



Apple

ANALYSIS for NASDAQ : AAPL

APRIL 24, 2013

\$626

\$588 B MKT CAP

Trefis Estimate

\$408

\$383.1 B MKT CAP

Market Price

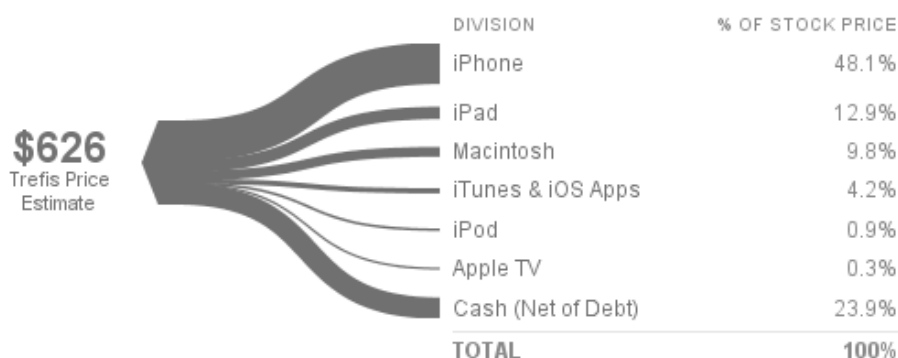
[See the Full Analysis for Apple on Trefis](#)

— CORPORATE SNAPSHOT —

Apple makes money primarily by selling mobile phones, computers, and portable media players to consumers worldwide. Apple's well known consumer products include the iPhone, Macintosh ("Mac") computers, iPad and the iPod media player. In addition to selling hardware, Apple makes money by brokering the sale of music, films, TV shows, games, and iPhone software applications through its iTunes platform.

— VALUATION HIGHLIGHTS —

1. iPhone constitutes 48% of the Trefis price estimate for Apple's stock.
2. iPad constitutes 13% of the Trefis price estimate for Apple's stock.
3. Macintosh (Desktops, Notebooks, Software & Services, Peripherals) constitutes 10% of the Trefis price estimate for Apple's stock.



[See the Interactive Valuation Breakdown on Trefis](#)

Our share price estimate and the overall company value is derived by summing-up the values of individual divisions/businesses in a sum-of-the-parts analysis. The value of each division is calculated using a discounted cash flow (DCF) methodology.

We forecast fundamental drivers like pricing, market share, and profit margins for different businesses in estimating the division's value within the DCF framework. The analysis below primarily focuses on those important forecasts that drive our share price and value estimate.

Our complete analysis, including sources of historical data, underlying equations and additional discussion are available on www.trefis.com.

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— POTENTIAL UPSIDE & DOWNSIDE TO TREFIS PRICE —

Below are key drivers of Apple's value that present opportunities for upside or downside to the current Trefis price estimate for Apple:

iPhone

- [iPhone market share](#): Apple's iPhone market share has increased at a fast rate from around 0.3% in 2007 to 8% in 2012, as per our estimates. Going forward, we expect it to continue to increase steadily to around 15% by the end of Trefis forecast period. The iPhone's unique touch screen interface, and the intuitive and user friendly features are some of the factors behind its success. Also, the updated iOS boasts many new features including the much touted voice recognition software, Siri, the iCloud, Apple's new Maps feature and the iMessage. Apple launched the iPhone 5 in September 2012 and saw record orders. It seems very likely that the latest in the iPhone series will turn out to be Apple's best-selling iPhone yet. In case one out of five mobile phones is an iPhone in the long term, or in other words, iPhone's market share increases to 20% by the end of Trefis forecast period, there could be an upside of 25% to our estimate for Apple stock. On the other hand, if Apple iPhone market share increases slowly to 10% by the end of Trefis forecast period, there could be a downside of around 11% to the Trefis price estimate for Apple stock.
- [iPhone gross margins](#): Apple's iPhone gross margins have declined in the past from 62% in 2007 to around 51% in 2010. However, Apple managed to improve its margins in 2011 to 55%, as per our estimates. Fierce competition with Android-based smartphones from Samsung, Motorola and HTC, as well as RIM, Nokia, etc, may have led to a discounting of older iPhones but component costs moved sharply in its favor to help Apple stem the decline in 2011. However, iPhone's margins seem to have resumed their declining trend by falling slightly to 53% in 2012 and we expect it to continue doing so gradually to around 34% by the end of Trefis forecast period. In case iPhone margins decline more rapidly to around 25% by the end of Trefis forecast period, there could be a downside of around 10% to our estimate for Apple stock. On the other hand, if iPhone margins decline to only around 45% over the Trefis forecast period, there could be an upside of 10% to our price estimate.

For additional details, select a driver above or select a division from the interactive Trefis split for Apple at the top of the page.

— SOURCES OF VALUE —

We believe the iPhone segment is more valuable than the Macintosh and iPod segments for two primary reasons:

Large mobile phone market

We estimate that about 1.8 billion mobile phones were sold worldwide in 2012

Peripherals Gross Profit Margin 42

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compared to 217 million notebooks, 147 million desktops, and 145 million portable media players (like iPod and Sansa). Although Apple's iPhone market share within the mobile phone market is smaller than its market shares within the PC and portable media player markets, the underlying market opportunity over the forecast period is much larger.

High iPhone profit margins

We estimate Apple's iPhone gross margins were about 53% in 2012 compared to around 29% for Macintosh.

— KEY TRENDS —

Tablet growth not cannibalizing Apple product sales

Apple already has a substantial share in the high end of the PC market with its Mac line of products, and the iPad now allows the company to tap the lower price range. The iPad Mini will allow the company to do so even more.

Although tablets are believed to have cannibalized a good chunk of PC sales, Apple's Mac sales have actually maintained a solid growth pace. Rather than cannibalizing Apple's own product sales, the iPad appears to be creating a halo effect and lifting sales for the company's other products.

Supply chain management a major risk for Apple

Companies like Apple are more concerned about component supply related issues rather than demand issues. The 2011 earthquake in Japan created quite a few headaches for Apple with regards to component supplies, as many Apple suppliers are Japanese firms. A recurrence of similar supply chain issues, not only in terms of natural disasters but also price fluctuations, poses a major risk to Apple in the future.

Smartphone software features playing a major role in their sales

Slowly the mobile phone software is becoming more important than its hardware. The mobile phone apps' selection is also an area of growth for mobile phone companies. Features like integration with social networks and multi-tasking ability are some of the features that mobile phone companies have come forward with over the last few years. Going forward, cloud-based applications will gain in importance.

Apple, Google, RIM and Nokia have been coming up with new versions of their OSes and adding new features. Samsung, which realized that they have a good hardware but not so good software, came up with their own new Bada OS to compete in the smartphone market. Apple added an innovative voice recognition software, dubbed Siri, in their iOS 5 update, which has since proved to be one of iPhone 4S' biggest selling points. Siri is also included in the recently released iPhone 5.

Touch screen smartphones gaining popularity

After Apple iPhone's success, every mobile phone vendor is bringing this feature to the market. For example, RIM recently came out with this feature with slight improvements to their touch screen interface. Samsung and Nokia

have also come up with their own touch screen smartphones.

Browser improvements to smartphones

Mobile phone companies are looking to improve browsers so as to have faster browser access along with less bandwidth consumption. Nokia acquired Novarra in this regard.

Increasing processor speeds

Apple's new A5 processor is a dual-core affair, and the company claims that it's twice as fast as its predecessor, the A4, and capable of running at up to 1GHz. Some of Qualcomm's Snapdragon processors sport an even higher 1.2 GHz speed.

Gray market proliferation hurting mobile phone companies

Emerging markets such as China, India and Africa have recently seen the growth of unlicensed and illegal mobile phone vendors that peddle their products on the gray market. Since these phones are unlicensed, they are sold at much cheaper prices. This has started to hurt the established players.

