,286,400	1,586,633,743	1,582,232,699
Apple Market Share	15.00%	14.30%	13.75%	13.25%	13.00%
Apple iPhone Revenue	175,773,440,203	174,273,506,847	174,273,506,847	172,947,556,199	174,264,208,033
Apple Profit Margin	35.3%	35.3%	35.3%	35.3%	35.3%
Net Profit	62,048,024,391	61,518,547,916	61,518,547,916	61,050,487,338	61,515,265,435
iPhone Profit Growth		-0.85%	0.00%	-0.76%	0.76%
Shares Outstanding	16,701,272,000	16,701,272,000	16,701,272,000	16,701,272,000	16,701,272,000
iPhone EPS	\$3.72	3.68	\$3.68	\$3.66	\$3.68

Figure 6: Apple TV+ Projections (Streaming industry projections from Grand View Research, 2021)

	Streaming Industry Market Size (in billion USD)	Apple Market Share	Netflix Profit Margin	Net Income	EPS	EPS Growth %
2021	\$59.14	3.0%	6.27%	\$111,242,340	\$0.0068	
2022	\$82.69	3.5%	6.27%	\$181,461,011	\$0.0111	0.631
2023	\$106.24	4.0%	6.27%	\$266,449,920	\$0.0162	0.468
2024	\$129.79	4.5%	6.27%	\$366,202,485	\$0.0223	0.374
2025	\$153.33	5.0%	6.27%	\$480,689,550	\$0.0293	0.313

Figure 7: Growth Projections for Revenues from Apple's Services

	Growth Rate	Revenue (in millions USD)
2021	21%	\$ 68,425
2022	20%	\$ 82,110
2023	19%	\$ 97,711
2024	18%	\$ 115,299
2025	17%	\$ 134,900

Figure 8:

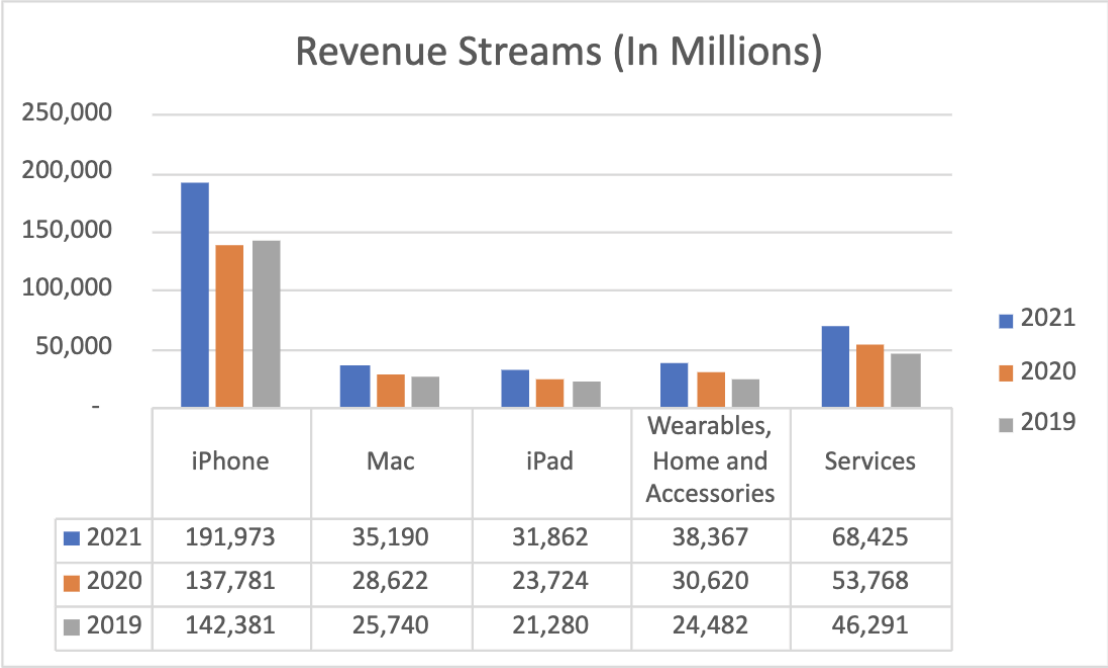


Figure 9:

