

## APPLE (AAPL)

March 09, 2023

### Information Technology – Tech Hardware

### Stock Rating

**SELL**

#### Investment Thesis

Apple is the largest company in the world by market cap, with a strong moat and significant cash flow to support an aggressive capital return program. Despite this, we recommend a sell rating with a price target between \$133-\$139. The company is being priced as a high growth stock despite key products reaching the mature stage of the product lifecycle. We believe Apple represents a prime example of a strong company with an inflated valuation.

#### Drivers of Thesis

- Key product segments including Mac and iPad are reaching mature stage. We are forecasting iPad revenues to decline by 1.5% annually and Mac growth to slow to 3% during the latter half of our 10-year forecast horizon.
- Challenging macro-economic conditions in the near term including high interest rates & inflation, and a strong dollar will continue to impact topline revenues. We project 2023 sales to drop 2.5% compared to 2022.
- Escalating geo-political tensions between the US & China threaten a supply chain relying almost exclusively on Chinese manufacturing & assembly.
- Potential for new entrants into the tech hardware space with tech giants Meta, Google, and Microsoft all developing AR & VR headsets.<sup>4,5</sup>

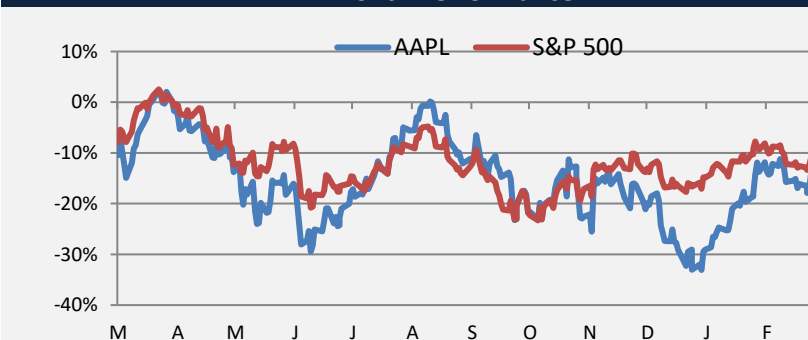
#### Risks to Thesis

- Technological innovation and new product offerings could result in a higher long-term growth rate than our forecasted 5.5% EPS terminal rate.
- A soft economic landing leading to sustained low unemployment, higher wages, and strong consumer demand for premium electronics.
- Services revenue growth outpaces our 12% forecast through 2028 and becomes a larger portion of overall sales, driving margins higher.

#### Earnings Estimates

Year	2020	2021	2022	2023E	2024E	2025E
EPS	\$3.31	\$5.67	\$6.15	\$5.98	\$6.58	\$7.07
HF est. growth	10.59%	71.30%	8.47%	-5.97%	13.25%	13.90%

#### 12 Month Performance



#### Target Price

**\$133-139**

Henry Fund DCF	\$133
Henry Fund DDM	\$139
Relative Multiple	\$110

#### Price Data

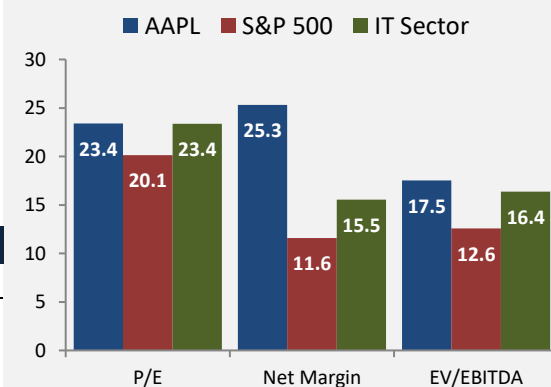
Current Price	\$146
52wk Range	\$124 – 180
Consensus 1yr Target	\$168

#### Key Statistics

Market Cap (B)	\$2308.6
Shares Outstanding (M)	15,822
Institutional Ownership	60.5%
Beta	1.24
Dividend Yield	0.6%
Est. 5yr Growth	8.6%
Price/Earnings (TTM)	24.8
Price/Earnings (FY1)	23.4
Price/Sales (TTM)	6.1
Price/Book (mrq)	40.7

#### Profitability

Operating Margin	30.3%
Profit Margin	25.3%
Return on Assets (TTM)	28.4%
Return on Equity (TTM)	175.5%



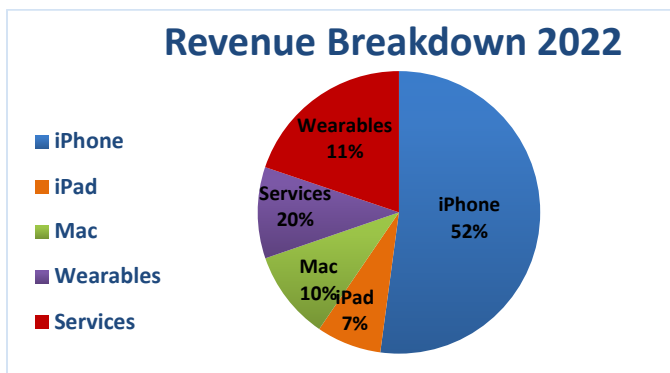
Factset

#### Company Description

Apple is first and foremost a technology hardware company. It's iPhone, iPad, Mac, Watch, and AirPods are all premium in-demand products globally. Apple has strong brand recognition and customer loyalty. It also has a growing services business including its AppStore, Apple TV+, and Apple Music. The company's massive success is a byproduct of unmatched creativity & innovation. Apple has integrated its product and service offerings to create an ecosystem with high switching costs to ensure customer retention.

## COMPANY DESCRIPTION

Apple operates in markets across the globe, primarily targeting consumers, education, and small business customers. It sells its products both directly to consumers (DTC) and through wholesaler and retail partnerships. Over the past 5 years the company has maintained a fairly constant split of around 32% DTC and 68% third-party sales.<sup>1</sup> Apple reached record revenues in 2022 with \$394.3bn in 2022. The company breaks down its revenues into two distinct categories, products, and services. The product category accounts for approximately 80% of total revenues and is dominated by iPhone sales which make up 65% of product and 52% of total sales. In addition to iPhones, the product segment includes iPads, Mac, and Wearables & Home Accessories, which each accounting for between 7-11% of total sales.<sup>1</sup> Wearables includes the Apple Watch, AirPods, Beats Headphones.



Apple<sup>1</sup>

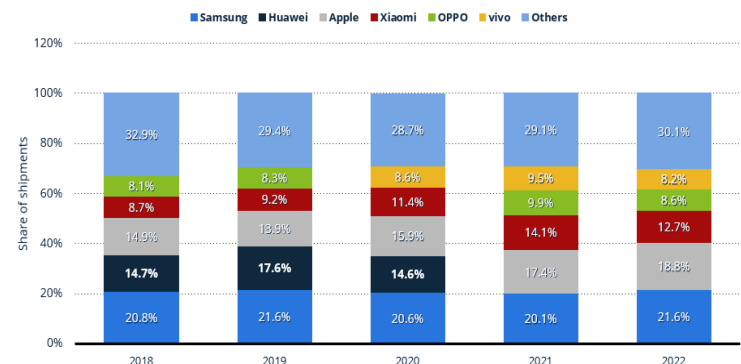
The services revenue segment accounts for roughly 20% of total sales, up from just 13% in 2017. Apple services includes digital content and entertainment subscriptions as well as advertising revenues, AppleCare, cloud services, and payment services through Apple Card and Apple Pay. Service revenues have grown at a rapid pace (19.2% CAGR since 2013) as the product install base has grown and Apple has continually broadened and diversified its service offerings.<sup>1</sup>

Apple has long held its position as the dominant industry leader in the technology hardware market. Product innovation including the introduction of the iPhone in 2007 and iPad in 2010 have helped to propel the company to a world leading \$2.3tr market cap. Apple has continued to expand and integrate its product and service offerings, creating an all-encompassing ecosystem that has driven up customer switching costs. As a result, Apple has built significant customer loyalty and garnered recognition

across the globe as a premium brand. The company has become the ultimate cash cow, with \$111bn in free cash flow to the firm in FY2022.<sup>3</sup> Apple has committed to returning most of that cash to shareholders through massive share repurchases and dividend payments in recent years. The company will also need to put some of that cash to good use and continue to develop new product and service offerings. The tech hardware market is ever evolving and highly competitive globally. In order to maintain industry leadership status, the company will need to continue to develop differentiated products and services that prevent customers from gravitating to new or cheaper alternatives.

## iPhones

Since its introduction in 2007, the iPhone has been Apple's star product and main revenue driver. iPhone revenues accounted for \$205.5bn or 52% of Apple's total net sales in 2022. The smartphone market has largely operated as a duopoly, with Apple and Samsung accounting for approximately 40% of unit sales and over 60% of revenues.<sup>4</sup> The below chart reflects Apple's smartphone unit market share which rose to a five year high of 18.8% in 2022.



Statista -IDC

In recent years there have been multiple Chinese manufacturers entering the market including Xiaomi, Oppo, and Vivo. These companies largely compete in the lower and mid-tier smartphone market and have yet to pose a significant threat to higher end iPhone sales.<sup>4</sup> From 2018 to 2022 iPhone market share in China has risen from 15.4% to 18.6% of unit shipments. The new Chinese companies have filled the void left by Samsung whose

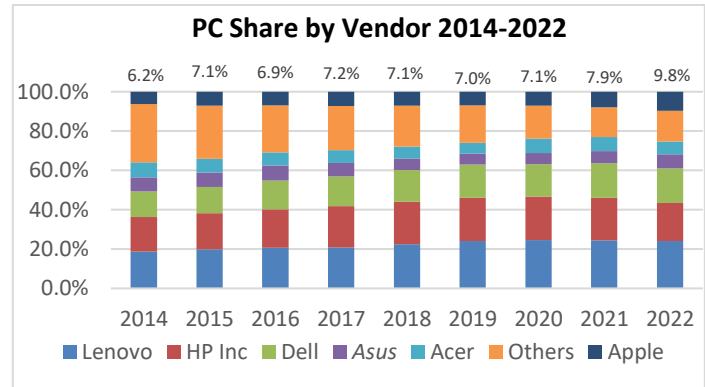
market share in the country fell from 19% in 2013 to nearly zero today.<sup>8</sup>

In terms of overall revenues, Apple dominates with an estimated 48% of total dollar sales in 2022, its highest ever share according to counterpoint research.<sup>4</sup> In a year impacted by supply chain disruption, rising interest rates, and high inflation, Apple was able to increase market share despite its iPhones being at the high end of the price range. This is a testament to the relative inelasticity of demand for iPhones. Somewhat counterintuitively, in an inflationary environment demand for the higher priced iPhones remains strong as its primary consumers are more affluent and less impacted by rising prices.

We are projecting iPhone sales to see a moderate drop of 2% in FY23. This assumption is largely driven by weak Q1 results. Sales for iPhone in Q1 fell 8% YoY with management citing covid driven supply constraints for iPhone 14 Pro and Max, and strong currency headwinds.<sup>2</sup> Tim Cook reiterated that “Production is now back to where we want it”.<sup>7</sup> We expect iPhone sales to recover in the latter half of the year as supply catches up to demand. Looking past 2023 we see iPhone revenues growing at 7% annually over the next 5yrs, in line with its previous 5yr CAGR of 7.8%. Finally, we forecasted a long-term growth rate of 5.5%. As the smartphone market matures and sees new entrants, we believe iPhone sales will continue to lead the industry. Apple’s key product has a strong moat of devout customer loyalty and product familiarity. Smartphone sales have long been the main driver of Apple’s overall revenues and we do not foresee that changing anytime soon.

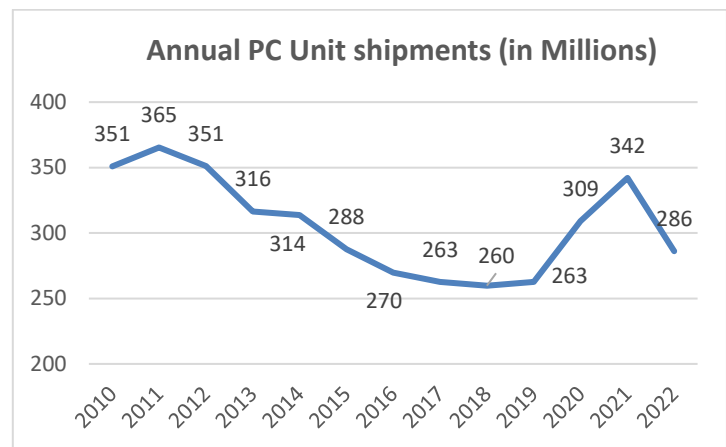
## Mac

The Mac segment encompasses Apple’s entire line of PCs including its MacBook Air and Pro laptops, and iMac desktops. Apple’s PC market share has hovered between 6 to 10% over the past decade.<sup>8</sup> The PC market has reached the mature stage. Demand is cyclical, and competition is high. Apple faces a much more fragmented market for PCs relative to smartphones. Dell, Lenovo, and HP all maintain market share between 15-24%.<sup>8</sup> The following chart details market share overtime with Apple’s % share reflected at the top.



Gartner research<sup>8</sup>

Prior to Covid-19, demand for PCs had been in steady decline. Annual shipment numbers peaked in 2011 at 365.4m units and gradually fell to a low in 2019 of 262.5bn.

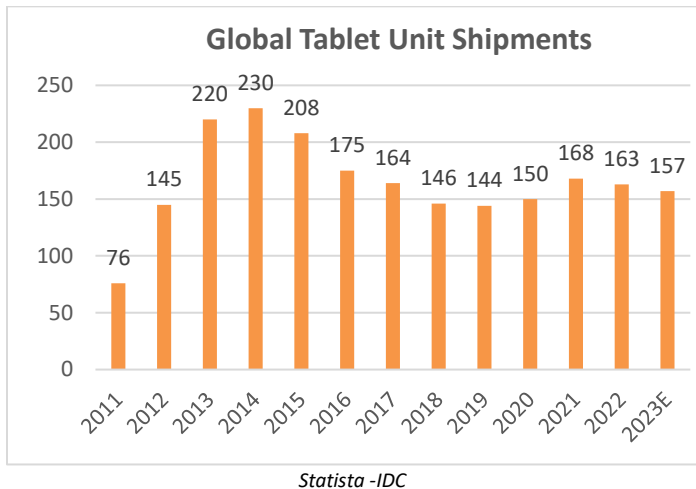


Statista -IDC

The pandemic and resulting work from home shift led to a global demand spike through 2020 and 2021. We believe the covid driven demand cycle has now come to an end. Per Gartner Research, PC shipments for 2022 fell 16.2% from 2021, the worst ever one year decline. We expect that trend to continue into 2023. We are forecasting FY2023 Mac sales to come down drastically from cycle peak. Again, our FY23 projections stem from poor Q1 results with Mac revenue falling nearly 29% YoY and management expecting double digit declines in Q2 as well<sup>7</sup>. We are forecasting an 18% sales decline compared to 2022 for Mac. We expect demand to begin to stabilize in 2024 and average 5% growth through 2028 before reaching our long-term growth forecast of 3%. The 5-year projection is in line with the pre-covid era growth trend. Mac sales growth will likely remain stagnant for a few years as many consumers purchased new laptops during the pandemic. A new replacement demand cycle will then pick up near the end of the 5year projection period.