Increasing smartphone demand and competition

In June 2007, when Apple entered then nascent smartphone market with the iPhone, Nokia and RIM were the only players in this segment. iPhone's success led to the entry of other players in the market, that has seen a huge spurt in demand in the recent years. Today, consumers have a huge array of smartphones to choose from, including but not limited to the Apple iPhone, RIM's BlackBerry, Android smartphones from Samsung, HTC, etc and the demand is only going to increase from hereon.

Increasing Wi-Fi and mobile broadband availability

The increasing availability of mobile high-speed Internet access creates opportunities for smartphones to move beyond e-mail and basic Internet surfing to new competitive fields. The availability of mobile TV shows, films, games, photo sharing, software applications, and video conferencing are potential points of differentiation among smartphone competitors.

Shift from desktops to notebooks (and netbooks)

We believe that the recent shift of consumer preferences from desktops to notebooks will continue as the performance and pricing gap between desktops and notebooks narrows.

Demand for e-readers and tablet PCs

With Amazon Kindle and Apple iPad, the demand for e-readers and tablet PCs has increased at a rapid rate. The recent introduction of the Kindle Fire and the Nook tablet saw huge orders being placed during the holiday season. At the same time, RIM and Motorola met with dismal failures. We believe that the tablet market is still in a stage of infancy and as new competitors such as Dell emerge and older competitors improve on their existing tablets, the demand in this market segment is set to rise.

[See the Full Analysis for Apple on Trefis](#)

iPhone

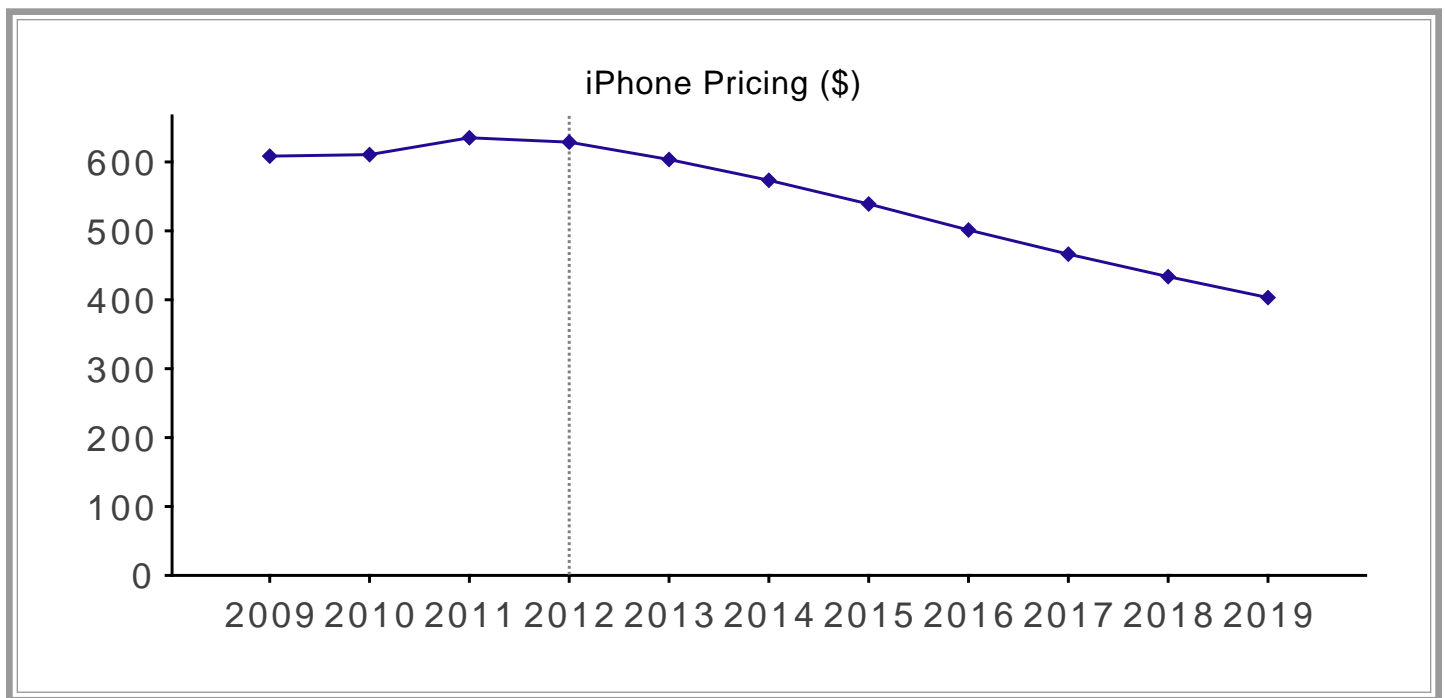
The iPhone division constitutes 48.1% of our \$626 price estimate for this stock, based on our sum of the parts analysis. The most important drivers for the iPhone business are:

- iPhone Pricing
- iPhone's Market Share in Mobile Phones
- Global Mobile Phones Sold
- iPhone Gross Profit Margin

— IPHONE PRICING —

iPhone Pricing represents the amount that Apple receives for every iPhone sold.

For consumers in the US, the iPhone 5 is priced at \$199 for the 16 GB version, \$299 for 32 GB and \$399 for the 64 GB version. These prices are arrived at after a huge subsidy of about \$450 that carriers such as AT&T, Verizon and now, Sprint offer their subscribers in return for a two year contract. So, Apple actually sells the phones in the U.S. for a much higher amount to the carriers that then discount it for their customers.



Two initial versions of the iPhone were launched in June of 2007 in the US with price points of \$499 and \$599. In addition to the purchase price of the iPhone paid by consumers, Apple initially earned subsequent revenues through a revenue share agreement with AT&T. As a result, the average revenue per iPhone that Apple captured over time for iPhones sold in 2007 is substantially higher than the sticker prices of the phones.

We estimate that iPhone Pricing declined from \$868 in 2007 to \$628 in 2012, as per our estimates. Apple is expected to lower iPhone prices over time to stimulate market share gains. We believe there is uncertainty around the size of the price reductions and the impact of a potential low-end iPhone, which would reduce the iPhone Average Price.

Even with all this uncertainty, we still believe that the iPhone pricing will decline at a slower rate initially and then undergo a fast decline as competition increases and the smartphone market matures.

Forecast Rationale

1. PRICING PRESSURE FROM COMPETITORS – Samsung, HTC, Nokia, RIM and Motorola Mobility are Apple's biggest competitors in the smartphone space. When competitors start slashing prices, Apple will be compelled to lower prices or introduce new phone features to maintain premium pricing. With an ever expanding reach, Android has fast emerged as a serious competitor among smartphone OSes. Apple also faces threat from an emergence of Windows Phones as Microsoft makes an aggressive bid on the smartphone market with its Nokia, AT&T partnership in 2012.
2. INCREASING COMMODITIZATION OF SMARTPHONES WILL BRING DOWN PRICES – As smartphones become more and more commoditized, there will be a tendency for smartphone companies to lower the smartphone prices as the lower prices will be compensated by higher subscriber growth. This hypothesis is especially true for emerging markets, where the smartphone market is still in nascent stage.
3. SLASHING PRICES OF THE OLDER IPHONES IN A BID TO ENTER MID AND LOW-END MARKETS – The iPhone 4 is now being offered for free and the iPhone 4S for a discounted price of \$99 with a two-year contract (on a subsidized basis). This is a strategy by Apple to woo mid-market buyers to ward off competition from the Android smartphones. The average price of all the iPhones sold is bound to fall with this strategy.

