



Apple, Inc. (NASDAQ: AAPL)

Investment Thesis

We recommend a HOLD rating as our projected upside is between 0.01% - 14%. This is due to robust growth in the wearables & services segment, innovation of mature products, and a lengthy track record of success.
 Drivers of Thesis:

- **Growth of Services & Wearables:** The current industry trends allow Apple to capitalize on current and future services, as well as introduce and innovate new wearable products.
- **Innovation of Mature Products:** With over 55,000 patents in use, Apple is able to continue to produce top-of-the-line products while introducing new features across product lines.
- **Track Record of Success:** Apple is the most dominant company in the consumer technology space, and regardless of economic or market conditions, it has grown robustly year after year.

Risks of Thesis:

- **Current Economic & Market Conditions:** With rising interest rates and looming recession fears, consumer spending in the short-term could fall materially, hindering Apple's revenue growth in 2023 & 2024.
- **Supply Chain Issues:** First observed in 2020, supply chain issues abroad, especially as it relates to geopolitical tension in the Asia-Pacific, could dampen production efficiency of products throughout Apple.
- **Technology Startups:** More recently, a rise in new technology startups has applied pressure on Apple to continue to innovate new products.

Current Price: 165.21 Target Price: \$167-\$189

Company Description:

Apple, Inc. engages in the design, development and manufacturing of electronic devices and services. Apple produces and sells smartphones, tablets, personal computers, wearables, and a variety of related services. The company was founded in 1976 by Steve Jobs and is headquartered in Cupertino, California, where Apple has become a world leader in consumer technology innovation.

Snapshot

Valuation Models

DCF: \$167
 Relative Valuation: \$189
 DDM: \$143

Price Data

Current Price: \$165.21
 52 Week Range: \$124.17-\$176.15
 Current P/E: 28.08

Key Statistics

Market Capitalization: \$2.61T
 Shares Outstanding: 15.94M
 2022 EPS: \$6.15
 2023E EPS: \$5.65
 Beta: 1.23
 WACC: 9.2%

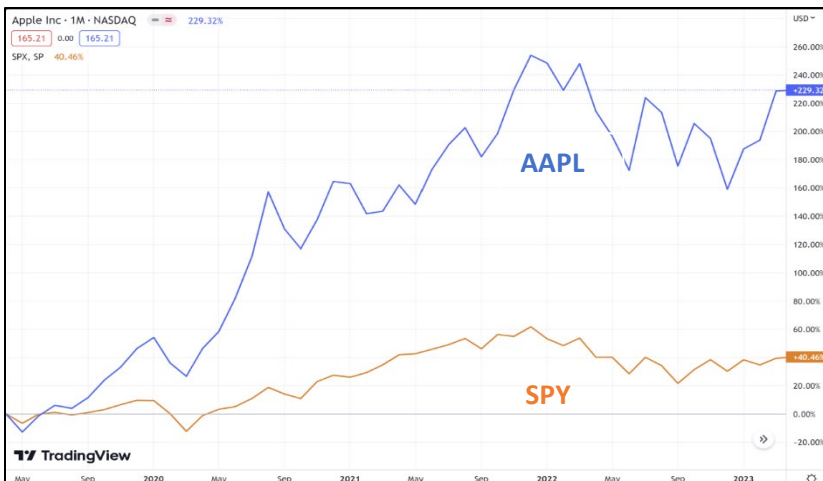
Financial Profile

2022 Revenue: \$365,817M
 2023E Revenue: \$387,678M
 2022 Net Income: \$99,803M
 2023E Net Income: \$88,516M
 2022 Gross Profit Margin: 43.4%
 2023E Gross Profit Margin: 43.3%

Earnings Estimates

Year	2023E	2024E	2025E
EPS	\$5.65	\$6.37	\$7.30
Growth	-8.80%	12.74%	14.60%

3-Year Stock Performance vs. S&P 500



Executive Summary

Apple, Inc. (NASDAQ: AAPL) is an American based technology company headquartered in Cupertino, California. Apple is a global leader in the technology space, producing and selling electronics, software, and other online services. The company's electronic products consist of smartphones, tablets, computers and wearables while other online services include iTunes, Safari Media, and the Apple Card payment service. The company operates globally and has hundreds of brick-and-mortar stores throughout the world.

By delivering constant innovation with its devices and services and providing products of the highest quality, our team believes Apple will continue to be a market leader in the technology hardware and consumer electronics space. Apple has created an ecosystem of technology at an affordable price point to the consumer, further supporting its continued growth over the months and years to come. With a \$2.56 trillion USD market cap, Apple is the most valuable company in the entire world.

Possessing the strongest brand name of our generation, as well as innovating and producing the most sought-after technology, Apple has positioned itself as the preeminent force in the technology industry.

Economic Analysis

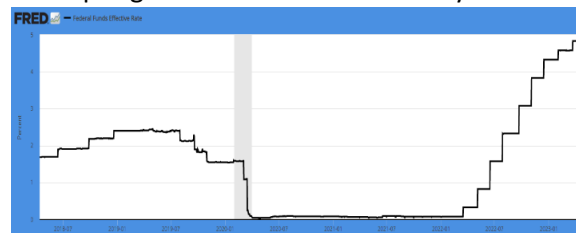
Economic Outlook: *Neutral*

Over the last year, interest rates have continued to rise to combat the recent, aggressive rise in inflation. We believe that the federal reserve will begin to cut the benchmark federal funds rate within the next 6-12 months, which will result in an overall rebound for the economy. As the cost of borrowing decreases, real GDP will rise, but at a slower rate than previous periods. As real GDP rises and interest rates fall, consumer confidence will begin its return to pre-pandemic levels resulting in more disposable income for the consumer.

Interest Rates

Interest rates have been on the rise as the Federal Reserve has been attempting to combat record inflation over the past year. An interest rate is the amount a lender charges a borrower for any form of debt and is

shown as a percentage of the principal amount loaned. As the federal funds rate rises, the 10-year government bond yield follows. Throughout the pandemic, the 10-year was charted as low as 0.0504%¹, as the Fed was attempting to stimulate the economy with lower rates.



Source: *FRED*¹

The technology sector has been negatively impacted by these rising rates. Higher interest rates raise the weighted average cost of capital for companies, making new projects and expansion efforts more expensive to finance. Rising interest rates have also contributed to consumer demand decreasing, which impacts the sales of many large, technology-based companies as the consumer is less inclined to be making these discretionary technology purchases in a slowing economy.

More recently, it is believed that interest rates have hit the peak and will begin to steadily decline as inflation continues to slow. We forecast that the technology sector will respond well to the decrease in interest rates. We have estimated that interest rates will have a target range of 3.75% - 4.00% within twelve months. These lower rates will allow the consumer to be comfortable with discretionary spending, allowing for more demand within the sector. This aligns with our revenue forecast, as sales decline for FY23, but return to steady growth in 2024 and beyond.

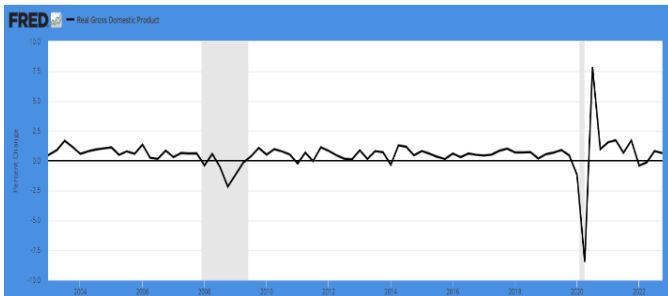
Real GDP

Real GDP is an inflation adjusted measure of the value of goods and services produced by a country each year. Historically, the technology sector outperforms the market when economic productivity increases. In both Q3 and Q4 2022, real GDP increased by 3.2% and 2.6% respectively. Estimates for Q1 2023 GDP sit at a 2.2% increase as of April 10th.²

As GDP continues to rise, so does the technology sector. The NASDAQ, a major index that is weighted heavily by large-cap technology stocks, is up 16% YTD. This shows

that the technology sector has rebounded after a steep decline in early 2022. We believe that the continued rise in real GDP will promote more discretionary spending, paired with low unemployment will ease any stagnation within the sector.

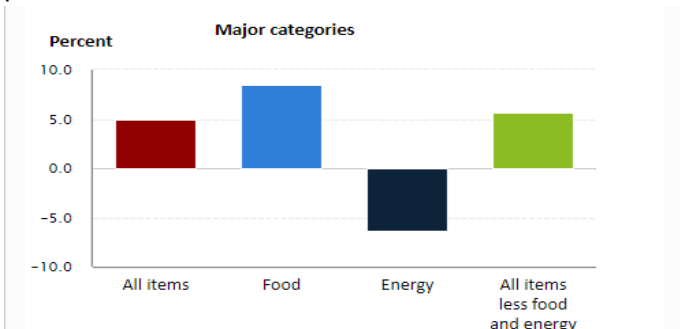
Throughout our model, we have an optimistic outlook regarding real GDP growth. We forecast real GDP to grow between 0.2% - 0.5% in FY 2023 before returning to normalized growth of 2.5% in 2024. With this estimated growth, stronger revenue will follow along with more opportunities for reinvestment to fund future growth.



Source: FRED³

CPI

The consumer price index is a measure of the average change over time of prices that the consumer pays for a basket of goods and services. As of March 2023, CPI has risen 5% year over year.⁴ This shows that inflation is still rising, and the dollar has lost some of its purchasing power.



Source: CPI⁵

Specifically for Apple, a rise in CPI can be treated as a double-edged sword. With the consumer being comfortable spending upwards of 5% more on certain goods than the same time last year, Apple may begin to show an uptick in the prices of the products and services that they provide. However, on the flip side the consumer may believe that the current price of Apple's goods is already too high and may not be comfortable

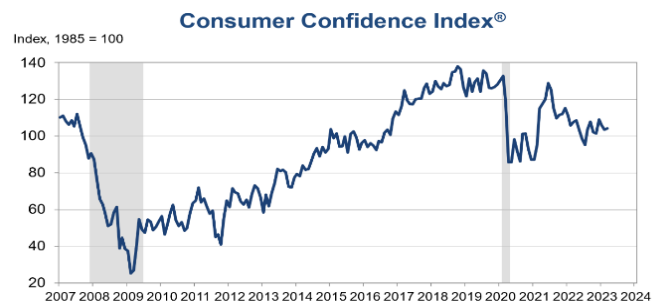
with further price increases. Moreover, increasing input prices for Apple's products could hurt margins if they are unable to pass along these price increases to the consumer.

We estimate that the CPI will be stubborn, before then decreasing at roughly 0.2% per month. This will be due to the Federal Reserve's attempt to restore price stability by decreasing inflation with tighter monetary policy and previous rate hikes.

Consumer Confidence Index

The Consumer Confidence Index reflects prevailing business conditions, customer attitudes, and buying intentions. This index is an important indicator when it comes to the discretionary spender, and if they are comfortable spending money on what are deemed "non-essential" items like new pieces of technology.

The latest CCI reading came in at 104.2 in March, a one-point increase month-over-month, with 1985 being the base year of 100.



Source: TheConferenceBoard⁶

We believe that consumer confidence and spending is beginning to return to historical levels that have been observed pre-pandemic. We believe that as this index continues to rise, we will see growth across the economy, and more specifically the technology sector.

As CCI continues to rise, many large-cap technology companies will begin to witness increased demand, spurring growth across the sector. We expect the sector to see strong returns and influence the overall economy along the way.

Unemployment Rate

The United States unemployment rate is a measure of the portion of labor force in the United States that is

currently jobless. Lower unemployment within the US economy is a sign of strength, but also can be a sign of reduced worker participation. Currently, the unemployment rate is at the lowest rate in over 50 years, declining from 3.6% in February to 3.5% in March of 2023.⁷

The unemployment rate is a key variable for the technology sector because as more people become employed, discretionary spending will increase, resulting in more goods sold and higher profits for these companies. We believe that unemployment will remain between 3.7% - 4.0% over the next 1-2 years, as people are continuing to return to work and companies are operating at full capacity. This will result in growth for not only the overall economy, but for the technology sector as well. We do project a slight uptick in unemployment as a pandemic era over hiring is dealt with and businesses cope with higher costs of borrowing.