## iPad

The iPad's dominance in the tablet market largely mirrors that of the iPhone. iPad revenues were \$29.2bn in 2022, which accounted for 53% of the global tablet revenues<sup>10</sup>. Additionally, iPads made up 38% of the units shipped per IDC.<sup>11</sup> The dynamics of the overall tablet market though are broadly similar to the PC market. Demand is largely cyclical and product shipments have been in decline for years.<sup>10</sup>

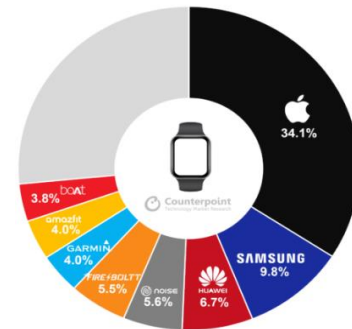


Despite sustained market leadership in the face of increased competition, we project the iPad to be Apple's worst performing revenue segment. Much like tablets cannibalized PC revenues during the 2010s, 2 in 1 laptops and foldable smartphones threaten to do the same to traditional tablets. A Bloomberg report from earlier this year indicated that Apple is working on adding touch screens to its Mac computers. It also noted that Apple is the only major PC manufacturer yet to do so.<sup>12</sup> Additionally, phone screen sizes have grown larger in recent years with the iPhone14 Max now having a 6.7in screen compared to the 4in iPhone 5 screen when iPads first came out.<sup>13</sup> As the size and features of Apple's other products begin to overlap the iPad, the products value add and overall demand will erode.

We are forecasting modest growth for FY23 of 4%. Q1 sales were up 29% YoY as management cited a weak compare due to major supply disruptions in 2022. We expect growth to slow again through the rest of 2023. Our five-year outlook calls for a modest 2% revenue growth. Finally, our long term outlook sees iPad sales eventually declining by 1.5% annually as newer product offerings take its place.

## Wearables

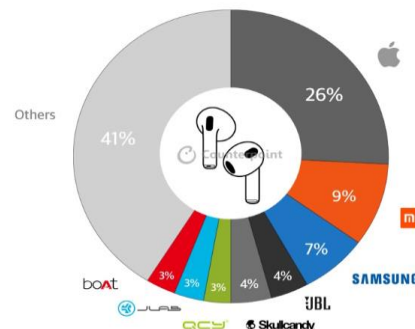
The wearables segment is Apple's fastest growing product category. Split between Apple Watch, AirPods, and Beats wireless headphones. These products are relatively new, and despite strong competition Apple maintains significant market share in both categories. Since being listed as a separate revenue item in 2019, wearables revenue has seen a 19% CAGR.<sup>1</sup> The pie chart below shows the global smartwatch market share by units for 2022.



Counterpoint<sup>14</sup>

Apple Watch in 2022 captured 34% of the market by units, and 60% of all smartwatch revenues.<sup>14</sup> The release of the \$799 Ultra model helped drive up average sales prices (ASPs) despite a challenging macro environment. Once again demonstrating persistent demand for Apple's premium products. We feel that the growth trend in watches will continue. Expanded features focused on health and wellness will be key in attracting new watch customers.

The hearables segment is slightly more competitive, with a wide range of traditional headphone companies competing in the space. Apple's AirPods and Beats headphones still had the largest market share at 26% of total units.<sup>14</sup> Market share by unit for 2022 is below.

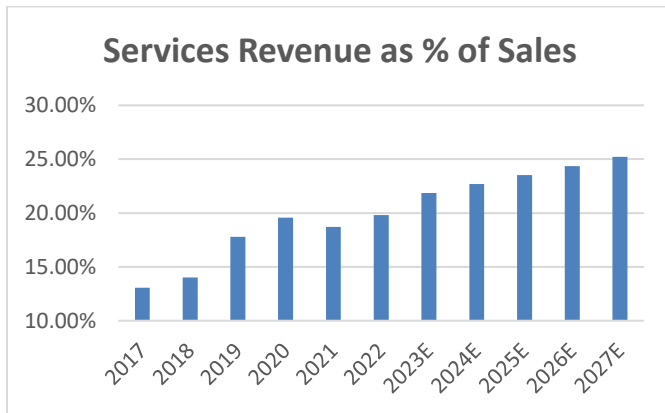


Counterpoint<sup>14</sup>

For the wearables segment we anticipate 4% decline in FY23 and have forecasted 11% growth through 2028 before stabilizing at 6% annually going forward. The relative newness of the category presents opportunities for continued growth and adoption, especially in emerging markets. Compatibility with the iPhone and integrated service offerings will keep demand stable in the long-term. We see potential expansion into AR and VR headsets also offering opportunities for significant future growth in the segment.

## Services

Apple's services component of revenue has seen strong growth and continues to comprise a larger portion of total revenues. We see this trend continuing and expect services to exceed 25% of total sales by 2027. The chart below outlines the growth trend and our 5year forecasts for the segment.



Apple, <sup>1</sup> Henry Fund Estimates

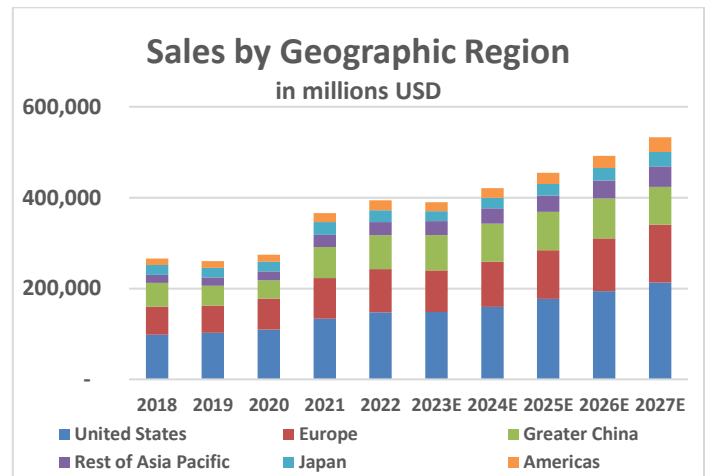
Apple's services include its iOS App Store and advertising business, cloud services, Apple Care, and Apple Pay. Additionally it offers a broad range of subscription based digital content and entertainment services including Apple News+, Apple TV+, Apple Music, Arcade, and Apple Fitness+. Each of these service offerings faces stiff competition. The market has become saturated with TV, Music, and other subscription-based services in recent years. But Apple's success in building the services business has stemmed from its growing install base and integration of new services into its ecosystem. The Apple install base has doubled over the past 7 years to over 2billion active connected devices.<sup>7</sup> In that same span the services revenue has nearly quadrupled from \$19.9bn in 2015 to \$78.1bn in 2022.<sup>1</sup> Each new Apple product purchased creates the opportunity for multiple new recurring revenue streams.

In 2020 Apple introduced Apple One which is a subscription bundle including its entertainment, fitness, and iCloud subscriptions. The bundle comes in three different levels ranging in price from \$17-\$33/month. By bundling streaming, news and fitness services at a reduced price it becomes more difficult for its product users to justify paying separate subscription fees for alternatives.

Despite the near-term economic uncertainty, we expect services revenue to continue its strong growth trajectory through 2023. We have forecasted services to grow at an average of 11% for the next five years and 8% annually thereafter, eventually eclipsing 30% of overall sales.

## Geographic Breakdown

Apple breaks it revenues into 6 different geographic regions. US sales are the largest category comprising somewhere between 35-40% over the preceding decade. Europe and Greater China follow with 24% and 19% of sales respectively. The remaining three categories each account for 5-8% of total sales annually. The below chart shows the geographic breakdowns of total sales over time along with our 5-year outlook.



Apple, <sup>1</sup> Henry Fund Estimates

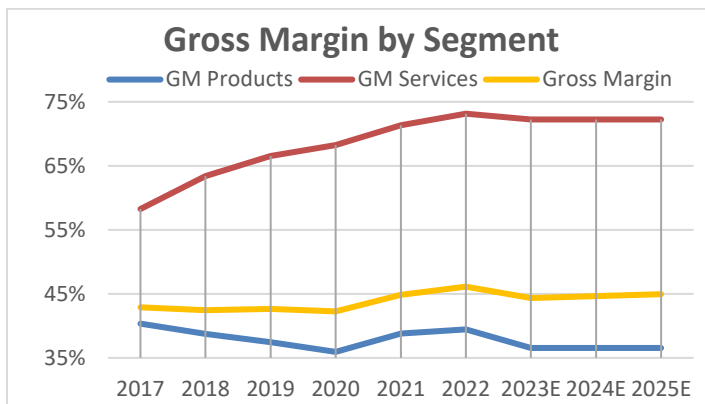
The breakdown of sales has remained largely consistent over time. Every segment has seen overall sales growth between 7.5-13% annually. Japan has experienced the slowest growth while Asia Pacific has seen the highest. Looking ahead we are projecting further increase in the revenue share of Asia Pacific and a further decline in Japan and Greater China. We see the China revenue share eventually falling to 15.5% and Japan falling further to just 5.5%. Demographics are a key driver in the assumptions. China and Japan both have aging populations in decline.



Additionally, rising political tensions and trade wars may continue to impact sales within China. We expect demand in the US and Europe, and the Americas to remain fairly stable.

## Cost Structure Analysis

Apple's overall cost structure and profitability has remained relatively stable over the past 10 years. Both gross and net margins have ticked up slightly, largely driven by improved margins on services offerings, which are growing as a percentage of overall sales. Gross margin improved to a 10 year high of 46.1% last year and net margin was 25.3%.<sup>2</sup> The below chart highlights service and product margins relative to overall gross margin. Gross margins on services has risen significantly over the past 5 years helping to drive overall gross margin higher.



Apple, <sup>1</sup> Henry Fund Estimates

We estimate COGS for products to rise to 63.5% in 2023. Apple faces a number of external threats to its production costs including worker strikes, trade wars, and inflated labor and raw materials prices. As a result, we are using a more conservative estimate relative to the 62.4% average over the previous 5 years. COGS for services are not exposed to those same pressures, so we estimated 27.76% taking the average of the previous three years.

Apple's operating expenses are broken down into two categories, R&D expense, and SG&A expenses. We are projecting R&D expenses to be 7% of sales. We arrived at this by looking at the previous three-year average and adding 50bps. As products such as iPad and Mac mature and the wearables segment faces new entrants, R&D expense will need to rise to remain competitive. R&D expense has grown from 2.6% of sales in 2013 up to 6.6% in 2022. Additionally, new tech trends in Artificial Intelligence and immersive reality technology pose as both

threats and opportunities for Apple. The race to bring these technologies to the masses will force Apple to continue to commit significant capital to research and development.

The selling, general, and administrative expense has remained fairly stable as a percentage of sales over time. We're expecting this trend to continue and used a three-year average to project SG&A expense at 6.54% of sales.

## Debt Maturity and Capital Structure

As of December 31, 2022, Apple had a total of \$110.68bn in outstanding debt. The average debt maturing over the next five years is \$10.5bn. Apple's cash and marketable securities totaled \$165.4bn indicating a net cash position of nearly \$55bn. Given the substantial cash reserves, there is essentially no risk of default on its debt. Apple has a AA+ credit rating from S&P.<sup>3</sup> In recent years Apple has increased borrowing to execute its share buyback program. It's leveraged buyback strategy has taken advantage of low interest rates to return capital to shareholders and drive-up share price and EPS.<sup>15</sup>

Apple has also worked to reduce its net cash balance over the past few years. In 2018 the company announced a commitment to achieving net cash neutrality, meaning total cash and securities equals total debt.<sup>16</sup> This effort was largely aided by the 2017 tax reforms which has allowed Apple to repatriate its massive overseas cash balances. Since 2018 the net cash balance has decreased from \$163bn to \$55bn.<sup>16</sup> As interest rates continue to rise we expect that the use of debt for dividend and share repurchase to drop considerably. Regardless, Apple has significant free cashflow to continue paying down debt and buying back shares going forward.

### Five-Year Debt Maturity Schedule

Fiscal Year	Coupon (%)	Payment (\$mil)
2023	2.49%	\$9,243
2024	2.54%	10,913
2025	1.71%	10,901
2026	2.15%	11,714
2027	2.99%	9,817
Thereafter		58,060
<b>Total</b>		<b>\$110,684</b>

Factset

## ESG Analysis

Sustainalytics gives Apple an ESG risk rating of 16.8 and rates it as low risk. It ranks 240th out of the 661 companies within the technology hardware sector. All key competitors except for Google have similar scores in the low-risk category. Google's risk rating of 24.5 puts it in the medium risk range.

Apple has a number of ESG related initiatives including focuses on carbon emissions, renewable energy, data privacy, human rights, and worker safety and wellbeing.<sup>17</sup>

A key point of interest has been on working conditions across their supply chain. Apple outsources a large portion of its production and assembly, and therefore has placed an emphasis on trying to ensure appropriate working condition standards are being met by its suppliers and partners. The company conducts hundreds of thousands of interviews and surveys annually to gauge worker satisfaction and experiences.<sup>16</sup> Despite its efforts the company has not been immune to disruptions and criticisms.

In November of 2022 thousands of workers protested unsafe working conditions and low pay at the largest iPhone factory, Foxconn's iPhone City. This led to delays in iPhone 14 shipments during the last quarter of 2022.<sup>18</sup> Over the years several articles and reports have surfaced about suicide rates and harsh working conditions at the factories run by Apple's largest manufacturing partner, Foxconn.