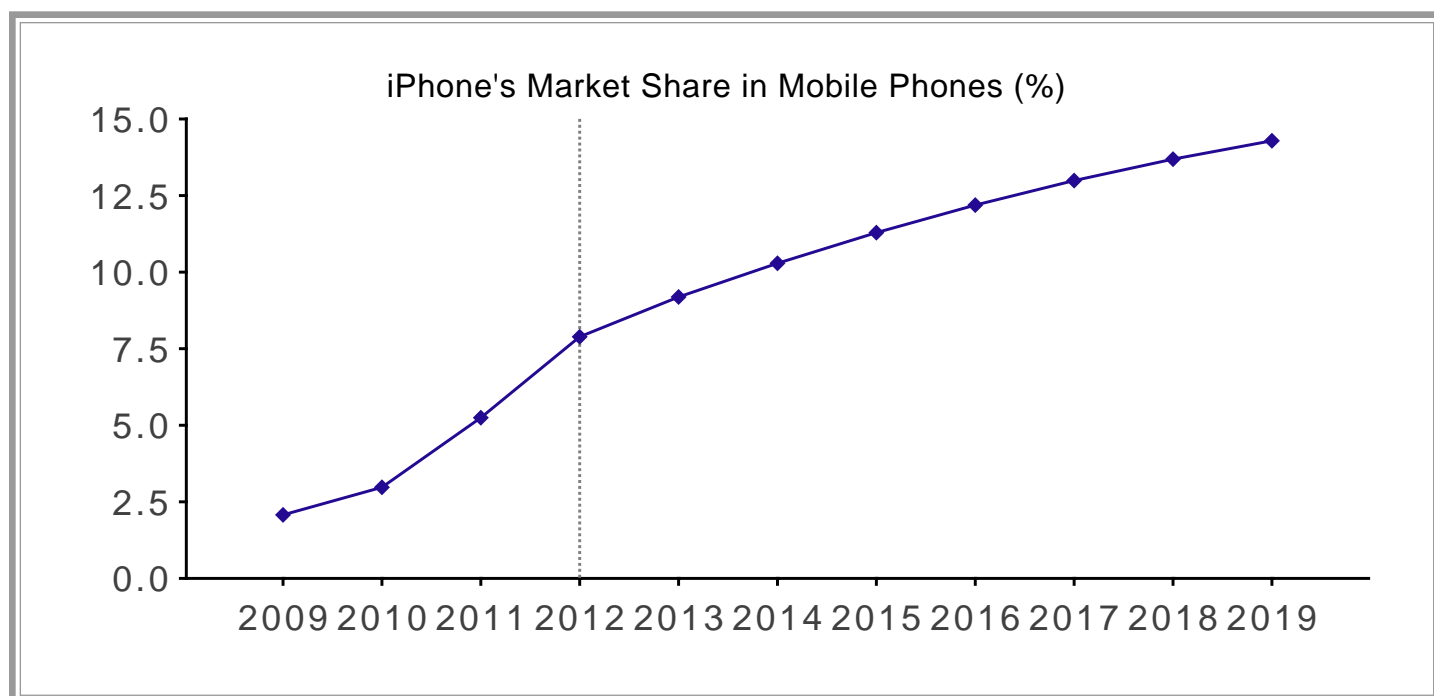
Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– IPHONE'S MARKET SHARE IN MOBILE PHONES –

iPhone's Market Share in Mobile Phones represents the number of iPhones sold as a percentage of global mobile phones sold annually. Apple's primary competitors in mobile phones are Samsung, Nokia, RIM (which makes BlackBerry phones), Motorola and HTC.

The iPhone is a smartphone having computer like features, such as:

- E-mail,
- Internet access,
- The ability to read business documents,
- A media player,
- Photo-browsing and video clip-viewing capabilities



The iPhone was launched in June 2007. iPhone's Market Share in Mobile Phones has increased from 0.3% in 2007 to about 8% in 2012, as per our estimates. Trefis forecasts that iPhone's Market Share in Mobile Phones will continue to increase at about a similar historical rate in the future as well.

Forecast Rationale

iPhone's Market Share in Mobile Phones is driven by (1) The level of penetration of smartphones within the mobile phone market and (2) iPhone's market share within the smartphone segment.

Supporting:

1. **ICLOUD SERVICE WILL INCREASE THE POPULARITY OF IPHONES** – Replacing MobileMe, Apple launched iCloud in October 2011. This new service gives user the ability to listen to music stored in the cloud (remote computers) through iPhone, iPad or Mac. Additionally, one will not be required to upload a song even if a song is not purchased through iTunes. Through iTunes Match, a service that replaces the user's music with iTunes compatible format, one can consume music through different Apple devices. These features will give much more convenience to the user in managing music files. If iCloud becomes the new model for media consumption, it could influence demand for all Apple devices in a meaningful way.
2. **IMESSAGE SERVICE TO CHALLENGE RIM'S BBM SERVICE** – Along with iCloud, Apple launched the latest update to the iOS, the iOS5, in which one of the main features was the iMessage service. iMessage is an app and is a free service similar to RIM's popular BlackBerry Messenger (BBM) service. Through this app users can chat and exchange files through Wi-fi and 3G. iMessage can make Apple devices more attractive to potential customers that have many friends and family that are already using iOS devices. This could help Apple drive iPhone and iPad sales.
3. **ADDING NEW CARRIERS IN VARIOUS COUNTRIES WILL HELP EXPAND ITS ADDRESSABLE MARKET** – Apple's iPhone 4 was launched on Verizon network in February 2011. Sprint was added later that year when the iPhone 4S was launched, and now, we have the iPhone 5 available on Sprint, AT&T and Verizon's networks. These developments have helped Apple expand its addressable market in the U.S. Verizon has more than 90 million subscribers in the U.S. with a market share of more than 30% while Sprint has a market share of around 16%. The iPhone has been launched in China on China Unicom's and China Telecom's networks. These developments, as well as a potential iPhone on China Mobile, will help Apple address a huge market in coming years.
4. **SUCCESS OF THE IPHONE 4S AND 5** – The iPhone 5 carries a faster A6 processor, the Siri voice recognition system, better battery life, 4G LTE capability, a larger 4-inch retina display and a form factor this is slimmer and lighter than the previous version. The iPhone 5 saw record orders after its announcement (likely due to its availability on three networks). The iPhone 5 is running on the new iOS 6, which is an improved operating system for Apple with several new features, most notably the Apple Maps app.
5. **EXTRAORDINARY CONSUMER-FRIENDLY INTERFACE AND FEATURES RICH PHONE** – Apple products often score high on usability and interface quality, which has been a unique selling point for them. Apple's competitors are still working to catch up with the quality of Apple's touch screen interface. The iPhone has seen continuous upgrades to its features; and scores well over other smartphones now. Functionality improvements, such as the ability to copy and paste; the ability to send photos, contacts, and audio files as well as the ability to read and compose email have made it a feature-rich smartphone. The ease-of-portability with the iPod and the Mac for data transfer has also helped it increase market share, as the consumers desire easy sync across multiple platforms.
6. **GROWING DEMAND FOR CONTINUOUS E-MAIL ACCESS DRIVING SMARTPHONE ADOPTION** – Increasing use of email by both enterprise and consumer customers as a primary means of communication is driving demand for smartphones like the iPhone. In addition, the inclusion of productivity and entertainment software on smartphones will further the attractiveness of such devices to businesses and consumers.
7. **INCREASING AVAILABILITY OF HIGH-SPEED WIRELESS NETWORKS DRIVING SMARTPHONE ADOPTION** – The increasing availability of high-speed wireless networks allowed for the delivery of voice and data to 'convergence' devices, such as the BlackBerry and the iPhone. There is a growing reliance on smartphones, such as the BlackBerry and the iPhone, as substitutes for PDAs containing address books, notes, and calendars. Fast wireless networks (such as 4G LTE) create an opportunity for instant messaging through mobile devices.