Industry Analysis

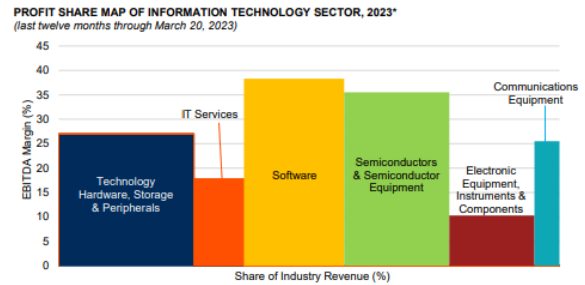
Industry Outlook: Positive

We have a positive outlook for the technology hardware industry. We believe that as the economy works its way away from recession fears, the entire industry will continue to rebound. Companies will flourish with innovation opportunities and expand on emerging and future trends. Apple specifically has targeted much of its recent research and development to emerging trends in the technology hardware industry. Apple has targeted trends in the consumer end-markets of smartphones, PCs, and gaming with the development of a mixed reality headset.

Industry Description

The information technology sector is made up of a handful of major industries such as technology hardware, technology services, data storage, and semiconductors and semiconductor related equipment. The industry is divided into two main categories: hardware and software. On the hardware side, companies produce and sell tangible goods to the consumer, such as mobile phones, computers, tablets, and other wearables. On the software side, companies develop software systems, applications, databases, and data processing systems. Apple is engaged in both sides of the information

technology sector, but is classified in the technology hardware, data storage, and peripheral sub-industry. Within this sub-industry, Apple produces everything from tangible products like the iPhone and iPad to software systems such as IOS and MacOS.



Source: *CFRA* Company reports⁸

Industry Trends

Peripheral Wearables

The technology hardware industry is ever-changing due to consumer demands which results in constant innovation. As we highlighted above, one of the major trends that Apple has been able to capitalize on is the rise of peripheral wearables. Items like Bluetooth headphones and smart watches have been at the forefront of consumer purchases. For many technology hardware companies, these peripherals have been the highest growth segments within the company.

Apple has been a leader in this trend, as they have released new wearables each year, for over eight years. More specifically, Apple has focused on the Apple Watch and AirPods product lines. Apple currently has five different smartwatches, with watches made specifically for different activity levels, professional settings, and everyday wear. AirPods are quickly gaining traction, as Apple has released three different models at various price points. We believe that Apple will continue to capitalize and drive this trend through further innovation and the upgrades of current wearables throughout the product lines.

5G Connectivity

5G connectivity is the latest and most advanced technology for wireless communication systems. These networks are designed to provide faster speeds, lower latency, and greater capacity than previous generations. 5G is growing increasingly popular due to the ultra-fast speeds it provides, as well as advanced cybersecurity measures. As almost every major cellular provider is

shifting focus to 5G, it is essential that technology hardware companies create products that can handle the new systems.

Since the first 5G network was introduced in 2019, technology companies have had to adapt to unprecedented demand for devices that contain the 5G SIM processor. Apple has introduced four different iPhones that support 5G connectivity, the iPhone SE (2022), 12, 13, and 14. These devices are produced and designed specifically for 5G connectivity. Since this trend is relatively new however, there are two major downsides associated with it. The first being the lack of 5G locations throughout the world, and more specifically the United States. Infrastructure for 5G is extremely expensive, and since it is still relatively new, many contracting companies are still in the process of covering much of the United States and other countries. Throughout the next 2 - 4 years, we estimate that almost 100% of the United States population will have access to 5G networks, as infrastructure is being added each day.

Porters Five Forces

Threat of New Entrants: LOW

The threat of new entrants is low throughout the industry itself. Large companies that are well established dominate the majority of the market share. These companies have the resources to continue to innovate, research, and develop new products and services. This is due to the sheer amount of capital within these companies, who can invest that capital in prototypes and eventually new products.

Startups and newer companies will have a harder time succeeding, as many don't have the funding available for the required research and development needed to produce a product unlike a current one. New products from these companies will ultimately have a harder time selling, as the consumer is typically loyal to a given company that is well established in the space.

Threat of Substitute Products: LOW

The threat of substitute products within the industry is extremely low. Currently, there are no products that pose a threat to the industry in any regard. Smartphones, handheld tablets, and computers are an essential to everyday life, and will continue to be upgraded in the years to come. There are no new products being

produced or rumors of a product that could threaten these products in any way down the line.

Bargaining Power of Buyers: MODERATE/HIGH

The bargaining power of the buyer within this industry is moderate to high. As there are many companies who ultimately produce the same product lines, it offers the buyer options as to which product feels best. The buyer dictates innovation and development for most of the products produced within the industry through demand for certain features and feedback on owned products.

Buyers can also have an influence on the prices of products throughout the industry. Today's consumers are easily able to share their opinions and thoughts online, which can lead to companies adjusting their price points to meet the needs of the consumer in order to retain a strong customer base.

Bargaining Power of Suppliers: MODERATE

The bargaining power of suppliers has become moderate due to the geopolitical factors associated with them. We have seen a recent shift in bargaining power because of supply chain issues related to the COVID-19 pandemic. Many larger companies have expressed interest in finding suppliers that are in closer proximity to the company, rather than having a supplier who may be overseas. This gives power to the supplier, as they are able to dictate where and how they do business around the globe.

The supply chain is essential for all companies that produce goods and services. Larger companies that require more and more supplies for their products have been negatively impacted by prior lockdowns in China and other Asia-Pacific countries. These effects were shown over the course of Apple's latest iPhone release, as sales and product numbers declined dramatically.

Rivalry Among Existing Players: MODERATE

Rivalry among the existing players in the industry is moderate. Many of the top players create and sell the same products. Creating and selling the same products is bound to lead to competition as companies are continuing to gain the competitive advantage. Companies will continue to compete as the products continue to undergo innovation.

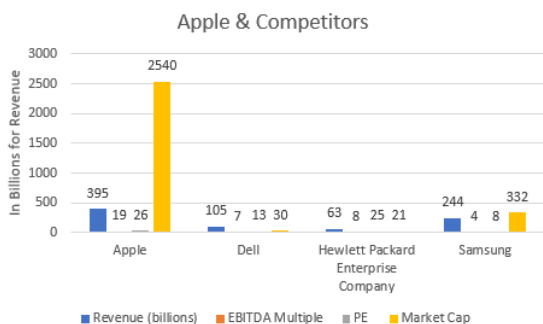
Brand loyalty is often associated with rivalries within the industry. To an extent, this lowers the rivalry between

top companies, although companies attempt to convert the consumer with every new product release. The rivalry we be moderate for years to come, as the leaders in the industry will continue to compete over future products.

Industry Competition

Apple’s main competitors within the technology hardware industry are Hewlett Packard (HP), Samsung, and Dell. Within this industry, Apple is the clear leader due to the sheer size and reach of the company. Apple’s revenues approached 395 billion dollars in 2022, 47% higher than Samsung, who brought in 244 billion²⁰. Dell and HP had revenues of 105 billion²¹ and 63 billion, respectively. Apple is generating upwards of six times the revenue of HP and almost 4 times the revenue of Dell, which leads us to the conclusion that the closest competitor within the industry is Samsung.⁹

Currently, Apple’s EV/EBITDA multiple is at 19.3x, while Samsung, HP, and Dell’s multiples all fall between 3-6x. Apple also trades at a 26.2x price-to-earnings ratio, the highest of the group. Lastly, the market capitalization of Apple is over 2.4 trillion dollars, almost five times the 486.5-billion-dollar market cap of Samsung. Dell and HP have market capitalization of 31.38 billion and 20.61 billion, respectively.⁹ These metrics and financials show that Apple is the clear leader in the industry due to the amount of cash flow that is generated in comparison to its peers. We feel that due to the sheer size of Apple, its competitors lie outside of the technology hardware industry.



Source: *Factset*⁹

As Apple is currently the world’s largest company in respect to market capitalization, we felt that for valuation purposes, Apple should be compared to other major players throughout the technology sector. Apple’s product lines span into several different sub-industries,

which brings larger companies into play. In regard to Apple’s line of tablets and laptops, Microsoft (MSFT), offers multiple products that directly compete with Apple’s devices. Safari, the search engine owned and operated by Apple, competes for the most used web browser against Alphabet’s (GOOGL) Google Chrome. Lastly, Apple’s streaming service, Apple TV, competes directly with Netflix (NFLX) and Amazon (AMZN) in respects to the streaming services offered.

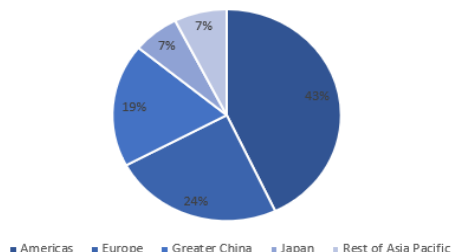
Overall, we feel as if these companies are more closely related and competitive to Apple. Each of these companies have a large market cap, with Microsoft, Google, and Amazon having over a trillion in total capitalization. Having companies with similar financial profiles is essential for proper valuation, and these four companies make for a better overall valuation.

Company Analysis

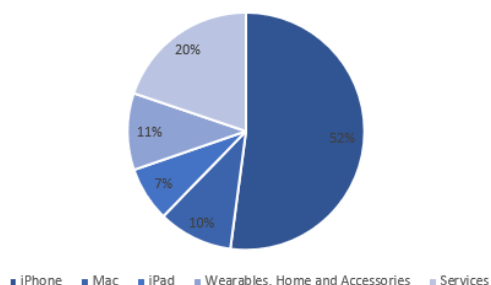
Apple is a technology hardware and consumer technology giant, operating out of Cupertino, California. While Apple operates out of California, its reach expands throughout the Americas, Europe, Asia Pacific regions, and Japan. Revenue for Apple is consistently led by the sale of the iPhone, followed by the iPad, MacBook, Air Pod, and Apple Watch product lines. Alongside these products, Apple provides a variety of services with its iTunes & Safari Media systems, as well as the ever-growing Apple Pay & Apple Card technologies.

Apple seeks to differentiate its products from its competitors by designing nearly every aspect of their products and software applications. The company has a plethora of patents, designs, copyrights, and trademarks that are unique to their products. However, the nature of the business still requires high levels for R&D to support the continued development of cutting-edge products. Below is a product and services breakdown for Apple.

2022 Sale Geography Breakdown



2022 Product Sale Breakdown



Source: *Apple 10-K*¹⁰

The graphs shown above depict Apple’s geographical breakdown around the world, as well as the product segment sale breakdown.

Product Segments

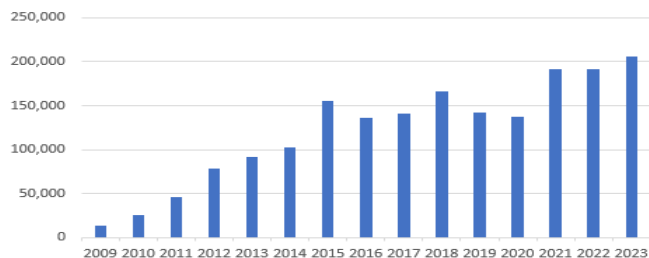
iPhone

iPhones are the smartphones within the Apple Ecosystem. The newest iPhone models are the iPhone 14, 14 pro, and 14 pro max. Over the last five years, iPhone sales have grown at roughly 9.5% since 2018, with notable 39.33% growth in 2021.¹¹ This extreme growth is attributed to the release of the iPhone 13 and 13 Pro Max.