In 2019 Apple was one of many large tech companies named in a lawsuit over child deaths and injuries in cobalt mining operations in the Democratic Republic of the Congo.<sup>20</sup> Cobalt is a key raw material used in the lithium batteries in all Apple electronics. Due to its vast global supply chain, the company is always exposed to external risks. The company has been and must remain diligent in raw material sourcing and the outsourcing of manufacturing. Despite these risk exposures, Sustainalytics gives Apple a low ESG exposure rating and a "strong" score for its management of ESG issues.<sup>18</sup>

## RECENT DEVELOPMENTS

### Recent Earnings Announcement

Apple Announced its Q1 FY2023 earnings on February 2. The company reported revenues of \$117.2bn, a 5% YoY decline. EPS was \$1.88 compared to analyst estimates of \$1.94. CEO Tim Cook cited an 800bps exchange rate impact, Covid-19 delays on iPhone production, and challenging macroeconomic conditions as reasons for the down quarter.<sup>7</sup>

Apple has not provided revenue guidance since the onset of the covid-19 pandemic. They did however indicate their expectations that Q2 will be similar to Q1 in terms of YoY performance. While iPhone sales are expected to be strong due to supply chain easing, Mac and iPad sales are expected to see double digit declines compared to 2022.<sup>7</sup> Given Q1 results and Q2 outlook, we're forecasting a 1.2% sales decline for the year. We expect strong service revenue growth and stable iPhone sales to buoy the underperforming segments, resulting in moderate drop in net sales.

### Anti-trust Investigation

The US Department of Justice (DOJ) opened an antitrust investigation into Apple in 2019. The European Commission subsequently launched two antitrust investigations into the company in 2020.<sup>25</sup> The investigations are largely centered around Apple's control over its App Store and a 30% cut that it takes on in-app payments. Developers and major competitors, particularly those that offer digital services like Spotify must use in-app purchases and pay the "Apple Tax" on all iOS app related revenues.<sup>25</sup> No official complaint or lawsuit has been filed yet. But the Wall Street Journal reported in February that the DOJ has accelerated its investigation.<sup>26</sup> The situation bears monitoring going forward as it poses a potential threat to Apple's fast-growing services revenue.

## INDUSTRY TRENDS

### Supply Chain Diversification – India vs. China

Apple relies on China for nearly 20% of its revenues, and well over 90% of its manufacturing and assembly.<sup>6</sup> Covid-19 disruptions highlighted the risk that such a China centric

supply chain can pose. Add in the escalated political tensions between the US and China, and the threat of military action in Taiwan. It's become evident that Apple needs to diversify its supply chain. The below graphic shows the breakdown of devices made in China.

**Share of Apple Devices Made in China**

Devices	2020	2021	2022E	2023F	2024F
iPhone	99%	97%	96%	93%	88%
AirPods	100%	97%	95%	92%	88%
Mac	100%	99%	98%	96%	95%
iPad	100%	99%	98%	95%	92%

Source: Counterpoint Research EMS Insights Service.

Efforts are already underway to relocate some production. But the process of replicating decades of infrastructure investment and specialized workforce development in another country will be slow and painful. Apple's supply chain consists of 191 different suppliers and manufacturing partners at 475 different locations. 150 or nearly 32% of those are currently located in China. Including their largest iPhone production plant and key raw materials and component suppliers.<sup>21</sup> Apple has now focused in on two countries to help diversify its manufacturing geographically, Vietnam and India. Production of iPads, Macs, AirPods, and Watches has now begun in Vietnam. This follows an industrywide trend with other key players including Samsung locating a large percentage of their manufacturing to Vietnam and other Southeast Asian countries.<sup>21</sup>

The larger shift however is likely to be in India. The country presents a significant opportunity for both production and sales growth. The UN predicts that India will overtake China in population this year and the gap is expected to widen over time. India's demographic mix presents a much younger population with a higher concentration of working aged people 19-40 over the coming decades.<sup>23</sup> Apple has already started to shift iPhone production into the country, including its newest models for the first time ever. Expectations are that up to 25% of all iPhone production will come from India by 2025.<sup>22</sup> An added benefit of the shift is the opportunity to increase market share in the country. India imposes a 22% tax on imported smartphones, which Apple can avoid if producing within the country.<sup>22</sup> In Q3 of 2022 the iPhone reached its highest ever market share (5%) in India and the iPhone 13 became the first iPhone to top overall unit shipments.<sup>24</sup>

The potential to continue market penetration within India is massive and further justifies the shift in production. Overall, India presents a better demographic mix, lower geopolitical risk, and a substantial opportunity for revenue gains. The efforts to diversify the supply chain won't come without challenges, but the long-term benefits of a more secure supply chain are likely well worth the costs.

## Immersive Reality

Immersive Reality technology, including both Augmented and Virtual reality presents as next major trend in the tech hardware industry. We expect to see AR/VR tech to be further integrated into existing products and be the focus of new products coming to market. Virtual Reality has already carved out a place in the market with products like Meta's Oculus. Full commercialization of AR tech is still likely a few years away but is bound to re-shape the entire industry. Augmented Reality is defined as a partly immersive experience where users interact with a 3D overlay onto the external reality in real time. Use examples include projections from smartphones as well as AR glasses and windshields. Large tech companies including Google and Microsoft have already experimented with AR devices. Headsets are likely to be introduced as extensions of smartphones and eventually potential replacements. Meta, Google, Microsoft, and Apple are all reportedly working on AR headsets and expected to release products in the coming years.<sup>28</sup> This technology presents as both a significant threat and opportunity for Apple. Becoming a leader in the AR/VR device segment can bring in massive new revenue streams. McKinsey is forecasting the immersive reality market to grow at 24% CAGR through 2035.<sup>27</sup> However, entrance of major tech companies, and the potential for AR tech to replace smartphones poses a threat to Apple's industry dominance.

## MARKETS AND COMPETITION

As the largest company in the world, Apple competes in a wide range of product and services markets globally. Its competitors include a diverse set of companies from TV and music streaming services, tech hardware & consumer electronics manufacturers, and software and cloud computing companies. Because of this, identifying a perfect peer group for Apple is difficult. The market dynamics facing traditional tech hardware companies is different from those of other tech giants and digital content and service providers. When evaluating the competitive forces impacting the company it is important



to look at the products and services segments separately and understand the different factors affecting each.

## Competition & Threat of Entrants

Within the tech hardware industry, the threat of new entrants varies by product category. The tablet, PC, and smartphone markets are all well developed. New Chinese manufacturers have emerged in recent years including Xiaomi, Oppo, & Vivo. But they mostly compete at the lower and middle price ranges in whereas Apple focuses on high end premium products. The greater threat to these products is substitutes and new products emerging. We already highlighted the potential for touch screen and 2- in-1 laptops to cannibalize iPad sales. The development of AR glasses or other wearables may eventually pose a threat to the iPhone as well.

Within the services category, competitive forces again are differentiated across service offerings. Apple's foray into tv streaming with Apple TV+ has been met with strong competition. A wide range of streaming services are available including Netflix, Amazon, Hulu, Disney, YouTube, HBO, & Paramount. In order to maintain and or capture market share Apple will have to commit vast resources to developing and acquiring premium content. The music streaming and news services face a similar competitive landscape. There are several different options in the marketplace and the ability to differentiate the product is difficult. The area where Apple faces the lowest threat from competition and substitutes would be its App store. Apple has complete control over the app store and has significant power over suppliers (app developers). The key threat here as we've mentioned is anti-trust lawsuits.

Apple's main advantage in both the product and services business is its ecosystem. Through integrating its different services into its products and offering the bundling option, it raises switching costs for its customer base. Key competitors who only offer either the hardware product or the entertainment service do not have this level of influence over their customers.

## Peer Comparisons

We formed a peer comparison group comprising of both tech hardware companies and big tech companies that more closely rival Apple's size. The group consists of

Samsung, Dell, HP Inc, Google, Microsoft, and Meta. Key comparison metrics can be found below.

Key Statistics					
Company	Market Cap	P/E	P/S	Gross Margin	Net Margin
Apple	2382.6	25.4	6.2	43%	24.50%
Samsung	268.9	27.73	1.34	36.40%	14.10%
Dell	27.1	12.50	0.27	23.50%	2.40%
Hp Inc	27.5	11.55	0.47	17.80%	4.50%
Google	1184.4	17.31	4.26	55%	21.40%
Microsoft	1878.2	26.74	9.24	68.16%	33%
Meta	494.2	18.26	4.11	79.60%	19.90%

Factset

Starting with market cap, it is evident that Apple's size is massive in comparison to other hardware companies. Samsung is the second largest tech hardware company, and its market cap is just over 11% of Apple's. Major PC companies Dell and HP are just over 1% of Apple's size. This further highlight that fact that Apple doesn't have a true peer in the hardware business. As we have noted, Apple dominates revenue share in several key product segments. There is also a stark difference between the P/S ratios and Net Margins when comparing the hardware manufacturers. Apple's market dominance surely aids its higher margins, but the highly profitable services segment adds to the discrepancy in profitability. As does its price points. Apple's products are primarily at the high end of the price range.

Looking at the big tech stocks Google, Microsoft, and Meta, the numbers are a bit closer. These companies' operations are more comparable to Apple's services business. Characterized by lower cost of sales and the resulting higher margins. Apple's gross margin comes in lower than the big tech peers. However, it still leads the pack in terms of net margin. The driving force here is that the operating costs including Research & Development and SG&A expenses make up a much larger percentage of sales for these firms. Meta, Google, and Microsoft commit 53, 29 and 26 % of their sales to these expenses compared to just 13% for Apple.<sup>3</sup> The peers in this category for the most part do not compete with Apple in its hardware business. However, we have noted that each of these firms are committing resources towards developing AR/VR devices that would eventually compete with or threaten to replace Apple's products. The entrance of large tech firms

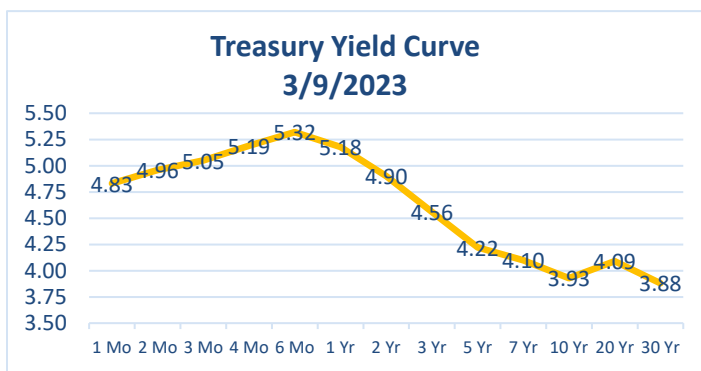
into the Apple dominated hardware space poses a major threat long-term.

## ECONOMIC OUTLOOK

Prevailing macroeconomic conditions have a strong impact on overall demand for Apple's products and services. Changes in Interest rates, inflation, currency prices, and the unemployment rate can all have a profound impact on top and bottom-line results.

### Interest Rates

The Federal Reserve has remained committed to raising interest rates amid its efforts to fight inflation. Persistent price increases in services and a tight labor market have given the fed the go ahead on continued rate hikes. The result is the inverted yield curve below.



US Treasury

The spread on the 2yr10yr has hit its deepest inversion since 1981 at over 100bps or 1%.<sup>31</sup> The yield curve inverted well over 200 days ago and has historically been an accurate predictor of a recession. The Henry Fund believes a hard landing is the most likely result and has predicted a 56% likelihood of a recession over the next 12 months. This outlook has been factored into our near term forecast of Apple's performance as we estimate an overall decline in revenue in 2023.

### Inflation

The Henry Fund consensus forecast anticipates inflation staying near 5.5% over the next 6 months. The most recent CPI release in February had inflation at 6.4% with high food, shelter, and service prices being key contributors.<sup>32</sup> We have highlighted the fact that demand for some of the company's products has remained relatively inflation resistant. But Apple is not immune to prevailing economic

conditions. A prolonged period of high prices will eventually create a drag on consumption, especially for higher priced tech products. If the Fed fails to slow down inflation, demand for discretionary goods and services will continue to fall.

### Strong US Dollar

Apple cited an 800bp impact on sales resulting from foreign currency headwinds in Q1 of FY23. They also projected a 500bp impact through the remainder 2023.<sup>7</sup> Rising US interest rates have helped drive up demand for the Dollar. Additionally, the US economy has been largely insulated from the Russia Ukraine war and other geopolitical events. The US remains a safe haven for investors, adding to the Dollar's relative strength. The Dollar index has come down from its highs in Fall of 2022 but still remains up 6% over the past year.<sup>32</sup> Considering over 60% of Apple's revenue comes from foreign buyers, continued strength in the Dollar will negatively impact topline revenues and margins in 2023.

### Unemployment

The unemployment for February came in at 3.6%, up slightly compared to January's 3.4%.<sup>32</sup> Unemployment rates have re-tested pre-pandemic lows and consistently remained under 4% over the past year. Tightness in the labor market is generally viewed as a bullish indicator for the economy. It helps drive up wages and bolsters disposable income. Apple stands to benefit from more stable demand as long as unemployment remains low and wages are high.

However, low unemployment rates and high wages are inflationary. If the unemployment rate stays this low the Fed will be able to continue its rate-raising efforts to combat inflation, meaning higher rates for longer. The fed faces a tough balancing act between the threat of sustained higher prices or an over aggressive rate policy leading to a recession.

## VALUATION

### Revenue and Cost Structure

Our key revenue and expense assumptions were detailed earlier in the company description section of the report. We built our revenue forecasts out by individual product category assumptions. Despite forecasts of revenue

decline in 2023, our estimates call for 6.14% CAGR in sales over the next five years. Followed by slowing growth through the remainder of our 10-year outlook down to 5.6%. Specific product forecasts are outlined in the following chart. We reiterate that the services and wearables segment present significant growth opportunities in the coming years. The iPhone serves as a stabilizing force that has consistently seen high single digit revenue growth. Finally, Mac and iPads have reached mature stage of the product lifecycle and are likely to see slowing growth.