8. COULD APPLE CREATE THE SAME SUCCESS STORY WITH IPHONES AS IT DID WITH IPODS? – iPod share of the portable media player market share grew from 0% at launch in October 2001 to around 30% in 7 years. If the iPhone were to capture comparable share (30%), it could mean an upside of over 35% to our price estimate.
9. THE SMARTPHONE SPACE HAS A LOT OF POTENTIAL IN EMERGING MARKETS – Apple announced a deal with China Unicom, China's #2 mobile phone provider, to distribute iPhones. China Unicom has close to 200 million subscribers within a one billion subscriber Chinese mobile phone market. The iPhone 4S was made available on China Unicom in January 2012. iPhone revenues have grown at a fast rate in China in the last few quarters. According to the Q4 FY 2011 earnings transcript, revenues from China grew 270% y-o-y and at \$4.5 billion, represented almost 16% of total revenues for the quarter. Two years back, in FY'09, China represented only 2% of Apple in revenue terms. People are becoming more fashion-conscious and smartphones are considered a status symbol in emerging markets. Growing technological savviness and increasing per-capita income among developing market consumers means they will demand more features and better interfaces which favors smartphones.

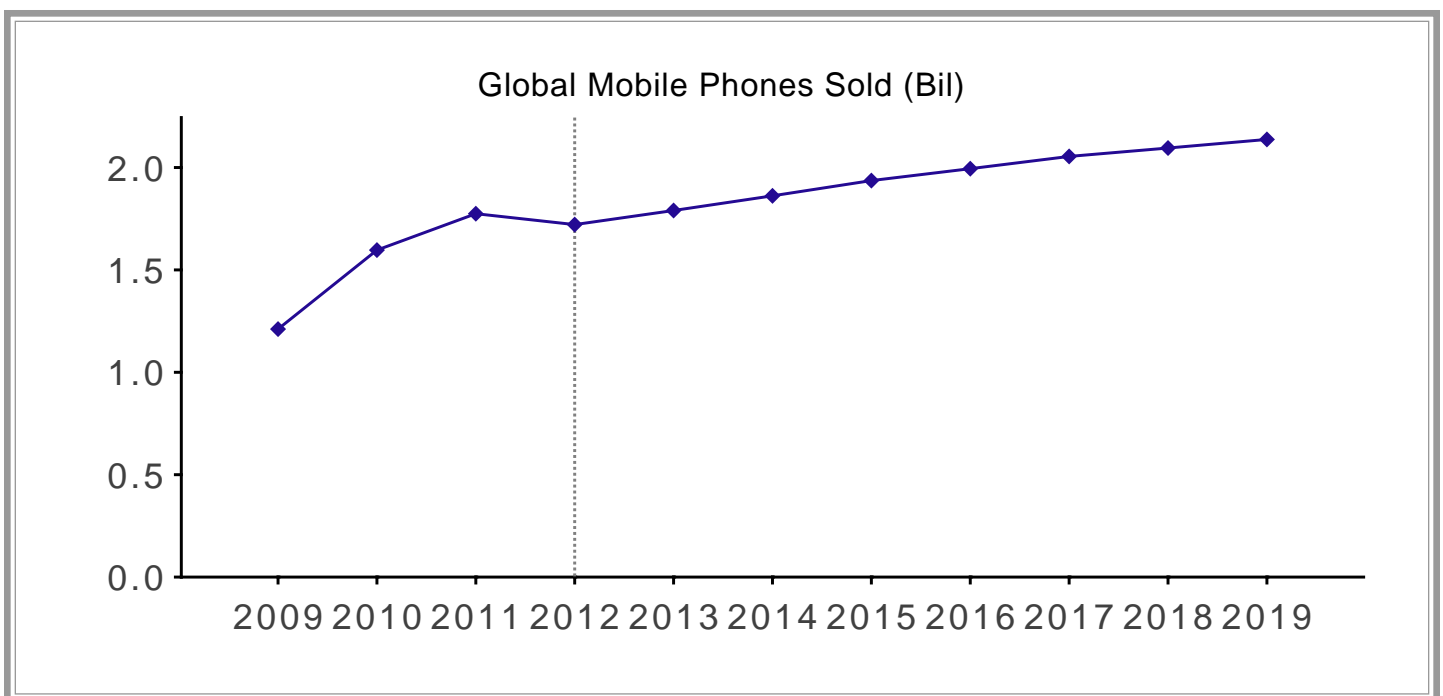
Mitigating:

- I. THREAT FROM GOOGLE ANDROID-BASED SMARTPHONES – Apple's biggest smartphone threats are from Android-based smartphones and RIM's BlackBerry. According to NPD, Android surpassed Apple iPhone market share in the US in the first quarter of 2010. It has retained its lead since then but the iPhone 4S helped Apple gain back some of the lost territory in October and November. Still, Android's market share is around 4% ahead of Apple's iOS'.
- II. SUPPLY CHAIN MANAGEMENT A MAJOR RISK FOR MOBILE PHONE COMPANIES – Companies like Apple are more concerned about the component supply related issues rather than demand issues. The 2011 earthquake in Japan created quite a few headaches for Apple with regards to component supplies, as many Apple suppliers are Japanese firms. A recurrence of similar supply chain issues, in terms of not only natural disasters but also price fluctuations, poses a major risk to Apple in the future.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– GLOBAL MOBILE PHONES SOLD –

Global Mobile Phones Sold represents the number of mobile phone units sold each year globally.



Historically, unit sales of mobile phones have increased from about 1.1 billion units in 2007 to about 1.72 billion units in 2012, as per our estimates.

We expect to see a continuous rise in mobile phones sold per year till the end of our forecast period.