More recently, iPhone sales have declined due to chip shortages in China where necessary processors are being assembled. This in turn created a supply chain disruption, and the iPhone 14 was backordered for months, resulting in an 11% decrease in sales for the newest model.¹²

Due to the chip shortage, ever shifting market conditions, and consumer sentiment, we have forecasted iPhone sales to fall another 2.67% in FY 2023 but recover at an 11% growth rate in 2024. This growth is due to the consumer purchasing the new iPhone, which is slated to be released in the 4th quarter of 2023. We believe that as the iPhone becomes a more mature product, growth will be moderate over time as current users upgrade their device and new users join the ecosystem. Currently, there are over one billion active iPhone users, with the number continuing to rise year after year.

iPhone Revenue (in millions)



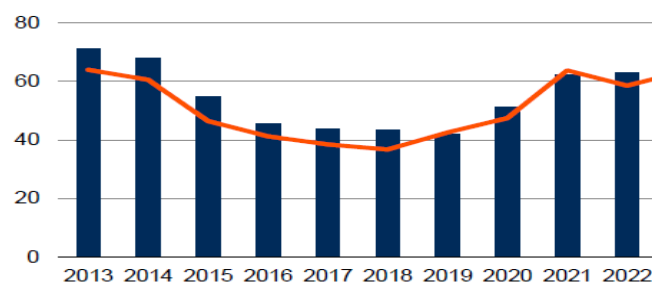
Source: *Statista*¹³

iPad

The iPad is Apple’s handheld tablet product line that consists of the iPad Pro, iPad Air, iPad, and iPad Mini. Over the last five years, iPad sales growth has grown at an average of 10.3%, with notable gains in 2021 with the release of the 9th generation iPad, which has been deemed the most “affordable” iPad. However, in 2022, sales declined by roughly 8% year over year.⁹ We believe this is due to the lack of new developments to the iPad itself.

iPad Sales

(millions)



Source: *CFRA, company reports*⁸

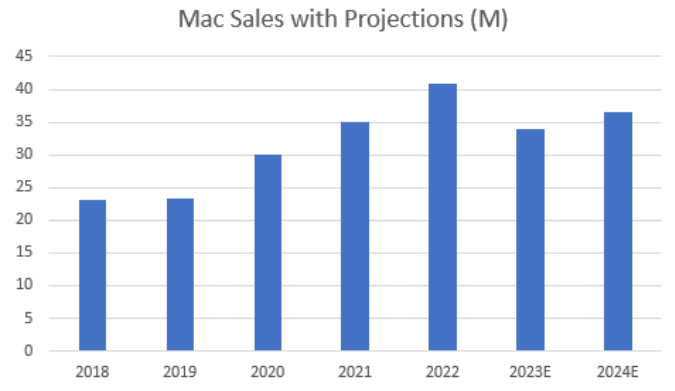
Our group has estimated for iPad growth to continue the decline throughout 2023, falling at 5.51% year over year. Because the iPad is also a mature product within Apple’s product line, we estimate that in 2024 and beyond, sales growth will rise by over 10% in 2027E, and then begin to taper off as we approach CV. This can be attributed to the slower innovation of new technologies within the iPad product line.

Mac

Mac is Apple’s product line of personal computers. The Mac runs on Apple’s MacOS operating system, which is comparable to the IOS systems of the iPhone and iPad. The Mac line itself is led by the MacBook Pro and MacBook Air, followed by Apple’s desktops: iMac, Mac Mini, Mac Pro, and Mac Studio. In the past five years, the Mac line has growth at an average of 9%, with its highest

growth coming in 2020 and 2021 due to the shift in online meetings and the growing work from home environment which can be attributed to the COVID-19 pandemic.⁹

We have forecasted Mac sales to decline by 16.62% in 2023, as we believe that the consumer is less inclined to upgrade a newly purchased Mac from years prior. Following 2023, we have projected a rebound in growth of 7.46%, followed by a steady decline which can be attributed to more PCs entering the market, and a longer battery and screen life due to the increasing quality.



Source: CFRA, company reports⁸

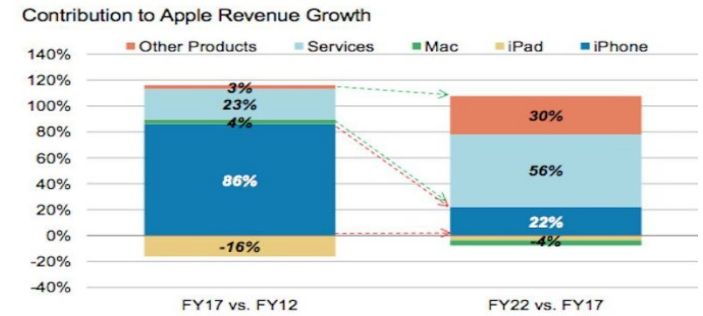
Music, Wearables, and Other Accessories

Apple produces a variety of accessories in addition to the iPhone, iPad, and Mac products. The main accessories that are produced fall into three different categories: Apple Watch, Apple Tv, and Air Pods/audio devices. The Apple Watch is a smartwatch that is produced by Apple and is adapted specifically for the consumer, with models ranging from the Apple Watch Ultra, Series 8, SE, Nike, and Hermes. Apple Tv is Apple’s streaming service, which turns any Tv with HDMI connectivity into a smart TV with the Apple TV HD and 4K models. AirPods, Apple’s wireless headphone line includes the AirPod Max, AirPod Pro, and AirPod. Continuing with audio products, Apple also has the HomePod wireless speaker and sells Beats headphones as well.

The accessories segment has had the largest average growth over the last five years at 27%.⁹ This can be attributed to the growth of Bluetooth technology throughout the audio industry. In 2022 however, growth declined to just under 7.5%, which we believe is linked to overall decreased discretionary spending. As the economy strengthens, we anticipate a higher growth period since these products are still relatively newer and can still grow in the market. Our estimated growth rate

in 2023 is 3%, with its peak growth estimated at 17% within our model when the accessories segment matures.

Exhibit 1: While iPhone historically drove the vast majority of Apple revenue growth, Services becomes the primary revenue driver going forward



Source: Morgan Stanley Research¹⁴

Services

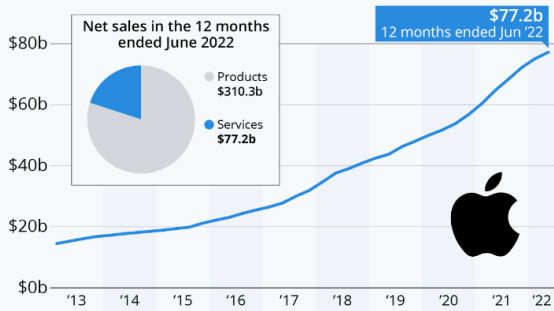
Apple offers multiple services that are accessible throughout their physical products. These services include Apple Pay and Apple Card, Apple Care, iCloud, iTunes, and other advertisement services. Apple Pay is a form of cashless payment in which the consumer loads credit cards into the Wallet application on the iPhone. More recently, Apple debuted the Apple Card, a branded credit card to go alongside Apple Pay. Apple Care is a paid for service that allows the user to gain access to priority access to technical support and repair services. The iCloud service stores the user’s media and data throughout all Apple devices as well as providing system backups to protect and encrypt data. iTunes provides the subscription-based Apple Music and Apple Arcade services where the user has unlimited access to music and select games available to download. Lastly, Apple provides advertising services to both third-party vendors as well as in house advertising platforms.

Service revenue for Apple has grown at just over 19% over the last 5 years, with 2022 coming in at 14.2% year over year.⁹ Our group anticipates steady growth in the years to come, although Apple is facing heavy pressure from outside competitors. We believe that the Service segment within Apple will generate the most growth throughout our model, as the segment is still relatively new and poised for innovation throughout.

Just over 18% of Apple’s total device installed base have subscriptions to Apple services such as Apple Music, iCloud, and Apple Pay.¹⁸ This business segment has a high ceiling for growth.

A Beast of Its Own

Apple's services revenue for the trailing twelve months*



* incl. revenue from digital content and services (e.g. App Store, Apple Music, iTunes Store), AppleCare, Apple Pay, licensing and other services

Source: *Business Strategy Hub*¹⁵

SWOT Analysis

Strengths

Apple's largest asset is the brand value and name itself. Throughout 2022, 51% of Americans used or owned an iPhone, iPad, or Macbook.¹⁶ Having a market share of this size is due to almost two decades of consistent innovation within Apple's products. The consumer is confident that a new Apple product will be the highest quality device on the market that also functions extremely well. Apple has over 55,000 active patents¹⁷, allowing for constant innovation throughout its products and in turn staying one step ahead of its competitors.

Another strength that Apple possesses is its brand marketing approach. Apple releases and markets new products that follow a consistent schedule each year. With heavy marketing throughout Q2 and Q3 promoting the newest product, Apple has garnered interest from consumers across the globe. Following a strong season of marketing, Apple will present their newest products at a keynote presentation in late September, allowing for pre-ordering to take place shortly after.

Apple has continued to capitalize on the services offered under the Apple ecosystem. Subscription based services such as Apple Music and Apple Care are continuing to grow as the consumer is presented with more information. These services also offer a relatively basic and consistent business model with steady revenues as the customer is subscribed for a set period of time before either renewing or cancelling their service.

Weakness

Recently, the rise of counterfeit products, specifically Apple smartphones and tablets, have been on the rise. This takes place primarily outside of the United States, which makes it harder for Apple to monitor and intercept these counterfeit goods. With such a recognizable brand name and logo, making an identical product is incredibly easy, which leads to revenue going to companies that are producing these products.

Apple's main weakness is the operating system that all Apple products run on. Whether it's iOS or MacOS, all of the information and data is monitored and stored by Apple. This causes the consumer to rely on Apple products, as their information will not be available on other non-Apple devices. As many users want a seamless transition between Apple and non-Apple devices, they may choose to pursue a different technology system that has outsourcing for operating systems.

Opportunities

Apple's focus to grow the services offered presents many opportunities, one of which being the Apple Pay and Apple Card systems. With the addition of the Apple Card, Apple has just released its newest service, "Apple Pay Later". This allows the consumer to take out a loan on a purchase that is then paid back over four installments over six weeks. Since this service was released at the end of Q1 2023, there is still an opportunity to expand into higher payments and longer loan periods.

The ever-growing artificial intelligence within technology allows Apple to continue to upgrade the AI systems embedded in their products. Rumors have surfaced regarding new FaceID capabilities, with deepened retina scans for more security. Apple has also been working on artificial intelligence that can be used in the Apple Car, a fully autonomous vehicle that is rumored to be launched in 2026.

Another opportunity that Apple has expressed interest in is the possible expansion of production, as well as brick and mortar stores into India. Currently, they are planning on opening upwards of 100 stores²² throughout the country, therefore increasing the number of users around the country. Along with opening stores, Apple claims that the move to India could ultimately increase iPhone production by 2-3x, as supply chain issues could be eased.

Threats

The United States – China relationship has continued to be shaky at times, which has a direct impact on Apple. Apple sources all of the chips and processors essential for the technology from China, and more specifically, Taiwan Semiconductor Manufacturing company.

Over much of 2022 and into 2023, we saw geographical reach dwindle due to the COVID-19 pandemic. With these countries being placed in a lockdown by their respective governments, Apple was faced with an extreme supply chain disruption which resulted in less physical sales. To avoid this in future lockdowns, Apple may have to produce products in the United States or neighboring countries.

Technology startups have led innovation throughout the growing technology sector. This has led to pressure for Apple specifically, as they have been deemed the industry leader. Staying on top and ahead of innovation is costly and could ultimately raise the prices of products if newer tech startups continue to innovate.

Overall Valuation Analysis

Revenue Decomposition

Apple's revenue is broken up into five different segments: iPhone, iPad, Mac, Wearables & Accessories, and Services. We have forecasted revenue to decline for the iPhone, iPad, and Mac segments and growth throughout the Wearables and Services.

More specifically, we have forecasted sales for the iPhone to decrease by 2.67%, iPads decreased 5.51%, and Macs decreasing by 16.62%. Services and Wearables grew at 7.5% and 3.05%, respectively. We have estimated that 2024E will be a high growth year for the iPhone, Services, and Wearables sectors due to innovation within these products.

Due to current macroeconomic factors, we believe that Apple's revenue growth in 2023E will decline overall by roughly 1.69%. Some factors that will cause this decline in growth are rising interest rates, inflation, and supply chain issues abroad. While these factors are influencing 2023E, we expect them to slowly ease throughout late 2023 and early 2024.

