

Technology

Apple, Inc. (NASDAQ: AAPL)

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Investment Thesis

Current Price: \$186.40 Target Price: \$200 - \$210

We recommend a HOLD rating for Apple as our projected upside is between 7% and 13%. The small upside comes from Apple being a leader in emerging markets, tech innovations and the Company's extensive history of achievements.

Drivers of Thesis:

- **Emerging Markets:** The technology industry is innovating at a rapid pace with new technologies being announced frequently. For example, smart home enabling devices, talking speakers, and artificial intelligence with human-like capabilities.
- **Pandemic Impacts:** The pandemic exploded the technology industry as it led to an increase in working from home. The usage of devices and technology skyrocketed as a result, bringing more people to the technology industry than ever before.
- **Technology Innovation:** Introducing new products and advancements keeps consumers engaged and wanting more – ultimately keeping the industry moving forward. Apple maintains high research and development to advance products and remain competitive in the technology industry.

Risk of Thesis:

- **Privacy and Security:** As the technology industry continues to grow and consumers become smarter, privacy concerns surrounding technology are becoming more prevalent.
- **Global Demographics:** As technology offerings modernize and grow in complexity, older consumers are less willing to learn how to use them – resulting in them not wanting to purchase the products regardless of their usefulness.
- **Competition:** Competition remains high in the technology industry with comparable companies having similar product offerings with not many differentiating features. To remain competitive, technology companies must continually innovate.

Company Description

Apple Inc, formally known as Apple Computer Inc, was founded on April 1, 1976, by Steve Jobs and Steve Wozniak. Apple is one of the largest technology companies, known for their iconic products including the iPhone, iPad, Mac, and Apple Watches. The first product released and sold was a computer without a monitor, keyboard, or casing. Jobs left Apple in 1985, but his legacy and plans remain with the Company as they continue to expand and develop new products and software. In 2007, Apple released the then and now most popular and successful product, the iPhone. From there, the company continued to create and perfect their products, making them today the most successful and recognizable technology company in the world. They have also expanded into the technology services and wearables, home, and accessories categories, helping to diversify revenue sources. Apple's strategy is differentiation, they differentiate through simple, attractive design and advanced functionality.

Snapshot

Valuation Models

DCF	\$209.26
Relative Valuation	\$182.25 - \$189.70
DDM	\$188.36

Price Data

Current Price	\$186.40
52-Week Range	\$124.17 - \$198.23
Current P/E	30.53

Key Statistics

Market Capitalization	\$2.915 T
Shares Outstanding	15,943 MM
2022 EPS	\$6.15
2023E EPS	\$6.66
Beta	1.1682
WACC	10.08%

3-Year Stock Performance vs. S&P 500¹⁵



Financial Profile

2022 Revenue	\$394,328 MM
2023E Revenue	\$442,890 MM
2022 Net Income	\$99,803 MM
2023E Net Income	\$104,807 MM
2022 Gross Profit Margin	43.31%
2022E Gross Profit Margin	40.79%

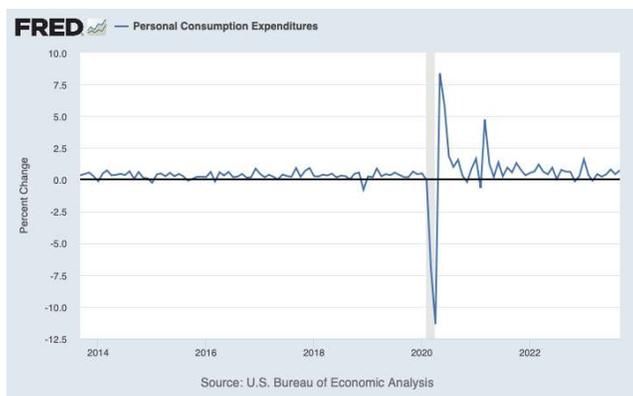
Economic Analysis

Economic Outlook: Neutral

Consumer Spending

Importance to Industry

Consumer Spending plays a significant role in the U.S. Economy with being accountable for just under 70% of the GDP¹. Consumer spending drives demand for technology products such as smartphones, laptops, software, and apps. Strong consumer confidence and disposable income levels contribute to increased spending in the tech sector.



FRED² Percentage Change, Annual Rate (10 years)

Forecast

As displayed above in the chart, you can first notice the significant drop that appeared in 2020 with consumer spending. The global Covid-19 Pandemic happened which resulted in a lot of people losing their jobs, many stores being forced to shut down and a lot of people were not wanting to or able to spend their money like they used to. You can see how prior to 2020, there was a constant upward trend following a drop. The past 2 years (2021-now), there has been a large jump in numbers with business and jobs opening and more money is being made which results in more money available to spend.

Short-Term Forecast

We forecast in the next 6-8 months that the upward trend will continue at the rate that it is going now, and numbers will be just below \$19,000 billion. While the increase of inflation rates seems to be not changing anytime soon, the increase in consumer spending comes from more income being brought into people's homes and the post pandemic. Research and more experiments have made people want to leave their homes and the economy as well as businesses are in the process of returning to where they were prior to the pandemic.

Long-Term Forecast

We forecast in the next 2-3 years the consumer spending dollar amount will continue to increase. According to the data

from 2022 to 2023, the value went up by \$1,000 billion. We predict that this increase will continue at this speed and by 2025 the value will reach \$20,000 billion. The largest factor of consumer spending is income and with the unemployment rate being low and predicted to lower or remain the same, this prediction of increased results comes from historical trends as well as the unemployment rate levels.

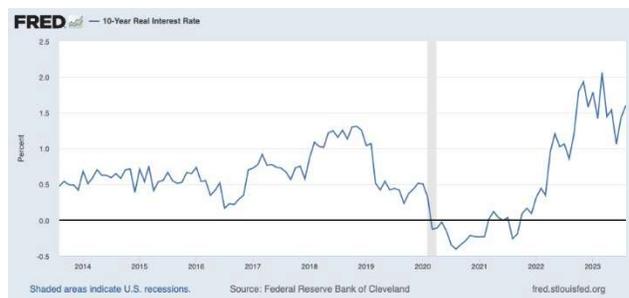
Industry Impact

According to U.S. Bank, "Consumer spending is considered the most important component of economic growth", this is extremely important in our industry because the more people are willing and wanting to spend their money the more money that is going into the technology industry¹. The tech industry is always changing and constantly modernizing and consists of companies that are releasing new and improved products yearly that include very anticipated release dates and features. Another large impact that can be affected across all industries is the most recent student loan repayments starting up again October 2023. This can lead to past students relocating their money that would typically be used in the more a consumer spending aspect to loan repayments. On the controversy with that statement and with how historical trends of consumer spending have been looking and including our future forecast the technology industry is going to remain very happy with numbers.

Interest Rates

Importance to Industry

The Federal Reserve has been increasing the federal funds rate to combat rising inflation over the past two years. As a result, interest rates have seen a rise which means higher borrowing costs. Higher borrowing costs mean increased interest expense on the income statement, which threatens margins and overall profitability. As cost of debt is a factor in WACC, higher borrowing costs also impact the discount rate used by the market to value firms.



FRED³ Real Interest Rates Percentage Changed (10 years)

Forecast

The data presented in the graph depicts the sharp increase in interest rates brought on by the response to the Federal Reserve's rate hikes starting in late 2021. Prior to 2023, the highest real interest rates were approximately 1.5%. In 2023, real interest rates peaked slightly above 2%, having increased from nearly -0.25% in late 2021.

Short-Term

We forecast in the next 6-8 months that the interest rate will increase by .1% on the FRED Interest Rates REAL graph from above. While that number is not largely significant for where the interest rate is now and where it is planning on going this number is large for such a small amount of time. There are research reports that forecast by the end of 2023 we are still going to have high interest rates and we agree with that statement because there is currently no word on the downward shift of change rather, there is more word on how high it is and what needs to be fixed and what business needs to be done for it to shift.

Long-Term

We forecast in the next 2-3 years that the interest rate will be at a smaller value compared to where it is now, based off two reasons. We believe that by the end of 2025 the value will be closer to 1.0% based off the FRED graphic above. The interest rate currently is at the highest that it has been in the past 10 years which leads to a lot of panic and worry that causes thoughts that something is happening or is about to happen to our economy. It is no secret that there's been plenty of rumors of a possible recession hitting us soon and these numbers add to that worry. The policymakers involved with dealing with interest rates have noted that they are aware of how high it currently is. Based off a CBS News article where they asked many experts in different fields where they believe interest rates will be at the end of 2024, almost all have noted they believe in the long-term interest rates will have already reached its peak and then begin to come back down and even out. One even went on and noted what needs to be done to shift the current upward direction of interest rates and quotes that "At some point in the first quarter or second quarter of 2024, the Fed will need to offer relief to these households by cutting rates to lower the cost of borrowing"⁴. We stand behind this statement that there is business that needs to be done before the interest rates shift and we do believe that the policymakers are aware of the situation which is why we believe in the long term of 2-3 years there will be a downward shift in the interest rates.

Industry Impact

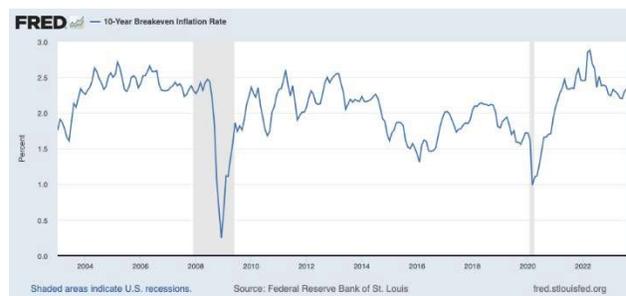
Interest rates affect the technology industry very largely. We can see that companies in general are more impacted by the long-end interest rates rather than the short-term rates. Referring to the importance to our industry, lower interest rates will encourage companies to expand and introduce more research and development which ultimately makes a company grow internally with products and externally to different locations and more jobs. Having a high interest rate causes panic and creates a stop to all the development and investments that are essentially helping the company create more and continue to move forward. Not only this but the change in interest rates affects the exchange rates between

different countries. The technology industry is global which means a lot of companies are operated outside of the United States. We take note that the FED does not have any direct control with the REAL yields, it is all market driven. With higher interest rates in the U.S., it can cause outside investors to become more interested which domino affects into depreciating the dollars' value and appreciating the foreign currencies value which affects the revenue and cost of the company. Inflation and Consumer spending have a lot of do with the result of high or low interest rates. With the interest rates being low it makes more people willing to spend, which increases revenue for the industry. All these components affect interest rates, which ultimately affects the activity in the industry.

Inflation

Importance to Industry

The 10-year breakeven inflation rate that is broadcasted below displays a financial metrics that represents the expectation for the average annual inflation rate over the next decade, long term expectations. This impacts the purchasing power of consumers and businesses. Moderate inflation is generally healthier for the technology industry, as it allows for stable pricing and demand.



FRED⁵ Inflation Rates Percentage Changed (20 years)

Forecast

As showcased in the graph above, you see that within the 10-year period, there were two large drops in the inflation rates, with one being more significant than the other. The 10-year breakeven inflation rate the financial crisis in 2008 and 2009 led to the lowest point was dated to December of 2008 with a value of 0.25%. Markets were crashing, millions of jobs were lost, and the inflation rate took a dive. After that there is volatile numbers that overall had a sharp increase following a slow decrease that led to another sharp decrease in 2020 with the global pandemic. The current trends show a large increase with the value in January of 2022 reaching 2.9% following the drop in 2020 with a value a value of 1.0%. There is some current indication that the percentage will try and even out and the percentage will remain close with continuing to remain higher than pre-pandemic numbers.

Short-Term

We forecast in the next 6-8 months that the inflation rate will remain the same with the current value being at 2.3%.

According to the Federal Reserve, the values have been consistent and is predicted to remain the same into 2024. The research did note that these numbers are higher than pre-pandemic interest rate numbers; however, with using the historical data as our reasoning, history has shown that after a sharp increase in inflation there seems to be a slow and steady decrease⁶. This happened after the spike in 2009 and we are confident that we are currently in the beginning of the next cycle.

Long-Term

We forecast in the next 2-3 years that the inflation rate will be decreasing slowly but steadily. We predict that by the beginning of 2026 that the inflation rate will be at around 1.7% on the FRED's chart as shown above. This prediction is supported by historical trends as well as the energy prices decreasing. We are currently still coming off post pandemic numbers as well as the Russian-Ukraine war which was the main reason of the spike in 2022. We do not believe that within the next 2-3 years the inflation value will be lower than where it was pre-covid 19 because inflation rates dropping dramatically quickly can cause a worst domino effect in the economy than a sharp increase. The inflation rate is monitored very closely.

Industry Impact

Very similarly to other industries, the rise of inflation can hurt the technology industry significantly. Inflation has a lot to do with production costs and pricing of products and research. Everything in this industry and with inflation prices become a domino effect, as inflation prices go up so do production and material costs, which then leads to an increase in price of the product and the list goes on and on. A large factor that goes with the increase or decrease in inflation figures is the impact it has on research and development (R&D). If the inflation values affect the R&D potential, then that can affect what the company does with new products and the development of new technologies. In this case, the technology sector wants the inflation rates to remain low and continue to decrease so it can allow them to continue to research and develop new products and keep making more money. The technology sector would be in favor of a downward trend inflation rate.

Labor Market Conditions

Importance to Industry

Labor market conditions are important to the technology sector for many reasons; however, I will be touching on the two most important.

1. The technology sector relies heavily on skilled professionals such as software engineers, to remain innovative and develop products. When there is high demand for such skilled workers and a small pool to draw from, it can be not only challenging but costly to attract the needed employees to one's tech firm.