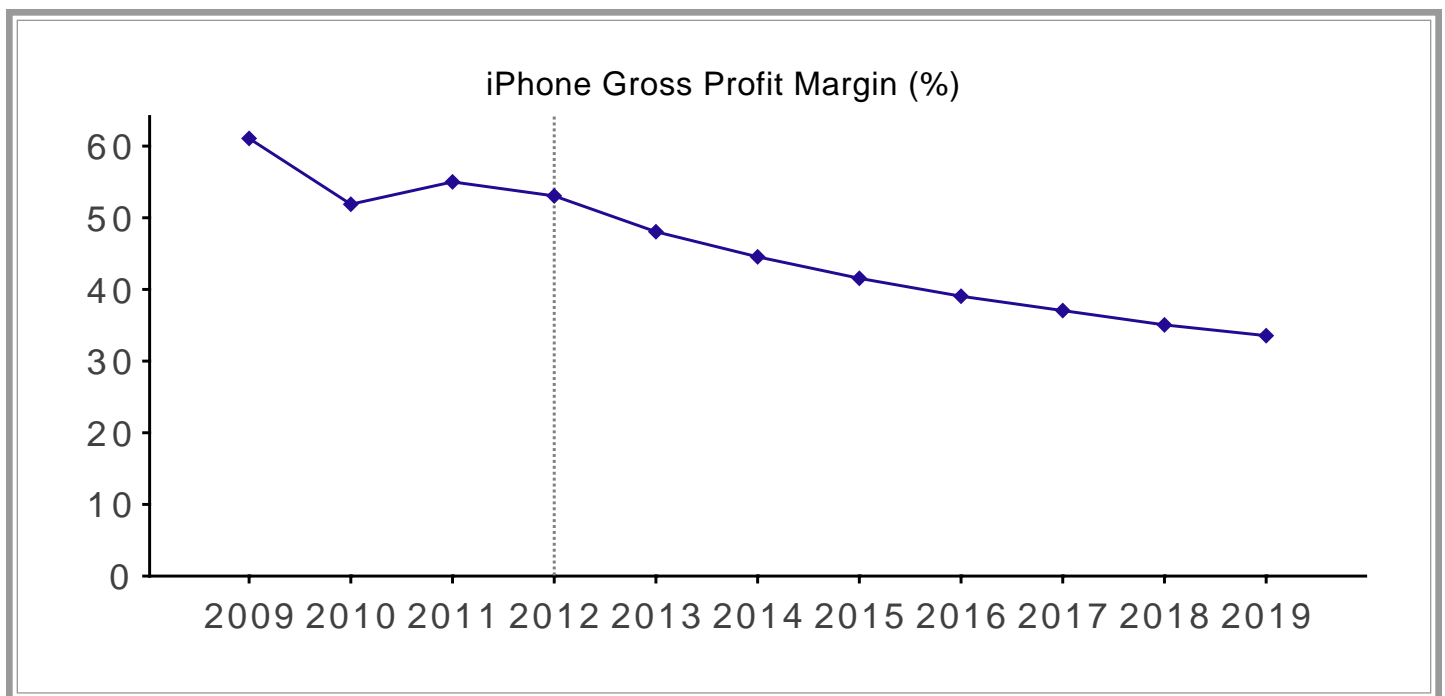
Forecast Rationale

1. INCREASING RELIANCE ON MOBILE PHONES AS PRIMARY MEANS OF COMMUNICATION – The consumer's need for mobile phones has been increasing day-by-day as people want to be reachable and want to be able reach others all the time. As people are travelling more out of business or personal needs, mobile phones are the best means for them to be reachable.
2. DECLINING HANDSET PRICING AS WELL AS MORE FLEXIBLE PRICING PLANS – The handset pricing has been on a continuous decline due to decreasing input costs associated with making a mobile phone. On top of that, wireless carriers are giving highly subsidized phones--along with a 1-2 year contract--to the customers. These factors have contributed to an increase in sales across the world.
3. EMERGING MARKETS (INDIA, CHINA, BRAZIL) TO DRIVE THE GROWTH – The cellular penetration rate in emerging markets like China and India is still low. We expect more and more people to buy handsets, as wireless providers foray into rural areas, where the penetration is at very low levels. Handset companies will be the direct beneficiaries of high growth rates of new subscriptions expected for telecom providers.
4. DEMAND FOR SECONDARY MOBILE PHONES – We expect that there will be a rise in penetration beyond 100% in certain countries as the prevalence of secondary phones exceeds the number of people without any phones. Some countries already have penetration levels that exceed 100%, including Germany, Italy and the UK.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– IPHONE GROSS PROFIT MARGIN –

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



We estimate that iPhone Gross Profit Margin decreased from around 57% in 2007 to about 53% in 2012 due to an increasing mix of the lower priced older products that brought down margins. Moving forward, Trefis forecasts that iPhone Gross Profit Margin will continue to decline, albeit at a faster rate till the end of the forecast period.

Forecast Rationale

Supporting:

1. **DECLINING AVERAGE PRICES** – Apple's average pricing is expected to decline in the future, which will decrease its margins. Furthermore, increasing smartphone competition from RIM, Nokia and HTC will put additional pressure on prices. We expect that price competition and the gradual slashing of prices of the older iPhone versions as newer ones are released will reduce Apple's overall iPhone Gross Profit Margin.
2. **HIGHER SALES FORECAST** – As Apple sells more and more iPhones, margins will improve as the fixed component of its costs remain constant.

Mitigating:

3. **FALLING INPUT OR MANUFACTURING COSTS** – The input and manufacturing costs for smartphones are expected to decrease due to technological improvements and standardization across the segment. The recent acquisition of Anibot should help Apple decrease the cost of NAND flash memory it uses in the iPhone.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	15.7	30.1	61.0	87.3	101	111	119	123	126	126	125
iPhones (% of total)	97.6	96.4	96.9	97.8	98.1	98.3	98.4	98.4	98.3	98.3	98.2
iPhone Accessories (% of total)	2.44	3.56	3.07	2.16	1.92	1.72	1.65	1.63	1.67	1.74	1.83
Direct Expense (Bil \$)	6.10	14.5	27.4	41.0	52.6	62.0	70.0	75.5	79.6	82.2	83.3
Indirect Expense (Bil \$)	5.07	4.46	8.71	12.1	18.8	19.3	20.9	21.0	21.0	20.2	19.4
Gross Profit (Bil \$)	9.56	15.6	33.6	46.3	48.6	49.8	49.8	48.4	46.9	44.4	42.1
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	29.8	30.5	28.9	27.3	25.9	24.1	22.7

In addition, you can see the detailed P&L for the iPhone business in the Appendix ([link](#))

iPad

The most important drivers for the iPad business are:

- iPad Pricing
- iPad Units Sales
- iPad Gross Profit Margin

— IPAD PRICING —

This represents the average price of an iPad.

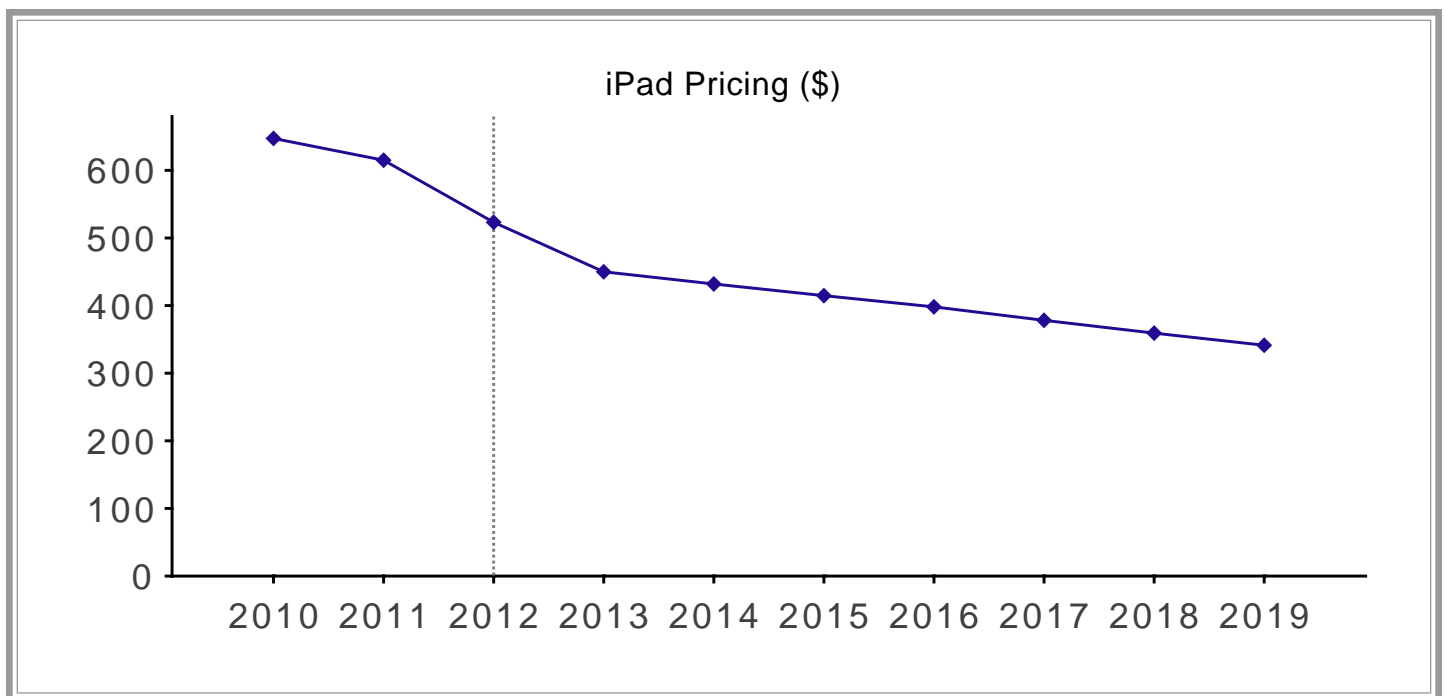
iPad pricing is distinguished by the version of the iPad as well as the memory and wireless capability.