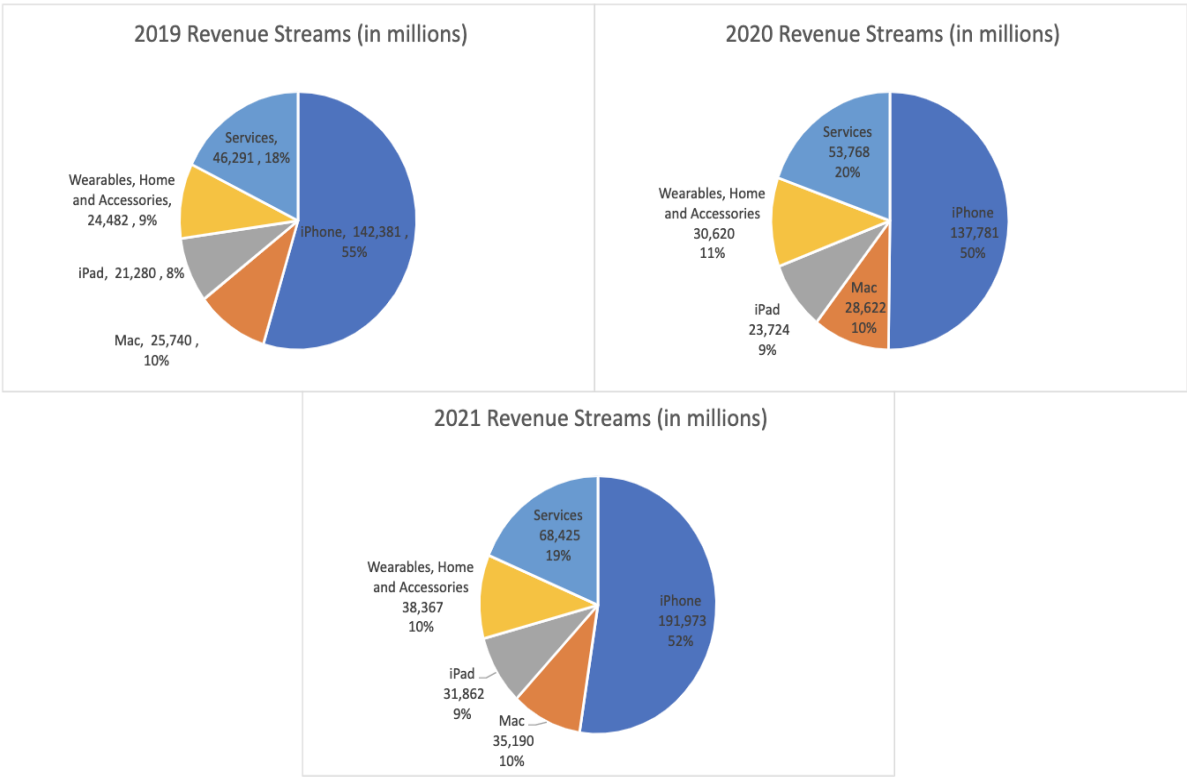




Figure 10:

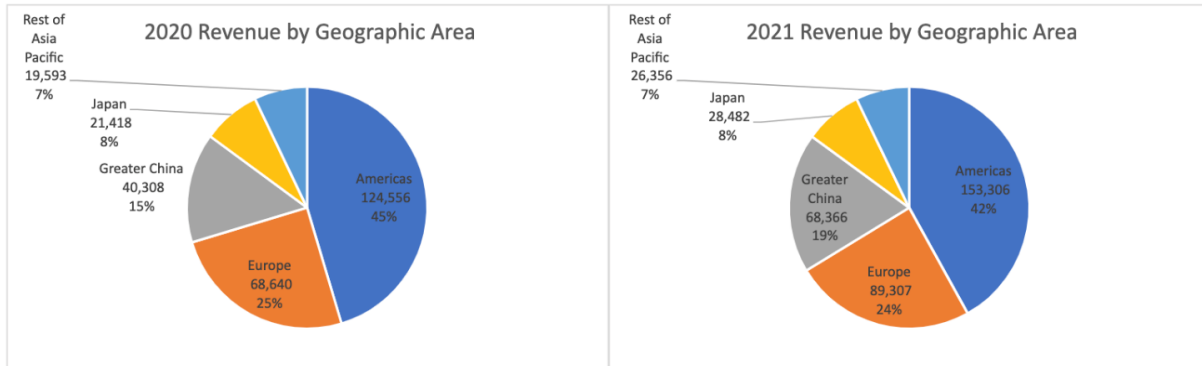


Figure 11:

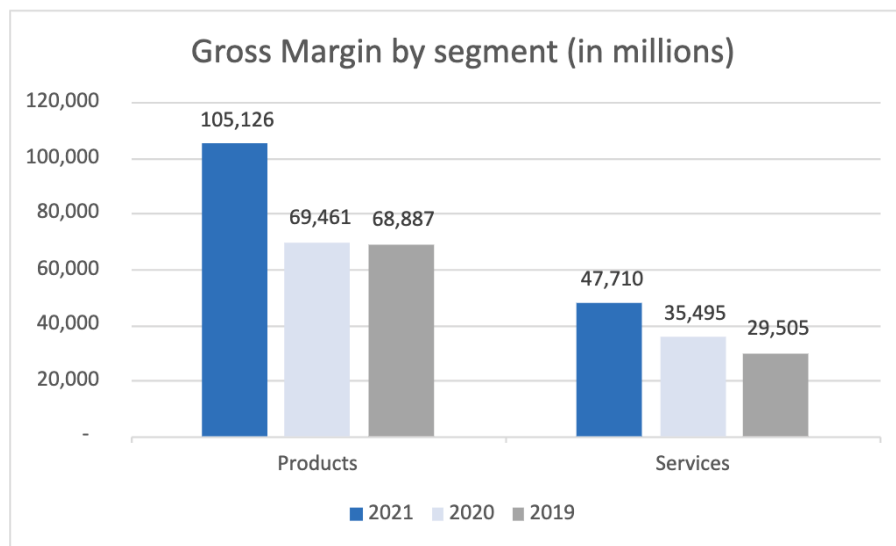


Figure 12:

	2021	2022	2023	2024	2025
<b>Baseline</b>	5.67	5.83	6.05	6.27	6.55
<b>Pessimistic</b>	5.67	5.72	5.83	5.99	6.07
<b>Optimistic</b>	5.67	5.98	6.33	6.65	6.96

Figure 13:

	Baseline	Optimistic	Pessimistic
<b>2022 P/E Estimate</b>	24.5	28	20

Figure 14:

Scenario	FCFF Valuation	FCFE Valuation	P/E Method	Combined Target Price
Baseline	\$74.37	\$80.12	\$142.83	\$119.86
Low Growth/ Pessimistic	\$68.73	\$74.30	\$114.40	\$101.53
High Growth/ Optimistic	\$79.11	\$84.92	\$167.44	\$123.67

Figure 15:

P/E Multiple Valuation	FCF Baseline Valuation	12-Month Target Price
\$142.83	\$77.25	\$119.86

Figure 16:

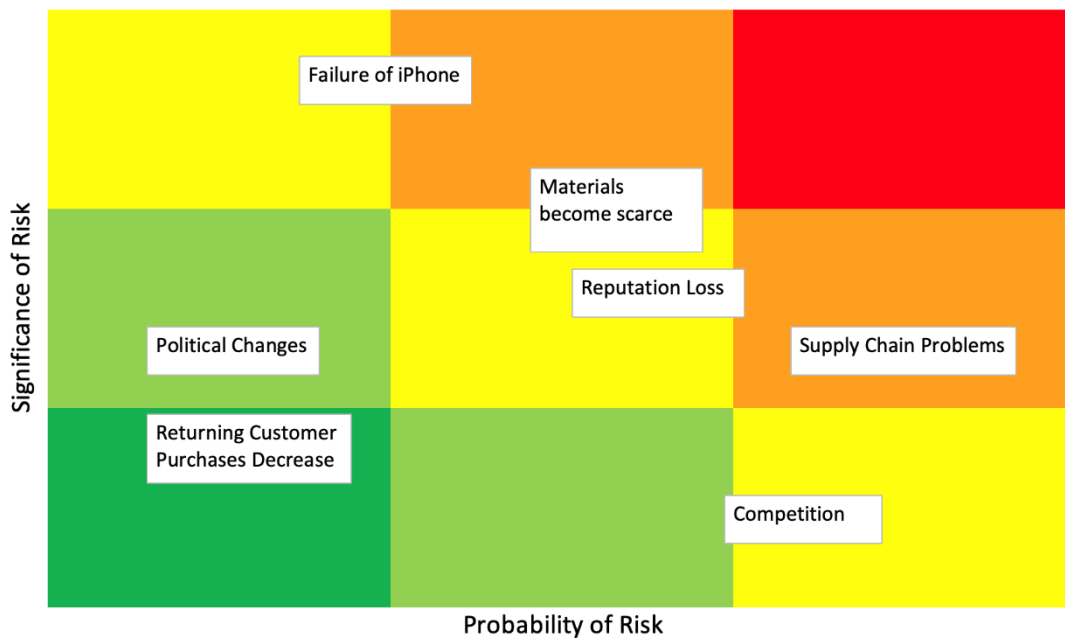


Figure 17:

	AMAT	BA	JPM	KO	EMR	INTC	CVS	PFE	PQ	UNP	JNJ	ABPL	UNH	NEE	ADBE	CCOM	BRUX	SAP	AMT	FB	BINS	PRU	MA	NVST	GM	HEAR	GOOGL	DIG
AMAT																												
BA	0.54967967																											
JPM	0.61899987	0.4081841																										
KO	0.38048525	0.49553968	0.47478179																									
EMR	0.60343848	0.39004796	0.70035059	0.46018217																								
INTC	0.45008767	0.1205111	0.12061119	0.08558986	0.45083934																							
CVS	0.22468139	0.122218	0.79878275	0.2980138	0.34806786	0.03631311																						
PFE	0.22207944	0.13205865	0.40270896	0.29933834	0.43857552	0.04557967	0.38076744																					
PQ	0.17598675	0.14805812	0.16555858	0.52245349	0.12425944	0.06036669	0.14212885	0.25874776																				
UNP	0.48717699	0.4196776	0.58684857	0.40030517	0.70050887	0.39420154	0.27930794	0.43062297	0.2766411																			
JNJ	0.25242089	0.18822267	0.19447808	0.48162459	0.51518572	0.11042183	0.11148242	0.56338504	0.41814133	0.39957653																		
ABPL	0.25148484	0.16878087	0.2294202	0.26399944	0.56228405	0.27050381	0.07844388	0.18824028	0.18957011	0.27226454	0.41481139																	
UNH	0.29649188	0.2428307	0.4557138	0.41015912	0.48827105	0.138031	0.58896752	0.43939117	0.11027011	0.57546461	0.42202276	0.19042002																
NEE	0.02439956	-0.14425445	-0.11064481	0.36055894	0.00360776	-0.01505443	-0.02544813	0.16266359	0.25242965	-0.07370884	0.3028863	0.2847995	-0.01789091															
ADBE	0.36536399	0.1397476	0.10999482	0.36599777	0.48443829	0.12946511	0.08176486	0.17197771	0.16286529	0.41151496	0.34811827	0.48893977	0.13592208	0.18279112														
CCOM	0.22302281	0.18874878	0.14179261	0.21317609	0.40148464	0.02183021	0.17781679	0.24038044	0.26487773	0.13109618	0.13171803	0.49841105	0.07878813	0.06613319	0.34554797													
BRUX	0.43488081	0.11878379	0.08841429	0.57827891	0.50091611	0.28724726	0.12737865	0.33001881	0.41782902	0.44057084	0.41199243	0.2793854	0.34237292	0.07817717	0.13286618	0.27593987												
SAP	0.15518727	0.29070531	0.28022628	0.33118258	0.47601117	0.2105172	0.2212389	0.19107729	0.23286227	0.40641538	0.44697944	0.39813315	0.27513464	0.17391884	0.37975486	0.44778995	0.28853291											
AMT	0.13378683	0.11278976	-0.00404268	0.38897949	0.09036785	0.10366421	0.01155846	0.177515	0.14449464	0.00620083	0.46027314	0.29473307	0.18755887	0.43483508	0.1918221	0.03188878	0.34548315	0.23595476										
FB	0.40111547	0.13742147	0.10448827	0.1977703	0.5643229	0.18845879	0.21382511	0.23280325	0.13602041	0.131871829	0.33003428	0.5800542	0.37387971	0.13927873	0.37878798	0.28680105	0.28031519	0.33036091	0.27081913									
BRNG	0.59338472	0.18483686	0.39957449	0.49779153	0.42959657	0.78054028	0.23919886	0.13593941	0.15499681	0.44319184	0.12677003	0.1354218	0.36412029	0.00105113	0.41460186	0.22788948	0.45010185	0.19652461	0.10176067	0.46227512								
PHU	0.5781877	0.16875318	0.07812382	0.46013886	0.78116061	0.30702325	0.12778183	0.43032491	0.19311684	0.60816658	0.42467462	0.12101003	0.46011591	0.10523468	0.14054227	0.36969978	0.41034347	0.40789922	0.09060227	0.49162144	0.57664765							
MA	0.45081402	0.16779311	0.46891329	0.51677845	0.57866884	0.18717649	0.18017284	0.2897743	0.26961842	0.49404935	0.36101621	0.33472767	0.30806055	0.05900561	0.83478778	0.13125248	0.51050979	0.60287804	0.10864419	0.390117	0.6212519	0.49005826						
NVST	0.49534662	0.16998067	0.174518	0.34671749	0.7058784	0.17427409	0.17926179	0.15449994	0.35821111	0.57851258	0.12276448	0.20307702	0.25232057	0.07772384	0.11012048	0.13434329	0.40111496	0.18111186	0.16110749	0.17460288	0.5038962	0.68130464	0.57738888					
GM	0.29652	0.15342859	0.1522071	0.203014	0.4956270	0.30130814	0.56877077	0.1597396	0.12758224	0.41125129	0.16812312	0.24205128	0.29444541	0.05738077	0.30747782	0.26450273	0.34904678	0.13378764	-0.01391353	0.4396512	0.4777925	0.61808084	0.39111777	0.5464413				
HEAR	0.02816161	0.0256465	0.05884231	0.02693305	0.20424211	0.1485088	0.02922173	0.07494688	-0.07853224	0.11528712	-0.04075058	0.21137722	0.11018245	-0.06528188	0.17067863	0.11889461	-0.01762402	0.12781432	-0.10750382	0.20290007	0.08393657	0.09411194	0.1161332	0.07108258	0.29401136			
GOOGL	0.48848134	0.28929401	0.43491429	0.5124224	0.58143173	0.2554851	0.34994179	0.30578184	0.30397239	0.40771252	0.32940407	0.30149902	0.19611257	0.2444601	0.51701702	0.13647645	0.41047805	0.18391108	0.14211101	0.60826688	0.34078654	0.54287505	0.51961957	0.42781722	0.4522644	0.14231278		
DIG	0.39978718	0.13332278	0.68694948	0.56746478	0.61753158	0.17621811	0.39231946	0.17772081	0.30577515	0.54892529	0.44869723	0.14889545	0.41118943	0.02773038	0.17787829	0.46655213	0.33016785	0.41162018	0.04029604	0.43145917	0.17399152	0.66471288	0.54038078	0.46019512	0.02726086	0.18817597		

Figure 18:

Stock	High Correlations
Adobe	.6939
SAP SE	.5931
Mastercard	.5347
Facebook	.5060
Stock	Low Correlations
CVS	.0744
Boeing	.1667
Pfizer	.1882
UnitedHealth Group	.1904

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