Cost Of Sales

All of Apple's selling costs have been estimated using a two-year historical average, as there is no clear guidance from official Apple management with how costs are broken down. This results in the cost of sales being straight lined at 64% for products and 29% for services.

Research & Development

Research and Development is essential for companies to continue growth with new products and services, and we have estimated that R&D will continue to grow at roughly 6% year over year. This number was computed using historical averages, as we believe that Apple will continue to produce the same number of products in years to come.

Cost of Equity

To calculate the cost of equity at 9.45%, we used the Capital Asset Pricing Model. The Capital Asset Pricing Model or CAPM, is calculated using the risk-free rate, raw beta, and the current equity risk premium. Our risk-free rate used was 3.45%, the current rate of the 10-year US treasury. For Apple's Beta, we used the 5-year monthly raw beta of 1.23, which represents Apple's volatility in comparison to the market. Lastly, we used Damodaran's trailing 12-month implied equity risk premium of 4.88%¹⁹, as of April 1, 2023. The beta and equity risk premium were multiplied and then added to the risk-free rate to give us our 9.45% cost of equity.

Cost of Debt

To find our cost of debt at 3.35%, we first needed our pre-tax cost of debt. Our pre-tax cost of debt was 4.71%, which was found by finding 10-year Apple corporate bonds. The default premium is calculated by subtracting the 3.45% risk-free rate from the pre-tax cost of debt that was found. Finally, we multiplied Apple's pre-tax cost of debt by 0.7113, which is the marginal tax rate of 28.87% subtracted from 1, to arrive at our after-tax cost of debt of 3.35%.

WACC

To arrive at our Weighted Average Cost of Capital (WACC) of 9.2%, we first had to identify the capital structure that Apple is made up of. We calculated the weight of equity to be 95.63%, which was found by multiplying the total

shares outstanding (15.94 million) by the current stock price (165.21 as of 04/14/23) to equal 2,634.01 million. Next, the weight of debt was determined to be 4.37%. This was calculated by adding the current portion of long-term debt, long term debt, and the present value of operating leases, which equaled 120.44 million. Following this step, we added both the market value of equity and the market value of debt to equal 2,754.45 million, which was divided by our market value of total debt (120.44). We then used these weights, along with our calculated after-tax cost of debt (3.35%) and our cost of equity (9.45%), to arrive at our final weighted average cost of capital.

Valuation Models

Discounted Cash Flow & Economic Profit Model

Implied Share Price: **\$167**

Projection Period: 2023-2032

We believe that the Discounted Cash Flow and Economic Profit models provide the best valuation for Apple. To arrive at our calculation, we forecasted the three financial statements in order to find our Free Cash Flow values. These values are then discounted back to present value using the 9.2% WACC. After adding these cash flows together and making non-operating adjustments, the value of equity was divided by the current shares outstanding to end at an intrinsic share price of \$168.

Our group is confident in the valuation provided by these models. Apple is the world leader in technology sales, which is reflected in the growth of the free cash flow projections throughout the model. Our free cash flow calculations have considered current macroeconomic factors such as inflation, geopolitical risks, and other challenges facing the economy.

Relative Price-to-Earnings Model

Implied Share Price: **\$127-\$188**

Projection Period: 2023-2024

Comparable Companies: Microsoft (MSFT), Alphabet (GOOGL), Samsung (SMSN), HP (HPQ), and Amazon (AMZN).

When analyzing Apple, it is incredibly difficult to find true “comparable” companies for a variety of reasons. The first being that no company on earth is as big as Apple, and therefore will not have a financial profile that is extremely similar. Second, Apple has expanded its reach into multiple industries, therefore inviting more companies to compete with them. We believe that the companies selected provide the best valuation, as they all compete with Apple in multiple different business segments.

The relative P/E model produces a higher valuation than all models observed in this report. We believe that while the intrinsic valuation may be higher, it is still an accurate valuation. Apple strives to provide returns to shareholders which leads to an emphasis on the price-to-earnings metric, therefore making this an accurate valuation.

Dividend Discount Model

Implied Share Price: **\$143**

Projection Period: 2023-2032

We put together Apple’s Dividend Discount Model by projecting the company’s earnings per share into 2032E. A major assumption we made was that Apple will continue to increase dividends by \$0.05 each year. By discounting these dividends back to present value using the cost of equity, as well as the future stock price, we arrived at our implied share price of \$143.

Our group believes that the Dividend Discount Model provides an accurate intrinsic valuation of Apple. This belief is supported with Apple’s goal of driving shareholder value and having consistent EPS growth.

Sensitivity Analysis

WACC & CV NOPLAT Growth

The first variables we chose to analyze were Apple’s CV growth of NOPLAT and the Weighted Average Cost of Capital. We chose these variables because they are the two main inputs for the Discounted Cash Flow model. The continuing value in our DCF model makes up a majority of the total valuation, so it is essential to see how changes in both of these variables affect our final valuation model.

We estimated our CV growth rate to be relatively high, at roughly 5%. While we understand this is high, we believe that Apple has the resources and historical evidence to back up this assumption. The sensitivity tested was CV NOPLAT Growth between 3.5%-6.5% and WACC between 8.8%-9.5%, which gave us an estimated price between \$128-\$272.

		CV NOPLAT Growth							
		166.55	3.50%	4.00%	4.50%	5.00%	5.50%	6.00%	6.50%
WACC	8.80%	146.38	156.44	168.83	184.49	204.89	232.57	272.30	
	8.90%	143.41	152.98	164.73	179.49	198.59	224.28	260.68	
	9.00%	140.55	149.67	160.81	174.75	192.66	216.55	249.99	
	9.20%	135.13	143.43	153.49	165.95	181.77	202.54	231.00	
	9.30%	132.56	140.48	150.06	161.85	176.76	196.17	222.53	
	9.40%	130.09	137.65	146.77	157.95	172.00	190.19	214.64	
	9.50%	127.70	134.93	143.61	154.22	167.49	184.54	207.28	

Equity Risk Premium & Beta

We chose to analyze the effects of changing the Equity Risk Premium and Apple's beta together because they are both included in the WACC calculation. With the WACC being one of the biggest factors in determining the intrinsic value of Apple, the effects of changing these variables should be noted.

Our table consisted of the beta ranging from 0.93-1.53 and the Equity Risk Premium ranging from 4.58%-5.18%. While Apple's beta is relatively stable around 1.2, we still believed it has room to adjust over time with ever-changing market conditions. The equity risk premium is constantly changing and could easily increase or decrease within this range over the coming years. This table estimated the stock price to fall between \$114-\$282. While this is a large range, we believe that a majority of these values are plausible in the years to come.

		Beta							
		166.55	1.53	1.43	1.33	1.23	1.13	1.03	0.93
Equity Risk Premium	4.58%	134.12	147.24	163.08	182.59	207.17	239.10	282.19	
	4.68%	130.22	142.88	158.15	176.92	200.53	231.12	272.26	
	4.78%	126.54	138.77	153.50	171.59	194.29	223.64	262.99	
	4.88%	123.06	134.88	149.11	166.55	188.42	216.61	254.32	
	4.98%	119.75	131.19	144.95	161.79	182.88	210.00	246.18	
	5.08%	116.61	127.70	141.01	157.29	177.64	203.77	238.54	
	5.18%	113.63	124.38	137.28	153.03	172.69	197.89	231.34	

Cost of Product Sales (%) & Cost of Service Sales (%)

When looking at the two biggest expenses throughout Apple's financials, the cost of both products and services are at the top. These expenses are key to determining

margins, and we felt that they should be tested against one another.

By using Apple's discounted cash flow intrinsic valuation, we used a range of 61.18%-67.18% for the cost of products, and 26.26%-32.26% for the cost of services. These expenses can fluctuate easily, especially with the increasing supply chain shortages and other geopolitical risks. By making these adjustments, we estimated the stock price to fall between \$148-\$185, which is in line with our estimates throughout the model.

		Cost of Service Sales							
		166.55	32.26%	31.26%	30.26%	29.26%	28.26%	27.26%	26.26%
Cost of Product Sales	61.18%	174.07	175.85	177.62	179.39	181.17	182.94	184.71	
	62.18%	169.80	171.57	173.35	175.12	176.89	178.67	180.44	
	63.18%	165.53	167.30	169.07	170.85	172.62	174.39	176.17	
	64.18%	161.25	163.03	164.80	166.57	168.35	170.12	171.90	
	65.18%	156.98	158.75	160.53	162.30	164.07	165.85	167.62	
	66.18%	152.71	154.48	156.25	158.03	159.80	161.58	163.35	
	67.18%	148.43	150.21	151.98	153.76	155.53	157.30	159.08	

Capital Expenditures & Net Margin

Capital expenditures are essential for growth within a company, and Apple is no exception. Apple purchases new infrastructure, warehouses, data centers, and other investments that are beneficial for the company's long-term growth. We chose to compare the Capital Expenditure rate, as a percentage of sales, to the Net Margin of Apple.

Our sensitivity table values for CapEx and Net Margin percentage ranged from 1.47%-7.47% and 6.37%-12.37%, respectively. We felt that these ranges are feasible in the sense that expenditure occurs extremely often for a large company, which then has an impact on overall profit margins. Our table suggests an estimated stock price of \$164-\$169.

		Net Margin							
		166.55	6.37%	7.37%	8.37%	9.37%	10.37%	11.37%	12.37%
Cap Ex	1.47%	164.06	164.64	165.21	165.79	166.36	166.93	167.49	
	2.47%	164.30	164.88	165.46	166.03	166.60	167.17	167.74	
	3.47%	164.52	165.10	165.68	166.25	166.83	167.40	167.96	
	4.47%	164.72	165.30	165.88	166.46	167.03	167.60	168.17	
	5.47%	164.90	165.49	166.07	166.64	167.22	167.79	168.36	
	6.47%	165.07	165.66	166.24	166.82	167.39	167.96	168.53	
	7.47%	165.23	165.81	166.39	166.97	167.55	168.12	168.69	

Cost of Equity & CV Earnings Per Share Growth (DDM)

When building a Dividend Discount Model, the two biggest factors when projecting the final intrinsic share

price are the cost of equity and the CV earnings per share growth. The CV earnings per share value is responsible for the calculation of the future stock price, which is then discounted by the cost of equity for the final cash flow in year 2032E. This value is responsible for 92% of the overall intrinsic valuation, therefore making these variables incredibly important within the model.

When constructing our sensitivity table, our Cost of Equity ranged from 9.15%-9.75% and our CV EPS Growth ranged from 3.2%-3.8%. We believe that these assumptions are easily within reach, and therefore should be modeled within the table. With these assumptions, the estimated stock price is between \$127-\$162.

		CV EPS Growth						
		3.20%	3.30%	3.40%	3.50%	3.60%	3.70%	3.80%
Cost of Equity	142.71	147.10	149.34	151.65	154.05	156.54	159.11	161.78
	9.15%	143.50	145.65	147.86	150.15	152.53	154.99	157.54
	9.25%	140.04	142.09	144.21	146.40	148.67	151.02	153.46
	9.35%	136.70	138.66	140.69	142.79	144.96	147.21	149.53
	9.45%	133.47	135.36	137.30	139.31	141.39	143.54	145.76
	9.55%	130.36	132.17	134.03	135.96	137.95	140.00	142.13
	9.65%	127.35	129.09	130.87	132.72	134.63	136.60	138.63
	9.75%							

Important Disclaimer

This report was created by students enrolled in the Applied Equity Valuation class at the University of Iowa. The report was originally created to offer an internal investment recommendation for the University of Iowa Krause Fund and its advisory board. The report also provides potential employers and other interested parties with an example of the students' skills, knowledge and abilities. Members of the Krause Fund are not registered investment advisors, brokers or officially licensed financial professionals. The investment advice contained in this report does not represent an offer or solicitation to buy or sell any of the securities mentioned. Unless otherwise noted, the facts and figures included in this report are from publicly available sources. This report is not a complete compilation of data, and its accuracy is not guaranteed. From time to time, the University of Iowa, its faculty, staff, students, or the Krause Fund may hold a financial interest in the companies mentioned in this report.

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Apple Inc.