Revenue Growth Estimates			
Product	2023 Forecast	24-28	29-32
iPhones	-2.00%	7.00%	5.50%
iPad	4.00%	2.00%	-1.50%
Mac	-18.00%	5.00%	3.00%
Wearables	-4.00%	11.00%	6.00%
Services	9.00%	12.00%	8.00%
Total	-1.20%	6.40%	5.60%

Our operating expense projections were forecasted as a % of sales and largely built off of historical three-year averages as the cost structure for Apple has remained fairly stable. We adjusted the COGS for Products to increase by 1.5% due to costly efforts of relocating significant portions of production out of China and potential for higher raw materials and labor costs. Additionally, we expect R&D expense to grow as a percentage of sales as competitive pressures remain high for existing and new potential products and services.

Operating Expense Assumptions	
COGS Products (% of product sales)	63.45%
COGS Services (% of sales)	27.76%
R&D	6.99%
SG&A	6.54%

## Profitability & Capital Return

As we've mentioned earlier, Apple is the ultimate cash cow. We've forecasted Apple's free cash flow to exceed \$100bn annually by 2025. This is largely a byproduct of consistently strong operating and net margins. Our forecasted margins are fairly consistent with the average margins of the previous 10years ranging from 23% in the

near term to 25.6% by 2028. We see continued modest growth in both operating and net margin as the highly profitable services segment growth outpaces other revenue categories.

Apple's strong margins and free cash flow has lead to significant share repurchases in recent years, a trend we expect to continue. The total capital returned in the past five years has exceeded net income. This has been a direct result of repatriation of foreign income and some use of leverage to buy back shares. Our forecasts calls for a gradual slowing of the total payout ratio back down below 100% of NI. Most of the remaining overseas cash will be repatriated within the next three years and borrowing costs have risen significantly. Starting in 2025 we expect capital return to be predominantly funded by cash flows. Our specific forecasts are laid out in the table below.

Years	Total	Dividends	Capital Returned	Modified Div Payout
FY'12 - FY'17	\$ 166.00	\$ 60.70	\$ 226.7	85.32%
FY'18	\$ 73.10	\$ 13.70	\$ 86.8	145.81%
FY'19	\$ 67.10	\$ 14.10	\$ 81.2	146.95%
FY'20	\$ 72.50	\$ 14.10	\$ 86.6	150.84%
FY'21	\$ 85.50	\$ 14.50	\$ 100.0	105.62%
FY'22	\$ 90.20	\$ 14.80	\$ 105.0	105.21%
FY'23	\$ 82.50	\$ 15.15	\$ 97.6	107.43%
FY'24	\$ 90.00	\$ 15.49	\$ 105.5	105.55%
FY'25	\$ 95.00	\$ 15.78	\$ 110.8	100.48%
FY'26	\$ 100.00	\$ 16.78	\$ 116.8	96.18%
FY'27	\$ 105.00	\$ 17.77	\$ 122.8	91.82%
FY'28-32	\$ 550.00	\$ 105.45	\$ 655.5	77%

Apple, Henry Fund Estimates

## DCF Valuation & NOPLAT Growth

We arrived at an implied value of \$132.79 per share as a result of our DCF and Economic profit valuation models. Key assumptions within the models include Free Cash Flow (FCF) growing at a 6.21% CAGR for 10years, a terminal NOPLAT growth rate of 4.5%, and a discount rate or WACC of 10.64%.

The free cash flow assumption stems from expectations of continued strong sales growth in iPhones, wearables, and services, with only relatively moderate increases in overall operating expenses. These forecasts will drive NOPLAT higher in the coming years. The terminal NOPLAT growth rate of 4.5% comes from an expectation of 2% real GDP growth and an average inflation rate of 2.5%. We believe real GDP growth rate will continue in line with the previous 20 years at 2%, while inflation will remain higher than the Feds recent 2% target rate. The higher inflation assumption is based on tightness in the labor market as

the Boomer generation ages out of the work force and is replaced by smaller generations, driving up wages.

The DCF valuation is highly sensitive to a few key input assumptions, WACC and CV growth rate. We conducted a sensitivity test to see the impacts of terminal growth and cost of capital on overall valuation.

CV Growth NOPLAT								
WACC	132.79	0.030	0.035	0.040	0.045	0.050	0.055	0.060
	10.00%	120.98	126.34	132.59	139.98	148.85	159.68	173.23
	10.10%	119.16	124.32	130.32	137.39	145.85	156.16	168.97
	10.20%	117.39	122.35	128.12	134.90	142.98	152.78	164.91
	10.29%	115.84	120.64	126.20	132.72	140.48	149.86	161.42
	10.40%	113.99	118.60	123.93	130.16	137.55	146.44	157.35
	10.50%	112.36	116.81	121.93	127.91	134.98	143.46	153.83
	10.60%	110.78	115.06	120.00	125.74	132.51	140.60	150.45

We found that just a 10bp change in the WACC resulted in a \$2-4 change in share price. A 50bp change in our growth assumptions impacted price by anywhere from \$5-11 dollars holding WACC constant. This highlights the overall importance in our key assumptions when relying on the DCF model.

## DDM Valuation and EPS Growth

Our dividend discount model resulted in an implied price of \$139.14 per share, roughly 4.75% higher than the DCF price. Key assumptions driving the model include the forecasted yearly dividends, a 5.5% terminal EPS growth rate, and a cost of equity at 10.64%.

Once again, a key driver of the model is the terminal EPS growth rate of 5.5%. The reasoning behind the somewhat higher long term growth assumption is the continued diminishing number of shares outstanding resulting from buybacks. We've estimated shares outstanding to fall from 15.5bn to 11.1bn by the end of our 10-year forecast period. Our resulting EPS estimates are below. The 10-year growth rate of earnings is 11%, compared to a 17.6% growth rate for the preceding 10 years.

2023E	2024E	2025E	2026E	2027E
5.78	6.55	7.46	8.52	9.75
2028E	2029E	2030E	2031E	2032E
11.18	12.45	13.86	15.44	17.21

For the dividend assumptions, we've forecasted a gradual increase in the dividend up to \$2.05/sh by 2032. Dividends have grown at .05 per share for each of the past 4 years. We've projected that over time Apple will raise its dividend as share buybacks become increasingly expensive and excess cash continues to build. We've modeled dividends

to grow at 10% annually starting in 2025, consistent with our earnings growth rate assumption. Apple remains committed to achieving net cash neutrality and increasing the dividends will be one of their primary tools to do so.

Our sensitivity analysis for this model focused on the terminal EPS growth and our discount rate, the cost of equity. Similar to the DCF, 50bp changes in the growth rate have result in massive swings in price estimations. For that reason, we aimed to use what we felt were conservative estimates for both cost of equity and growth to avoid overvaluing the company.

Cost of Equity	DDM	CV Growth of EPS						
	139.14	4.00%	4.50%	5.00%	5.50%	6.00%	6.50%	7.00%
	10.20%	122.54	131.91	143.08	156.62	173.39	194.69	222.65
	10.35%	118.48	127.27	137.70	150.29	165.77	185.27	210.59
	10.50%	114.61	122.87	132.64	144.35	158.67	176.57	199.59
	10.64%	111.18	118.98	128.17	139.14	152.48	169.04	190.16
	10.80%	107.44	114.76	123.34	133.54	145.87	161.06	180.26
	10.95%	104.10	111.00	119.07	128.61	140.08	154.12	171.73
	11.10%	100.92	107.44	115.02	123.95	134.64	147.66	163.84

## Relative P/E Valuation

We conducted a relative P/E valuation base on our peer group. The average forward P/E for the peers is 19.01 compared to Apple's at 25.7.

The implied relative value using the peer multiple is \$108.48 per share. This is significantly lower than current valuations and analyst price targets, which average 168.09 per share. The lower P/Es of computer manufacturers Dell (12.5) and HP (11.5) are driving the relative valuation lower. Because Mac sales do not make up a huge proportion of overall sales, the impact of the lower P/E computer companies is likely overstated in the valuation. The closest peer to Apple in terms of similarity of product mix is likely Samsung. Samsung also has the highest P/E of all peers at 27.7 for 2023. Overall, the lack of perfect comps makes the relative P/E valuation difficult. Apple's sheer size, product diversity, and market positioning suggest that a higher P/E is justified relative to most competitors. The relative P/E valuation provided a price floor but had relatively little impact on our final price target and recommendation.

## Valuation Comparisons & Summary

As mentioned, our valuation estimates are fairly close between the DCF and DDM methods. The DDM model suggests a slightly higher value resulting from higher EPS



growth relative to NOPLAT terminal growth. The valuations we arrived at do however vary significantly from consensus analyst price targets and current market price. According to FactSet data, the average price target from sell-side analysts currently sits at \$168.09/share suggesting an implied 11.5% upside.<sup>3</sup> Of the 39 analysts represented, there are 2 sell ratings, 4 holds, and the remaining 33 have overweight or buy recommendations.

The assumptions driving this discrepancy are likely a result of differences in the terminal growth rate assumptions. Looking out five years, our forecasted sales are consistent with the consensus estimates in FactSet. Additionally, our EPS estimates are similar and actually slightly higher the farther out you go. The consensus street estimate may be factoring in a higher terminal growth rate and/or a lower estimated cost of capital resulting in a more aggressive valuation.

As we mentioned previously, these models are extremely sensitive to growth rate estimates. We believe that Apple has evolved away from its high-growth tech status and into the mature cash cow phase, more in line with other tech hardware manufactures. We feel that a more conservative growth rate is applicable going forward. Yet we're cognizant of the possibility that Apple's vast size, resources, and unwavering customer loyalty may sustain its higher growth longer than anticipated. The tech sector is ever evolving, and Apple has a long history of disruption and product innovation. Yet we maintain our belief that Apple is a strong company that is currently trading at a premium relative to our valuation.

## KEYS TO MONITOR

Apple's ability to remain on top will largely hinge on continued innovation and product differentiation. There are external threats on the horizon including large tech companies working on immersive reality headsets that could reshape the tech hardware market. Challenging macro-conditions and rising geopolitical tensions also pose threats to demand and supply respectively.

Potential threats to our recommendation include continual high growth in services and wearables. Also, the possibility of a soft economic landing with low unemployment and high wage growth may drive consumer demand considerably higher than we anticipate. Finally, unforeseen product innovation could be a source for increased revenue.

We feel however that the number short- and long-term risk factors present, suggest that the status-quo of high annual growth won't continue in perpetuity. Near term economic conditions such as rising interest rates, and persistent inflation continue to threaten short term demand as Q1 results confirmed. Threat for new competition in a mature hardware market are always present. Finally, the overreliance on China poses a massive long-term risk. With China accounting for nearly 20% of revenues and 90+% of manufacturing, any further escalation including trade wars or an actual military conflict would be devastating.

Because of the aforementioned external factors, a valuation of Apple using high single or low double digit long-term growth overstates the company's value today. The market is pricing Apple based on historical performance more so than future results. Making Apple a great company but an underwhelming investment opportunity.

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Apple  
Revenue Decomposition

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Sales by product (\$)													
iPhone	137,781	191,973	205,489	201,379	215,476	230,559	246,698	263,967	282,445	297,979	314,368	331,658	349,900
growth	-3.23%	39.33%	7.04%	-2.00%	7.00%	7.00%	7.00%	7.00%	7.00%	5.50%	5.50%	5.50%	5.50%
% of total sales	50.19%	52.48%	52.11%	51.70%	51.25%	50.76%	50.25%	49.70%	49.13%	49.07%	49.00%	48.90%	48.78%
iPad	23,724	31,862	29,292	30,464	31,073	31,694	32,328	32,975	33,634	33,130	32,633	32,143	31,661
growth	11.48%	34.30%	-8.07%	4.00%	2.00%	2.00%	2.00%	2.00%	2.00%	-1.50%	-1.50%	-1.50%	-1.50%
% of total sales	8.64%	8.71%	7.43%	7.82%	7.39%	6.98%	6.58%	6.21%	5.85%	5.46%	5.09%	4.74%	4.41%
Mac	28,622	35,190	40,177	32,945	34,592	36,322	38,138	40,045	42,047	43,309	44,608	45,946	47,325
growth	11.20%	22.95%	14.17%	-18.00%	5.00%	5.00%	5.00%	5.00%	5.00%	3.00%	3.00%	3.00%	3.00%
% of total sales	10.43%	9.62%	10.19%	8.46%	8.23%	8.00%	7.77%	7.54%	7.31%	7.13%	6.95%	6.77%	6.60%
Services	53,768	68,425	78,129	85,161	95,380	106,825	119,645	134,002	150,082	162,089	175,056	189,060	204,185
growth	16.15%	27.26%	14.18%	9.00%	12.00%	12.00%	12.00%	12.00%	12.00%	8.00%	8.00%	8.00%	8.00%
% of total sales	19.59%	18.70%	19.81%	21.86%	22.68%	23.52%	24.37%	25.23%	26.10%	26.69%	27.28%	27.87%	28.47%
Wearables, Home & Accessories	30,620	38,367	41,241	39,591	43,946	48,781	54,146	60,102	66,714	70,717	74,960	79,457	84,225
growth	25.07%	25.30%	7.49%	-4.00%	11.00%	11.00%	11.00%	11.00%	11.00%	6.00%	6.00%	6.00%	6.00%
% of total sales	11.15%	10.49%	10.46%	10.16%	10.45%	10.74%	11.03%	11.32%	11.60%	11.65%	11.68%	11.71%	11.74%
Total Sales	274,515	365,817	394,328	389,540	420,467	454,181	490,956	531,091	574,922	607,223	641,624	678,265	717,295
growth	5.51%	33.26%	7.79%	-1.21%	7.94%	8.02%	8.10%	8.18%	8.25%	5.62%	5.67%	5.71%	5.75%
Sales by geographic region													
United States	109,197	133,803	147,859	148,025	159,778	177,131	193,927	212,437	229,969	242,889	256,650	271,306	286,918
growth	6.78%	22.53%	10.50%	0.11%	7.94%	10.86%	9.48%	9.54%	8.25%	5.62%	5.67%	5.71%	5.75%
% of total sales	39.78%	36.58%	37.50%	38.00%	38.00%	39.00%	39.50%	40.00%	40.00%	40.00%	40.00%	40.00%	40.00%
Europe	68,640	89,307	95,118	91,542	98,810	106,733	115,375	127,462	137,981	145,734	153,990	162,784	172,151
growth	13.85%	30.11%	6.51%	-3.76%	7.94%	8.02%	8.10%	10.48%	8.25%	5.62%	5.67%	5.71%	5.75%
% of total sales	25.00%	24.41%	24.12%	23.50%	23.50%	23.50%	23.50%	24.00%	24.00%	24.00%	24.00%	24.00%	24.00%
Greater China	40,308	68,366	74,200	77,908	84,093	84,024	88,372	82,319	89,113	94,120	99,452	105,131	111,181
growth	-7.72%	69.61%	8.53%	5.00%	7.94%	-0.08%	5.18%	-6.85%	8.25%	5.62%	5.67%	5.71%	5.75%
% of total sales	14.68%	18.69%	18.82%	20.00%	20.00%	18.50%	18.00%	15.50%	15.50%	15.50%	15.50%	15.50%	15.50%
Rest of Asia Pacific	19,593	26,356	29,375	31,163	33,637	36,335	39,276	45,143	48,868	51,614	54,538	57,653	60,970
growth	10.15%	34.52%	11.45%	6.09%	7.94%	8.02%	8.10%	14.94%	8.25%	5.62%	5.67%	5.71%	5.75%
% of total sales	7.14%	7.20%	7.45%	8.00%	8.00%	8.00%	8.00%	8.50%	8.50%	8.50%	8.50%	8.50%	8.50%
Japan	21,418	28,482	25,977	21,425	23,126	24,980	27,003	31,865	34,495	36,433	38,497	40,696	43,038
growth	-0.41%	32.98%	-8.80%	-17.52%	7.94%	8.02%	8.10%	18.01%	8.25%	5.62%	5.67%	5.71%	5.75%
% of total sales	7.80%	7.79%	6.59%	5.50%	5.50%	5.50%	5.50%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%
Americas	15,359	19,503	21,799	19,477	21,023	24,980	27,003	31,865	34,495	36,433	38,497	40,696	43,038
growth	4.85%	26.98%	11.77%	-10.65%	7.94%	18.82%	8.10%	18.01%	8.25%	5.62%	5.67%	5.71%	5.75%
% of total sales	5.59%	5.33%	5.53%	5.00%	5.00%	5.50%	5.50%	6.00%	6.00%	6.00%	6.00%	6.00%	6.00%