2. Wages are a major component of labor market conditions. Rising wages mean more costs to firms as they will need to raise employee salaries to retain skilled workers. Labor makes up a large part of the technology sector from the people developing products to those assembling them in factories. Higher wages lead to higher costs for the firms within the technology sector and can put a stress on profit margins.



FRED⁷ Job Openings Total Nonfarm (JTSJOL)

Forecast

As seen in the graph above, job openings saw a major downward spike during peak COVID, early 2020. From that point until the start of 2022, job openings saw a major rise well above historical averages. This rise was due to the world opening back up following the pandemic and a trend called “The Great Resignation” in which millions of Americans quit their jobs for want of more flexibility, higher wages, and overall better treatment⁸.

Short-Term

We forecast that in the next 6 months, the labor market will shrink with a near 2,000,000 job opening decline. This forecast puts total nonfarm job openings at 7,000,000 compared to the near 9,000,000 seen today. The decline in job openings will come from increased interest rates that are putting pressure on companies to cut costs as the economy slows down to curb inflation.

Long-Term

In the next 2 to 3 years, we forecast that the labor market will stabilize seeing the steady consistent growth in pre-pandemic levels. Pre-pandemic, total nonfarm job openings toggled between 2% and -2% month to month with an overall net positive 1% annual growth⁷. Coming out of the pandemic, there has been a high degree of economic volatility that is affecting all aspects of the economy, including the labor market. We expect that 2 to 3 years out, this volatility will cease, leveling out the job market.

Industry Impact

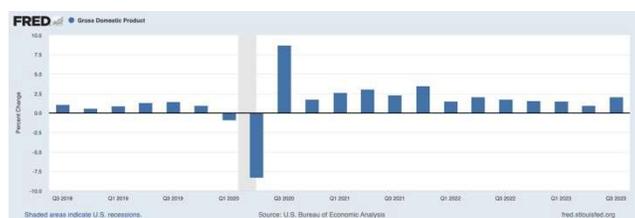
The short-term decline in job openings will be of benefit to the technology industry. Currently, the number of job openings far surpasses the number of people looking for work. This deficit causes an issue for technology companies that are in desperate need of both skilled software professionals and laborers to work in production facilities¹⁰. To find and retain talent, tech companies will need to raise

salaries and bonuses, shrinking margins, The projected 6-month decline in job openings of 2,000,000 jobs will put technology companies in a better position to find and hire workers. The long-term forecast of less volatility and more stability in the labor market will also be of benefit to the technology industry as businesses will be able to resume to pre-pandemic “normal” levels that are easier to predict and plan for. Tech companies won’t face as much competition when it comes to hiring, thus salaries can return to less inflated levels, helping margins.

Gross Domestic Product (GDP)

Importance to Industry

Gross Domestic Product (GDP) is an important measure of the overall economic health of any country including the United States. An increasing GDP is an indicator of a strong economy and can lead to more investment and funding opportunities for technology companies. Also, the higher the GDP, the higher the consumer and business spending, which is an important measure for the technology industry as they provide goods to businesses and consumers in which they need to sell to maintain profitability¹¹.



FRED¹² Real Gross Domestic Product (GDP) percent change (5 year)

Forecast

As seen in the first graph of GDP above, GDP took a dip in early 2020. This is expected as COVID had a major impact on consumer and business spending as much of the world was “shutdown”. In late 2020, GDP saw a massive spike in growth at a rate far higher than seen pre-pandemic (refer to the second chart). In Q3 of 2022 and Q1 of 2023, GDP slowed down to a more “normal”, pre-pandemic level.

Short-Term

Following the slowing GDP growth in the end of 2022 and early 2023, we forecast 0% GDP growth in the next 6 months. The rising interest rates and other Federal Reserve policies to slow inflation will cause the economy to level out and consumer spending to drop. The upcoming Holidays in the 4th quarter will keep GDP growth levels from declining to negative numbers, however, not enough to offset the slowdown expected.

Long-Term

In the next 2 to 3 years, GDP will rise at a stable 1% rate. This rate reflects pre-pandemic levels and well aligns with the suggested 2% inflation and stable population growth.

This return to normalcy will be due in part to the economic slowdown from Federal Reserve intervention and monetary policy and reflects prior trends of stabilized inflation and economic growth.

Industry Impact

Year-to-date, the technology sector of the S&P 500 is up 44.58%, if GDP slows as we project for the short term, this could hurt technology sector revenues¹³. Low and/or declining GDP signals weakness in the economy which indicates less consumer/business spending. Discretionary items will struggle the most, meaning less consumers may opt to upgrade technology that otherwise works such as purchasing the newest phone when released or buying the latest accessories. Although the long-term projected stability will not result in the same boom seen post-Covid, the lack of GDP volatility will be good for the technology industry as a stable economic environment is easier to financial plan within.

Capital Markets Outlook:

Performance relative to the market

As mentioned above, the technology sector has performed outstandingly relative to the market. Year to date, the technology sector withing the S&P 500 is up 44.58%, whereas the overall S&P 500 is only up 17.12%¹³.

Is this a Good Time to Invest in this Industry?

Given the anticipated economic stability mentioned within each indicator, we are comfortable maintaining our position within the technology sector. Also, the technology industry has proven to thrive as it has bounced back since COVID as seen in its above average performance relative to the market, so although some of our short-term forecasts are less promising, we feel confident in technology companies to prevail to meet the stability projected in our long-term forecasts.

Outperform or Underperform and Driver

In 2020, the technology sector saw the best performance of any sector with 42.2% returns¹⁴. Given the economic uncertainty of 2020, compared to the talk of a recession today, the technology sector has proven resilient, and we feel confident that it will continue to outperform in the future. The growing reliance on technology as well as the constant evolution and development within the industry drives its prosperity even through the toughest of economic times.

Beneficial Characteristics

Our short-term projections show a slight slowdown in the economy – beneficial characteristics for companies based on this outlook include:

- Adaptability
- Strong monetary reserves

- Product line that includes cheaper products and necessary goods/services

Long-term projections show a stable economic outlook – beneficial characteristics for companies based on this outlook include:

- Once again adaptability, knowing how to survive in a “normal” environment that isn’t plagued with volatility.
- Management with long-term visions – companies that make rash decisions like laying off too many workers to cut costs during the economic slowdown will struggle when the economy levels-off.

Potential Focus Industries

We feel confident in keeping our aim on Apple within the technology sector, however companies like Meta and NVIDIA that are heavily invested in AI and development will be interesting to watch as the technology sector is very competitive, and they have proven to be stars. As far as other industries, we feel very comfortable with technology, however if there was another industry to look at, Consumer Staples would be of interest. Given the projected short-term economic downturn, consumer staples will thrive as they are necessities and consumers will maintain purchasing them no matter the conditions. This could lead to the Consumer Staples industry outperforming others as consumers will shift their spending towards only necessities while forgoing other unnecessary purchases.

Industry Analysis

Industry Outlook: **Positive**

Industry Description:

How do firms in this industry make money?

- Electronic repair
- Internet publishing and broadcasting
- Streaming services
- Entertainment purchases (books, movies, games, in-game purchases, music, etc.)
- Computer software sales
- Operating system sales
- Cloud services
- Advertising (social media, search engines, etc.)
- Consulting
- Product sales: Smartphones, tablets, wearable electronics, laptops, computers, accessories, gaming consoles¹⁶

What differentiates firms in this industry?

On a more technical side, technology firms differentiate themselves through product offerings, purchasing options, marketing, partnerships, and product features. Examples:

Product offerings: Apple sells tablets, laptops, phones, wearable electronics, among many services. On the other

hand, Samsung has a wider array of products including appliances and televisions.

Purchasing options: Apple products can be purchased online, at major retailers, and in physical stores bearing the “Apple” name. These locations also offer repair services. Using Samsung again as an example, Samsung has very few physical stores and sells mostly through other outlets.

Marketing: Technology firms differentiate through how they do their marketing, for example celebrity endorsements, how they launch new products, and packaging.

Partnerships: Technology companies often partner with other companies to mutually draw attention and demand. For example, Apple has certain exclusive partnerships with car manufacturers to enable Apple CarPlay in those vehicles. This differentiates and draws demand for Apple users to purchase said car and vice-versa, said car owners purchasing the compatible Apple products.

Product features: Technology companies highlight and focus on major features of their products to differentiate, such as processing speeds, camera quality, battery life, etc.

Price: Technology firms have different features/images that allow them to differentiate via price. Apple sells their goods at a premium to the industry because they have a luxury image and high customer loyalty. Being an industry leader in product pricing leads to Apple having higher margins compared to peers.

Holistically, technology firms that can innovate beyond consumer needs to the point where they are telling the consumer what they should want sets that firm apart. Prior to the iPhone’s release, few consumers probably thought that they would need a phone with the power of a computer but now smartphones have become a daily necessity. Technology firms must anticipate change and continually develop to remain competitive in the rapidly evolving technology industry. Current players in the industry are relatively protected by patents as it is very difficult to create new technology without utilizing existing patented technologies and components.

Major Players:

	Market Cap	Revenue	Gross Margin	P/E Ratio
AAPL	2.756T	383.933B	45.17%	29.63
MSFT	2.465T	211.915B	71.16%	34.31
GOOG	1.71T	289.531B	56.57%	28.47
INTC	162.746B	54.044B	42.51%	N/A
META	776.219B	120.525B	81.81%	34.05

QCOM	124.133B	38.584B	55.05%	14.56
BKNG	113.267B	18.173B	N/A	27.47
UBER	97.925B	35.003B	39.45%	N/A

Yahoo Finance¹⁷

Recent Developments and Industry Trends:

Technological changes

Artificial intelligence (AI) is a major trend across all industries, especially the technology industry. Innovation and development within the AI realm is essential to the survival of any technology company. Businesses and individual consumers are beginning to rely on AI to streamline processes and increase productivity and efficiency. Microsoft and Google are current leaders in AI research and development for the technology industry¹⁸. Apple is behind in the technology industry when it comes to AI research and development, however they are on track to spend \$1 billion per year in efforts to catch up with the current AI curve¹⁹. An example of the growing popularity of AI lies in NVIDIA which is the market leader for the chips that are necessary for AI systems to run. NVIDIA stock is currently up 241.79% from 52 weeks ago¹⁷. The popularity of such companies as NVIDIA is a market indicator that artificial intelligence is important and technology companies will soon face pressures to keep up or fail.

Beyond artificial intelligence, the technology industry is plagued with rapid innovation. Technology companies must invest significant amounts into research and development to keep up with the changing needs of consumers and businesses. Failure has been seen before in the many retired electronics and software, with the technology industry proving to continually see new and rising competition.

Government or regulatory changes

The government is constantly imposing regulations that affect the technology industry. In the past few weeks, the European Union has imposed regulations forcing Apple to change its iPhone design to include usb-c chargers. The European Union has also been pressing large U.S. technology companies with anti-trust and privacy investigations²⁰. Beyond the financial burden this poses, there is a threat of a decline in consumer trust as investigations often publicize otherwise secret information that can be disheartening to the consumer. There is also the risk of a full-on product ban if investigations reveal unsavory business practices. In China, there was a ban on iPhone usage by government employees that poses a threat to Apple's presence in the country. The United States has also been amid a trade war with China, revolving around technology and semiconductors. This poses potential supply chain disruptions and higher component prices that can drive up expenses and hurt the bottom line²¹. Another big event is the trial by the Department of Justice against Google who they accuse of breaking anti-trust laws²². Data usage by technology and media companies has also

been of controversy for the past few years, bringing many technology companies under scrutiny with the social media platform Tik Tok even being at risk of being banned in the United States. Technology companies are always at risk of government intervention and policy change that will affect their products and software. As technology becomes more prevalent in people's day-to-day lives, the pressure of government regulation grows and becomes more of a threat to the overall technology industry. Also, the more that is revealed about big-tech companies, the less trust consumers have in their products and services, posing a threat to demand and overall sales.

Economic changes

There has been a rise in economic uncertainty post-pandemic. The Federal Reserve has been fighting to curb inflation by raising interest rates, however, inflation still poses a threat to the economy. As inflation rises, consumer purchasing power declines. In times such as these, consumers turn their spending to essential goods and services, and make less luxury or non-essential purchases. Inflation also drives up production costs for companies, specifically in sourcing raw materials and component parts, which can hurt margins. Apple has raised the prices of their newly released products – iPhone sales thrived in the fiscal year 2023 fourth quarter despite the increased prices, however, all other product segment sales were down. These result pose uncertainty as to how well Apple can pass price increases to the customer, more time is needed to see how inflation will fully impact Apple's margins²³. There is still potential for a recession and a growing wave of economic uncertainty which has and will continue to affect the technology industry. Buying new gadgets or the latest software will be less of a priority as consumers do not have the resources to justify such purchases. Also, consumers that are fearful of economic hardship will opt to save as a precaution rather than make large unnecessary purchases. This could hurt revenue and overall growth for technology companies.

Competition and Peer Comparisons:

Competitive Forces

The largest competitive force that shapes this industry is the range of products each competitor sells and promotes. This sets companies apart while also bringing them together with emerging products and modernizing technologies. Each company has a wide range of products that vary from computers to TVs to tablets to phones even kitchen appliances. They are always changing and adding new products, which is what forces this industry to keep moving forward.

Porter's 5-Forces

Competitive Rivalry: **High**

Competitive rivalry is very significant and a reoccurring issue in the technology industry, especially for Apple. A

large area of competition for Apple is that there is an abundant number of smartphone, tablet, and computer options in the market. The major players in these spaces include Samsung, Dell, Microsoft, and Google. To remain at the top of the industry, technology innovations and advancements are extremely important. Being the best in the technology industry is dependent upon a rapid pace of research and development and setting the curve when it comes to technological innovation.