Sensitivity Tables

CV NOPLAT Growth

	166.55	3.50%	4.00%	4.50%	5.00%	5.50%	6.00%	6.50%
WACC	8.80%	146.38	156.44	168.83	184.49	204.89	232.57	272.30
	8.90%	143.41	152.98	164.73	179.49	198.59	224.28	260.68
	9.00%	140.55	149.67	160.81	174.75	192.66	216.55	249.99
	9.20%	135.13	143.43	153.49	165.95	181.77	202.54	231.00
	9.30%	132.56	140.48	150.06	161.85	176.76	196.17	222.53
	9.40%	130.09	137.65	146.77	157.95	172.00	190.19	214.64
	9.50%	127.70	134.93	143.61	154.22	167.49	184.54	207.28

Net Margin

	166.55	6.37%	7.37%	8.37%	9.37%	10.37%	11.37%	12.37%
Cap Ex	1.47%	164.06	164.64	165.21	165.79	166.36	166.93	167.49
	2.47%	164.30	164.88	165.46	166.03	166.60	167.17	167.74
	3.47%	164.52	165.10	165.68	166.25	166.83	167.40	167.96
	4.47%	164.72	165.30	165.88	166.46	167.03	167.60	168.17
	5.47%	164.90	165.49	166.07	166.64	167.22	167.79	168.36
	6.47%	165.07	165.66	166.24	166.82	167.39	167.96	168.53
	7.47%	165.23	165.81	166.39	166.97	167.55	168.12	168.69

Cost of Service Sales

	166.55	32.26%	31.26%	30.26%	29.26%	28.26%	27.26%	26.26%
Cost of Product Sales	61.18%	174.07	175.85	177.62	179.39	181.17	182.94	184.71
	62.18%	169.80	171.57	173.35	175.12	176.89	178.67	180.44
	63.18%	165.53	167.30	169.07	170.85	172.62	174.39	176.17
	64.18%	161.25	163.03	164.80	166.57	168.35	170.12	171.90
	65.18%	156.98	158.75	160.53	162.30	164.07	165.85	167.62
	66.18%	152.71	154.48	156.25	158.03	159.80	161.58	163.35
	67.18%	148.43	150.21	151.98	153.76	155.53	157.30	159.08

CV EPS Growth

	142.71	3.20%	3.30%	3.40%	3.50%	3.60%	3.70%	3.80%
Cost of Equity	9.15%	147.10	149.34	151.65	154.05	156.54	159.11	161.78
	9.25%	143.50	145.65	147.86	150.15	152.53	154.99	157.54
	9.35%	140.04	142.09	144.21	146.40	148.67	151.02	153.46
	9.45%	136.70	138.66	140.69	142.79	144.96	147.21	149.53
	9.55%	133.47	135.36	137.30	139.31	141.39	143.54	145.76
	9.65%	130.36	132.17	134.03	135.96	137.95	140.00	142.13
	9.75%	127.35	129.09	130.87	132.72	134.63	136.60	138.63

Beta

	166.55	1.53	1.43	1.33	1.23	1.13	1.03	0.93
Equity Risk Premium	4.58%	134.12	147.24	163.08	182.59	207.17	239.10	282.19
	4.68%	130.22	142.88	158.15	176.92	200.53	231.12	272.26
	4.78%	126.54	138.77	153.50	171.59	194.29	223.64	262.99
	4.88%	123.06	134.88	149.11	166.55	188.42	216.61	254.32
	4.98%	119.75	131.19	144.95	161.79	182.88	210.00	246.18
	5.08%	116.61	127.70	141.01	157.29	177.64	203.77	238.54
	5.18%	113.63	124.38	137.28	153.03	172.69	197.89	231.34


Apple Inc.



Revenue Decomposition

All figures in millions of USD

Fiscal Years Ending Sep. 30	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
iPhone	164,888	142,381	137,781	191,973	205,489	200,000	219,845	239,478	258,725	277,440	295,502	312,816	329,311	344,940	359,673
% Growth	18.00%	-13.65%	-3.23%	39.33%	7.04%	-2.67%	9.92%	8.93%	8.04%	7.23%	6.51%	5.86%	5.27%	4.75%	4.27%
iPad	18,380	21,280	23,724	31,862	29,292	27,678	31,500	35,415	39,376	43,339	46,830	49,469	51,143	52,180	52,816
% Growth	-2%	15.78%	11.48%	34.30%	-8.07%	-5.51%	13.81%	12.43%	11.18%	10.07%	8.05%	5.64%	3.38%	2.03%	1.22%
Mac	25,198	25,740	28,622	35,190	40,177	33,500	36,000	38,418	40,740	42,957	45,060	47,045	48,911	50,657	52,284
% Growth	-1%	2.15%	11.20%	22.95%	14.17%	-16.62%	7.46%	6.72%	6.04%	5.44%	4.90%	4.41%	3.97%	3.57%	3.21%
Services	39,748	46,291	53,768	68,425	78,129	84,000	90,000	101,250	118,652	140,065	162,815	186,615	211,167	236,170	261,338
% Growth	22%	16.46%	16.15%	27.26%	14.18%	7.51%	7.14%	12.50%	17.19%	18.05%	16.24%	14.62%	13.16%	11.84%	10.66%
Wearables, Home and Accessories	17,381	24,482	30,620	38,367	41,241	42,500	46,000	50,167	55,166	61,213	68,594	77,691	89,026	103,313	121,551
% Growth	36%	40.85%	25.07%	25.30%	7.49%	3.05%	8.24%	9.06%	9.96%	10.96%	12.06%	13.26%	14.59%	16.05%	17.65%
Total	265,595	260,174	274,515	365,817	394,328	387,678	423,345	464,727	512,659	565,014	618,800	673,637	729,557	787,260	847,662
% Growth	16%	-2.04%	5.51%	33.26%	7.79%	-1.69%	9.20%	9.78%	10.31%	10.21%	9.52%	8.86%	8.30%	7.91%	7.67%

Apple Inc.																
Income Statement																
All figures in millions of USD																
Fiscal Years Ending Sep. 30		2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Net Sales:																
Products		228,405	213,883	220,747	297,392	316,199	303,678	333,345	363,477	394,007	424,949	455,985	487,022	518,391	551,090	586,324
Services		37,190	46,291	53,768	68,425	78,129	84,000	90,000	101,250	118,652	140,065	162,815	186,615	211,167	236,170	261,338
Total Net Sales		265,595	260,174	274,515	365,817	394,328	387,678	423,345	464,727	512,659	565,014	618,800	673,637	729,557	787,260	847,662
Cost of sales:																
Products		148,160	144,996	151,286	192,266	201,471	194,912	213,953	233,293	252,888	272,748	292,667	312,588	332,722	353,710	376,324
Services		15,590	16,786	18,273	20,715	22,075	24,582	26,338	29,630	34,723	40,989	47,647	54,612	61,796	69,113	76,479
Total Cost of Sales		163,756	161,782	169,559	212,981	223,546	219,494	240,291	262,923	287,611	313,737	340,314	367,200	394,518	422,823	452,803
Gross Profit		101,839	98,392	104,956	152,836	170,782	168,185	183,054	201,804	225,049	251,278	278,486	306,437	335,039	364,437	394,859
Operating Expenses																
Depreciation & amortization		10,903	12,547	11,056	11,284	11,104	12,509	13,397	14,349	15,374	16,480	17,674	18,959	20,337	21,811	23,352
Research & development expense		14,236	16,217	18,752	21,914	26,251	26,482	28,919	31,745	35,020	38,596	42,270	46,016	49,836	53,777	57,903
Selling, general & administrative expense		5,802	5,698	8,860	10,689	13,990	12,512	13,664	14,999	16,546	18,236	19,972	21,742	23,547	25,409	27,358
Total operating expenses		30,941	34,462	38,668	43,887	51,345	51,503	55,979	61,093	66,939	73,312	79,916	86,717	93,720	100,998	108,614
Operating income (loss)		70,898	63,930	66,288	108,949	119,437	116,681	127,075	140,711	158,109	177,965	198,570	219,721	241,319	263,440	286,245
Other income (expense), net		2,005	1,807	803	258	(334)	1,340	1,463	1,606	1,772	1,952	2,138	2,328	2,521	2,720	2,929
Income before provision for income taxes		72,903	65,737	67,091	109,207	119,103	118,021	128,538	142,317	159,881	179,918	200,708	222,048	243,840	266,160	289,174
Provision for (benefit from) income taxes		13,372	10,481	9,680	14,527	19,300	29,505	32,134	35,579	39,970	44,979	50,177	55,512	60,960	66,540	72,294
Net income (loss)		59,531	55,256	57,411	94,680	99,803	88,516	96,403	106,738	119,911	134,938	150,531	166,536	182,880	199,620	216,881
Tax rate		18%	16%	14%	13%	16%	25%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Earnings per share:																
Basic		3.00	2.99	3.31	5.67	6.15	5.65	6.37	7.30	8.48	9.85	11.33	12.92	14.61	16.40	18.31
Shares used in computing earnings per share:																
Total Basic Shares Outstanding		19,020	17,773	16,977	16,427	15,943	15,387	14,865	14,375	13,915	13,484	13,078	12,698	12,340	12,005	11,690
Total Weighted Average Shares Outstanding		20,000	18,596	17,528	16,865	16,326	15,665	15,126	14,620	14,145	13,699	13,281	12,888	12,519	12,173	11,848
Dividend per Share		\$0.68	\$0.75	\$0.80	\$0.85	\$0.90	\$0.95	\$1.00	\$1.05	\$1.10	\$1.15	\$1.20	\$1.25	\$1.30	\$1.35	\$1.40

Apple Inc.

Balance Sheet

All figures in millions of USD

Fiscal Years Ending Sep. 30



	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Current Assets															
Cash & cash equivalents	25,913	48,844	38,016	34,940	23,646	20,660	10,693	9,352	19,609	42,699	78,348	126,790	188,285	263,365	353,085
Marketable securities	40,388	51,713	52,927	27,699	24,658	25,864	27,129	28,455	29,847	31,306	32,837	34,443	36,127	37,893	39,746
Accounts receivable, net	23,186	22,926	16,120	26,278	28,184	29,265	31,958	35,082	38,700	42,652	46,713	50,852	55,074	59,430	63,989
Inventories	3,956	4,106	4,061	6,580	4,946	5,893	6,435	7,064	7,792	8,588	9,406	10,239	11,089	11,966	12,884
Vendor non-trade receivables	25,809	22,878	21,325	25,228	32,748	32,162	35,121	38,554	42,530	46,874	51,336	55,885	60,524	65,311	70,322
Other current assets	12,087	12,352	11,264	14,111	21,223	17,555	19,170	21,044	23,214	25,585	28,021	30,504	33,036	35,649	38,384
Total current assets	131,339	162,819	143,713	134,836	135,405	131,399	130,505	139,551	161,692	197,704	246,660	308,714	384,135	473,614	578,412
Non Current assets:															
Marketable securities	170,799	105,341	100,887	127,877	120,805	126,712	132,909	139,408	146,225	153,375	160,875	168,742	176,994	185,649	194,727
Property, plant & equipment, net	41,304	37,378	36,766	39,440	42,117	45,108	48,311	51,762	55,489	59,508	63,834	68,475	73,438	78,626	83,274
Other non-current assets	22,283	32,978	42,522	48,849	54,428	49,399	53,944	59,217	65,324	71,995	78,849	85,836	92,962	100,315	108,011
Total non-current assets	234,386	175,697	180,175	216,166	217,350	221,219	235,163	250,387	267,038	284,879	303,558	323,054	343,393	364,590	386,012
Total assets	365,725	338,516	323,888	351,002	352,755	352,618	365,669	389,938	428,730	482,583	550,218	631,767	727,528	838,204	964,423
Liabilities and Shareholders' equity:															
Current liabilities:															
Accounts payable	55,888	46,236	42,296	54,763	64,115	66,255	72,350	79,423	87,614	96,562	105,754	115,125	124,682	134,544	144,866
Other current liabilities	32,687	37,720	42,684	47,493	60,845	54,869	59,917	65,774	72,558	79,968	87,581	95,342	103,257	111,424	119,972
Deferred revenue	7,543	5,522	6,643	7,612	7,912	8,893	9,711	10,661	11,760	12,961	14,195	15,453	16,736	18,059	19,445
Commercial paper	11,964	5,980	4,996	6,000	9,982	8,031	8,689	9,442	10,304	11,241	12,206	13,193	14,203	15,247	16,341
Term debt	8,780	10,260	8,773	9,613	11,128	10,013	10,834	11,773	12,847	14,016	15,219	16,450	17,709	19,011	20,374
Total current liabilities	116,866	105,718	105,392	125,481	153,982	148,061	161,501	177,072	195,084	214,748	234,954	255,563	276,586	298,285	320,998
Non-current liabilities:															
Term debt	93,735	91,807	98,667	109,106	98,959	107,517	114,294	121,693	129,785	138,457	147,535	157,010	166,896	177,197	187,609
Other non-current liabilities	45,180	50,503	54,490	53,325	49,142	64,596	70,538	77,434	85,420	94,144	103,105	112,242	121,560	131,175	141,239
Total non-current liabilities	141,712	142,310	153,157	162,431	148,101	172,112	184,832	199,126	215,206	232,600	250,641	269,253	288,456	308,372	328,848
Total liabilities	258,578	248,028	258,549	287,912	302,083	320,173	346,333	376,198	410,289	447,348	485,595	524,816	565,042	606,657	649,846
Shareholder's Equity															
Common stock and additional paid in capital	40,201	45,174	50,779	57,365	64,849	64,849	64,849	64,849	64,849	64,849	64,849	64,849	64,849	64,849	64,849
Retained earnings	70,400	45,898	14,966	5,562	(3,068)	(21,295)	(34,405)	(40,001)	(35,299)	(18,505)	10,884	53,212	108,746	177,807	260,837
Accumulated other comprehensive income (loss)	(3,454)	(584)	(406)	163	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)
Total shareholders' equity	107,147	90,488	65,339	63,090	50,672	32,445	19,335	13,739	18,441	35,235	64,624	106,952	162,486	231,547	314,577
Total liabilities and shareholder's equity	365,725	338,516	323,888	351,002	352,755	352,618	365,669	389,938	428,730	482,583	550,218	631,767	727,528	838,204	964,423