The new iPad pricing is as follows:

- 16 GB – \$499 with WiFi . \$629 with WiFi and 3G/4G
- 32 GB – \$599 with WiFi . \$729 with WiFi and 3G/4G
- 64 GB – \$699 with WiFi. \$829 with WiFi and 3G/4G

The older models of the iPad have lower price points, as does the iPad Mini. The iPad Mini pricing is as follows:

- 16 GB – \$329 with WiFi . \$459 with WiFi and 3G/4G
- 32 GB – \$429 with WiFi . \$559 with WiFi and 3G/4G
- 64 GB – \$529 with WiFi. \$659 with WiFi and 3G/4G



iPad was launched in April of 2010, and Apple launched iPad 2 in March 2011. The HD iPad and iPad Mini were launched in 2012.

iPad's pricing is based on the amount of memory included and whether the device is 3G/4G capable. Buyers may be deterred from purchasing an iPad with 3G/4G not only because of the higher price tag for the device, but also because of the monthly fees to AT&T/Verizon/Sprint for use of their mobile networks. An AT&T/Verizon/Sprint data plan is necessary (in the U.S.) for transferring data over these networks. For example, AT&T charges \$15 for up to 250 MB of

data per month, or \$30 for 3 GB of data per month, or \$50 for 5GB of data per month. This raises the total ownership cost for an iPad with 3G/4G by \$180 in the first year of ownership alone.

iPad's average pricing reduced from \$647 in 2010 to \$523 in 2012 due to an increasing mix of the older models that were offered at discounted prices as well as the introduction of the lower-priced iPad mini. We believe that Apple will reduce iPad Pricing over time.

Forecast Rationale

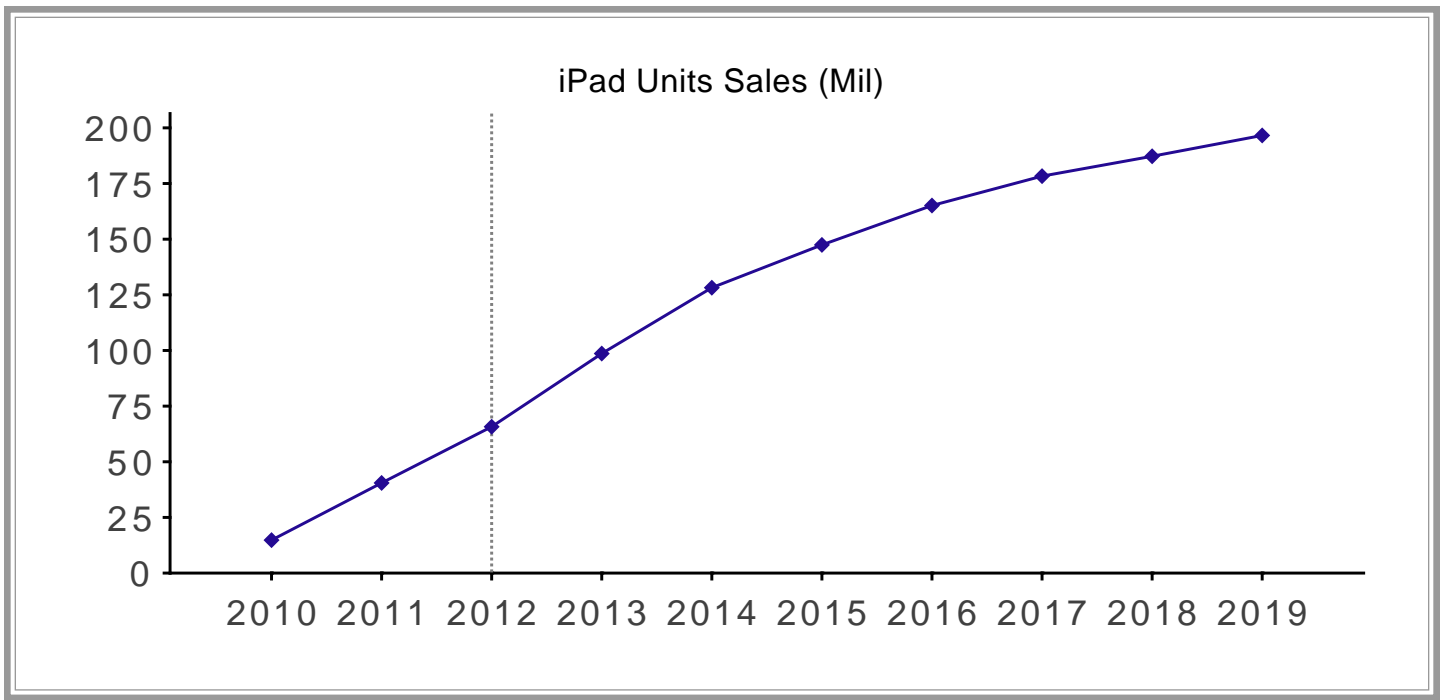
1. **PRICING TO DECLINE AS APPLE SLASHES PRICES OF OLDER IPAD VERSIONS** – After Apple released HD iPad in 2012, it reduced the pricing of the iPad 2 16 GB to \$399. The Kindle Fire and Nook tablets were launched at \$199 and \$249 respectively and saw loads of buyers lining up for the extremely cheap tablets. As the tablet market matures and includes more price-conscious consumers, Apple may be forced to bring down the prices of the future iPads as well. The cost of ownership for the 3G/4G iPads can be even higher than the purchase price since an AT&T/Verizon data plan is necessary (in the US) for transferring data over 3G networks. For example, AT&T charges \$15 for up to 200 MB of data per month, \$25 for 2 GB of data per month and \$45 for 4GB of data per month. In comparison, the Kindle Fire and the Nook do not come in 3G versions.
2. **DECLINING NETBOOK PRICES COULD FORCE APPLE TO REDUCE IPAD'S PRICING** – Apple has deliberately not forayed into the low priced netbook market as it is a highly competitive market with vendors living on razor thin margins. However, the iPad could cannibalize the netbook sales of competitors since the iPad does have comparable capabilities to some netbooks. Pricing will play an important role as some consumers opt for cheaper devices in a weak economy. Most of the netbooks are priced below \$400 compared to the \$499 price for the basic iPad model.
3. **IPAD MINI HAS LOWER PRICE POINT** – Apple launched the iPad Mini in 2012. It has a 7.9-inch screen and weighs less than 0.7 pounds. We expect it to compete effectively with some of the smaller tablets and readers in the marketplace. It is offered at a lower price point (starting at \$329) than the newest iPad. As iPad Mini sales ramp up over the next few quarters it will likely result in pressure on average iPad pricing.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– IPAD UNITS SALES –

iPad Units Sales represents the number of iPads sold by Apple. The iPad is a tablet PC that is larger than a smartphone but smaller than a notebook PC. The iPad allows you to browse the web, play video games, view photos, watch videos, read email, and download apps from the iTunes App Store. In addition to the 9.7 inch iPad, Apple also sells a smaller 7.9 inch iPad mini, which was launched more recently.

The iPad competes with Samsung's Galaxy Tab, RIM's PlayBook tablet, Amazon's Kindle Fire, Google's Nexus 7 and scores of other Android tablets.



We estimate that Apple sold around 66 million iPads in 2012, a rapid increase from around 15 million iPads sold in its debut year in 2010.

We forecast that iPad sales will continue to increase at a rapid rate.