Supplier Power: Moderate

Suppliers Power is Moderate for Apple. Apple has a strong reputation, and its large scale gives the company the upper hand with bargaining tactics. Apple has created strong relationships and partnerships with their suppliers. The Company uses different suppliers from different geographic regions (predominately in Asia) – diversifying suppliers and their regions helps with the risk of being dependent on one supplier in one geopolitical region. It is important to note that the pandemic and trade issues with China did cause production delays in 2020 and 2021. This could pose a potential issue in the future as China produces over 95% of all Apple products, with Apple's largest manufacturing partner being Foxconn in Shenzhen. In most recent news, China has rumored to be banning the use of all Apple Products within the country. Being that most of the manufacturing of Apple products takes place in China, there could be manufacturing issues with new and current products in the future if the rumors turn out to be true⁹.

Buyer Power: Moderate

As loyal as Apples customer base is, there is an abundant number of new products on the market that are as equally advanced and functional as Apple Products, many of which come with a lower price tag. There are numerous competitors in the technology market that produce the same types of products as Apple which forces customers to choose between the different brands.

Some influences in the decision making include prices, reputation, and features. Customers look for what they are getting out of the products and what advancements they have versus another company. Apple has a unique marketing and presentation strategy which aids in them standing out from competitors. Apple differentiates themselves by giving buyers an experience with their products and when coming into stores. Consumers are also looking at prices with what they are getting out the products. People are willing to spend more money on a product that they are getting more features from. Also, products with a luxurious reputation such as Apple's can be priced at a premium to the industry average. Apple's existing brand loyalty and customer base is strong, however the number of similar products in the market result in bargaining power of buyers to be a moderate force. Consumers may start to demand more to justify the premium

paid for Apple products, as a luxurious reputation may not always be enough.

Threat of Substitution: Low

Currently Apple has a low threat of substitution because of their focus on differentiation. Apple's main competitor on similar product lines is Microsoft which offers the same categories of products as Apple. The most notable difference is the logo on the products and the overall appearance. Apple users have said that there is a feeling they receive from holding Apple products that competitor products do not provide. This adds to the high customer loyalty Apple experiences with buyers preferring Apple over other competitors. Apple's innovation rate has remained consistent and strong, with them continuing to diversify their product portfolios and adding more job opportunities. The Company is constantly modernizing and using feedback to fix and alter their products. This results in a low threat to substitution as Apple has no competitors with the same reputation and loyalty.

Threat of New Entrants: Low

Apple holds a strong reputation in the technology industry and for entering new, untapped, and emerging markets. This creates a low threat of new entrants. Apple is a very well established and functioning company. In the technology industry there is a lot of capital requirements for Research and Development and there are already a lot of large companies that dominate. Large companies also hold patents on technologies and components that make it hard for new entrants to compete. A new entrant to the technology market is a not a threat to the Company and should not be a current concern.

Industry Leaders and Followers

The industry leaders can be divided into a few various categories. As displayed in the chart, the leaders with the highest revenue consist of Apple, Samsung, and Microsoft in that order from largest to smallest. After these 3, you see a large gap in revenue with the closest one being over 100 billion dollars a year difference. As for which companies have the most employees, Samsung leads that one with Microsoft closely following with just 50,000 less employees. Each of these companies displayed are somewhat intertwined with one another and are competitors for varied reasons in the technology sector.

The market is all over the place and risky at times but as for which company is a price maker and a price taker, we believe the 3 largest revenue making companies: Apple, Microsoft and Samsung are money makers because they are not only the largest overall companies they have extensive research that shows their new plans for emerging products and they are leading the game in the amount of diverse products they hold. Also, they are the 3 most well-known technology

companies which consumers tend to go with the most popular ones. As for the money takers we would consider Dell and HP Inc., we chose these 2 because they are in the middle of the companies listed above in terms of number of employees and for revenue. These companies are on the older side compared to others and have not modernized as rapidly. They also focus on different sub industries compared to mobile devices and tablets they focus on office computers and monitors. For these reasons, these two companies are considered money takers.

Industry Positioning

Going off our recommendation for money makers and takers, we also chose the same companies for which are best positions and worst positions moving forward. Apple, Microsoft, and Samsung are well positioned in this industry to move forward because they are always introducing new products, adding more features, and giving their audiences what they want and when they want them. We predict these 3 companies will be doing very well in this industry going forward. Dell and HP Inc., in our opinion, are not as highly positioned in the industry because of their lack of new and innovative products. Not that these companies are not producing new products, they are just not as advanced compared to their other competitors, making them at a disadvantage.

Catalysts for Growth/Change

Issues

Technological Advancements: While this can be viewed as both a positive and a negative there is a concern that with the advancements of new technologies it causes more problems. Consumers sometimes wonder if products are being produced too quickly that raises concerns if they work correctly and if they are going to malfunction. Another part included in this is the process of AI in which many people are concerned if it works all the time and if they are receiving the right information. Also, there is thought both positive and negative, for what platforms like these can do. Many do not like the idea of AI for privacy reasons and fear what might happen in the future.

Privacy and Security: As this industry continues to modernize and others become smarter, privacy raises huge concern with whether platforms are safe. Some wonder if companies keep personal information a secret and what they are doing with it. This can be raised as an issue as new devices come out if privacy and security will advance too.

Economic Factors: Consumer Spending and Income: The economic factors that can be viewed as a challenge for this industry are the consumer spending figures as well as the income levels. If these are low, then that is bad for all industries. For the technology industry, this can be a bad result for business because of the domino effect these

numbers result in. If these levels are high then more people are wanting to buy phones or tablets which makes more money, but if it is the opposite then revenue can go down which can decrease the funds used for research and development of new devices and features.

Global Demographics: As we know, the technology industry is international, and global demographics are a concern. As products are modernizing, more older people are less willing to learn how to use these applications which results in them not wanting to purchase the items regardless of what they are. Global Demographics is viewed as an issue because if fewer people are willing and wanting to purchase then revenue will decrease.

Competition: This is another factor that can be seen as both a positive and a negative. In this case, competition can be seen as a large issue. As a competitor you hide your secrets, and the others do the same which means there is a potential that another company knows a new skill or has a different feature that can better them.

Positive Factors

Health and Wellness: There are many new functions and devices that have been released that promote health and wellness with sometimes a little competition. There are platforms that track distanced walked, heart rate, document water intake and more. With this it can be seen as a positive factor that will continue to help the industry going forward.

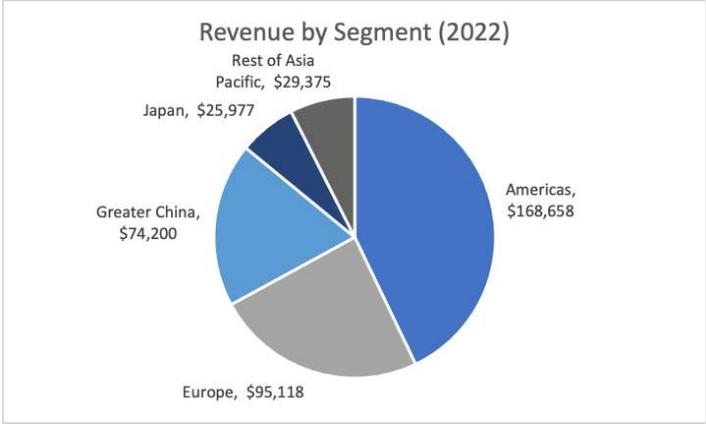
Emerging Markets: With companies already tapping into new markets we have seen a positive result in the industry. An example of this includes some companies introducing devices that can be used in a home. This includes talking speakers, kitchen appliances like smart fridges and microwaves, home appliances like light switches and video cameras. This brings popularity and credibility from consumers to the company, which is positive. These developments also show that these companies want to continue to tap into more markets and advance their products, which has resulted in a positive factor for this industry.

Pandemic Impacts: While this is an unexpected factor listed, the pandemic resorted to individuals using technology a lot more. The usage of devices skyrocketed and now people use this industry even more than ever.

Technological Innovation: This is another example of a factor that can be seen as an issue and a positive. Introducing new products and advancements keeps the consumers engaged and wanting more, which ultimately keeps the industry moving forward. The technology sector and in particular the consumer electronics industry is not dying anytime soon however if new products are not introduced as rapidly as they are there could be a stop in the development

of this industry which would not be good for the economy. With this said, the research and development of new ways to advance a product is a positive factor and key development to grow this industry.

Competition: As brought up as an issue, competition can be seen as an issue and a positive factor. Some healthy competition is always good, and it keeps each company in the industry developing bigger, better and more products. Each company wants to be the best and to do this is to have the best and most popular products. Some healthy competition is seen as a positive factor in continuing to keep this industry going forward.



Apple 10-K²⁴

Apple differentiates itself through leading product design, innovation, and a seamless customer experience in dedicated Apple Stores. The creation of an integrated "ecosystem" among Apple products and services ensures smooth connectivity and sharing among Apple devices. Additionally, Apple has strategically grown its product and service offerings to reduce dependence on merely iPhone sales, maintaining a competitive edge in the technology industry. All these differentiation methods allow Apple products to be priced at a premium compared to the industry average, allowing for them to maintain high margins relative to competitors²⁵.

Marketing Strategy

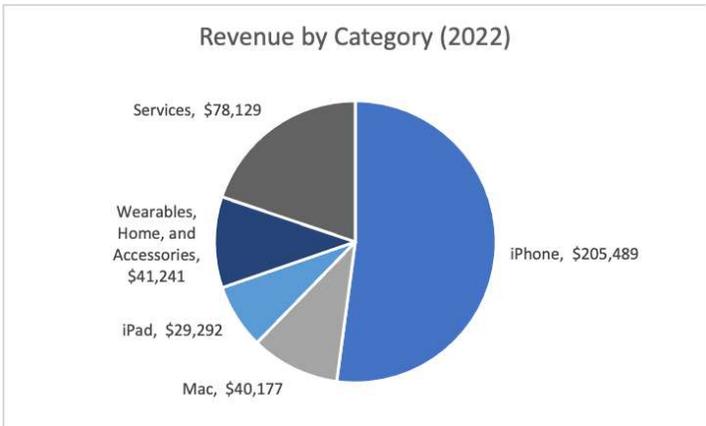
Apple has a unique way that they market their brand, and it is split up into four elements. The first element is the brand identity, the simplicity of the design makes Apple very recognizable. Apple’s logo of the apple differentiates from its competitors by keeping it simple and in direct connection to its name. The second element is product strategy. Apple highlights not only what their products are but what is included with it demonstrating the features and functions. This part of the strategy adds to the desire of wanting to own an apple product. The third element includes their pricing strategy. They may be on the pricier side of the industry, but they strive to maintain their reputation of high quality and high functioning devices. The company is vocal in that the price shows the value of the products you are buying into. The fourth and final element is the promotion strategy. Apple uses 3 methods within this strategy that include the influencer marketing where they gift an influencer with a product to try out with thoughts that they will post positive reviews and promote the brand in a positive way, the experimental marketing where Apple will have real life events customers are able to attend, most notably is their stores where customers can come up and actually work a device before purchasing one and finally the digital marketing where they push commercials, ads on websites and alerts on social media³¹.

Challenges

Company Analysis

Company Description

Apple is a designer, manufacturer, and marketer of smartphones, personal computers, tablets, accessories, and related services based out of Cupertino, California – they are one of the most profitable companies in the technology industry with earnings of \$394.33 billion dollars in 2022²⁸. Most of the Company’s revenue comes from iPhone sales with the second highest revenue source being service. Apple’s market includes consumer, small and mid-sized businesses, education, enterprise, and government. Following is a breakdown of revenue by category.



Apple 10-K²⁴

Although being based out of California, Apple has a worldwide presence with doing majority of their manufacturing across seas. The Americas represent the largest revenue segment by geography with Europe being the second largest. Below is Apple’s revenue breakdown by geographic region.

Some challenges that Apple may face can be dependent on a few things. The economy can play a huge role in reflecting the consumer spending reports, income level reports and pricing of supplies. With the rise of all these levels it can be seen as a threat for the company and its revenue stream. Competition can also be a challenge with all competitors always changing their products causing a fear that Apples new and current products are not at the same level as the others.

Future

The future for Apple is bright. The company had just released the latest iPhone September 12th at their last press conference introducing more features and another Apple Watch Series. Apple has reported that in the next 2 years they will be introducing a new feature, an S10 chip. Aside from that they are committed to introducing new versions of the iPhone every September. They are always modernizing and pushing out updates to existing phones that customers can do on their own³⁰.

Revenue Analysis

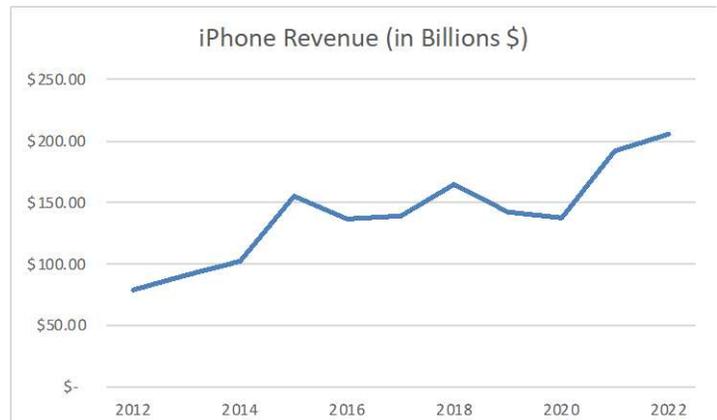
iPhone

The iPhone is Apple’s smartphone, it accounted for 52.11% of the Company’s 2022 revenue. New iPhone models are released every September at a special event, along with releases of other new and ready technology. Currently, the newest iPhone models are the iPhone 15, iPhone 15 Plus, iPhone 15 Pro, and iPhone 15 Pro Max. The ‘Pro’ line of the iPhone lineup includes additional features at a higher cost -- the ‘Plus’ and ‘Max’ lines feature larger devices also priced at a premium.