Apple Inc.

Historical Cash Flow Statement



All figures in millions of USD

Fiscal Years Ending Sep. 30

	2018	2019	2020	2021	2022
Cash, cash equivalents and restricted cash, beginning balances	20,289	25,913	50,224	39,789	35,929
Operating Activities:					
Net income (loss)	59,531	55,256	57,411	94,680	99,803
Depreciation & amortization	10,903	12,547	11,056	11,284	11,104
Share-based compensation expense	5,340	6,068	6,829	7,906	9,038
Deferred income tax expense (benefit)	(32,590)	(340)	(215)	(4,774)	895
Other adjustments	(444)	(652)	(97)	(147)	111
Changes in operating assets and liabilities:					
Accounts receivable, net	(5,322)	245	6,917	(10,125)	(1,823)
Inventories	828	(289)	(127)	(2,642)	1,484
Vendor non-trade receivables	(8,010)	2,931	1,553	(3,903)	(7,520)
Other current & non-current assets	(423)	873	(9,588)	(8,042)	(6,499)
Accounts payable	9,175	(1,923)	(4,062)	12,326	9,448
Deferred revenue	(3)	(625)	2,081	1,676	478
Other current & non-current liabilities	38,449	(4,700)	8,916	5,799	5,632
Cash generated from operating activities	77,434	69,391	80,674	104,038	122,151
Investing activities:					
Purchases of marketable securities	(71,356)	(39,630)	(114,938)	(109,558)	(76,923)
Proceeds from maturities of marketable securities	55,881	40,102	69,918	59,023	29,917
Proceeds from sales of marketable securities	47,838	56,988	50,473	47,460	37,446
Payments for acquisition of property, plant & equipment	(13,313)	(10,495)	(7,309)	(11,085)	(10,708)
Payments made in connection with business acquisitions, net	(721)	(624)	(1,524)	(33)	(306)
Other cash flow from investing activities	(745)	(1,078)	(909)	(352)	(1,780)
Purchases of non-marketable Securities	(1,871)	(1,001)	-	-	-
Proceeds from non-marketable Securities	353	1,634	-	-	-
Cash used in investing activities	16,066	45,896	(4,289)	(14,545)	(22,354)
Financing activities:					
Proceeds from issuance of common stock	669	781	-	-	-
Payments for taxes related to net share settlement of equity awards	(2,527)	(2,817)	(3,634)	(6,556)	(6,223)
Payments for dividends & dividend equivalents	(13,712)	(14,119)	(14,081)	(14,467)	(14,841)
Repurchases of common stock	(72,738)	(66,897)	(72,358)	(85,971)	(89,402)
Proceeds from issuance of term debt, net	6,969	6,963	16,091	20,393	5,465
Repayments of term debt	(6,500)	(8,805)	(12,629)	(8,750)	(9,543)
Proceeds from/(repayments of) commercial paper, net	(37)	(5,977)	(963)	1,022	3,955
Other	-	(105)	754	976	(160)
Cash used in financing activities:	(87,876)	(90,976)	(86,820)	(93,353)	(110,749)
Decrease in cash, cash equivalents and restricted cash	5,624	24,311	(10,435)	(3,860)	(10,952)
Cash, cash equivalents & restricted cash, ending balances	25,913	50,224	39,789	35,929	24,977
Supplemental cash flow disclosure:					
Cash paid (received) for income taxes, net	(10,417)	(15,263)	(9,501)	(25,385)	(19,573)
Cash paid for interest	(3,022)	(3,423)	(3,002)	(2,687)	(2,865)

Apple Inc.
Forecasted Cash Flow Statement

All figures in millions of USD


Fiscal Years Ending Sep. 30

	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Cash, cash equivalents, and restricted cash										
Net Income (loss)	88,516	96,403	106,738	119,911	134,938	150,531	166,536	182,880	199,620	216,881
Add depreciation	12,509	13,397	14,349	15,374	16,480	17,674	18,959	20,337	21,811	23,352
Changes in vendor non-trade receivables	586	(2,959)	(3,433)	(3,976)	(4,343)	(4,462)	(4,549)	(4,639)	(4,787)	(5,011)
Changes in accounts receivable	(1,081)	(2,692)	(3,124)	(3,618)	(3,952)	(4,060)	(4,140)	(4,221)	(4,356)	(4,560)
Changes in inventories	(947)	(542)	(629)	(729)	(796)	(818)	(834)	(850)	(877)	(918)
Changes in other current assets	3,668	(1,615)	(1,874)	(2,170)	(2,371)	(2,436)	(2,483)	(2,532)	(2,613)	(2,735)
Changes in accounts payable	2,140	6,096	7,072	8,192	8,948	9,192	9,372	9,557	9,861	10,323
Changes in other liabilities	(5,976)	5,048	5,857	6,784	7,410	7,612	7,761	7,915	8,167	8,549
Other Non-current Assets	5,029	(4,545)	(5,273)	(6,108)	(6,671)	(6,853)	(6,987)	(7,126)	(7,353)	(7,697)
Change in deferred revenue	981	818	949	1,100	1,201	1,234	1,258	1,283	1,324	1,386
Change in non-current liabilities	15,454	5,943	6,895	7,987	8,723	8,962	9,137	9,318	9,615	10,064
Net cash flows from operating activities	120,878	115,352	127,527	142,745	159,567	176,576	194,030	211,921	230,412	249,634
Changes in marketable securities	(7,113)	(7,461)	(7,826)	(8,208)	(8,610)	(9,031)	(9,473)	(9,936)	(10,422)	(10,931)
Capital Expenditures	(15,500)	(16,600)	(17,800)	(19,100)	(20,500)	(22,000)	(23,600)	(25,300)	(27,000)	(28,000)
Net cash flows from investing activities	(22,613)	(24,061)	(25,626)	(27,308)	(29,110)	(31,031)	(33,073)	(35,236)	(37,422)	(38,931)
Changes in Short term debt	(1,115)	820	939	1,075	1,168	1,203	1,231	1,259	1,302	1,363
Changes in long term debt	8,558	6,777	7,399	8,093	8,671	9,079	9,475	9,885	10,302	10,412
Changes in commercial paper	(1,951)	658	753	862	937	965	987	1,010	1,044	1,093
Payment of dividends	(14,882)	(15,126)	(15,351)	(15,560)	(15,754)	(15,937)	(16,110)	(16,275)	(16,433)	(16,587)
Repurchases of common stock	(91,861)	(94,387)	(96,982)	(99,649)	(102,390)	(105,205)	(108,099)	(111,071)	(114,126)	(117,264)
Net cash flows from financing activities	(101,251)	(101,258)	(103,242)	(105,180)	(107,367)	(109,896)	(112,516)	(115,191)	(117,911)	(120,982)
Net change in cash	(2,986)	(9,967)	(1,341)	10,256	23,090	35,650	48,442	61,494	75,080	89,720
Beginning Cash and cash equivalents	23,646	20,660	10,693	9,352	19,609	42,699	78,348	126,790	188,285	263,365
Ending Cash and cash equivalents	20,660	10,693	9,352	19,609	42,699	78,348	126,790	188,285	263,365	353,085

Apple Inc.
Common Size Balance Sheet
All as % of Sales



Fiscal Years Ending Sep. 30	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Current assets:															
Cash & cash equivalents	9.76%	18.77%	13.85%	9.55%	6.00%	11.59%	11.59%	11.59%	11.59%	11.59%	11.59%	11.59%	11.59%	11.59%	11.59%
Marketable securities	15.21%	19.88%	19.28%	7.57%	6.25%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%	13.64%
Accounts receivable, net	8.73%	8.81%	5.87%	7.18%	7.15%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%
Inventories	1.49%	1.58%	1.48%	1.80%	1.25%	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%	1.52%
Vendor non-trade receivables	9.72%	8.79%	7.77%	6.90%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
Other current assets	4.55%	4.75%	4.10%	3.86%	5.38%	4.45%	4.86%	5.34%	5.89%	6.49%	7.11%	7.74%	8.38%	9.04%	9.73%
Total current assets	49.45%	62.58%	52.35%	36.86%	34.34%	33.32%	33.10%	35.39%	41.00%	50.14%	62.55%	78.29%	97.42%	120.11%	146.68%
Non Current assets:															
Marketable securities	64.31%	40.49%	36.75%	34.96%	30.64%	32.13%	33.71%	35.35%	37.08%	38.90%	40.80%	42.79%	44.88%	47.08%	49.38%
Property, plant & equipment, net	15.55%	14.37%	13.39%	10.78%	10.68%	11.44%	12.25%	13.13%	14.07%	15.09%	16.19%	17.37%	18.62%	19.94%	21.12%
Other non-current assets	8.39%	12.68%	15.49%	13.35%	13.80%	12.53%	13.68%	15.02%	16.57%	18.26%	20.00%	21.77%	23.57%	25.44%	27.39%
Total non-current assets	88.25%	67.53%	65.63%	59.09%	55.12%	56.10%	59.64%	63.50%	67.72%	72.24%	76.98%	81.93%	87.08%	92.46%	97.89%
Total assets	137.70%	130.11%	117.99%	95.95%	89.46%	89.42%	92.73%	98.89%	108.72%	122.38%	139.53%	160.21%	184.50%	212.57%	244.57%
Current liabilities:															
Accounts payable	21.04%	17.77%	15.41%	14.97%	16.26%	16.80%	18.35%	20.14%	22.22%	24.49%	26.82%	29.20%	31.62%	34.12%	36.74%
Other current liabilities	12.31%	14.50%	15.55%	12.98%	15.43%	13.91%	15.19%	16.68%	18.40%	20.28%	22.21%	24.18%	26.19%	28.26%	30.42%
Deferred revenue	2.84%	2.12%	2.42%	2.08%	2.01%	2.26%	2.46%	2.70%	2.98%	3.29%	3.60%	3.92%	4.24%	4.58%	4.93%
Commercial paper	4.50%	2.30%	1.82%	1.64%	2.53%	2.04%	2.20%	2.39%	2.61%	2.85%	3.10%	3.35%	3.60%	3.87%	4.14%
Term debt	3.37%	3.94%	3.20%	2.63%	2.82%	2.54%	2.75%	2.99%	3.26%	3.55%	3.86%	4.17%	4.49%	4.82%	5.17%
Total current liabilities	44.00%	40.63%	38.39%	34.30%	39.05%	37.55%	40.96%	44.90%	49.47%	54.46%	59.58%	64.81%	70.14%	75.64%	81.40%
Non-current liabilities:															
Term debt	35.29%	35.29%	35.94%	29.83%	25.10%	27.27%	28.98%	30.86%	32.91%	35.11%	37.41%	39.82%	42.32%	44.94%	47.58%
Other non-current liabilities	17.01%	19.41%	19.85%	14.58%	12.46%	16.38%	17.89%	19.64%	21.66%	23.87%	26.15%	28.46%	30.83%	33.27%	35.82%
Total non-current liabilities	53.36%	54.70%	55.79%	44.40%	37.56%	43.65%	46.87%	50.50%	54.58%	58.99%	63.56%	68.28%	73.15%	78.20%	83.39%
Total liabilities	97.36%	95.33%	94.18%	78.70%	76.61%	81.19%	87.83%	95.40%	104.05%	113.45%	123.14%	133.09%	143.29%	153.85%	164.80%
Shareholder's Equity															
Common stock and additional paid in capital	15.14%	17.36%	18.50%	15.68%	16.45%	16.45%	16.45%	16.45%	16.45%	16.45%	16.45%	16.45%	16.45%	16.45%	16.45%
Retained earnings	26.51%	17.64%	5.45%	1.52%	-0.78%	-5.40%	-8.72%	-10.14%	-8.95%	-4.69%	2.76%	13.49%	27.58%	45.09%	66.15%
Accumulated other comprehensive income (loss)	-1.30%	-0.22%	-0.15%	0.04%	-2.82%	-2.82%	-2.82%	-2.82%	-2.82%	-2.82%	-2.82%	-2.82%	-2.82%	-2.82%	-2.82%
Total shareholders' equity	40.34%	34.78%	23.80%	17.25%	12.85%	8.23%	4.90%	3.48%	4.68%	8.94%	16.39%	27.12%	41.21%	58.72%	79.78%
Total liabilities and shareholder's equity	137.70%	130.11%	117.99%	95.95%	89.46%	89.42%	92.73%	98.89%	108.72%	122.38%	139.53%	160.21%	184.50%	212.57%	244.57%