Apple  
Income Statement  
Stated in millions

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Net Sales:													
Products	220,747	297,392	316,199	304,379	325,088	347,356	371,311	397,089	424,840	445,134	466,569	489,205	513,110
Services	53,768	68,425	78,129	85,161	95,380	106,825	119,645	134,002	150,082	162,089	175,056	189,060	204,185
<b>Total Net Sales</b>	<b>274,515</b>	<b>365,817</b>	<b>394,328</b>	<b>389,540</b>	<b>420,467</b>	<b>454,181</b>	<b>490,956</b>	<b>531,091</b>	<b>574,922</b>	<b>607,223</b>	<b>641,624</b>	<b>678,265</b>	<b>717,295</b>
Cost of Sales:													
Cost of sales - products	141,421	182,080	191,464	193,121	206,259	220,388	235,587	251,943	269,550	282,426	296,025	310,388	325,555
Cost of sales - services	17,082	19,617	20,978	23,641	26,478	29,655	33,214	37,200	41,664	44,997	48,596	52,484	56,683
Total Cost of Sales	158,503	201,697	212,442	216,762	232,737	250,043	268,801	289,142	311,213	327,423	344,622	362,872	382,237
Depreciation & Amortization	11,056	11,284	11,104	12,414	12,006	11,815	11,782	11,861	12,024	12,249	12,520	12,828	13,165
<b>Gross Margin</b>	<b>104,956</b>	<b>152,836</b>	<b>170,782</b>	<b>160,364</b>	<b>175,724</b>	<b>192,323</b>	<b>210,373</b>	<b>230,088</b>	<b>251,685</b>	<b>267,552</b>	<b>284,482</b>	<b>302,566</b>	<b>321,893</b>
Operating expenses:													
Research & development expense	18,752	21,914	26,251	27,240	29,403	31,760	34,332	37,138	40,203	42,462	44,868	47,430	50,159
Selling, general & administrative expense	19,916	21,973	25,094	25,483	27,506	29,711	32,117	34,743	37,610	39,723	41,973	44,370	46,924
<b>Total operating expenses</b>	<b>38,668</b>	<b>43,887</b>	<b>51,345</b>	<b>52,723</b>	<b>56,909</b>	<b>61,472</b>	<b>66,449</b>	<b>71,881</b>	<b>77,813</b>	<b>82,185</b>	<b>86,841</b>	<b>91,800</b>	<b>97,083</b>
Operating Income	66,288	108,949	119,437	107,642	118,816	130,851	143,924	158,207	173,871	185,367	197,641	210,765	224,809
Interest & dividend income	3,763	2,843	2,825	6,426	6,114	6,348	6,784	7,461	8,479	9,920	11,755	14,090	17,017
Interest expense	2,873	2,645	2,931	5,343	5,380	5,316	5,473	5,739	6,111	6,623	7,296	8,099	9,093
Other Income (Expense), Net	(87)	60	(228)	-	-	-	-	-	-	-	-	-	-
Income before provision for income taxes	67,091	109,207	119,103	108,725	119,549	131,883	145,235	159,929	176,239	188,664	202,100	216,756	232,734
Provision for (benefit from) income taxes	9,680	14,527	19,300	17,831	19,606	21,629	23,819	26,228	28,903	30,941	33,144	35,548	38,168
<b>Net income</b>	<b>57,411</b>	<b>94,680</b>	<b>99,803</b>	<b>90,894</b>	<b>99,943</b>	<b>110,254</b>	<b>121,417</b>	<b>133,701</b>	<b>147,336</b>	<b>157,723</b>	<b>168,955</b>	<b>181,208</b>	<b>194,565</b>
Net Margin	20.91%	25.88%	25.31%	23.33%	23.77%	24.28%	24.73%	25.17%	25.63%	25.97%	26.33%	26.72%	27.12%
Earnings per share (basic)	3.31	5.67	6.15	5.78	6.55	7.46	8.52	9.75	11.18	12.45	13.86	15.44	17.21
Shares outstanding (weighted avg)	17,352	16,701	16,216	15,718	15,260	14,779	14,259	13,717	13,184	12,670	12,187	11,733	11,307
Shares outstanding (end of year)	16,977	16,427	15,943	15,492	15,027	14,531	13,986	13,449	12,919	12,421	11,953	11,513	11,100
Dividend per share	0.80	0.85	0.90	0.95	1.00	1.05	1.16	1.27	1.40	1.54	1.69	1.86	2.05
Share Repurchases	72,358	85,971	89,402	82,500	90,000	95,000	100,000	105,000	110,000	110,000	110,000	110,000	110,000

Apple

Balance Sheet

Stated in millions

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
<b>Assets:</b>													
Current assets:													
Cash and cash equivalents	38,016	34,940	23,646	9,895	10333	15844	27487	47839	79104	120475	174762	244331	331063
Marketable securities	52,927	27,699	24,658	25,595	26,568	27,577	28,625	29,713	30,842	32,014	33,230	34,493	35,804
Accounts receiveable, net	16,120	26,278	28,184	29,406	31,741	34,286	37,062	40,092	43,400	45,839	48,436	51,202	54,148
Inventories	4,061	6,580	4,946	5,654	6,039	6,452	6,897	7,376	7,892	8,269	8,667	9,087	9,531
Deferred tax assets	-	-	-	-	-	-	-	-	-	-	-	-	-
Vendor non-trade receivbles	21,325	25,228	32,748	32,316	34,882	37,679	40,730	44,059	47,696	50,375	53,229	56,269	59,507
Other current assests	11,264	14,111	21,223	22,184	23,189	24,239	25,336	26,483	27,683	28,936	30,247	31,616	33,048
<b>Total current assets</b>	<b>143,713</b>	<b>134,836</b>	<b>135,405</b>	<b>125,050</b>	<b>132,750</b>	<b>146,077</b>	<b>166,137</b>	<b>195,563</b>	<b>236,617</b>	<b>285,908</b>	<b>348,571</b>	<b>426,999</b>	<b>523,102</b>
Non-current assets:													
Marketable securities	100,887	127,877	120,805	125,396	130,161	135,107	140,241	145,570	151,102	156,843	162,804	168,990	175,412
Property, plant & equipment, gross	103,526	109,723	114,457	125,486	136,846	148,547	160,599	173,013	185,799	198,968	212,533	226,504	240,895
Accumulated depreciation & amortization	66,760	70,283	72,340	84,754	96,760	108,575	120,357	132,218	144,242	156,491	169,011	181,839	195,004
Property, plant & equipment, net	36,766	39,440	42,117	40,732	40,087	39,972	40,242	40,795	41,556	42,477	43,522	44,665	45,891
Goodwill	-	-	-	-	-	-	-	-	-	-	-	-	-
Acquired intangible assets, net	-	-	-	-	-	-	-	-	-	-	-	-	-
Other non-current assets	42,522	48,849	54,428	53,339	52,273	51,227	50,203	49,199	48,215	47,250	46,305	45,379	44,472
<b>Total non-current assets</b>	<b>180,175</b>	<b>216,166</b>	<b>217,350</b>	<b>219,467</b>	<b>222,520</b>	<b>226,306</b>	<b>230,686</b>	<b>235,563</b>	<b>240,873</b>	<b>246,571</b>	<b>252,630</b>	<b>259,034</b>	<b>265,774</b>
<b>Total assets</b>	<b>323,888</b>	<b>351,002</b>	<b>352,755</b>	<b>344,517</b>	<b>355,270</b>	<b>372,383</b>	<b>396,823</b>	<b>431,126</b>	<b>477,489</b>	<b>532,479</b>	<b>601,202</b>	<b>686,033</b>	<b>788,876</b>
<b>Liabilities:</b>													
Current liabilities													
Accounts Payable	42,296	54,763	64,115	63,442	67,758	72,399	77,392	82,765	88,549	92,779	97,247	101,965	106,947
Commercial paper	4,996	6,000	9,982	8,175	8,749	9,370	10,043	10,771	11,562	12,178	12,831	13,525	14,260
Deferred revenue	6,643	7,612	7,912	8,936	9,645	10,419	11,262	12,183	13,188	13,929	14,718	15,559	16,454
Other current liabilities	42,684	47,493	60,845	55,133	59,510	64,282	69,487	75,167	81,371	85,942	90,811	95,997	101,521
Current portion of long-term debt	8,773	9,613	11,128	9,793	10,186	9,949	10,259	10,753	11,459	12,450	13,788	15,376	17,361
<b>Total current liabilities</b>	<b>105,392</b>	<b>125,481</b>	<b>153,982</b>	<b>145,478</b>	<b>155,849</b>	<b>166,418</b>	<b>178,443</b>	<b>191,640</b>	<b>206,129</b>	<b>217,278</b>	<b>229,396</b>	<b>242,422</b>	<b>256,544</b>
Non-current liabilities													
Term debt	98,667	109,106	98,959	102,935	100,531	103,669	108,662	115,794	125,804	139,333	155,379	175,432	200,186
Long-term taxes payable	28,170	24,689	16,657	11,105	5,552	-	-	-	-	-	-	-	-
Deferred revenue	-	-	-	-	-	-	-	-	-	-	-	-	-
Other non-current liabilities	26,320	28,636	32,485	29,537	31,882	34,439	37,227	40,271	43,594	46,043	48,652	51,430	54,390
<b>Total non-current liabilities</b>	<b>153,157</b>	<b>162,431</b>	<b>148,101</b>	<b>143,577</b>	<b>137,966</b>	<b>138,108</b>	<b>145,890</b>	<b>156,064</b>	<b>169,398</b>	<b>185,376</b>	<b>204,031</b>	<b>226,862</b>	<b>254,576</b>
<b>Total liabilities</b>	<b>258,549</b>	<b>287,912</b>	<b>302,083</b>	<b>289,055</b>	<b>293,814</b>	<b>304,526</b>	<b>324,332</b>	<b>347,705</b>	<b>375,527</b>	<b>402,654</b>	<b>433,427</b>	<b>469,285</b>	<b>511,120</b>
<b>Shareholders' equity:</b>													
Common stock	50,779	57,365	64,849	76,392	87,934	94,860	94,860	94,860	94,860	94,860	94,860	94,860	94,860
Retained earnings	14,966	5,562	(3,068)	(9,820)	(15,370)	(15,894)	(11,261)	(330)	18,211	46,073	84,024	132,997	194,005
Accumulated other comprehensive income/(loss)	(406)	163	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)	(11,109)
<b>Total shareholders' equity</b>	<b>65,339</b>	<b>63,090</b>	<b>50,672</b>	<b>55,462</b>	<b>61,456</b>	<b>67,857</b>	<b>72,490</b>	<b>83,421</b>	<b>101,962</b>	<b>129,824</b>	<b>167,775</b>	<b>216,748</b>	<b>277,756</b>
<b>Total liabilities and shareholders' equity</b>	<b>323,888</b>	<b>351,002</b>	<b>352,755</b>	<b>344,517</b>	<b>355,270</b>	<b>372,383</b>	<b>396,823</b>	<b>431,126</b>	<b>477,489</b>	<b>532,479</b>	<b>601,202</b>	<b>686,033</b>	<b>788,876</b>