Apple has the most loyal customers of any smartphone in the United States at 90% -- capturing 43% of all smartphone sales in the U.S.²⁶ As seen in the graph below, iPhone sales have been rapidly increasing since 2012, more than doubling in just 10 years. Apple also has a significant feature included in their products with product warranty. Customers can go into the store to get repairs done in house.

Apple is trying to move away from generating revenue solely from iPhone sales as Smartphones are a maturing industry. Also, service sales provide the best margins for Apple so boosting sales in that space has been a major focus for the Company. We used the year-over-year growth average of 8.29% from 2017 to 2022 to forecast iPhone revenue. From 2018 to 2020, iPhone revenues declined due to supply chain issues in sourcing chips, we found this pertinent to include in our forecasting metric as ongoing trade conflicts in China may lead to further supply chain issues. Also, pressure in the European Union and in China to change/ban iPhone usage may minimize revenue. The Americas still represent the largest portion of sales revenue geographically, so we don’t

expect massive sales impacts due to these political issues, but they still pose a threat²⁰.

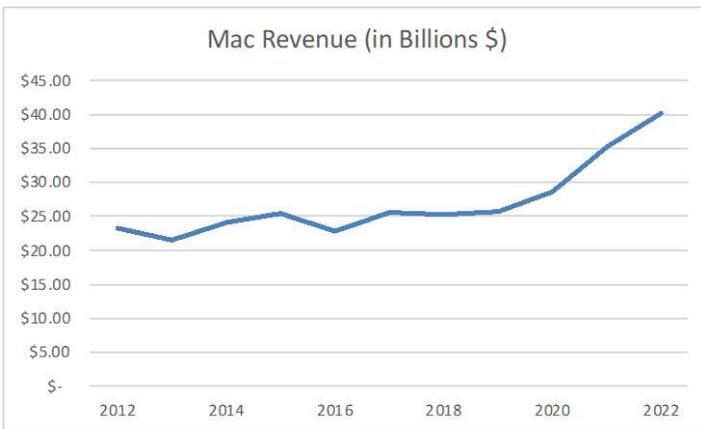


Apple 10-K²⁴

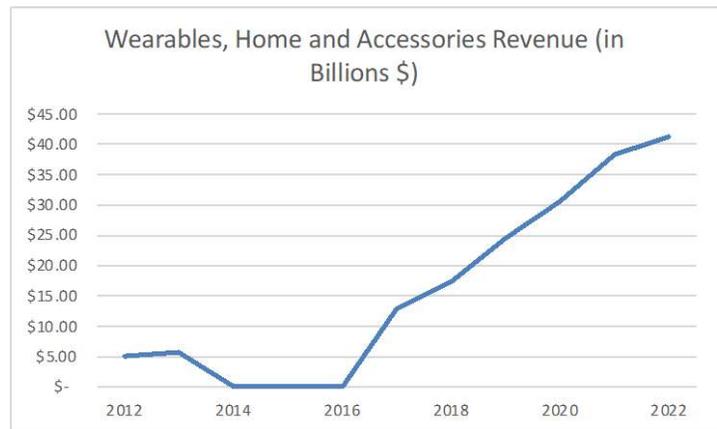
Mac

The Mac includes Apple’s line of personal and Desktops computers. For personal computers, Apple offers the MacBook Pro and MacBook Air – Desktop computers include the iMac, Mac Mini, Mac Pro, and Mac Studio. In the second quarter of fiscal year 2022, Apple released the Mac Studio and the Studio Display. This was a very innovative development in the Mac desktop space as the products are marketed as a portable workspace specifically targeting creatives such as musicians and artists. Beyond the Studio line, in 2022 Apple did not release any new Mac laptops, but they did roll out a software updates for existing devices. In 2023, Apple introduced new 14-inch and 16-inch MacBook Pro models equipped with updated chips produced by Apple rather than Intel. Apple also introduced new M2 and M2 Pro Mac mini machines. The new chips introduced in Mac products provides a significant competitive advantage as they are not only faster, but they are exclusive to Apple products²⁷.

As seen in the graph below, Mac sales had relatively stable levels of revenue growth from 2012 to 2020. Between 2021 and 2022, Mac revenue increased at the fastest rate of any Apple product line, at 14%. From 2020 to 2021, Mac revenue increased at the second highest rate at 22.95%. This is partly an effect of COVID in which more workers relied on technology as result of stay-at-home orders. Our forecast metric for Mac sales is 7.61%, it comes from the average year-over-year growth in the Mac division from 2017 to 2022, with the year-over-year growth in 2021 removed. Fiscal year 2021, being still in the thick of COVID, presented a unique situation of which will not reasonably be replicated in the upcoming future. We still feel as if Mac sales will thrive in the foreseeable future as Apple has made much headway in innovation in the personal and desktop computer space, just not at the inflated levels seen in 2021²⁴.



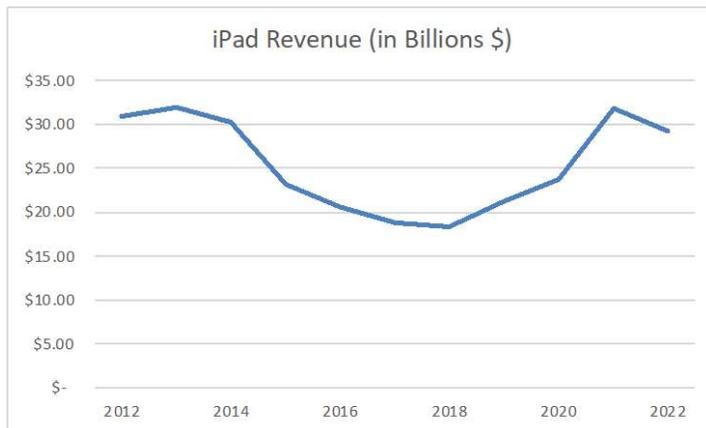
Apple 10-K²⁴



Apple 10-K²⁴

iPad

The iPad is Apple’s tablet – the iPad line includes the iPad Pro, iPad Air, iPad, and iPad Mini. iPad sales have never been a major revenue generator for Apple, bringing in the least revenue of any product or service category. In 2021 iPad sales had a 34.30% growth rate, which came from the release of a more affordable iPad. The effects of COVID and an increase in working from home may have also had impacts on the abnormally high revenue growth. Due to this, the year 2021 was removed from the year-over-year average growth rate of 1.62% found between 2017 and 2022.



Apple 10-K²⁴

Wearables, Home, and Accessories

Apple’s wearables, home, and accessories product category includes AirPods, Apple TV, Apple Watch, Beats, and HomePod. These products play a significant role to the company’s revenue, however not as notable as the other products. There has been an increase in sales and manufacturing of home accessories and advancements with Apple trying to tap into this emerging market of products for home.

Services

Apple services include advertising, Apple Care, iCloud, subscription-based applications, Apple Pay, Apple Card, and the App Store. iCloud is a cloud storage offering for Apple users to easily transfer information among their products. iCloud also allows Apple user to increase storage capabilities on their devices as it can remove data from the device and into the digital cloud. Apple users are given a limited amount of iCloud storage space, with upgrades available at a cost. The Company also has many subscription-based platforms such as Apple Music, Apple TV, and Apple Arcade that give Apple users access to a vast array of content. These subscription services have allowed Apple to remain competitive given the grown pressure from consumers to have access to limitless content offerings at any time. Apple Pay is a form a cashless payment that allows users to pay by tapping their iPhone or other device to pay for items in store. Many online retailers also allow payment via Apple Pay. Apple Card is a physical credit card that Apple now offers which has diversified their service offerings into the financial realm.

Service revenue is increasing at the second fastest rate for Apple, with 27.26% growth in 2021 and 14.18% growth in 2022. This high growth is mainly attributable to advertising, cloud services, and the App Store. Apple is prioritizing growth less on hardware, and more on software. The growth in services is a major opportunity for Apple, as their service lines can broaden their customer base beyond just Apple users. The growth in software development is also a competitive advantage as it draws more attention and appeal to Apple products. With services drawing the best margins for Apple as well, the high growth seen in this area could be a major game changer for the Company²⁴.

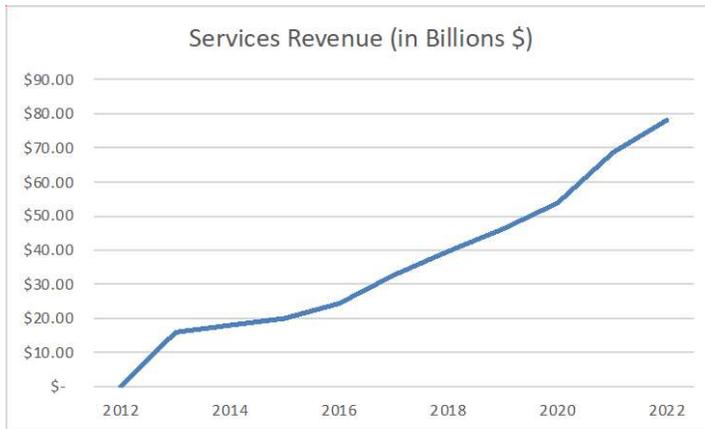
Gross Margin Percentage by Category

	2022	2021
Products	36.3%	35.3%
Services	71.7%	69.7%

Total Gross Margin Percentage	43.3%	41.8%
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Apple 10-K²⁴

Service revenue was forecasted via a 6-year average of the year-over-year service growth from 2017 to 2022. The forecast metric came to 21.65% which we find is appropriate although 2022 growth was 14.18% because Apple is investing lots of resources into service growth and it the Company's services have seen a major increase in popularity.



Apple 10-K²⁴

Marketing strategy

Apple places a strong emphasis on customer experience, ensuring a consistent theme across products, the website, ads, the app store, and retail stores, all centered around the Apple brand. Apple also sustains its brand image in all geographic regions keeping global consistency. The Company markets by customer rather than product, targeting education, government, SME, and enterprise sectors. The company maintains a controlled pricing strategy, avoiding deep discounts to uphold a luxurious image. Simplicity and minimalism are key principles in Apple's design philosophy, and customer-based metrics, such as willingness to repurchase and recommend products, guide their strategies.

Production and Manufacturing:

Apple manufacturing primarily occur in Asia, with outsourcing allowing Apple to concentrate on innovation and research/development. Distribution involves both direct and indirect channels, with 38% and 62% of net sales, respectively. Apple's supplier relationships, notably with Taiwan-based Foxconn, contribute to efficient supply chain management and innovation access. The company's supplier advantages extend to reducing manufacturing costs and leveraging innovation²⁴.

SWOT Analysis

Strengths

Brand Image: Apple has a strong brand image with their logo of an apple. They are known as the world's most well-recognizable companies. (Source: IG)

Product Portfolio: Apple offer a wide range of products including the Mac, Apple Watch, iPad, and iPhones. There is a diverse range of products that offer distinct functions for all desired uses.

Innovation: Apple is leading the industry in introducing new functions and technologies. They follow the industry trends and continue to modernize their products with better accessibility functions. They take their customers feedback seriously and use their suggestion for advancement when designing the next product lines. Examples of this include the faceID feature on the iPhone and iPads and touchpad and touch bar feature on Macs.

Weaknesses

High Prices: Apple has been known to sell expensive products. The soaring prices of items limit their accessibility to a broader customer base.

Supply Chain Dependency: Apple depends heavily on outside suppliers which the outcome of the suppliers' successes can lead to Apple being vulnerable.

iPhone Dependency: Majority of Apples revenue comes from the iPhone making the company very depend on the success of sales on the phones.

Opportunities

Expanding Services: Internally, Apple has introduced more functions and services including Apple Pay, Apple TV and Apple Arcade to assist in diversifying their markets and product features.

Healthcare and Wellness: Apple offers functions that help track health features including calorie counting, step intake, water intake and more that help the company open new markets like the health and wellness market.

Emerging Markets: Internally Apple has expanded products by diversifying, also Externally Apple has been great progress expanding globally with reaching new and more markets in South Asia as well as India⁹.

Threats

Competition: Apple has a list of competitors that include Google, Samsung, Dell, HP Inc that all offer comparable products as Apple which results in them as a threat towards the company

Consumer Preferences Changing: Consumers' preferences change constantly with desired contrasting functions and visible changes with products. This may include size of product, color, and storage amount. In additions consumers may prefer to just not engage with a certain product at all which poses a threat.

Economy Activity: Many parts in keeping Apple afloat depend heavily on the success of the economy and a potential downturn or recession can reduce consumer spending and increase supply costs which is not good for Apple.

Valuation Analysis

Revenue Decomposition

Apple's revenue is broken up into five categories: iPhone, Mac, iPad, Wearables, Home, and Accessories, and Services. We forecasted growth for all five product segments with Wearables, Home and Accessories forecasted at the highest growth rate of 26.85% and Services forecasted at 21.65%. The lowest forecasted growth rate is in iPad sales at 1.62%. We felt comfortable maintaining growth in iPad revenues although the category has seen struggles in the past 5 years, because of the effort Apple is making to diversify and move away from their current reliance on iPhone sales.

iPhone and Mac sales are forecasted at 8.29% and 7.61% respectively. Apple has been making major headway in the Mac space when it comes to processing chips that provide a complete advantage that will keep growth in this category high. It is also rumored that Apple's 2024 iPhone release will have distinctively new features, that will in turn promote high sales and revenue.

Cost of Sales

Management has not provided guidance on cost of sales, so cost of sales was forecasted at 56.87% of net sales from an average percentage of net sales from 2018 to 2022.