Apple Inc.
Common Size Income Statement
As % of sales



Fiscal Years Ending Sep. 30	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Net Sales:															
Products	86.00%	82.21%	80.41%	81.30%	80.19%	77.01%	84.53%	92.18%	99.92%	107.77%	115.64%	123.51%	131.46%	139.75%	148.69%
Services	14.00%	17.79%	19.59%	18.70%	19.81%	21.30%	22.82%	25.68%	30.09%	35.52%	41.29%	47.32%	53.55%	59.89%	66.27%
Total Net Sales	265,595	260,174	274,515	365,817	394,328	387,678	423,345	464,727	512,659	565,014	618,800	673,637	729,557	787,260	847,662
Cost of sales:															
products	55.78%	55.73%	55.11%	52.56%	51.09%	49.43%	54.26%	59.16%	64.13%	69.17%	74.22%	79.27%	84.38%	89.70%	95.43%
services	5.87%	6.45%	6.66%	5.66%	5.60%	6.34%	6.22%	6.38%	6.77%	7.25%	7.70%	8.11%	8.47%	8.78%	9.02%
Total Cost of Sales	61.65%	62.18%	61.77%	58.22%	56.69%	55.77%	60.48%	65.54%	70.90%	76.42%	81.92%	87.38%	92.85%	98.48%	104.46%
Gross margin	38.34%	37.82%	38.23%	41.78%	43.31%	43.38%	43.24%	43.42%	43.90%	44.47%	45.00%	45.49%	45.92%	46.29%	46.58%
Operating Expenses:															
Depreciation & amortization	5.36%	6.23%	6.83%	5.99%	6.66%	6.72%	7.33%	8.05%	8.88%	9.79%	10.72%	11.67%	12.64%	13.64%	14.68%
Selling, general & administrative exper	2.18%	2.19%	3.23%	2.92%	3.55%	3.17%	3.47%	3.80%	4.20%	4.62%	5.06%	5.51%	5.97%	6.44%	6.94%
Total operating expenses	11.65%	13.25%	14.09%	12.00%	13.02%	13.06%	14.20%	15.49%	16.98%	18.59%	20.27%	21.99%	23.77%	25.61%	27.54%
Operating income (loss)	26.69%	24.57%	24.15%	29.78%	30.29%	29.59%	32.23%	35.68%	40.10%	45.13%	50.36%	55.72%	61.20%	66.81%	72.59%
Other income (expense), net	0.75%	0.69%	0.29%	0.07%	-0.08%	0.34%	0.37%	0.41%	0.45%	0.50%	0.54%	0.59%	0.64%	0.69%	0.74%
Income before provision for income ta	27.45%	25.27%	24.44%	29.85%	30.20%	29.93%	32.60%	36.09%	40.55%	45.63%	50.90%	56.31%	61.84%	67.50%	73.33%
Provision for (benefit from) income ta	5.03%	4.03%	3.53%	3.97%	4.89%	7.48%	8.15%	9.02%	10.14%	11.41%	12.72%	14.08%	15.46%	16.87%	18.33%
Net income (loss)	22.41%	21.24%	20.91%	25.88%	25.31%	22.45%	24.45%	27.07%	30.41%	34.22%	38.17%	42.23%	46.38%	50.62%	55.00%



2019 2020 2021 2022 2023E 2024E 2025E 2026E 2027E 2028E 2029E 2030E 2031E 2032E

NOPLAT:														
Sales	260.2	274.5	365.8	394.3	387.7	423.3	464.7	512.7	565.0	618.8	673.6	729.6	787.3	847.7
Cost of Sales (excl. D&A)	174.3	180.6	224.3	234.7	232.0	253.7	277.3	303.0	330.2	358.0	386.2	414.9	444.6	476.2
Depreciation & Amortization	12.5	11.1	11.3	11.1	12.5	13.4	14.3	15.4	16.5	17.7	19.0	20.3	21.8	23.4
Selling, General, and Administrative	5.7	8.9	10.7	14.0	12.5	13.7	15.0	16.5	18.2	20.0	21.7	23.5	25.4	27.4
Research & Development	16.2	18.8	21.9	26.3	26.5	28.9	31.7	35.0	38.6	42.3	46.0	49.8	53.8	57.9
Plus Interest on Operating Leases	0.4	0.4	0.4	0.5	0.5	0.5	0.6	0.7	0.7	0.8	0.9	1.0	1.1	1.2
EBITA	51.7	55.6	98.1	108.8	104.7	114.2	127.0	143.4	162.2	181.7	201.7	222.0	242.7	264.1
Provision for Income Tax	10.5	9.7	14.5	19.3	29.5	32.1	35.6	40.0	45.0	50.2	55.5	61.0	66.5	72.3
Plus Tax Shield on Lease Interest	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Less Tax on Other, Net	0.5	0.2	0.1	-0.1	0.4	0.4	0.5	0.5	0.6	0.6	0.7	0.7	0.8	0.8
Adjusted Taxes	10.1	9.6	14.6	19.5	29.3	31.9	35.3	39.7	44.6	49.8	55.1	60.5	66.1	71.8
Change in Deferred Taxes	-0.3	-0.2	-4.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NOPLAT	41.3	45.9	78.7	90.2	75.4	82.4	91.7	103.7	117.6	131.9	146.6	161.4	176.6	192.3

Invested Capital (IC):

Net Operating Working Capital

Operating Current Assets

Normal Cash (% of Sales)	15.6	16.5	21.9	23.7	23.3	25.4	27.9	30.8	33.9	37.1	40.4	43.8	47.2	50.9
Accounts Receivable, net	22.9	16.1	26.3	28.2	29.3	32.0	35.1	38.7	42.7	46.7	50.9	55.1	59.4	64.0
Inventories	4.1	4.1	6.6	4.9	5.9	6.4	7.1	7.8	8.6	9.4	10.2	11.1	12.0	12.9
Other Current Operating Assets	35.2	32.6	39.3	54.0	49.7	54.3	59.6	65.7	72.5	79.4	86.4	93.6	101.0	108.7
Total Operating Current Assets	77.9	69.2	94.1	110.8	108.1	118.1	129.6	143.0	157.6	172.6	187.9	203.5	219.6	236.4

Total Operating Current Liabilities

Accounts Payable	46.2	42.3	54.8	64.1	66.3	72.4	79.4	87.6	96.6	105.8	115.1	124.7	134.5	144.9
Deferred Revenue	5.5	6.6	7.6	7.9	8.9	9.7	10.7	11.8	13.0	14.2	15.5	16.7	18.1	19.4
Total Operating Current Liabilities	51.8	48.9	62.4	72.0	75.1	82.1	90.1	99.4	109.5	119.9	130.6	141.4	152.6	164.3
Total Net Operating Working Capital	26.1	20.3	31.8	38.7	33.0	36.0	39.5	43.6	48.1	52.7	57.3	62.1	67.0	72.1

Property, Plant, and Equipment, net

Long-term Operating Assets

PV Operating Leases	8.4	8.3	9.8	10.4	11.6	12.7	14.1	15.5	17.1	18.9	20.9	23.1	25.5	28.1
Other Long-Term Operating Assets	33.0	42.5	48.8	54.4	49.4	53.9	59.2	65.3	72.0	78.8	85.8	93.0	100.3	108.0
Total Long-term Operating Assets	41.4	50.8	58.6	64.8	61.0	66.7	73.3	80.8	89.1	97.8	106.7	116.0	125.8	136.2

Less Long-Term Operating Liabilities

Total Long-term Operating Liabilities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Invested Capital	104.9	107.9	129.8	145.6	139.1	151.0	164.6	179.9	196.7	214.2	232.5	251.5	271.4	291.6

Free Cash Flow (FCF):

NOPLAT	41	46	79	90	75	82	92	104	118	132	147	161	177	192
Change in IC		3	22	16	-7	12	14	15	17	18	18	19	20	20
FCF	41	43	57	74	82	70	78	88	101	114	128	142	157	172

Return on Invested Capital (ROIC):

NOPLAT	41	46	79	90	75	82	92	104	118	132	147	161	177	192
Beginning IC	\$ 104.90	\$ 107.87	\$ 129.83	\$ 145.63	\$ 139.12	\$ 150.99	\$ 164.61	\$ 179.95	\$ 196.72	\$ 214.25	\$ 232.52	\$ 251.54	\$ 271.41	
ROIC	43.71%	72.97%	69.44%	51.78%	59.20%	60.72%	63.03%	65.35%	67.05%	68.40%	69.43%	70.23%	70.85%	

Economic Profit (EP):

Beginning IC	\$ 104.90	\$ 107.87	\$ 129.83	\$ 145.63	\$ 139.12	\$ 150.99	\$ 164.61	\$ 179.95	\$ 196.72	\$ 214.25	\$ 232.52	\$ 251.54	\$ 271.41	
x (ROIC - WACC)	34.52%	63.79%	60.26%	42.59%	50.01%	51.53%	53.84%	56.16%	57.87%	59.22%	60.25%	61.04%	61.67%	
EP	\$ 36.22	\$ 68.81	\$ 78.23	\$ 62.02	\$ 69.58	\$ 77.80	\$ 88.63	\$ 101.06	\$ 113.84	\$ 126.88	\$ 140.09	\$ 153.54	\$ 167.37	

Apple Inc.*Weighted Average Cost of Capital (WACC) Estimation***Cost of Equity:**

Risk-Free Rate	3.45%
Beta	1.23
Equity Risk Premium	4.88%
Cost of Equity	9.45%

ASSUMPTIONS:

*10 year treasury bond
5yr Raw Beta from Factset
Damodaran 12-month implied erp*

Cost of Debt:

Risk-Free Rate	3.45%
Implied Default Premium	1.26%
Pre-Tax Cost of Debt	4.71%
Marginal Tax Rate	28.87%
After-Tax Cost of Debt	3.35%

*10 year treasury bond**YTM on 10-yr Apple Bond***Market Value of Common Equity:**

Total Shares Outstanding	15.9434
Current Stock Price	\$165.21
MV of Equity	2,634.01

MV Weights**95.63%****Market Value of Debt:**

Short-Term Debt	
Current Portion of LTD	11.13
Long-Term Debt	98.96
PV of Operating Leases	10.35
MV of Total Debt	120.44

4.37%**Market Value of the Firm****2,754.45****100.00%****Estimated WACC****9.2%**

Apple Inc.
Relative Valuation Models



Ticker	Company	Price	EPS 2023E	EPS 2024E	P/E 23	P/E 24
MSFT	Microsoft Corp.	\$280.57	\$9.31	\$10.79	30.14	26.00
GOOGL	Alphabet Inc. Class A	\$105.44	\$5.15	\$6.15	20.47	17.14
SMSN	Samsung	\$1,252.00	\$31.68	\$88.92	39.52	14.08
HPQ	HP Inc.	\$29.82	\$3.31	\$3.60	9.01	3.31
AMZN	Amazon.com, Inc.	\$98.13	\$1.46	\$2.53	67.21	38.79
Average					33.27	19.86

Numbers as of 4/16/2023

AAPL	Apple Inc.	\$165.21	\$5.65	\$6.37	29.2	25.9
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Implied Relative Value:	
P/E (EPS23)	\$ 187.99
P/E (EPS24)	\$ 126.60

Apple Inc.