**Apple***Historical Cash Flow Statement**Stated in millions*

<b>Fiscal Years Ending Dec. 31</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
Cash & cash equivalents, beginning of the year	10,746	14,259	13,844	21,120	20,484	20,289	25,913	50,224	39,789	35,929
<b>Operating activities:</b>										
Net Income	37,037	39,510	53,394	45,687	48,351	59,531	55,256	57,411	94,680	99,803
Adjustments to reconcile net income to cash from operating activities										
Depreciation & amortization	6,757	7,946	11,257	10,505	10,157	10,903	12,547	11,056	11,284	11,104
Share-based compensation expense	2,253	2,863	3,586	4,210	4,840	5,340	6,068	6,829	7,906	9,038
Deferred income tax expense (benefit)	1,141	2,347	1,382	4,938	5,966	(32,590)	(340)	(215)	(4,774)	895
Other adjustments	-	-	-	-	(166)	(444)	(652)	(97)	(147)	111
Changes in operating assets and liabilities:										
Accounts receivable, net	(2,172)	(4,232)	611	1,095	(2,093)	(5,322)	245	6,917	(10,125)	(1,823)
Inventories	(973)	(76)	(238)	217	(2,723)	828	(289)	(127)	(2,642)	1,484
Vendor non-trade receivables	223	(2,220)	(3,735)	(51)	(4,254)	(8,010)	2,931	1,553	(3,903)	(7,520)
Other current & non-current assets	1,080	167	(179)	1,090	(5,318)	(423)	873	(9,588)	(8,042)	(6,499)
Accounts payable	2,340	5,938	5,400	1,791	9,618	9,175	(1,923)	(4,062)	12,326	9,448
Deferred revenue	1,459	1,460	1,042	(1,554)	(626)	(44)	(625)	2,081	1,676	478
Other current & non-current liabilities	4,521	6,010	8,746	(2,104)	(154)	38,490	(4,700)	8,916	5,799	5,632
<b>Cash generated by operating activities</b>	<b>53,666</b>	<b>59,713</b>	<b>81,266</b>	<b>65,824</b>	<b>63,598</b>	<b>77,434</b>	<b>69,391</b>	<b>80,674</b>	<b>104,038</b>	<b>122,151</b>
<b>Investing activities:</b>										
Purchases of marketable securities	(148,489)	(217,128)	(166,402)	(142,428)	(159,486)	(71,356)	(39,630)	(114,938)	(109,558)	(76,923)
Proceeds from maturities of marketable securities	20,317	18,810	14,538	21,258	31,775	55,881	40,102	69,918	59,023	29,917
Proceeds from sales of marketable securities	104,130	189,301	107,447	90,536	94,564	47,838	56,988	50,473	47,460	37,446
Payments made in connection with business acquisitions, net	(496)	(3,765)	(343)	(297)	(329)	(721)	(624)	(1,524)	(33)	(306)
Purchases of non-marketable securities	-	-	-	-	-	(1,871)	(1,001)	(210)	(131)	-
	-	-	-	-	-	353	1,634	92	387	-
Payments for acquisition of property, plant & equipment	(8,165)	(9,571)	(11,247)	(12,734)	(12,451)	(13,313)	(10,495)	(7,309)	(11,085)	(10,708)
Payment for acquisition of intangible assets	(911)	(242)	(241)	(814)	(344)	-	-	-	-	-
Payments for strategic investments	-	-	-	(1,388)	(395)	-	-	-	-	-
Other cash flow from investing activities	(160)	16	(26)	(110)	220	(745)	(1,078)	(791)	(608)	(1,780)
<b>Cash used in investing activities</b>	<b>(33,774)</b>	<b>(22,579)</b>	<b>(56,274)</b>	<b>(45,977)</b>	<b>(46,446)</b>	<b>16,066</b>	<b>45,896</b>	<b>(4,289)</b>	<b>(14,545)</b>	<b>(22,354)</b>
<b>Financing activities:</b>										
Payments for taxes related to net share settlement of equity awards	(1,082)	(1,158)	(1,499)	(1,570)	(1,874)	(2,527)	(2,817)	(3,634)	(6,556)	(6,223)
Payments for dividends & dividend equivalents	(10,564)	(11,126)	(11,561)	(12,150)	(12,769)	(13,712)	(14,119)	(14,081)	(14,467)	(14,841)
Proceeds from issuance of common stock	530	730	543	495	555	669	781	880	1,105	-
Excess tax benefits from equity awards	701	739	749	407	627	-	-	-	-	-
Repurchases of common stock	(22,860)	(45,000)	(35,253)	(29,722)	(32,900)	(72,738)	(66,897)	(72,358)	(85,971)	(89,402)
Proceeds from issuance of term debt, net	16,896	11,960	27,114	24,954	28,662	6,969	6,963	16,091	20,393	5,465
Repayments of term debt	-	-	-	(2,500)	(3,500)	(6,500)	(8,805)	(12,629)	(8,750)	(9,543)
Proceeds from/(repayments of) commercial paper, net	-	6,306	2,191	(397)	3,852	(37)	(5,977)	(963)	1,022	3,955
Other cash flows from financing activities	-	-	-	-	-	-	(105)	(126)	(129)	(160)
<b>Cash used in financing activities</b>	<b>(16,379)</b>	<b>(37,549)</b>	<b>(17,716)</b>	<b>(20,483)</b>	<b>(17,347)</b>	<b>(87,876)</b>	<b>(90,976)</b>	<b>(86,820)</b>	<b>(93,353)</b>	<b>(110,749)</b>
Increase/(Decrease) in cash, cash equivalents and restricted cash	3,513	(415)	7,276	(636)	(195)	5,624	24,311	(10,435)	(3,860)	(10,952)
<b>Cash, cash equivalents, and restricted cash, ending balances</b>	<b>14,259</b>	<b>13,844</b>	<b>21,120</b>	<b>20,484</b>	<b>20,289</b>	<b>25,913</b>	<b>50,224</b>	<b>39,789</b>	<b>35,929</b>	<b>24,977</b>



**Apple***Forecasted Cash Flow Statement*

<b>Fiscal Years Ending Dec. 31</b>	<b>2023E</b>	<b>2024E</b>	<b>2025E</b>	<b>2026E</b>	<b>2027E</b>	<b>2028E</b>	<b>2029E</b>	<b>2030E</b>	<b>2031E</b>	<b>2032E</b>
<b>Net Income</b>	90,894	99,943	110,254	121,417	133,701	147,336	157,723	168,955	181,208	194,565
<b>Adjustments from OP activities</b>										
Depreciation & Amortization	12,414	12,006	11,815	11,782	11,861	12,024	12,249	12,520	12,828	13,165
Accounts Receivable	(1,222)	(2,335)	(2,545)	(2,776)	(3,030)	(3,309)	(2,438)	(2,597)	(2,766)	(2,946)
Inventories	(708)	(385)	(414)	(445)	(479)	(515)	(377)	(398)	(420)	(444)
Vendor Non Trade Receivables	432	(2,566)	(2,797)	(3,051)	(3,330)	(3,636)	(2,680)	(2,854)	(3,040)	(3,238)
Other Current Assets	(961)	(1,005)	(1,050)	(1,098)	(1,147)	(1,199)	(1,254)	(1,310)	(1,370)	(1,432)
Other Non Current Assets	1,089	1,067	1,045	1,025	1,004	984	964	945	926	908
Accounts Payable	(673)	4,316	4,641	4,993	5,373	5,784	4,230	4,468	4,718	4,982
Deferred Revenue	1,024	709	773	844	921	1,005	741	789	841	895
Other Current Liabilities	(5,712)	4,377	4,772	5,205	5,681	6,204	4,572	4,869	5,186	5,524
Other Non Current Liabilities	(2,948)	2,345	2,556	2,788	3,043	3,324	2,449	2,609	2,778	2,959
Taxes Payable	(5,552)	(5,552)	(5,552)	-	-	-	-	-	-	-
<b>Net Cash provided by Operating Activities</b>	<b>88,075</b>	<b>112,922</b>	<b>123,500</b>	<b>140,683</b>	<b>153,598</b>	<b>168,001</b>	<b>176,179</b>	<b>187,995</b>	<b>200,889</b>	<b>214,939</b>
<b>Investing Activities</b>										
Property, Plant, & Equipment	(11,029)	(11,360)	(11,701)	(12,052)	(12,414)	(12,786)	(13,169)	(13,565)	(13,972)	(14,391)
Marketable Securities	(5,528)	(5,738)	(5,956)	(6,182)	(6,417)	(6,661)	(6,914)	(7,177)	(7,449)	(7,732)
<b>Cash Used For Investing Activities</b>	<b>(16,557)</b>	<b>(17,098)</b>	<b>(17,657)</b>	<b>(18,234)</b>	<b>(18,830)</b>	<b>(19,447)</b>	<b>(20,083)</b>	<b>(20,741)</b>	<b>(21,421)</b>	<b>(22,123)</b>
<b>Financing Activities</b>										
Commercial Paper	(1,807)	574	621	673	729	790	616	653	693	736
Term Debt	2,641	(2,010)	2,900	5,304	7,626	10,716	14,520	17,385	21,641	26,739
Cash from ESOP	11,543	11,543	6,926	-	-	-	-	-	-	-
Cash Paid for Dividends	(15,146)	(15,492)	(15,779)	(16,783)	(17,770)	(18,795)	(19,861)	(21,005)	(22,235)	(23,558)
Cash Paid for share repurchases	(82,500)	(90,000)	(95,000)	(100,000)	(105,000)	(110,000)	(110,000)	(110,000)	(110,000)	(110,000)
<b>Cash provided used for Financing Activities</b>	<b>(85,270)</b>	<b>(95,386)</b>	<b>(100,332)</b>	<b>(110,807)</b>	<b>(114,415)</b>	<b>(117,289)</b>	<b>(114,725)</b>	<b>(112,966)</b>	<b>(109,900)</b>	<b>(106,084)</b>
Beginning Cash	23,646	9,895	10,333	15,844	27,487	47,839	79,104	120,475	174,762	244,331
Increase in Cash	(13,751)	438	5,511	11,643	20,353	31,265	41,371	54,288	69,569	86,732
<b>Ending Cash</b>	<b>9,895</b>	<b>10,333</b>	<b>15,844</b>	<b>27,487</b>	<b>47,839</b>	<b>79,104</b>	<b>120,475</b>	<b>174,762</b>	<b>244,331</b>	<b>331,063</b>

# Apple

## Common Size Income Statement

<i>Fiscal Years Ending Dec. 31</i>	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Net Sales:													
Products	80.41%	81.30%	80.19%	78.14%	77.32%	76.48%	75.63%	74.77%	73.90%	73.31%	72.72%	72.13%	71.53%
Services	19.59%	18.70%	19.81%	21.86%	22.68%	23.52%	24.37%	25.23%	26.10%	26.69%	27.28%	27.87%	28.47%
Total Net Sales	274,515	365,817	394,328	389,540	420,467	454,181	490,956	531,091	574,922	607,223	641,624	678,265	717,295
Cost of Sales:													
Cost of sales - products	64.06%	61.23%	60.55%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%	63.45%
Cost of sales - services	31.77%	28.67%	26.85%	27.76%	27.76%	27.76%	27.76%	27.76%	27.76%	27.76%	27.76%	27.76%	27.76%
Total Cost of Sales	57.74%	55.14%	53.87%	55.65%	55.35%	55.05%	54.75%	54.44%	54.13%	53.92%	53.71%	53.50%	53.29%
Depreciation & Amortization	4.03%	3.08%	2.82%	3.19%	2.86%	2.60%	2.40%	2.23%	2.09%	2.02%	1.95%	1.89%	1.84%
<b>Gross Margin</b>	<b>38.23%</b>	<b>41.78%</b>	<b>43.31%</b>	<b>41.17%</b>	<b>41.79%</b>	<b>42.34%</b>	<b>42.85%</b>	<b>43.32%</b>	<b>43.78%</b>	<b>44.06%</b>	<b>44.34%</b>	<b>44.61%</b>	<b>44.88%</b>
Operating expenses:													
Research & development expense	6.83%	5.99%	6.66%	6.99%	6.99%	6.99%	6.99%	6.99%	6.99%	6.99%	6.99%	6.99%	6.99%
Selling, general & administrative expense	7.25%	6.01%	6.36%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%	6.54%
<b>Total operating expenses</b>	<b>14.09%</b>	<b>12.00%</b>	<b>13.02%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>	<b>13.53%</b>
Operating Income	24.15%	29.78%	30.29%	27.63%	28.26%	28.81%	29.32%	29.79%	30.24%	30.53%	30.80%	31.07%	31.34%
Interest & dividend income	1.37%	0.78%	0.72%	1.65%	1.45%	1.40%	1.38%	1.40%	1.47%	1.63%	1.83%	2.08%	2.37%
Interest expense	1.05%	0.72%	0.74%	1.37%	1.28%	1.17%	1.11%	1.08%	1.06%	1.09%	1.14%	1.19%	1.27%
Other Income (Expense), Net	-0.03%	0.02%	-0.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Income before provision for income taxes	24.44%	29.85%	30.20%	27.91%	28.43%	29.04%	29.58%	30.11%	30.65%	31.07%	31.50%	31.96%	32.45%
Provision for (benefit from) income taxes	3.53%	3.97%	4.89%	4.58%	4.66%	4.76%	4.85%	4.94%	5.03%	5.10%	5.17%	5.24%	5.32%
<b>Net income</b>	<b>20.91%</b>	<b>25.88%</b>	<b>25.31%</b>	<b>23.33%</b>	<b>23.77%</b>	<b>24.28%</b>	<b>24.73%</b>	<b>25.17%</b>	<b>25.63%</b>	<b>25.97%</b>	<b>26.33%</b>	<b>26.72%</b>	<b>27.12%</b>