Research & Development

Research and Development is Apple's most important expense category, representing 50% of operating expenses. The technology industry has rapidly changing and advancing technology, creating a need for high research and development spending. Apple has consistently maintained Research and Development expense as a percent of net sales right around 6%. We used an average of research and development expense as a percent of net sales from 2018 to

2022, which came to 6.21% as our forecast metric. The prior consistency made us feel comfortable in the stability of this metric.

Cost of Equity

The Capital Asset Pricing Model (CAPM) was used to predict Apple's Cost of Equity of 10.33%. We used the yield on the 10-year Treasury Bond of 4.63% as the risk-free rate. The chosen Beta of 1.17 was calculated from an average of 10 of Apple's 1-5 year weekly and monthly Betas. Finally, the chosen equity risk premium came from the Damodaran. It was the Implied Equity Risk Premium from 11/1/23, trailing 12-month cash yield.

Cost of Debt

To calculate the after-tax cost of debt of 4.40%, we used the yield-to-maturity, 5.30%, on an Apple bond maturing 11/13/2027. As our model forecasts to the year 2027, we felt it appropriate to utilize a bond also maturing in 2027 as our pre-tax cost of debt. The marginal tax rate used to calculate the after-tax cost of debt was 17.05%. This figure came from an average of Apple's reported marginal tax rate from 2018 to 2022. Prior years were excluded from this average as tax law changes in 2018 brought the Federal Tax rate imposed on Apple down from 35%.

WACC

Apple's Weighted Average Cost of Capital (WACC) was calculated at 10.08%. This figure was calculated by first determining Apple's capital structure. The market value of equity was weighted at 95.79% by multiplying total shares outstanding (15,943 million) by current stock price (\$186.40). Debt was valued based upon book value by adding short-term debt (\$9,982 million) with the current portion of long-term debt (\$11,128 million), long-term debt (\$98,959 million), present value of operating leases (\$10,417 million). The weight of debt used was 4.21%. We multiplied the weight of equity by the cost of equity and added that to the weight of debt multiplied by the after-tax cost of debt to ultimately calculate the WACC.

Valuation Models

Discounted Cash Flow & Economic Profit Model

Implied Share Price: **\$209.26**

Projection Period: 2023-2027

The discounted cash flow & economic profit model is the best valuation model for Apple. To arrive at our implied share price of \$209.26, we first had to forecast the years 2023-2027 on the three financial statements. These forecasts were used to calculate free cash flows which were discounted via the WACC of 10.08%. The discounted cash flows were added together, and adjustments were made for non-operating items. The adjustments provided the value of

equity for Apple which was then divided by shares outstanding to calculate the intrinsic share value of \$207.06.

We feel that the discounted cash flow and economic profit best accounts for broader economic impacts and their specific impact on Apple. Our forecasts not only considered the current economic climate and industry trends, but the management goals and intentions for Apple. One of the biggest considerations reflected in our forecasts and thus the discounted cash flow and economic profit model, is Apple's efforts to shift focus into other product/service segments beyond the iPhone.

Relative Price-to-Earnings Model

Implied Share Price: **\$182.25 - \$189.70**

Projection Period: 2023-2024

Comparable Companies: Alphabet Inc. (GOOG), Microsoft Corp. (MSFT), HP Inc. (HPQ), Sony Group Corporation (SONY), Sonos, Inc. (SONO), Meta Platforms, Inc. (META), Dell Technologies (DELL), Intel Corporation (INTC), Motorola Solutions, Inc. (MSO), Oracle Corporation (ORCL), and Netflix, Inc. (NFLX)

The current stock price of 11 comparable companies was divided by the respective 2023 and 2024 expected earnings per share to calculate each companies expected price-to-earnings ratio (P/E ratio) for both 2023 and 2024. Then, we calculated an average of the comparable companies' price-to-earnings ratios for both 2023 and 2024. It is important to note that Sonos, Inc.'s P/E ratio was negative for 2023 so it was removed from the average to not skew the results. Outliers were also removed from the average such as HP Inc. for both 2023 and 2024, Dell Technologies, Inc. in 2024, and Intel Corporation in 2023. All three of these companies had P/E ratios well below what was normal of other comparable companies, thus we felt it would skew results too much to include. Both the 2023 and 2024 P/E ratios were multiples by each year's respective earnings per share to calculate the implied relative value.

We feel as if relative valuation is not an appropriate valuation method for Apple as they are highly differentiated in the technology industry making it hard to find comparable companies. Apple has such high brand loyalty and recognition that is hard to replicate and prices it at a premium relative to the industry. Beyond that, there are not many peer companies that operate in the same product categories as Apple.

Dividend Discount Model

Implied Share Price: **\$188.36**

Projection Period: 2023-2027

Our group put together Apple's Dividend Discount Model by projecting the companies earning per share. We projected an increase in the dividend increased by \$0.15-\$0.25 each year in the future despite the historical increase of \$0.05. We project a spike of \$0.20 from 2023 to 2024 with dividend continuing to increase at that rate. Using the cost of equity, the present and past values of dividend increase each year and our groups projected future stock prices we received our implied share price of \$188.36.

We believe that the Dividend Discount method is an appropriate valuation method for Apple as feel the Dividend Discount model accurately provides the implied share price. This number is resorted from the projected increase in sales, stock price increase, increase in product developments and the consistent growth of the EPS models. Our projected values have a larger increase unlike the historical values, however our group is confident with these projected values.

Sensitivity Analysis

WACC & Forecasted COGS % of Sales

The first analysis we decided to compare is the Weighted Average Cost of Capital and the forecasted of Cost of Goods Sold percentage of sales. The values we received for WACC was 10.08% and for Forecasted COGS% if Sake was 56.87%. Our numbers ranged from 203 to 215 when creating the sensitive tables.

WACC plays a significant role in the Discount models which is why we chose this pair. The pair is analyzing the Cost of Capital the company has and percentages of cost of goods sold of the sales because WACC is critical for financial decision making and evaluating the investments while the COG provides insights for the operational efficiency and competitive positioning. These two together provides a understanding of the financial, strategic and operational decision making.

	WACC							
	209.26	9.99%	10.02%	10.05%	10.08%	10.11%	10.14%	10.17%
Forecasted COGS % of Sales	56.78%	215.20	213.38	211.60	209.84	208.11	206.42	204.75
	56.81%	214.98	213.17	211.38	209.63	207.90	206.20	204.53
	56.84%	214.76	212.95	211.16	209.41	207.69	205.99	204.32
	56.87%	214.54	212.73	210.95	209.20	207.47	205.78	204.11
	56.90%	214.32	212.51	210.73	208.98	207.26	205.57	203.90
	56.93%	214.10	212.29	210.51	208.76	207.05	205.35	203.69
	56.96%	213.88	212.07	210.29	208.55	206.83	205.14	203.48

Equity Risk Premium & Cost of Equity

The second analysis we decided to compare was the Equity Risk Premium with the cost of Equity. These two values go hand and hand with each other. The Cost of Equity is often calculated by using the CAPM, which includes the Equity Risk Premium. The Equity risk premium is the return on risk-free asset and plays a crucial role in forecasting the high or lows of the expected return on equity. A lower Equity Risk Premium means a lower expected return on equity which results in a decrease in the cost of equity.

Our model holds the value of 4.88% for the Equity Risk Premium percentage and 10.33% for the Cost of Equity. We ranged our model from 4.79%-4.97% and 10.24%-10.42% which resorts in receiving the value of 209.26%.

		Equity Risk Premium							
		209.26	4.79%	4.82%	4.85%	4.88%	4.91%	4.94%	4.97%
Cost of Equity	10.24%	215.24	213.20	211.20	209.24	207.31	205.42	203.57	
	10.27%	215.25	213.21	211.21	209.24	207.32	205.43	203.57	
	10.30%	215.25	213.21	211.21	209.25	207.32	205.43	203.58	
	10.33%	215.26	213.22	211.22	209.26	207.33	205.44	203.58	
	10.36%	215.27	213.23	211.23	209.26	207.34	205.45	203.59	
	10.39%	215.27	213.23	211.23	209.27	207.34	205.45	203.60	
	10.42%	215.28	213.24	211.24	209.28	207.35	205.46	203.60	

Pre-tax Cost of Debt & CV Growth of NOPLAT

For our thirds analysis we chose to compare the Pre-Tax cost of debt and the CV Growth of NOPLAT. The relationship between these variables is they are both included in the Gordons Growth Model and play a significant role in forecasting the stock price. NOPLAT plays a large role in predicting the profitability of the company before other variable including interest and tax are added in. These two variables together hold great value to the cost of capital and the company's overall stock price and functionality.

Our presented value for NOPLAT is 6.50% ranging our sensitivity table to 6.41% to 6.59%. The Pre-Tax cost of debt value is 5.30% with the table ranging from 5.21% to 5.38%. Merging these variables together we received a 209.69% value with the value table ranging from 205-215.

		Pre-Tax Cost of Debt							
		209.26	5.21%	5.24%	5.27%	5.30%	5.33%	5.36%	5.39%
CV Growth of NOPLAT	6.41%	205.59	205.53	205.48	205.42	205.37	205.31	205.26	
	6.44%	206.99	206.93	206.88	206.82	206.77	206.71	206.66	
	6.47%	208.42	208.36	208.30	208.25	208.19	208.13	208.08	
	6.50%	209.87	209.81	209.75	209.69	209.64	209.58	209.52	
	6.53%	211.34	211.28	211.22	211.17	211.11	211.05	210.99	
	6.56%	212.84	212.78	212.72	212.66	212.60	212.55	212.49	
	6.59%	214.37	214.31	214.25	214.19	214.13	214.07	214.01	

Forecasted Annual CAPEX & Normal Cash Estimate % of Sales

For our fourth analysis we chose to analyze the forecasted annual CAPEX and the normal Cash Estimate as a percentage of sales. Our values presented include the CAPEX at (-10,852) with our table ranging numbers from (-7,582) to (-13,582). Our forecasted value for the Normal Cash Estimate as a percentage of sale is presented at 6% with the table ranging the estimated number from 3% to 9%. The relationship between these two variables holds great value to the company's core operation and we received a value of 209.26.

CAPEX represents the capital expenditures for the company's year including all the investments in PPE and other long-term assets. The Normal Cash Estimate as Sales present the cash flow generated from the company's sale activity from their operating conditions. Their relationship represents the approach to managing the company's financial

resources and maintaining their operational efficiency while supporting the continuous growth of sales.

		Forecasted Annual CAPEX							
		209.26	(13,582)	(12,582)	(11,582)	(10,582)	(9,582)	(8,582)	(7,582)
Normal Cash Estimate (% sales)	3%	202.69	205.46	208.28	211.14	214.05	217.00	220.00	
	4%	202.09	204.85	207.66	210.51	213.41	216.36	219.35	
	5%	201.48	204.24	207.04	209.88	212.77	215.71	218.70	
	6%	200.88	203.63	206.42	209.26	212.14	215.07	218.05	
	7%	200.27	203.01	205.80	208.63	211.50	214.42	217.39	
	8%	199.67	202.40	205.18	208.00	210.87	213.78	216.74	
	9%	199.07	201.79	204.56	207.37	210.23	213.14	216.09	

Risk-Free Rate & Depreciation rate

For our fifth sensitivity table analysis we decided to compare the relationship between the Risk-Free Rate and the Depreciation rate. While these two variables don't hold value in a relationship with one another. They are key variables to the Cost of Capital and the Discounting Cash Flows. The Risk-Free Rate is used by investors to assess the potential return on their investments. The Depreciation rate measures how much the company is appreciating in value or depreciating. This rate looks at the value of assets over time.

Our model holds the value of 4.63% for the Risk-Free Rate, having the table range the values of 4.54% to 4.72% for the comparison rate. For the table, the Depreciation rate ranges from 24.54% to 24.84% with having the actual value of 24.69%. Merging these two variables together the table receives the value of 209.15.

		Risk-Free Rate							
		209.26	4.54%	4.57%	4.60%	4.63%	4.66%	4.69%	4.72%
Depreciation Rate	24.54%	214.01	212.29	210.60	208.93	207.29	205.68	204.09	
	24.59%	214.09	212.36	210.67	209.00	207.36	205.75	204.16	
	24.64%	214.16	212.44	210.74	209.07	207.43	205.82	204.23	
	24.69%	214.24	212.51	210.81	209.15	207.50	205.89	204.29	
	24.74%	214.31	212.58	210.89	209.22	207.57	205.95	204.36	
	24.79%	214.39	212.66	210.96	209.29	207.64	206.02	204.43	
	24.84%	214.46	212.73	211.03	209.36	207.71	206.09	204.50	

Forecasted SGA % of Sales & Beta

For our final sensitivity table relationship, we chose to evaluate the forecasted SGA% of Sale and Beta. Similar to another table value, these variables don't hold a significant relationship between one another, however they equally contribute to the Industry Analysis and the Financial Modeling for the company. Beta measures the stock volatility and the Selling, General and Administrative expenses percentage of sales represent the efficiency of the selling, general and administrative cost of the company related to the overall sales. The change of number can be resulted by the overall sales revenues and the scale of operations.

Our model features the Beta at 1.168 with the table ranging the values from 1.162 to 1.174. This range represents the volatility of the markets but still a small range in values. The table ranges the Forecasted SGA% of Sales from 6.50% to 6.68% with having the forecasted value as 6.59%. Merging our calculation together the table created the value of 209.22.

The range of numbers are not significant with the table presented the predicted value ranging from 207 to 211.