Discounted Cash Flow (DCF) and Economic Profit (EP) Valuation Models



Key Inputs:

CV Growth of NOPLAT	5.00%
CV Year ROIC	70.85%
WACC	9.19%
Cost of Equity	9.45%

<i>Fiscal Years Ending Sep. 30</i>	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
	1	2	3	4	5	6	7	8	9	9

DCF Model:

Free Cash Flow (FCF)	81.9	70.5	78.0	88.4	100.8	114.4	128.3	142.4	156.8	172.1
Continuing Value (CV)										4,270
PV of FCF	75.0	59.1	60.0	62.2	65.0	67.5	69.3	70.5	71.1	1,936.2

Value of Operating Assets:	2,535.94
Non-Operating Adjustments	
Excess Cash	0.0
Marketable Security	145.5
Other Non-Current Assets	54.4
Value of debt	-169.6

Value of Equity	2,566.2
Shares Outstanding	15.9
Intrinsic Value of Last FYE	\$ 160.96
Implied Price as of Today	\$ 166.55

EP Model:

Economic Profit (EP)	62.0	69.6	77.8	88.6	101.1	113.8	126.9	140.1	153.5	167.4
Continuing Value (CV)										3998.7
PV of EP	56.8	58.4	59.8	62.4	65.1	67.2	68.6	69.4	69.6	1813.1

Total PV of EP	2390.3
Invested Capital (last FYE)	145.6
Value of Operating Assets:	2535.94
Non-Operating Adjustments	
Excess Cash	0.0
Marketable Securities	145.5
Other Non Current Assets	54.4
Value of Debt	-169.6

Value of Equity	2566.2
Shares Outstanding	15.9
Intrinsic Value of Last FYE	\$ 160.96
Implied Price as of Today	\$ 166.55

Apple Inc.

Dividend Discount Model (DDM) or Fundamental P/E Valuation Model



Fiscal Years Ending Sep. 30	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
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EPS:	\$ 5.65	\$ 6.37	\$ 7.30	\$ 8.48	\$ 9.85	\$ 11.33	\$ 12.92	\$ 14.61	\$ 16.40	\$ 18.31
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Key Assumptions

CV growth of EPS	3.50%
CV Year ROE	93.67%
Cost of Equity	9.45%

Future Cash Flows

P/E Multiple (CV Year)												16.17
EPS (CV Year)												\$ 18.31
Future Stock Price												\$ 296.05
Dividends Per Share	0.95	1	1.05	1.1	1.15	1.2	1.25	1.3	1.35			
Discounted Cash Flows	\$ 0.87	\$ 0.83	\$ 0.80	\$ 0.77	\$ 0.73	\$ 0.70	\$ 0.66	\$ 0.63	\$ 0.60	\$ 131.32		
	1	2	3	4	5	6	7	8	9		9	

Intrinsic Value as of Last FYE	\$ 137.92
Implied Price as of Today	\$ 142.71

Apple Inc.															
Key Management Ratios															
															
Fiscal Years Ending Sep. 30	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Liquidity Ratios:															
Quick Ratio (LA/CL)	0.57	0.95	0.86	0.50	0.31	0.31	0.23	0.21	0.25	0.34	0.47	0.63	0.81	1.01	1.22
Current Ratio (CA/CL)	1.12	1.54	1.36	1.07	0.88	0.89	0.81	0.79	0.83	0.92	1.05	1.21	1.39	1.59	1.80
Cash Ratio (Cash/CL)	0.22	0.46	0.36	0.28	0.15	0.14	0.07	0.05	0.10	0.20	0.33	0.50	0.68	0.88	1.10
Asset-Management Ratios:															
Total Asset Turnover (Rev/Assets)	0.73	0.77	0.85	1.04	1.12	1.10	1.16	1.19	1.20	1.17	1.12	1.07	1.00	0.94	0.88
Receivable Turnover (Rev/Avg. AR)	11.52	13.33	12.95	13.43	13.73	12.66	12.63	12.60	12.60	12.65	12.68	12.72	12.74	12.76	13.25
Day in Receivable (365/above)	31.69	27.39	28.19	27.17	26.59	28.82	28.90	28.97	28.96	28.86	28.77	28.70	28.64	28.61	27.55
Financial Leverage Ratios:															
Debt/Equity	0.96	1.13	1.64	1.88	2.17	3.62	6.47	9.71	7.73	4.33	2.52	1.62	1.14	0.85	0.66
Debt/total Assets	0.28	0.30	0.33	0.34	0.31	0.33	0.34	0.34	0.33	0.32	0.30	0.27	0.25	0.23	0.22
Profitability Ratios:															
Return on Equity (NI/Beg TSE)		52%	63%	145%	158%	175%	297%	552%	873%	732%	427%	258%	171%	123%	94%
Gross Profit Margin (Revenue-cogs/rev)x100	38.3%	37.8%	38.2%	41.8%	43.3%	43.4%	43.2%	43.4%	43.9%	44.5%	45.0%	45.5%	45.9%	46.3%	46.6%
Return on Assets (Net Income/ Total Assets)	16.3%	16.3%	17.7%	27.0%	28.3%	25.1%	26.4%	27.4%	28.0%	28.0%	27.4%	26.4%	25.1%	23.8%	22.5%
Payout Policy Ratios:															
Dividend Payout Ratio (Dividend/EPS)	22.64%	25.06%	24.17%	14.99%	14.63%	16.81%	15.69%	14.38%	12.98%	11.68%	10.59%	9.67%	8.90%	8.23%	7.65%
Total Payout Ratio ((Divs. + Repurchases)/NI)	99%	96%	102%	76%	75%	87%	82%	76%	70%	64%	59%	55%	52%	49%	46%

Apple Inc.
Present Value of Operating Lease Obligations

Fiscal Years Ending Sep. 30	2018	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Year 1	1.3	1.3	1.5	1.6	1.8	1.9	2.1	2.2	2.4	2.6	2.8	3.1	3.3	3.6	3.9
Year 2	1.3	1.3	1.5	1.6	1.7	1.9	2.1	2.3	2.5	2.8	3.1	3.4	3.7	4.1	4.5
Year 3	1.2	1.1	1.3	1.5	1.7	1.9	2.1	2.4	2.7	3.0	3.4	3.8	4.3	4.9	5.5
Year 4	1.0	0.9	1.1	1.3	1.4	1.6	1.8	2.0	2.2	2.5	2.8	3.2	3.6	4.1	4.6
Year 5	0.8	0.8	1.0	1.1	1.1	1.2	1.4	1.5	1.6	1.7	1.9	2.1	2.2	2.4	2.6
Thereafter	4.0	5.4	3.8	5.2	5.1	5.9	6.3	7.1	7.8	8.6	9.4	10.4	11.5	12.7	14.0
Total Minimum Payments	9.6	10.8	10.1	12.2	12.8	14.4	15.7	17.5	19.3	21.3	23.5	26.0	28.7	31.7	35.1
Less: Cumulative Interest	1.9	2.4	1.9	2.4	2.4	2.8	3.0	3.4	3.7	4.2	4.6	5.1	5.7	6.3	6.9
PV of Minimum Payments	7.7	8.4	8.3	9.8	10.4	11.6	12.7	14.1	15.5	17.1	18.9	20.9	23.1	25.5	28.1
Implied Interest in Year 1 Payment		0.36	0.40	0.39	0.46	0.49	0.55	0.60	0.66	0.73	0.81	0.89	0.98	1.09	1.20
Pre-Tax Cost of Debt	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%	4.71%
Years Implied by Year 6 Payment	5.0	6.4	4.0	4.9	4.4	4.7	4.7	4.8	4.9	4.9	5.0	5.1	5.2	5.2	5.3
Expected Obligation in Year 6 & Beyond	0.80	0.83	0.96	1.06	1.14	1.25	1.35	1.47	1.60	1.74	1.89	2.05	2.23	2.42	2.63
Present Value of Lease Payments															
PV of Year 1	1.2	1.2	1.4	1.6	1.7	1.8	2.0	2.1	2.3	2.5	2.7	2.9	3.2	3.4	3.7
PV of Year 2	1.2	1.2	1.3	1.4	1.6	1.7	1.9	2.1	2.3	2.5	2.8	3.1	3.4	3.7	4.1
PV of Year 3	1.1	1.0	1.1	1.3	1.5	1.6	1.9	2.1	2.3	2.6	3.0	3.3	3.8	4.2	4.8
PV of Year 4	0.9	0.8	0.9	1.0	1.1	1.3	1.5	1.7	1.9	2.1	2.4	2.7	3.0	3.4	3.8
PV of Year 5	0.6	0.7	0.8	0.8	0.9	1.0	1.1	1.2	1.3	1.4	1.5	1.6	1.8	1.9	2.1
PV of 6 & beyond	2.8	3.6	2.7	3.6	3.6	4.1	4.4	4.9	5.4	6.0	6.6	7.2	7.9	8.7	9.6
Capitalized PV of Payments	7.7	8.4	8.3	9.8	10.4	11.6	12.7	14.1	15.5	17.1	18.9	20.9	23.1	25.5	28.1

Apple Inc.*Effects of ESOP Exercise and Share Repurchases on Common Stock Account and Number of Shares Outstanding*

Number of Options Outstanding (shares): 233,368
Average Time to Maturity (years): 0.00
Expected Annual Number of Options Exercised:

Current Average Strike Price: \$ -
Cost of Equity: 9.45%
Current Stock Price: \$165.21

Fiscal Years Ending Sep. 30	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Increase in Shares Outstanding:	0	0	0	0	0	0	0	0	0	0
Average Strike Price:	\$ -	\$ -	\$ -	0.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Increase in Common Stock Account:	-	-	-	0	-	-	-	-	-	-
Share Repurchases (\$)	91,861	94,387	96,982	99,649	102,390	105,205	108,099	111,071	114,126	117,264
Expected Price of Repurchased Shares:	\$ 165.21	\$ 180.83	\$ 197.92	217	\$ 237.10	\$ 259.52	\$ 284.05	\$ 310.89	\$ 340.28	\$ 372.45
Number of Shares Repurchased:	556	522	490	460	432	405	381	357	335	315
Shares Outstanding (beginning of the year)	15,943	15,387	14,865	14,375	13,915	13,484	13,078	12,698	12,340	12,005
Plus: Shares Issued Through ESOP	0	0	0	0	0	0	0	0	0	0
Less: Shares Repurchased in Treasury	556	522	490	460	432	405	381	357	335	315
Shares Outstanding (end of the year)	15,387	14,865	14,375	13,915	13,484	13,078	12,698	12,340	12,005	11,690