Apple  
Common Size Balance Sheet

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Current assets:													
Cash and cash equivalents	13.85%	9.55%	6.00%	2.54%	2.46%	3.49%	5.60%	9.01%	13.76%	19.84%	27.24%	36.02%	46.15%
Marketable securities	19.28%	7.57%	6.25%	6.57%	6.32%	6.07%	5.83%	5.59%	5.36%	5.27%	5.18%	5.09%	4.99%
Accounts receiveable, net	5.87%	7.18%	7.15%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%
Inventories	1.48%	1.80%	1.25%	1.45%	1.44%	1.42%	1.40%	1.39%	1.37%	1.36%	1.35%	1.34%	1.33%
Deferred tax assets	-	-	-	-	-	-	-	-	-	-	-	-	-
Vendor non-trade receivbles	7.77%	6.90%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%	8.30%
Other current assests	4.10%	3.86%	5.38%	5.69%	5.51%	5.34%	5.16%	4.99%	4.82%	4.77%	4.71%	4.66%	4.61%
Total current assets	52.35%	36.86%	34.34%	32.10%	31.57%	32.16%	33.84%	36.82%	41.16%	47.08%	54.33%	62.95%	72.93%
Non-current assets:													
Marketable securities	36.75%	34.96%	30.64%	32.19%	30.96%	29.75%	28.56%	27.41%	26.28%	25.83%	25.37%	24.92%	24.45%
Property, plant & equipment, gross	37.71%	29.99%	29.03%	32.21%	32.55%	32.71%	32.71%	32.58%	32.32%	32.77%	33.12%	33.39%	33.58%
Accumulated depreciation & amortization	24.32%	19.21%	18.35%	21.76%	23.01%	23.91%	24.51%	24.90%	25.09%	25.77%	26.34%	26.81%	27.19%
Property, plant & equipment, net	13.39%	10.78%	10.68%	10.46%	9.53%	8.80%	8.20%	7.68%	7.23%	7.00%	6.78%	6.59%	6.40%
Goodwill	-	-	-	-	-	-	-	-	-	-	-	-	-
Acquired intangible assets, net	-	-	-	-	-	-	-	-	-	-	-	-	-
Other non-current assets	15.49%	13.35%	13.80%	13.69%	12.43%	11.28%	10.23%	9.26%	8.39%	7.78%	7.22%	6.69%	6.20%
Total non-current assets	65.63%	59.09%	55.12%	56.34%	52.92%	49.83%	46.99%	44.35%	41.90%	40.61%	39.37%	38.19%	37.05%
Total assets	117.99%	95.95%	89.46%	88.44%	84.49%	81.99%	80.83%	81.18%	83.05%	87.69%	93.70%	101.15%	109.98%
Liabilities													
Current liabilities:													
Accounts payable	15.41%	14.97%	16.26%	16.29%	16.11%	15.94%	15.76%	15.58%	15.40%	15.28%	15.16%	15.03%	14.91%
Commercial Paper	1.82%	1.64%	2.53%	2.10%	2.08%	2.06%	2.05%	2.03%	2.01%	2.01%	2.00%	1.99%	1.99%
Deferred revenue	2.42%	2.08%	2.01%	2.29%	2.29%	2.29%	2.29%	2.29%	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%	14.15%	14.15%	14.15%	14.15%	14.15%
Current portion of long-term debt	3.20%	2.63%	2.82%	2.51%	2.42%	2.19%	2.09%	2.02%	1.99%	2.05%	2.15%	2.27%	2.42%
Total current liabilities	38.39%	34.30%	39.05%	37.35%	37.07%	36.64%	36.35%	36.08%	35.85%	35.78%	35.75%	35.74%	35.77%
Non-current liabilities:													
Term debt	35.94%	29.83%	25.10%	26.42%	23.91%	22.83%	22.13%	21.80%	21.88%	22.95%	24.22%	25.86%	27.91%
Long-term taxes payable	10.26%	6.75%	4.22%	2.85%	1.32%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Deferred revenue	-	-	-	-	-	-	-	-	-	-	-	-	-
Other non-current liabilities	9.59%	7.83%	8.24%	7.58%	7.58%	7.58%	7.58%	7.58%	7.58%	7.58%	7.58%	7.58%	7.58%
Total non-current liabilities	55.79%	44.40%	37.56%	36.86%	32.81%	30.41%	29.72%	29.39%	29.46%	30.53%	31.80%	33.45%	35.49%
Total liabilities	94.18%	78.70%	76.61%	74.20%	69.88%	67.05%	66.06%	65.47%	65.32%	66.31%	67.55%	69.19%	71.26%
Shareholders' equity:													
Common stock	18.50%	15.68%	16.45%	19.61%	20.91%	20.89%	19.32%	17.86%	16.50%	15.62%	14.78%	13.99%	13.22%
Retained earnings	5.45%	1.52%	-0.78%	-2.52%	-3.66%	-3.50%	-2.29%	-0.06%	3.17%	7.59%	13.10%	19.61%	27.05%
Cumulative foreign currency translation	-0.50%	-	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Unrecognized gains (losses) on derivative instruments	-0.32%	-	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Unrealized gains (losses) on marketable securities	0.67%	-	-	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Accumulated other comprehensive income/(loss)	-0.15%	0.04%	-2.82%	-2.85%	-2.64%	-2.45%	-2.26%	-2.09%	-1.93%	-1.83%	-1.73%	-1.64%	-1.55%
Total shareholders' equity	23.80%	17.25%	12.85%	14.24%	14.62%	14.94%	14.77%	15.71%	17.73%	21.38%	26.15%	31.96%	38.72%
Total liabilities and shareholders' equity	117.99%	95.95%	89.46%	88.44%	84.49%	81.99%	80.83%	81.18%	83.05%	87.69%	93.70%	101.15%	109.98%

Apple

Value Driver Estimation

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
NOPLAT:													
Net Sales:	274,515	365,817	394,328	389,540	420,467	454,181	490,956	531,091	574,922	607,223	641,624	678,265	717,295
Cost of sales	158,503	201,697	212,442	216,762	232,737	250,043	268,801	289,142	311,213	327,423	344,622	362,872	382,237
Depreciation & amortization	11,056	11,284	11,104	12,414	12,006	11,815	11,782	11,861	12,024	12,249	12,520	12,828	13,165
Research & development expense	18,752	21,914	26,251	27,240	29,403	31,760	34,332	37,138	40,203	42,462	44,868	47,430	50,159
Selling, general & administrative expense	19,916	21,973	25,094	25,483	27,506	29,711	32,117	34,743	37,610	39,723	41,973	44,370	46,924
Plus: Implied interest on operating leases	414	406	479	508	491	483	482	485	492	501	512	525	538
EBITA:	66,702	109,355	119,916	108,149	119,307	131,334	144,406	158,692	174,363	185,867	198,153	211,290	225,348
Provision for income taxes:	9,680	14,527	19,300	17,831	19,606	21,629	23,819	26,228	28,903	30,941	33,144	35,548	38,168
Add: Tax shield on interest expense	513	469	564	1,027	1,034	1,022	1,052	1,103	1,175	1,273	1,403	1,557	1,748
Add: Tax shield on operating lease interest	74	72	92	98	94	93	93	93	95	96	98	101	104
Less: Other income/expense net	(16)	11	(44)	-	-	-	-	-	-	-	-	-	-
Less: Tax on Interest/ Investment income	672	504	543	1,236	1,176	1,221	1,304	1,435	1,630	1,907	2,260	2,709	3,272
Total Adjusted Taxes:	9,610	14,553	19,456	17,720	19,559	21,523	23,659	25,990	28,542	30,403	32,386	34,497	36,748
Change in deferred taxes:	(1,375)	(3,481)	(8,032)	(5,552)	(5,552)	(5,552)	-	-	-	-	-	-	-
NOPLAT:	55,716	91,321	92,428	84,877	94,195	104,258	120,747	132,701	145,821	155,464	165,768	176,793	188,600
													0.1097999
Invested Capital (IC):													
Operating Current Assets													
Normal cash	16,461	21,936	23,646	23,359	25,213	27,235	29,440	31,847	34,475	36,412	38,475	40,672	43,013
Accounts receivable, net	16,120	26,278	28,184	29,406	31,741	34,286	37,062	40,092	43,400	45,839	48,436	51,202	54,148
Inventories	4,061	6,580	4,946	5,654	6,039	6,452	6,897	7,376	7,892	8,269	8,667	9,087	9,531
Vendor non-trade receiveables	21,325	25,228	32,748	32,316	34,882	37,679	40,730	44,059	47,696	50,375	53,229	56,269	59,507
Other current assets	11,264	14,111	21,223	22,184	23,189	24,239	25,336	26,483	27,683	28,936	30,247	31,616	33,048
Total operating current assets	69,231	94,133	110,747	112,919	121,063	129,891	139,465	149,858	161,146	169,831	179,053	188,847	199,247
Operating Current Liabilities													
Accounts payable	42,296	54,763	64,115	63,442	67,758	72,399	77,392	82,765	88,549	92,779	97,247	101,965	106,947
Deferred revenue	6,643	7,612	7,912	8,936	9,645	10,419	11,262	12,183	13,188	13,929	14,718	15,559	16,454
Total operating current liabilities	48,939	62,375	72,027	72,378	77,403	82,818	88,655	94,948	101,738	106,709	111,965	117,524	123,402
Net Operating Working Capital	20,292	31,758	38,720	40,542	43,660	47,073	50,811	54,910	59,408	63,123	67,088	71,323	75,845
Non-Current operating assets													
Property, plant & equipment, net	36,766	39,440	42,117	40,732	40,087	39,972	40,242	40,795	41,556	42,477	43,522	44,665	45,891
Acquired intangible assets	-	-	-	-	-	-	-	-	-	-	-	-	-
PV of operating leases	8,201	9,670	10,247	9,910	9,753	9,725	9,791	9,925	10,111	10,335	10,589	10,867	11,165
Total non-current opearting assets	44,967	49,110	52,364	50,642	49,840	49,697	50,033	50,720	51,667	52,812	54,110	55,532	57,056
Non-Current operating liabilities													
Deferred revenue													
Invested Capital	65,260	80,868	91,084	91,184	93,500	96,770	100,844	105,629	111,075	115,934	121,199	126,855	132,901
Free Cash Flow (FCF):													
NOPLAT	55,716	91,321	92,428	84,877	94,195	104,258	120,747	132,701	145,821	155,464	165,768	176,793	188,600
Change in IC	(6,574)	15,608	10,216	100	2,316	3,270	4,074	4,785	5,446	4,859	5,264	5,656	6,046
FCF	62,290	75,713	82,212	84,777	91,879	100,988	116,673	127,916	140,375	150,605	160,503	171,137	182,553
Return on Invested Capital (ROIC):													
NOPLAT	55,716	91,321	92,428	84,877	94,195	104,258	120,747	132,701	145,821	155,464	165,768	176,793	188,600
Beginning IC	71,833	65,260	80,868	91,084	91,184	93,500	96,770	100,844	105,629	111,075	115,934	121,199	126,855
ROIC	77.56%	139.94%	114.29%	93.19%	103.30%	111.51%	124.78%	131.59%	138.05%	139.96%	142.98%	145.87%	148.67%
Economic Profit (EP):													
Beginning IC	71,833	65,260	80,868	91,084	91,184	93,500	96,770	100,844	105,629	111,075	115,934	121,199	126,855
x (ROIC - WACC)	67.28%	129.65%	104.01%	82.90%	93.01%	101.22%	114.49%	121.30%	127.76%	129.68%	132.70%	135.58%	138.39%
EP	48,326.55	84,607.63	84,108.69	75,506.87	84,814.62	94,639.97	110,791.83	122,327.16	134,954.31	144,037.80	153,841.29	164,324.88	175,549.90

Apple

Weighted Average Cost of Capital (WACC) Estimation

Cost of Equity:

Risk-Free Rate	3.82%
Beta	1.24
Equity Risk Premium	5.50%
Cost of Equity	10.64%

ASSUMPTIONS:

10-yr treasury bond  
Avg of 1,3,5 year weekly beta  
Henry Fund Estimate

Cost of Debt:

Risk-Free Rate	3.82%
Implied Default Premium	1.13%
Pre-Tax Cost of Debt	4.95%
Marginal Tax Rate	19.23%
After-Tax Cost of Debt	4.00%

10-yr treasury bond  
  
YTM on company's outstanding debt with 2060 maturity da

Market Value of Common Equity:

Total Shares Outstanding	15,821,946,000.00
Current Stock Price	\$146.73
MV of Equity	2,321,554,136,580.00

MV Weights

94.69%

Market Value of Debt:

Short-Term Debt	9982
Current Portion of LTD	11128
Long-Term Debt	98959
PV of Operating Leases	10247
MV of Total Debt	130,315,981,177.91

5.31%

Market Value of the Firm

2,451,870,117,757.91 100.00%

Estimated WACC

10.29%



## Apple

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

Key Inputs:

CV Growth of NOPLAT	4.50%
CV Year ROIC	148.67%
WACC	10.29%
Cost of Equity	10.64%

<i>Fiscal Years Ending Dec. 31</i>	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
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**DCF Model:**

Free Cash Flow (FCF)	84776.7	91879.1	100988.4	116672.7	127916.0	140374.9	150604.8	160503.5	171136.6	182553.2
Continuing Value (CV)										3160290.7
PV of FCF	76869.0	75538.2	75282.9	78862.3	78397.1	78008.1	75886.4	73330.5	70895.4	1309189.0

Value of Operating Assets:	1,992,258.9
Non-Operating Adjustments	
Excess Cash	-
Marketable Securities	145,463.0
Other non-current Assets	54,428.0
Commercial Paper	(9,982.0)
Current portion of LT Debt	(11,128.0)
Long Term Debt	(98,959.0)
PV of ESOP	(30,322.0)
PV of Operating Leases	(10,247.0)
Value of Equity	2031511.9
Shares Outstanding	15943.4
Intrinsic Value of Last FYE	\$ 127.42
<b>Implied Price as of Today</b>	<b>\$ 132.79</b>

**EP Model:**

Economic Profit (EP)	75506.9	84814.6	94640.0	110791.8	122327.2	134954.3	144037.8	153841.3	164324.9	175549.9
Continuing Value (CV)										3033435.9
PV of EP	68463.9	69730.2	70550.4	74887.2	74971.8	74995.8	72577.5	70286.7	68073.6	1256637.8

Total PV of EP	1,901,174.9
Invested Capital (last FYE)	91,084.0
Value of Operating Assets:	1,992,258.9
Non-Operating Adjustments	
Excess Cash	-
Marketable Securities	145,463.0
Other non-current Assets	54,428.0
Commercial Paper	(9,982.0)
Current portion of LT Debt	(11,128.0)
Long Term Debt	(98,959.0)
PV of ESOP	(30,322.0)
Pv of Operating Leases	(10,247.0)
Value of Equity	2,031,511.9
Shares Outstanding	15943.4
Intrinsic Value of Last FYE	\$ 127.42
<b>Implied Price as of Today</b>	<b>\$ 132.79</b>

Apple

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

Fiscal Years Ending Dec. 31	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
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EPS	\$	5.78	\$	6.55	\$	7.46	\$	8.52	\$	9.75	\$	11.18	\$	12.45	\$	13.86	\$	15.44	\$	17.21
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Key Assumptions

CV growth of EPS	5.50%
CV Year ROE	89.77%
Cost of Equity	10.64%

Future Cash Flows

P/E Multiple (CV Year)																				18.26
EPS (CV Year)																				17.20825
Future Stock Price																				\$ 314.28
Dividends Per Share	0.95	1.00	1.05	1.16	1.27	1.40	1.54	1.69	1.86											
Discounted Cash Flows	0.86	0.82	0.78	0.77	0.77	0.76	0.76	0.75	0.75	126.50										