		Forecasted SGA % of Sales							
		209.26	6.50%	6.53%	6.56%	6.59%	6.62%	6.65%	6.68%
Beta	1.162	211.56	211.34	211.13	210.91	210.69	210.48	210.26	
	1.164	211.01	210.80	210.58	210.36	210.15	209.93	209.71	
	1.166	210.47	210.25	210.04	209.82	209.60	209.39	209.17	
	1.168	209.87	209.66	209.44	209.22	209.01	208.79	208.58	
	1.170	209.39	209.17	208.96	208.74	208.53	208.31	208.10	
	1.172	208.85	208.63	208.42	208.21	207.99	207.78	207.56	
	1.174	208.31	208.10	207.89	207.67	207.46	207.24	207.03	

References

- 1 U.S. Bank. (2023, November 8). *Consumer spending: U.S. bank*. Consumer Spending | U.S. Bank. <https://www.usbank.com/investing/financial-perspectives/market-news/consumer-spending.html#:~:text=In%202023's%20third%20quarter%2C%20personal,day%2Dto%2Dday%20purchases.>
- 2 FRED Economic Data. (2023c, October 27). *Personal consumption expenditures*. St. Louis Fed. <https://fred.stlouisfed.org/series/PCE#0>.
- 3 FRED Economic Data. (2023a, October 13). *10-year real interest rate*. St. Louis Fed. <https://fred.stlouisfed.org/series/REAINTRATREARAT10Y>.
- 4 Maxwell, T. (2023, September 1). *Mortgage interest rate forecast: What experts predict for this year and 2024*. CBS News. <https://www.cbsnews.com/news/mortgage-interest-rate-forecast-what-experts-predict-for-this-year-and-2024/>.
- 5 FRED Economic Data. (2023d, November 1). *10-year breakeven inflation rate*. St. Louis Fed. <https://fred.stlouisfed.org/series/T10YIEM>.
- 6 Kiley, M. T. (2023, July 7). *A (bayesian) update on inflation and inflation persistence*. The Federal Reserve. <https://www.federalreserve.gov/econres/notes/feds-notes/a-bayesian-update-on-inflation-and-inflation-persistence-20230707.html#:~:text=The%20data%20in%202022%20and,1%2F2%20percent%20through%202024.>
- 7 FRED Economic Data. (2023e, November 1). *Job openings: Total nonfarm*. St. Louis Fed. <https://fred.stlouisfed.org/series/JTSJOL>.
- 8 Parker, K., & Horowitz, J. M. (2022, March 9). *Majority of workers who quit a job in 2021 cite low pay, no opportunities for advancement, feeling disrespected*. Pew Research Center. <https://www.pewresearch.org/short-reads/2022/03/09/majority-of-workers-who-quit-a-job-in-2021-cite-low-pay-no-opportunities-for-advancement-feeling-disrespected/>.
- 9 Toh, M. (2023, May 19). *Apple got rich in China. Other Asian markets offer the next 'golden opportunity'*. CNN Business. <https://www.cnn.com/2023/05/19/tech/apple-southeast-asia-india-opportunity-intl-hnk/index.html#:~:text=The%20opening%20on%20Thursday%2C%20which,directly%20for%20the%20first%20time.>
- 10 Published by Statista Research Department, S. R. D. (2023, November 6). *Unemployment level U.S. 2023*. Statista. <https://www.statista.com/statistics/193256/unadjusted-monthly-number-of-unemployed-persons-in-the-us/#:~:text=U.S.%20unemployment%20level%20seasonally%20unadjusted%20number%202021%2D2023&text=In%20the%20United%20States%2C%20approximately,has%20not%20been%20seasonally%20adjusted.>
- 11 Smith, L. (2023, September 29). *Does high GDP mean economic prosperity?*. Investopedia. <https://www.investopedia.com/article/economics/08/genuine-progress-indicator-gpi.asp>.
- 12 FRED Economic Data. (2023b, October 26). *Gross domestic product*. St. Louis Fed. <https://fred.stlouisfed.org/series/GDP>.
- 13 MarketWatch. (n.d.). *S&P 500 information technology sector index*. <https://www.marketwatch.com/investing/index/sp500.45?countrycode=xx>.
- 14 Neufeld, D. (2021, January 15). *Visualizing S&P Performance in 2020, by sector*. Advisor Channel. <https://advisor.visualcapitalist.com/sp-performance-in-2020-by-sector/>.
- 15 Trading View. (2023, November 10). *APPL and SPX Returns*. <https://www.tradingview.com/chart/LCbEb1Kb/?symbol=APPL>.
- 16 US Company Benchmarking Report 405800. (n.d.). *Apple Inc. Overview*. IBIS World. <https://my-ibisworld-com.proxy.lib.uiowa.edu/us/en/company-benchmarking/405800/company-overview>.
- 17 Yahoo! (2023, November 14). *Apple Inc. (AAPL)*. Yahoo! Finance. <https://finance.yahoo.com/quote/AAPL/>.
- 18 Jackson, A. (2023, August 9). *Top 10 leading AI companies in North America*.

- <https://aimagazine.com/top10/top-10-leading-ai-companies-in-north-america>.
- 19 Piazza, J. (2023, October 24). *Apple, caught by surprise in Generative Ai Boom, to spend \$1 billion per year to catch up: Report*. CNBC. <https://www.cnbc.com/2023/10/23/apple-to-spend-1-billion-a-year-in-ai-catch-up-efforts-report.html>.
- 20 Fung, B. (2022, October 25). *EU formally adopts law requiring Apple to support USB-C chargers*. CNN Business. <https://www.cnn.com/2022/10/24/tech/eu-law-charging-standard/index.html>.
- 21 Kubota, Y. (2023, September 8). *China bans iPhone use for government officials at work*. The Wall Street Journal. <https://www.wsj.com/world/china/china-bans-iphone-use-for-government-officials-at-work-635fe2f8>.
- 22 Kerr, D. (2023, September 12). *United States takes on Google in biggest tech monopoly trial of 21st Century*. NPR. <https://www.npr.org/2023/09/12/1198558372/doj-google-monopoly-antitrust-trial-search-engine>.
- 23 Leswting, K. (2023, November 2). *Apple stock dips after weak outlook for December Quarter revenue*. CNBC. <https://www.cnbc.com/2023/11/02/apple-aapl-earnings-report-q4-2023.html>.
- 24 Apple Inc. (2022, September 9). *Form 10-K*. <https://d18rn0p25nwr6d.cloudfront.net/CIK-0000320193/b4266e40-1de6-4a34-9dfb-8632b8bd57e0.pdf>.
- 25 Dudovskiy, J. (2023, July 3). *Apple Business Strategy: A brief overview - research-methodology*. Business Research Methodology. <https://research-methodology.net/apple-business-strategy/>.
- 26 AppleInsider Staff. (2021, October 29). *Apple has most loyal smartphone customers in US, study finds*. AppleInsider. <https://appleinsider.com/articles/21/10/29/apple-has-most-loyal-smartphone-customers-in-us-study-finds>.
- 27 Apple Press Release. (2023b, November 8). *Apple unveils new MacBook Pro featuring M3 Chips*. Apple Newsroom. <https://www.apple.com/newsroom/2023/10/apple-unveils-new-macbook-pro-featuring-m3-chips/>.
- 28 Laricchia, F. (2023, November 3). *Apple revenue by Fiscal Quarter 2023*. Statista. <https://www.statista.com/statistics/263426/apples-global-revenue-since-1st-quarter-2005/#:~:text=In%20its%202022%20financial%20year,billion%20U.S.%20dollars%20in%202004>.
- 30 Haslam, K. (2023, October 31). *Every new Apple product coming in 2024*. Macworld. <https://www.macworld.com/article/671090/new-apple-products.html#:~:text=We%20expect%20that%20Apple%20will,Watch%20SE%20is%20also%20possible>.
- 31 Moorman, C. (2018, January 12). *Why Apple is Still a Great Marketer and What You Can Learn*. <https://www.forbes.com/sites/christinemoorman/2018/01/12/why-apple-is-still-a-great-marketer-and-what-you-can-learn/?sh=e7111cc15bd0>.
- 32 Apple Press Release. (2023a, October 10). *Apple reports third quarter results*. Apple Newsroom. <https://www.apple.com/newsroom/2023/08/apple-reports-third-quarter-results/#:~:text=CUPERTINO%2C%20CALIFORNIA%20Apple%20today%20announced,5%20percent%20year%20over%20year>.

APPLE INC.*Revenue Decomposition*

Scale - Millions

Fiscal Years Ending 9/30/23	2020	2021	2022	2023E	2024E	2025E	2026E	2027E
iPhone	137,781	191,973	205,489	222,530	240,985	260,970	282,613	300,053
Mac	28,622	35,190	40,177	43,235	46,526	50,068	53,879	57,204
iPad	23,724	31,862	29,292	29,767	30,249	30,739	31,237	33,164
Wearables, Home and Accessories	30,620	38,367	41,241	52,313	66,357	84,171	106,768	113,356
Total Product Sales	220,747	297,392	316,199	347,845	384,117	425,948	474,497	503,778
Services	53,768	68,425	78,129	95,045	115,624	140,659	171,115	181,674
Total Net Sales	274,515	365,817	394,328	442,890	499,741	566,607	645,611	685,452

APPLE INC.*Income Statement*

Scale - Millions

Fiscal Years Ending 9/30/23	2020	2021	2022	2023E	2024E	2025E	2026E	2027E
Net sales:								
Products	220,747	297,392	316,199	347,845	384,117	425,948	474,497	503,778
Services	53,768	68,425	78,129	95,045	115,624	140,659	171,115	181,674
Total net sales	274,515	365,817	394,328	442,890	499,741	566,607	645,611	685,452
Total cost of sales	159,859	203,481	214,846	251,858	284,188	322,212	367,139	389,796
Depreciation and amortization expense	9,700	9,500	8,700	10,399	10,444	10,478	10,504	10,523
Gross margin	104,956	152,836	170,782	180,633	205,109	233,917	267,968	285,133
Operating expenses:								
Research & development expense	18,752	21,914	26,251	27,523	31,056	35,211	40,120	42,596
Selling, general & administrative expense	19,916	21,973	25,094	29,167	32,911	37,314	42,517	45,140
Total operating expenses	38,668	43,887	51,345	56,689	63,966	72,525	82,637	87,737
Operating income (loss)	66,288	108,949	119,437	123,944	141,143	161,392	185,331	197,396
Other income (expense), net	803	58	(334)	2,409	3,232	4,224	6,297	9,353
Income (loss) before provision for income taxes	67,091	109,207	119,103	126,352	144,375	165,616	191,627	206,750
Provision for (benefit from) income taxes	9,680	14,527	19,300	21,545	24,618	28,240	32,676	35,254
Net income (loss)	57,411	94,680	99,803	104,807	119,757	137,376	158,952	171,496

APPLE INC.

Balance Sheet

Scale - Millions

Fiscal Years Ending 9/30/23

	2020	2021	2022	2023E	2024E	2025E	2026E	2027E
Assets:								
Current Assets:								
Cash & cash equivalents	38,016	34,940	23,646	35,625	56,791	99,380	161,938	234,199
Marketable securities	52,927	27,699	24,658	25,985	27,383	28,856	30,408	32,044
Vendor non-trade receivables	21,325	25,228	32,748	36,742	41,459	47,006	53,560	56,865
Accounts receivable, net	16,120	26,278	28,184	33,433	37,725	42,773	48,737	51,744
Inventories	4,061	6,580	4,946	6,732	7,596	8,612	9,813	10,419
Other current assets	11,264	14,111	21,223	20,055	22,629	25,657	29,235	31,039
Total current assets	143,713	134,836	135,405	158,572	193,583	252,284	333,691	416,311
Non-current assets:								
Marketable securities	100,887	127,877	120,805	126,396	132,245	138,366	144,769	151,469
Property, plant & equipment, net	36,766	39,440	42,117	42,300	42,437	42,541	42,619	42,678
Other non-current assets	42,522	48,849	54,428	56,434	63,678	72,198	82,265	87,342
Total non-current assets	180,175	216,166	217,350	225,130	238,361	253,105	269,654	281,489
Total assets	323,888	351,002	352,755	383,702	431,944	505,389	603,345	697,800
Liabilities and shareholders equity:								
Current liabilities:								
Accounts payable	42,296	54,763	64,115	71,314	80,468	91,235	103,956	110,372
Deferred revenue	6,643	7,612	7,912	10,160	11,464	12,998	14,810	15,724
Other current liabilities	42,684	47,493	60,845	62,684	70,730	80,194	91,376	97,014
Commercial paper	4,996	6,000	9,982	6,960	7,657	8,519	9,523	10,697
Term debt	8,773	9,613	11,128	10,106	11,118	12,370	13,827	15,531
Total current liabilities	105,392	125,481	153,982	161,224	181,437	205,316	233,491	249,338
Non-current liabilities:								
Term debt	98,667	109,106	98,959	116,098	118,730	127,607	137,977	150,177
Long-term taxes payable	28,170	24,689	16,657	11,105	5,552	-	-	-
Other non-current liabilities	26,320	28,636	32,485	26,219	36,562	47,750	54,408	57,765
Total non-current liabilities	153,157	162,431	148,101	153,421	160,845	175,356	192,385	207,942
Total liabilities	258,549	287,912	302,083	314,645	342,282	380,672	425,876	457,279
Shareholders' equity:								
Common stock	50,779	57,365	64,849	64,849	64,849	64,849	64,849	64,849
Retained earnings	14,966	5,562	(3,068)	5,278	25,883	60,939	113,690	176,742
Accumulated other comprehensive income (loss)	(406)	163	(11,109)	(1,070)	(1,070)	(1,070)	(1,070)	(1,070)
Total shareholders' equity	65,339	63,090	50,672	69,056	89,662	124,717	177,469	240,521
Total liabilities and shareholders' equity	323,888	351,002	352,755	383,702	431,944	505,389	603,345	697,800