Forecast Rationale

Supporting:

1. ICLOUD SERVICE WILL INCREASE THE POPULARITY OF IPADS – Replacing MobileMe, Apple launched iCloud in October 2011. This new service gives users the ability to listen to music stored in the cloud (remote computers) through iPhone, iPad or Mac. Additionally, one will not be required to upload a song even if a song is not purchased through iTunes. Through iTunes Match, a service that replaces the user's music with iTunes compatible format, one can consume music through different Apple devices. These features will give much more convenience to the user in managing music files. If iCloud becomes the new model for media consumption, it could influence demand for all Apple devices in a meaningful way.
2. IMESSAGE SERVICE TO CHALLENGE RIM'S BBM SERVICE – Along with iCloud, Apple launched an update to the iOS, the iOS5, in 2011, in which one of the main features was the iMessage service. iMessage is an app and is a free service similar to RIM's popular BlackBerry Messenger (BBM) service. Through this app users can chat and exchange files through Wi-fi and 3G. The new iPad released in 2012 also had 4G capacity, and we expect iOS 6 to have a positive impact on user experience. iMessage can make Apple devices more attractive to potential customers that have many friends and family that are already using iOS devices. This could help Apple drive iPad sales.
3. PRICING DECLINES TO BENEFIT SALES – Many initially speculated that Apple's iPad would come at a price point between \$600 and \$1,000. Apple announced that a basic iPad model would be available for \$499. After Apple released the HD iPad in 2012, it reduced the pricing of the iPad 2 from \$499 to \$399. Additionally, the iPad Mini starts at \$329, which could allow it to effectively compete with lower-priced tablets such as the Kindle Fire and the Nook.
4. IPAD IS MUCH MORE THAN A NORMAL E-READER – iPad is not only an e-reader, but also a useful device to surf the web, listen to music, use apps, view photos, watch videos and read email. In addition to that, it is an ultra thin and light device.

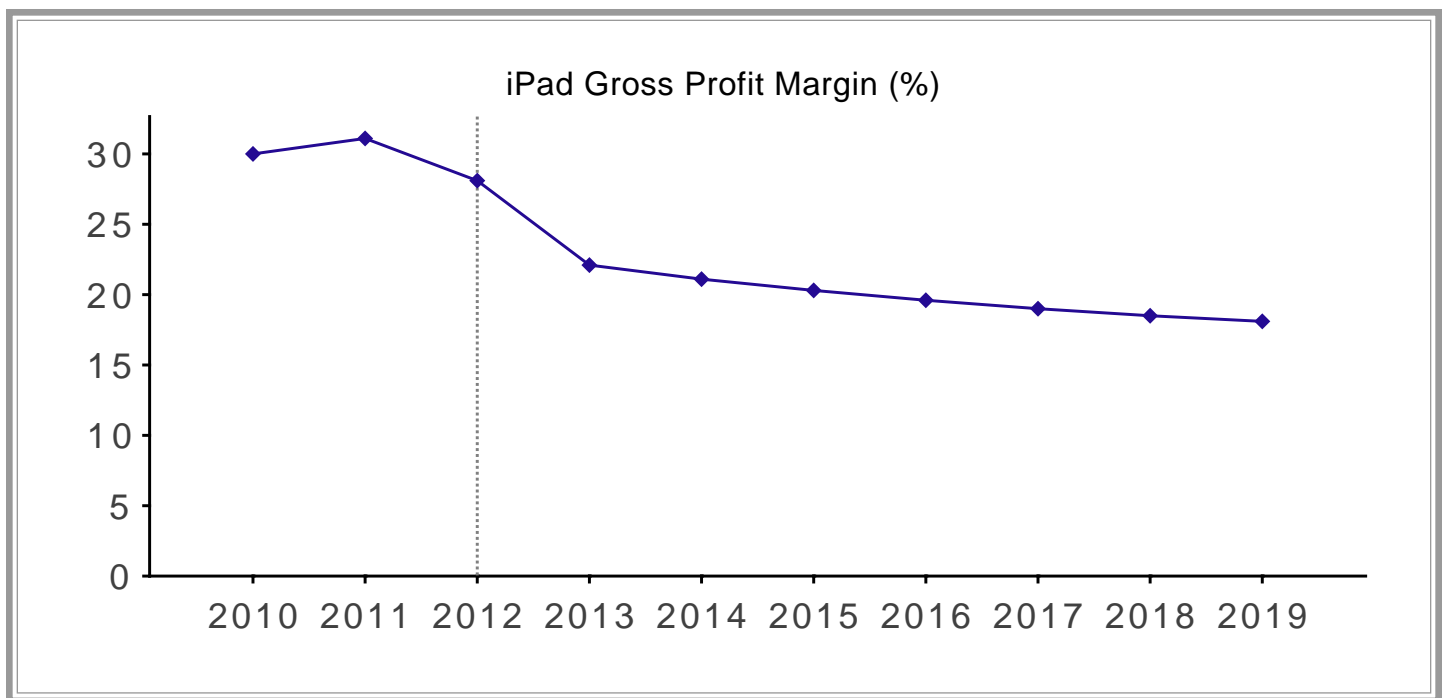
Mitigating:

5. INCREASED COMPETITION COULD CHALLENGE APPLE – The Kindle Fire and Nook tablets were launched recently at \$199 and \$249 respectively and saw loads of buyers lining up for the extremely cheap tablets. As the tablet market matures and includes more price-conscious consumers, these low-end tablets could capture a bigger portion of the tablet market. Microsoft has come out with Windows 8 this year, which will run on all mobile devices. The company has already launched the Surface tablets under its own brand, and together with its OEM partners, could leverage its dominant position in the PC segment to penetrate the tablet market.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– IPAD GROSS PROFIT MARGIN –

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



We estimate iPad Gross Profit Margin to have declined from around 30% in 2010 to about 28% in 2012. Further, we expect that an increasing mix of iPad minis as well as the older iPads to continue to pressurize iPad Gross Profit Margin in the future.

Forecast Rationale

Supporting:

- I. PRICING DECLINE TO AFFECT MARGINS – We estimate Apple's average iPad pricing to decline going forward, as Apple slashes prices for older versions of iPad. For example, Apple slashed the pricing of the iPad 2 from \$499 to \$399 after it launched the HD iPad in 2012. Additionally, the iPad Mini comes at a lower price point. Also, increasing competition from lower-priced tablets such as Kindle Fire or Nook may force Apple to bring down future iPad prices.

Mitigating:

2. FALLING INPUT OR MANUFACTURING COSTS – The iPad uses NAND flash memory for most of its models and NAND memory prices are constantly falling. Future technology improvements and the recent Anibot acquisition should enable Apple to decrease its manufacturing cost and help offset some declines in margins associated with lower pricing.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	9.57	24.9	34.4	44.4	55.4	61.1	65.7	67.4	67.3	67.1
Direct Expense (Bil \$)	6.70	17.2	24.7	34.6	43.7	48.7	52.8	54.6	54.8	55.0
Indirect Expense (Bil \$)	0.82	2.01	2.52	3.79	4.53	5.20	5.60	5.74	5.67	5.60
Gross Profit (Bil \$)	2.87	7.74	9.67	9.81	11.7	12.4	12.9	12.8	12.4	12.1
Free Cash Flow (Bil \$)	n/a	n/a	n/a	6.01	7.16	7.21	7.28	7.07	6.77	6.54

In addition, you can see the detailed P&L for the iPad business in the Appendix ([link](#))