Intrinsic Value as of Last FYE	\$	133.51
Implied Price as of Today	\$	139.14

Apple

Relative Valuation Models

Ticker	Company	Price	EPS 2023E	EPS 2024E	P/E 23	P/E 24
005930.KS	Samsung	\$45.90	\$1.66	\$3.56	27.73	12.89
DELL	Dell Technologies Inc	\$41.61	\$3.33	\$3.12	12.50	13.34
HPQ	HP Inc.	\$29.22	\$2.53	\$3.40	11.55	8.59
GOOG	Alphabet Inc.	\$89.13	\$5.15	\$6.15	17.31	14.49
META	Meta Platforms, Inc.	\$174.53	\$9.56	\$11.65	18.26	14.98
MSFT	Microsoft	\$249.22	\$9.32	\$10.79	26.74	23.10
Average					19.01	14.56

AAPL Apple \$146.73 5.78 6.55 25.4 22.4

Implied Relative Value:

P/E (EPS23) \$ 109.95

P/E (EPS24) \$ 95.39

**Apple***Present Value of Operating Lease Obligations*

<b>Fiscal Years Ending Dec. 31</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>
Year 1	610.0	662.0	772.0	929.0	1223.0	1298.0	1306.0	1493.0	1629.0	1758.0
Year 2	600.0	660.5	759.0	917.0	1147.5	1253.5	1206.5	1461.0	1560.0	1742.0
Year 3	600.0	660.5	759.0	917.0	1147.5	1253.5	1206.5	1317.0	1499.0	1677.0
Year 4	528.0	563.5	694.5	862.5	952.0	919.0	873.0	1068.0	1251.0	1382.0
Year 5	528.0	563.5	694.5	862.5	952.0	919.0	873.0	960.0	1061.0	1143.0
Thereafter	1855.0	1877.0	2592.0	3139.0	4123.0	3984.0	5373.0	3845.0	5187.0	5080.0
Total Minimum Payments	4721.0	4987.0	6271.0	7627.0	9545.0	9627.0	10838.0	10144.0	12187.0	12782.0
Less: Cumulative Interest	918.9	949.7	1254.6	1522.1	1962.3	1934.4	2488.0	1942.9	2517.5	2535.0
<b>PV of Minimum Payments</b>	<b>3802.1</b>	<b>4037.3</b>	<b>5016.4</b>	<b>6104.9</b>	<b>7582.7</b>	<b>7692.6</b>	<b>8350.0</b>	<b>8201.1</b>	<b>9669.5</b>	<b>10247.0</b>
<b>Implied Interest in Year 1 Payment</b>		<b>188.4</b>	<b>200.0</b>	<b>248.5</b>	<b>302.4</b>	<b>375.6</b>	<b>381.1</b>	<b>413.7</b>	<b>406.3</b>	<b>479.0</b>
Pre-Tax Cost of Debt	4.95%	4.95%	4.95%	4.95%	4.95%	4.95%	4.95%	4.95%	4.95%	4.95%
Years Implied by Year 6 Payment	3.5	3.3	3.7	3.6	4.3	4.3	6.2	4.0	4.9	4.4
Expected Obligation in Year 6 & Beyond	528	563.5	694.5	862.5	952	919	873	960	1061	1143
Present Value of Lease Payments										
PV of Year 1	581.2	630.8	735.6	885.1	1165.3	1236.7	1244.4	1422.5	1552.1	1675.0
PV of Year 2	544.7	599.6	689.0	832.5	1041.7	1138.0	1095.3	1326.3	1416.2	1581.4
PV of Year 3	519.0	571.3	656.5	793.2	992.6	1084.2	1043.6	1139.2	1296.6	1450.6
PV of Year 4	435.1	464.4	572.4	710.8	784.6	757.4	719.5	880.2	1031.0	1139.0
PV of Year 5	414.6	442.5	545.4	677.3	747.6	721.6	685.5	753.8	833.1	897.5
PV of 6 & beyond	1307.5	1328.7	1817.6	2206.0	2851.0	2754.6	3561.7	2679.1	3540.5	3503.5
Capitalized PV of Payments	3802.1	4037.3	5016.4	6104.9	7582.7	7692.6	8350.0	8201.1	9669.5	10247.0



Apple

Effects of ESOP Exercise and Share Repurchases on Common Stock Account and Number of Shares Outstanding

Number of Options Outstanding (shares):	233,368
Average Time to Maturity (years):	2.60
Expected Annual Number of Options Exercised:	89,757
Current Average Strike Price:	\$ 128.60
Cost of Equity:	7.00%
Current Stock Price:	\$152.55

Fiscal Years Ending Dec. 31	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
Increase in Shares Outstanding:	89,757	89,757	53,854							
Average Strike Price:	\$ 128.60	\$ 128.60	\$ 128.60							
Increase in Common Stock Account:	11,542,740	11,542,740	6,925,644	-	-	-	-	-	-	-
Share Repurchases (\$)	82,500,000.00	90,000,000	95,000,000	100,000,000	105,000,000	110,000,000	110,000,000	110,000,000	110,000,000	110,000,000
Expected Price of Repurchased Shares:	\$152.55	\$ 162.27	\$ 172.60	\$ 183.60	\$ 195.29	\$ 207.73	\$ 220.97	\$ 235.04	\$ 250.01	\$ 265.94
Number of Shares Repurchased:	540,806	554,640	550,393	544,666	537,651	529,523	497,812	468,001	439,974	413,626
Shares Outstanding (beginning of the year)	15,943,425	15,492,376	15,027,493	14,530,954	13,986,287	13,448,637	12,919,114	12,421,302	11,953,301	11,513,327
Plus: Shares Issued Through ESOP	89,757	89,757	53,854	0	0	0	0	0	0	0
Less: Shares Repurchased in Treasury	540,806	554,640	550,393	544,666	537,651	529,523	497,812	468,001	439,974	413,626
Shares Outstanding (end of the year)	15,492,376	15,027,493	14,530,954	13,986,287	13,448,637	12,919,114	12,421,302	11,953,301	11,513,327	11,099,701

Apple

Valuation of Options Granted under ESOP

Current Stock Price	\$152.55
Risk Free Rate	3.80%
Current Dividend Yield	0.60%
Annualized St. Dev. of Stock Returns	29.00%

Range of Outstanding Options	Number of Shares	Average Exercise Price	Average Remaining Life (yrs)	B-S Option Price	Value of Options Granted
Range 1	233,368		2.60	\$ 128.62	\$ 30,322
Total	233,368	\$ -	2.60	#DIV/0!	\$ 30,322

Apple  
Key Management Ratios

Fiscal Years Ending Dec. 31	2020	2021	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E
<b>Liquidity Ratios:</b>													
Current Ratio (Current Assets/Current Liab)	1.36	1.07	0.88	0.86	0.85	0.88	0.93	1.02	1.15	1.32	1.52	1.76	2.04
Quick Ratio (Cash+Mk securities + AR) /Current Liab	1.02	0.71	0.50	0.45	0.44	0.47	0.52	0.61	0.74	0.91	1.12	1.36	1.64
Operating Cash Flow Ratio (Op CF/Current Liab)	0.77	0.83	0.79	0.61	0.72	0.74	0.79	0.80	0.82	0.81	0.82	0.83	0.84
<b>Asset-Management Ratios:</b>													
Inventory Turnover (COGS Products / Avg Invetory)	34.63	34.22	33.22	36.44	35.28	35.29	35.29	35.30	35.31	34.95	34.96	34.97	34.97
Days Sales in Invetory (365/Inventory turnover ratio)	10.54	10.67	10.99	10.02	10.35	10.34	10.34	10.34	10.34	10.44	10.44	10.44	10.44
Asset Turnover (Net Sales/Avg Total Assets)	0.83	1.08	1.12	1.12	1.20	1.25	1.28	1.28	1.27	1.20	1.13	1.05	0.97
Receivables Turnover (Net Sales/ Avg Accounts Receivable)	14.06	17.26	14.48	13.53	13.75	13.76	13.76	13.77	13.77	13.61	13.61	13.61	13.62
<b>Financial Leverage Ratios:</b>													
Debt Ratio (Total Liabilities/Total Assets)	0.80	0.82	0.86	0.84	0.83	0.82	0.82	0.81	0.79	0.76	0.72	0.68	0.65
Deb to Equity Ratio (Total Debt/ Shareholder's Equity)	1.85	2.13	2.57	2.18	1.94	1.81	1.78	1.65	1.46	1.26	1.08	0.94	0.83
Interest Coverage Ratio (Operating Income/ Interest Expenses)	23.07	41.19	40.75	20.15	22.08	24.61	26.30	27.57	28.45	27.99	27.09	26.02	24.72
<b>Profitability Ratios:</b>													
Return on Equity (NI/Beg TSE)	63.45%	144.91%	158.19%	179.38%	180.20%	179.40%	178.93%	184.44%	176.62%	154.69%	130.14%	108.01%	89.77%
Return on Assets (NI/Avg Total Assets)	17.33%	28.06%	28.36%	26.07%	28.56%	30.30%	31.57%	32.30%	32.43%	31.23%	29.81%	28.15%	26.38%
Operating Margin (Operating Income/Sales)	24.15%	29.78%	30.29%	27.63%	28.26%	28.81%	29.32%	29.79%	30.24%	30.53%	30.80%	31.07%	31.34%
Net Margin (NI/Sales)	20.91%	25.88%	25.31%	23.33%	23.77%	24.28%	24.73%	25.17%	25.63%	25.97%	26.33%	26.72%	27.12%
<b>Payout Policy Ratios:</b>													
Dividend Payout Ratio	24.02%	14.99%	14.63%	16.43%	15.27%	14.07%	13.56%	13.04%	12.51%	12.35%	12.20%	12.04%	11.89%
Total Payout Ratio ((Divs. + Repurchases)/NI)	126.04%	90.80%	89.58%	90.77%	90.05%	86.17%	82.36%	78.53%	74.66%	69.74%	65.11%	60.70%	56.54%
Earnings Retention Ratio (1-Total Payout Ratio)	-26.04%	9.20%	10.42%	9.23%	9.95%	13.83%	17.64%	21.47%	25.34%	30.26%	34.89%	39.30%	43.46%

**Apple**  
Sensitivity Tables

Equity Risk Premium	Beta							
	132.79	1.00	1.05	1.15	1.24	1.40	1.55	1.70
	5.00%	189.92	179.35	161.36	147.98	128.95	115.06	103.87
	5.20%	181.37	171.33	154.23	141.51	123.39	110.16	99.49
	5.35%	175.44	165.76	149.29	137.01	119.53	106.74	96.43
	5.50%	169.88	160.55	144.64	132.79	115.89	103.54	93.56
	5.65%	164.66	155.65	140.28	128.82	112.48	100.52	90.86
	5.80%	159.75	151.04	136.17	125.08	109.26	97.67	88.31
	6.00%	153.64	145.30	131.06	120.42	105.24	94.11	85.12

Cost of Debt	Marginal Tax Rate							
	132.79	0.18	0.18	0.19	0.19	0.20	0.20	0.21
	4.25%	133.37	133.41	133.44	133.47	133.48	133.51	133.54
	4.55%	133.08	133.12	133.15	133.18	133.19	133.22	133.25
	4.75%	132.88	132.93	132.96	132.99	133.00	133.03	133.06
	4.95%	132.69	132.73	132.77	132.80	132.81	132.84	132.88
	5.20%	132.45	132.49	132.53	132.56	132.58	132.61	132.64
	5.40%	132.25	132.30	132.34	132.37	132.39	132.42	132.46
	5.60%	132.06	132.11	132.15	132.18	132.20	132.23	132.27

SG&A	COGS Products							
	132.79	0.61	0.63	0.63	0.63	0.64	0.65	0.66
	5.25%	146.36	139.93	139.93	138.49	136.72	133.50	130.29
	5.75%	144.15	137.72	137.72	136.28	134.51	131.30	128.08
	6.25%	141.95	135.52	135.52	134.07	132.30	129.09	125.88
	6.54%	140.67	134.24	134.24	132.79	131.02	127.81	124.60
	7.00%	138.64	132.21	132.21	130.76	128.99	125.78	122.56
	7.50%	136.43	130.00	130.00	128.55	126.79	123.57	120.36
	8.00%	134.22	127.79	127.79	126.35	124.58	121.37	118.15

Cost of Equity	DDM	CV Growth of EPS						
	139.14	4.00%	4.50%	5.00%	5.50%	6.00%	6.50%	7.00%
	10.20%	122.54	131.91	143.08	156.62	173.39	194.69	222.65
	10.35%	118.48	127.27	137.70	150.29	165.77	185.27	210.59
	10.50%	114.61	122.87	132.64	144.35	158.67	176.57	199.59
	10.64%	111.18	118.98	128.17	139.14	152.48	169.04	190.16
	10.80%	107.44	114.76	123.34	133.54	145.87	161.06	180.26
	10.95%	104.10	111.00	119.07	128.61	140.08	154.12	171.73
	11.10%	100.92	107.44	115.02	123.95	134.64	147.66	163.84

WACC	CV Growth NOPLAT							
	132.79	0.030	0.035	0.040	0.045	0.050	0.055	0.060
	10.00%	120.98	126.34	132.59	139.98	148.85	159.68	173.23
	10.10%	119.16	124.32	130.32	137.39	145.85	156.16	168.97
	10.20%	117.39	122.35	128.12	134.90	142.98	152.78	164.91
	10.29%	115.84	120.64	126.20	132.72	140.48	149.86	161.42
	10.40%	113.99	118.60	123.93	130.16	137.55	146.44	157.35
	10.50%	112.36	116.81	121.93	127.91	134.98	143.46	153.83
	10.60%	110.78	115.06	120.00	125.74	132.51	140.60	150.45

R&D Expense	Cost of Debt						
	132.79	0.04	0.05	0.05	0.05	0.05	0.06
	5.50%	139.99	139.79	139.59	139.39	139.18	138.84
	6.00%	137.77	137.57	137.38	137.18	136.98	136.64
	6.50%	135.56	135.36	135.17	134.97	134.78	134.44
	6.99%	133.38	133.19	133.00	132.81	132.62	132.43
	7.50%	131.12	130.93	130.74	130.56	130.37	130.18
	8.00%	128.90	128.72	128.53	128.35	128.17	127.98
	8.50%	126.69	126.50	126.32	126.14	125.96	125.78