APPLE INC.*Historical Cash Flow Statement***Scale - Millions**

	Fiscal Years Ending 9/30/23	2020	2021	2022
Cash, cash equivalents & restricted cash, beginning balances	50,224	39,789	35,929	
Operating Activities:				
Net income (loss)	57,411	94,680	99,803	
Adjustments to reconcile net income to cash generated by operating activities:				
Depreciation & amortization	11,056	11,284	11,104	
Share-based compensation expense	6,829	7,906	9,038	
Deferred income tax expense (benefit)	(215)	(4,774)	895	
Other adjustments	(97)	(147)	111	
Changes in operating assets and liabilities:				
Accounts receivable, net	6,917	(10,125)	(1,823)	
Inventories	(127)	(2,642)	1,484	
Vendor non-trade receivables	1,553	(3,903)	(7,520)	
Other current & non-current assets	(9,588)	(8,042)	(6,499)	
Accounts payable	(4,062)	12,326	9,448	
Deferred revenue	2,081	1,676	478	
Other current & non-current liabilities	8,916	5,799	5,632	
Net cash flows from operating activities	80,674	104,038	122,151	
Investing Activities:				
Purchases of marketable securities	(114,938)	(109,558)	(76,923)	
Proceeds from maturities of marketable securities	69,918	59,023	29,917	
Proceeds from sales of marketable securities	50,473	47,460	37,446	
Payments made in connection with business acquisitions, net	(1,524)	(33)	(306)	
Purchases of non-marketable securities	(210)	(131)	-	
Proceeds from non-marketable securities	92	387	-	
Payments for acquisition of property, plant & equipment	(7,309)	(11,085)	(10,708)	
Other cash flow from investing activities	(791)	(608)	(1,780)	
Net cash flows from investing activities	(4,289)	(14,545)	(22,354)	
Financing Activities:				
Proceeds from issuance of common stock	880	1,105	-	
Payments for taxes related to net share settlement of equity awards	(3,634)	(6,556)	(6,223)	
Payments for dividends & dividend equivalents	(14,081)	(14,467)	(14,841)	
Repurchases of common stock	(72,358)	(85,971)	(89,402)	
Proceeds from issuance of term debt, net	16,091	20,393	5,465	
Repayments of term debt	(12,629)	(8,750)	(9,543)	
Proceeds from/(repayments of) commercial paper, net	(963)	1,022	3,955	
Other cash flows from financing activities	(126)	(129)	(160)	
Net cash flows from financing activities	(86,820)	(93,353)	(110,749)	
Net increase (decrease) in cash, cash equivalents & restricted cash	(10,435)	(3,860)	(10,952)	
Cash, cash equivalents & restricted cash, ending balances	39,789	35,929	24,977	

APPLE INC.*Forecasted Cash Flow Statement***Scale - Millions**

Fiscal Years Ending 9/30/23	2023E	2024E	2025E	2026E	2027E
Cash, cash equivalents & restricted cash, beginning balances	23,646	35,625	56,791	99,380	161,938
Operating Activities:					
Net income (loss)	104,807	119,757	137,376	158,952	171,496
Add depreciation and amortization	10,399	10,444	10,478	10,504	10,523
Changes in vendor non-trade receivables	(3,994)	(4,716)	(5,547)	(6,554)	(3,305)
Changes in accounts receivable	(5,249)	(4,292)	(5,048)	(5,964)	(3,008)
Changes in inventories	(1,786)	(864)	(1,016)	(1,201)	(606)
Changes in other current assets	1,168	(2,574)	(3,028)	(3,577)	(1,804)
Change in other non-current assets	(2,006)	(7,244)	(8,520)	(10,067)	(5,077)
Changes in accounts payable	7,199	9,154	10,767	12,721	6,415
Changes in other non-current liabilities	(6,266)	10,343	11,187	6,658	3,357
Change in other current liabilities	1,839	8,046	9,464	11,182	5,639
Change in LT taxes payable	(5,552)	(5,552)	(5,552)	-	-
Change in deferred revenue	2,248	1,304	1,534	1,812	914
Net cash flows from operating activities	102,806	133,806	152,094	174,466	184,545
Investing Activities:					
Change in non-current marketable securities	(5,591)	(5,850)	(6,120)	(6,404)	(6,700)
Change in current marketable securities	(1,327)	(1,398)	(1,473)	(1,552)	(1,636)
Change in accumulated other comprehensive income (loss)	10,039	-	-	-	-
Capital expenditures	(10,582)	(10,582)	(10,582)	(10,582)	(10,582)
Net cash flows from investing activities	(7,461)	(17,830)	(18,176)	(18,538)	(18,918)
Financing Activities:					
Change in short term debt	(1,022)	1,012	1,252	1,457	1,704
Change in long term debt	17,139	2,632	8,877	10,370	12,200
Change in commercial paper	(3,022)	697	862	1,003	1,174
Payment of dividends	(18,988)	(21,678)	(24,847)	(28,727)	(30,971)
Share Purchases	(77,473)	(77,473)	(77,473)	(77,473)	(77,473)
Share Issuance	-	-	-	-	-
Net cash flows from financing activities	(83,366)	(94,811)	(91,329)	(93,369)	(93,366)
Net increase (decrease) in cash, cash equivalents & restricted cash	11,979	21,166	42,589	62,558	72,261
Cash, cash equivalents & restricted cash, ending balances	35,625	56,791	99,380	161,938	234,199

APPLE INC.*Common Size Income Statement*

Fiscal Years Ending 9/30/23	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E
Net sales:									
Products	82.21%	80.41%	81.30%	80.19%	78.54%	76.86%	75.18%	73.50%	73.50%
Services	17.79%	19.59%	18.70%	19.81%	21.46%	23.14%	24.82%	26.50%	26.50%
Total net sales	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Total cost of sales	57.84%	58.23%	55.62%	54.48%	56.87%	56.87%	56.87%	56.87%	56.87%
Depreciation and Amortization Expense	6.61%	3.53%	2.60%	2.21%	2.35%	2.09%	1.85%	1.63%	1.54%
Gross margin	37.82%	38.23%	41.78%	43.31%	40.79%	41.04%	41.28%	41.51%	41.60%
Operating expenses:									
Research & development expense	7.21%	6.83%	5.99%	6.66%	6.21%	6.21%	6.21%	6.21%	6.21%
Selling, general & administrative expense	7.65%	7.25%	6.01%	6.36%	6.59%	6.59%	6.59%	6.59%	6.59%
Total operating expenses	14.86%	14.09%	12.00%	13.02%	12.80%	12.80%	12.80%	12.80%	12.80%
Operating income (loss)	25.48%	24.15%	29.78%	30.29%	27.99%	28.24%	28.48%	28.71%	28.80%
Other income (expense), net	0.31%	0.29%	0.02%	-0.08%	0.54%	0.65%	0.75%	0.98%	1.36%
Income (loss) before provision for income taxes	25.79%	24.44%	29.85%	30.20%	28.53%	28.89%	29.23%	29.68%	30.16%
Provision for (benefit from) income taxes	3.72%	3.53%	3.97%	4.89%	4.86%	4.93%	4.98%	5.06%	5.14%
Net income (loss)	22.07%	20.91%	25.88%	25.31%	23.66%	23.96%	24.25%	24.62%	25.02%

APPLE INC.*Common Size Balance Sheet*

	2020	2021	2022	2023E	2024E	2025E	2026E	2027E
Fiscal Years Ending 9/30/23								
Assets:								
Current Assets:								
Cash & cash equivalents	13.85%	9.55%	6.00%	8.04%	11.36%	17.54%	25.08%	34.17%
Marketable securities	19.28%	7.57%	6.25%	5.87%	5.48%	5.09%	4.71%	4.67%
Vendor non-trade receivables	7.77%	6.90%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
Accounts receivable, net	5.87%	7.18%	7.15%	7.55%	7.55%	7.55%	7.55%	7.55%
Inventories	1.48%	1.80%	1.25%	1.52%	1.52%	1.52%	1.52%	1.52%
Total current assets	52.35%	36.86%	34.34%	35.80%	38.74%	44.53%	51.69%	60.74%
Non-current assets:								
Marketable securities	36.75%	34.96%	30.64%	28.54%	26.46%	24.42%	22.42%	22.10%
Property, plant & equipment, net	13.39%	10.78%	10.68%	9.55%	8.49%	7.51%	6.60%	6.23%
Other non-current assets	15.49%	13.35%	13.80%	12.74%	12.74%	12.74%	12.74%	12.74%
Total non-current assets	65.63%	59.09%	55.12%	50.83%	47.70%	44.67%	41.77%	41.07%
Total assets	117.99%	95.95%	89.46%	86.64%	86.43%	89.20%	93.45%	101.80%
Liabilities and shareholders equity:								
Current liabilities:								
Accounts payable	15.41%	14.97%	16.26%	16.10%	16.10%	16.10%	16.10%	16.10%
Deferred revenue	2.42%	2.08%	2.01%	2.29%	2.29%	2.29%	2.29%	2.29%
Other current liabilities	15.55%	12.98%	15.43%	14.15%	14.15%	14.15%	14.15%	14.15%
Commercial paper	1.82%	1.64%	2.53%	1.57%	1.53%	1.50%	1.47%	1.56%
Term debt	3.20%	2.63%	2.82%	2.28%	2.22%	2.18%	2.14%	2.27%
Total current liabilities	38.39%	34.30%	39.05%	36.40%	36.31%	36.24%	36.17%	36.38%
Non-current liabilities:								
Term debt	35.94%	29.83%	25.10%	26.21%	23.76%	22.52%	21.37%	21.91%
Long-term taxes payable	10.26%	6.75%	4.22%	2.51%	1.11%	0.00%	0.00%	0.00%
Other non-current liabilities	9.59%	7.83%	8.24%	5.92%	7.32%	8.43%	8.43%	8.43%
Total non-current liabilities	55.79%	44.40%	37.56%	34.64%	32.19%	30.95%	29.80%	30.34%
Total liabilities	94.18%	78.70%	76.61%	71.04%	68.49%	67.18%	65.96%	66.71%
Shareholders' equity:								
Common stock	18.50%	15.68%	16.45%	14.64%	12.98%	11.45%	10.04%	9.46%
Retained earnings	5.45%	1.52%	-0.78%	1.19%	5.18%	10.75%	17.61%	25.78%
Accumulated other comprehensive income (l	-0.15%	0.04%	-2.82%	-0.24%	-0.21%	-0.19%	-0.17%	-0.16%
Total shareholders' equity	23.80%	17.25%	12.85%	15.59%	17.94%	22.01%	27.49%	35.09%
Total liabilities and shareholders' equity	117.99%	95.95%	89.46%	86.64%	86.43%	89.20%	93.45%	101.80%

APPLE INC.

Value Driver Estimation

Scale - Millions

	2019	2020	2021	2022	2023E	2024E	2025E	2026E	2027E
Fiscal Years Ending 9/30/23									
NOPLAT:									
Total net sales	260,174	274,515	365,817	394,328	442,890	499,741	566,607	645,611	685,452
Less: Total cost of sales	(150,482)	(159,859)	(203,481)	(214,846)	(251,858)	(284,188)	(322,212)	(367,139)	(389,796)
Less: Research & Development	(16,217)	(18,752)	(21,914)	(26,251)	(27,523)	(31,056)	(35,211)	(40,120)	(42,596)
Less: SG&A	(18,245)	(19,916)	(21,973)	(25,094)	(29,167)	(32,911)	(37,314)	(42,517)	(45,140)
Less: Depreciation and Amortization	(11,300)	(9,700)	(9,500)	(8,700)	(10,399)	(10,444)	(10,478)	(10,504)	(10,523)
Plus: Implied interest on operating leases	395	400	434	535	552	552	552	552	552
EBITA	64,325	66,688	109,383	119,972	124,496	141,695	161,944	185,883	197,948
Provision for Income Tax	10,481	9,680	14,527	19,300	21,545	24,618	28,240	32,676	35,254
Plus: tax shield on operating lease interest	67	69	75	97	94	94	94	94	94
Less: tax shield on other income	(308)	(137)	(10)	57	(411)	(551)	(720)	(1,074)	(1,595)
Total adjusted taxes	10,240	9,612	14,592	19,454	21,229	24,161	27,614	31,696	33,754
Net change in DT liabilities	(340)	(215)	(4,774)	895	-	-	-	-	-
NOPLAT	53,745	56,861	90,017	101,413	103,267	117,534	134,330	154,187	164,195
Invested Capital (IC):									
Normal cash	15,601	16,461	21,936	23,646	26,558	29,967	33,977	38,714	41,103
Accounts Receivable	22,926	16,120	26,278	28,184	33,433	37,725	42,773	48,737	51,744
Vendor Non-Trade Receivables	22,878	21,325	25,228	32,748	36,742	41,459	47,006	53,560	56,865
Other current operating assets	12,352	11,264	14,111	21,223	20,055	22,629	25,657	29,235	31,039
Inventory	4,106	4,061	6,580	4,946	6,732	7,596	8,612	9,813	10,419
Operating current assets	77,863	69,231	94,133	110,747	123,521	139,376	158,025	180,059	191,171
Accounts Payable	46,236	42,296	54,763	64,115	71,314	80,468	91,235	103,856	110,372
Deferred Revenue	5,522	6,643	7,612	7,912	10,160	11,464	12,998	14,810	15,724
Operating current liabilities	51,758	48,939	62,375	72,027	81,474	91,932	104,233	118,766	126,095
Net operating working capital	26,105	20,292	31,758	38,720	42,047	47,444	53,792	61,293	65,075
Plus: net PPE	37,378	36,766	39,440	42,117	42,300	42,437	42,541	42,619	42,678
Plus: PV of operating leases	8,191	8,088	10,087	10,417	10,417	10,417	10,417	10,417	10,417
Plus: other LT operating assets	32,978	42,522	48,849	54,428	56,434	63,678	72,198	82,265	87,342
Invested Capital	104,652	107,668	130,134	145,682	151,198	163,977	178,949	196,594	205,512
Free Cash Flow (FCF):									
NOPLAT	53,745	56,861	90,017	101,413	103,267	117,534	134,330	154,187	164,195
Change in IC (CapEx)	15,987	3,016	22,466	15,548	5,516	12,779	14,972	17,645	8,918
FCF	37,757	53,845	67,551	85,865	97,751	104,755	119,358	136,541	155,277
Return on Invested Capital (ROIC):									
NOPLAT	53,745	56,861	90,017	101,413	103,267	117,534	134,330	154,187	164,195
Beginning IC	88,665	104,652	107,668	130,134	145,682	151,198	163,977	178,949	196,594
ROIC	60.62%	54.33%	83.61%	77.93%	70.89%	77.74%	81.92%	86.16%	83.52%
Economic Profit (EP):									
Beginning IC	88,665	104,652	107,668	130,134	145,682	151,198	163,977	178,949	196,594
x (ROIC - WACC)	50.54%	44.25%	73.53%	67.85%	60.81%	67.66%	71.84%	76.08%	73.44%
EP	44,808	46,312	79,165	88,296	88,583	102,294	117,802	136,150	144,380

APPLE INC.

Weighted Average Cost of Capital (WACC) Estimation

		ASSUMPTIONS:
Cost of Equity:		10-year Treasury Bond
Risk-Free Rate	4.63%	Average of 1-5 year weekly and monthly Betas
Beta	1.17	Damodaran Implied ERP on 11/1/23 - trailing 12 month cash yield
Equity Risk Premium	4.88%	
Cost of Equity	10.33%	
Cost of Debt:		10-year Treasury Bond
Risk-Free Rate	4.63%	
Implied Default Premium	0.67%	
Pre-Tax Cost of Debt	5.30%	YTM on AAPL4562446 Maturity Date 11/13/2027
Marginal Tax Rate	17.05%	
After-Tax Cost of Debt	4.40%	

		MV Weights
Market Value of Common Equity:		
Total Shares Outstanding	15,943	
Current Stock Price	\$186.40	
MV of Equity	2,971,854	95.79%
Market Value of Debt:		
Short-Term Debt	9,982	
Current Portion of LTD	11,128	
Long-Term Debt	98,959	
PV of Operating Leases	10,417	
MV of Total Debt	130,486	4.21%
Market Value of the Firm	3,102,340.42	100.00%

Estimated WACC **10.08%**

APPLE INC.

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

Key Inputs:

CV Growth of NOPLAT	6.49%
CV Year ROIC	83.52%
WACC	10.08%
Cost of Equity	10.33%

Fiscal Years Ending 9/30/23

2023E 2024E 2025E 2026E 2027E

DCF Model:

Free Cash Flow (FCF)	97,751	104,755	119,358	136,541	155,277
Continuing Value (CV)					4,220,221
PV of FCF	88,801	86,450	89,482	92,991	2,874,170

Value of Operating Assets

Non-Operating Adjustments:	
Excess Cash	0
LT Marketable Securities	120,805
ST Marketable Securities	24,658
Other Non-Current Assets	54,428
Value of Debt	(130,486)
Value of Equity	3,301,298
Shares Outstanding	15,943
Intrinsic Value of Last FYE	\$ 207.06
Implied Price as of Today	\$ 209.26

EP Model:

Economic Profit (EP)	88,583	102,294	117,802	136,150	144,380
Continuing Value (CV)					4,023,627
PV of EP	80,472	84,419	88,315	92,725	2,740,280

Total PV of EP

3,086,211

Invested Capital (last FYE)

145,682

Value of Operating Assets**3,231,893**

Non-Operating Adjustments:

Excess Cash 0

LT Marketable Securities 120,805

ST Marketable Securities 24,658

Other Non-Current Assets 54,428

Value of Debt **(130,486)****Value of Equity** **3,301,298**

Shares Outstanding 15,943

Intrinsic Value of Last FYE \$ 207.06

Implied Price as of Today **\$ 209.26**

APPLE INC.

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

Fiscal Years Ending 9/30/23 2023E 2024E 2025E 2026E 2027E

EPS \$ 6.66 \$ 7.81 \$ 9.17 \$ 10.85 \$ 11.95

Key Assumptions

CV growth of EPS 6.17%
CV Year ROE 96.63%
Cost of Equity 10.33%

Future Cash Flows

P/E Multiple (CV Year)					22.52
EPS (CV Year)					\$ 11.95
Future Stock Price					\$ 269.12
Dividends Per Share	1.19	1.40	1.64	1.94	
Discounted Cash Flows	1.08	1.15	1.22	1.31	181.63

Intrinsic Value as of Last FYE \$ 186.39

Implied Price as of Today \$ 188.36

APPLE INC.*Relative Valuation Models*

Ticker	Company	Price	EPS 2023E	EPS 2024E	P/E 23	P/E 24
GOOG	Alphabet Inc.	\$127.57	\$5.31	\$6.29	24.02	20.28
MSFT	Microsoft Corp.	\$346.07	\$10.31	\$10.35	33.57	33.44
HPQ	HP Inc.	\$26.48	\$3.11	\$3.24	8.51	8.17
SONY	Sony Group Corporation	\$85.03	\$4.82	\$5.08	17.64	16.74
SONO	Sonos, Inc.	\$10.66	(\$0.03)	\$0.31	(355.33)	34.39
META	Meta Platforms, Inc.	\$311.85	\$12.66	\$15.72	24.63	19.84
DELL	Dell Technologies Inc.	\$68.67	\$2.60	\$6.35	26.41	10.81
INTC	Intel Corporation	\$37.29	\$0.59	\$1.63	63.20	22.88
MSO	Motorola Solutions, Inc.	\$280.50	\$11.50	\$12.50	24.39	22.44
ORCL	Oracle Corporation	\$105.75	\$3.37	\$5.23	31.38	20.22
NFLX	Netflix, Inc.	\$420.19	\$11.40	\$14.77	36.86	28.45
				Average	27.36	24.30

APPL	APPLE INC.	\$186.40	6.66	7.81	28.0	23.9
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Implied Relative Value:

P/E (EPS23)	\$	182.25
P/E (EPS24)	\$	189.70

APPLE INC.*Key Management Ratios***Fiscal Years Ending 9/30/23****2020 2021 2022 2023E 2024E 2025E 2026E 2027E****Liquidity Ratios:**

Quick Ratio (CA/CL)	1.36	1.07	0.88	0.98	1.07	1.23	1.43	1.67
Current Ratio ((Cash + AR + Marketable Securities)/CL)	1.02	0.71	0.50	0.59	0.67	0.83	1.03	1.28
Cash Ratio ((Cash + Marketable Securities)/CL)	0.86	0.50	0.31	0.38	0.46	0.62	0.82	1.07

Asset-Management Ratios:

Total Asset Turnover (Net Sales/Avg. TA)	0.83	1.08	1.12	1.20	1.23	1.21	1.16	1.05
Receivable Turnover (Net Sales/Avg. AR)	14.06	17.26	14.48	14.38	14.05	14.08	14.11	13.64
Day in Receivable (365/Receivable Turnover)	25.96	21.15	25.21	25.39	25.99	25.93	25.87	26.75

Financial Leverage Ratios:

Debt to Equity (TD/TSE)	1.72	1.98	2.37	1.93	1.53	1.19	0.91	0.73
Debt to Total Assets (TD/TA)	0.35	0.36	0.34	0.35	0.32	0.29	0.27	0.25
Debt to Capital (TD/(TD + TSE))	0.63	0.66	0.70	0.66	0.61	0.54	0.48	0.42

Profitability Ratios:

Return on Equity (NI/Beg TSE)	63%	145%	158%	207%	173%	153%	127%	97%
Gross Profit Margin ((Revenue - Cost of Sales)/Revenue) x	42%	42%	44%	46%	43%	43%	43%	43%
Return on Assets (NI/TA)	16%	18%	27%	28%	27%	28%	27%	26%

Payout Policy Ratios:

Dividend Payout Ratio (Dividend/EPS)	24%	15%	15%	18%	18%	18%	18%	18%
Total Payout Ratio ((Divs. + Repurchases)/NI)	151%	106%	104%	92%	83%	74%	67%	63%
Retention Ratio (1 - Payout Ratio)	-51%	-6%	-4%	8%	17%	26%	33%	37%

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

Number of Options Outstanding (shares): 0
 Average Time to Maturity (years): 0.00
 Expected Annual Number of Options Exercised: 0

Current Average Strike Price:
 Cost of Equity: 10.33%
 Current Stock Price: \$186.40

	Fiscal Years Ending 9/30/23				
	2023E	2024E	2025E	2026E	2027E
Increase in Shares Outstanding:	0	0	0	0	0
Average Strike Price:	\$ -	\$ -	\$ -	\$ -	\$ -
Increase in Common Stock Account:	-	-	-	-	-
Share Repurchases (\$)	77,473	77,473	77,473	77,473	77,473
Expected Price of Repurchased Shares:	\$ 186.40	\$ 204.68	\$ 224.76	\$ 246.81	\$ 271.02
Number of Shares Repurchased:	416	379	345	314	286
Shares Outstanding (beginning of the year)	15,943	15,528	15,149	14,805	14,491
Plus: Shares Issued Through ESOP	0	0	0	0	0
Less: Shares Repurchased in Treasury	416	379	345	314	286
Shares Outstanding (end of the year)	15,528	15,149	14,805	14,491	14,205

APPLE INC.
Sensitivity Tables

	WACC									
209.26	9.99%	10.02%	10.05%	10.08%	10.11%	10.14%	10.17%			
56.78%	215.20	213.38	211.60	209.84	208.11	206.42	204.75			
56.81%	214.98	213.17	211.38	209.63	207.90	206.20	204.53			
56.84%	214.76	212.95	211.16	209.41	207.69	205.99	204.32			
56.87%	214.54	212.73	210.95	209.20	207.47	205.78	204.11			
56.90%	214.32	212.51	210.73	208.98	207.26	205.57	203.90			
56.93%	214.10	212.29	210.51	208.76	207.05	205.35	203.69			
56.96%	213.88	212.07	210.29	208.55	206.83	205.14	203.48			

Forecasted COGS % of Sales

	Forecasted Annual CAPEX									
209.26	(13.582)	(12.582)	(11.582)	(10.582)	(9.582)	(8.582)	(7.582)			
3%	202.69	205.46	208.28	211.14	214.05	217.00	220.00			
4%	202.09	204.85	207.66	210.51	213.41	216.36	219.35			
5%	201.48	204.24	207.04	209.88	212.77	215.71	218.70			
6%	200.88	203.63	206.42	209.26	212.14	215.07	218.05			
7%	200.27	203.01	205.80	208.63	211.50	214.42	217.39			
8%	199.67	202.40	205.18	208.00	210.87	213.78	216.74			
9%	199.07	201.79	204.56	207.37	210.23	213.14	216.09			

Normal Cash Estimate (% sales)

	Equity Risk Premium									
209.26	4.79%	4.82%	4.85%	4.88%	4.91%	4.94%	4.97%			
10.24%	215.24	213.20	211.20	209.24	207.31	205.42	203.57			
10.27%	215.25	213.21	211.21	209.24	207.32	205.43	203.57			
10.30%	215.25	213.21	211.21	209.25	207.32	205.43	203.58			
10.33%	215.26	213.22	211.22	209.26	207.33	205.44	203.58			
10.36%	215.27	213.23	211.23	209.26	207.34	205.45	203.59			
10.39%	215.27	213.23	211.23	209.27	207.34	205.45	203.60			
10.42%	215.28	213.24	211.24	209.28	207.35	205.46	203.60			

Cost of Equity

	Risk-Free Rate									
209.26	4.54%	4.57%	4.60%	4.63%	4.66%	4.69%	4.72%			
24.54%	214.01	212.29	210.60	208.93	207.29	205.68	204.09			
24.59%	214.09	212.36	210.67	209.00	207.36	205.75	204.16			
24.64%	214.16	212.44	210.74	209.07	207.43	205.82	204.23			
24.69%	214.24	212.51	210.81	209.15	207.50	205.89	204.29			
24.74%	214.31	212.58	210.89	209.22	207.57	205.95	204.36			
24.79%	214.39	212.66	210.96	209.29	207.64	206.02	204.43			
24.84%	214.46	212.73	211.03	209.36	207.71	206.09	204.50			

Depreciation Rate

	Pre-Tax Cost of Debt									
209.26	5.21%	5.24%	5.27%	5.30%	5.33%	5.36%	5.39%			
6.41%	205.59	205.53	205.48	205.42	205.37	205.31	205.26			
6.44%	206.99	206.93	206.88	206.82	206.77	206.71	206.66			
6.47%	208.42	208.36	208.30	208.25	208.19	208.13	208.08			
6.50%	209.87	209.81	209.75	209.69	209.64	209.58	209.52			
6.53%	211.34	211.28	211.22	211.17	211.11	211.05	210.99			
6.56%	212.84	212.78	212.72	212.66	212.60	212.55	212.49			
6.59%	214.37	214.31	214.25	214.19	214.13	214.07	214.01			

CV Growth of NOPLAT

	Forecasted SGA % of Sales									
209.26	6.50%	6.53%	6.56%	6.59%	6.62%	6.65%	6.68%			
1.162	211.56	211.34	211.13	210.91	210.69	210.48	210.26			
1.164	211.01	210.80	210.58	210.36	210.15	209.93	209.71			
1.166	210.47	210.25	210.04	209.82	209.60	209.39	209.17			
1.168	209.87	209.66	209.44	209.22	209.01	208.79	208.58			
1.170	209.39	209.17	208.96	208.74	208.53	208.31	208.10			
1.172	208.85	208.63	208.42	208.21	207.99	207.78	207.56			
1.174	208.31	208.10	207.89	207.67	207.46	207.24	207.03			

Beta