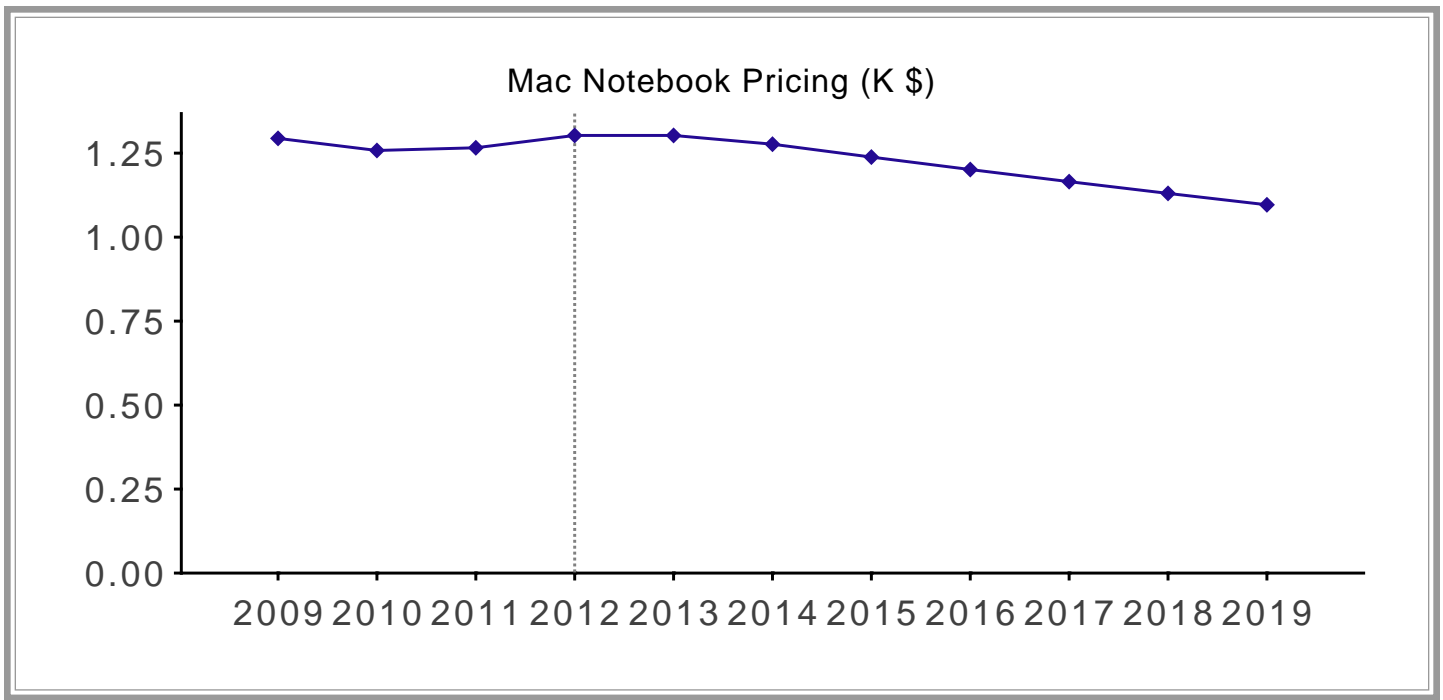
Notebooks

The Notebooks division is part of the Macintosh business, and constitutes 5.47% of our \$626 price estimate for the stock, based on our sum of the parts analysis. The most important drivers for the Notebooks business are:

- Mac Notebook Pricing
- Mac Notebooks Market Share
- Global Notebook & Netbook Units Sold
- Mac Notebooks Gross Profit Margin

— MAC NOTEBOOK PRICING —

Mac Notebook Pricing represents the average price of a Mac Notebook.



The average Mac Notebook Pricing decreased from \$1,430 in 2008 to \$1,300 in 2012, as per our estimates. Trefis forecasts that Mac Notebook Pricing will continue to decrease.

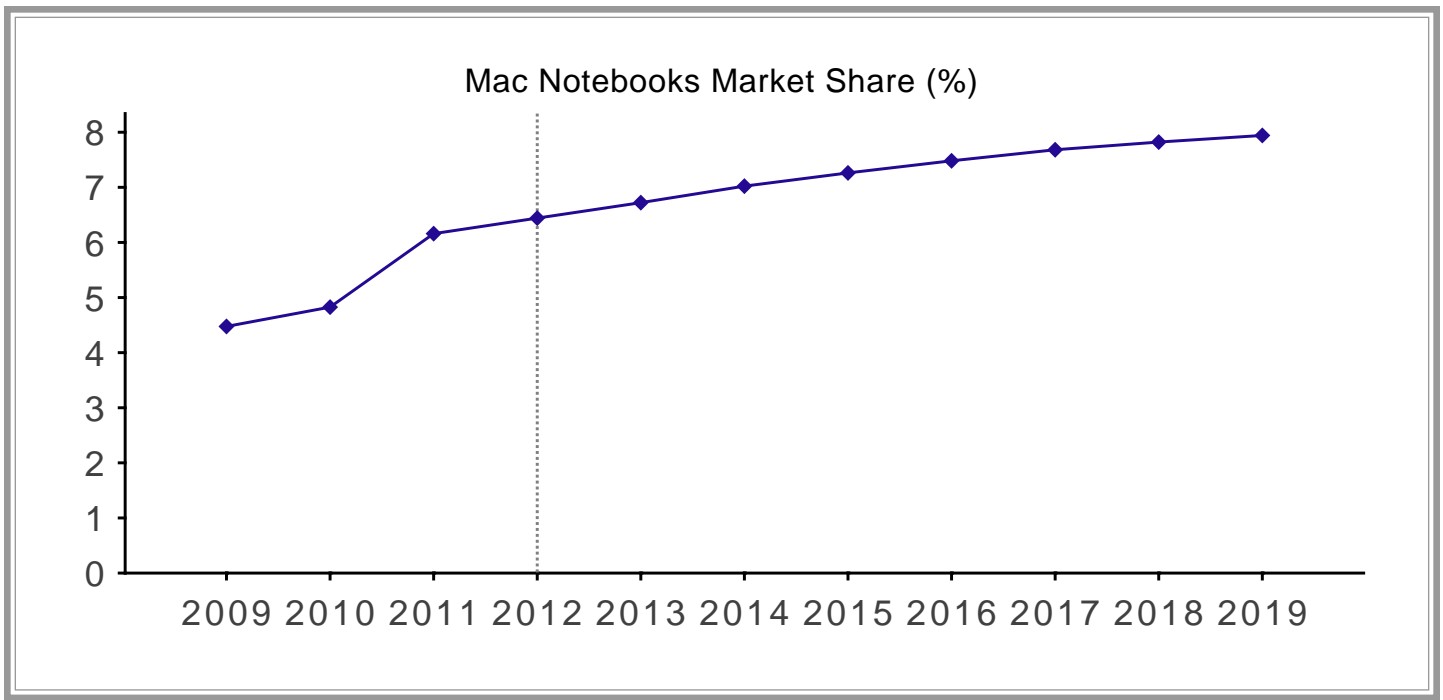
Forecast Rationale

1. APPLE PRICING DECLINES HAVE BEEN LESS SEVERE THAN THAT OF COMPETITION – Surprisingly, Apple has been able to maintain its Mac Notebook Pricing; whereas its competitors like Dell, Acer, and HP have seen a lot of price erosion each year. Apple has always had a niche market and differentiated product in the crowded personal computer market. Apple's strong brand recognition and the success of its OS X Operating system has contributed to its growing user base.
2. INCREASING ADOPTION OF NOTEBOOKS COMPARED TO DESKTOPS – There has been a global increase in demand for notebooks compared to desktops and hence we believe the prices should not decline at as fast a pace as desktops. Notebook shipments overtook desktop shipments as far back as in Q3'08 and have maintained their growth ever since.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— MAC NOTEBOOKS MARKET SHARE —

Mac Notebooks Market Share represents the percentage share of notebook units sold by Apple. Its primary competitors are HP, Dell, and Acer.



The Mac Notebooks Market Share increased from 4.36% in 2007 to around 6.1% in 2012, as per our estimates. Trefis forecasts that Mac Notebooks Market Share will continue to increase at a moderate rate.

Forecast Rationale

Supporting:

1. ICLOUD SERVICE WILL INCREASE THE POPULARITY OF MACS – iCloud service gives user the ability to listen to music stored in the cloud (remote computers) through iPhone, iPad or Mac. Additionally, one will not be required to upload a song even if a song is not purchased through iTunes. Through iTunes Match, a service that replaces the user's music with iTunes compatible format, one can consume music through different Apple devices. These features will give much more convenience to the user in managing music files. If iCloud becomes the new model for media consumption, it could influence demand for all Apple devices in a meaningful way.
2. AGGRESSIVE PRICING CUTS COULD BENEFIT MARKET SHARE – Apple has been reducing the prices of all its MacBook products in the past and we expect this will benefit Apple's market share.
3. UNIQUE GRAPHICAL USER INTERFACE AND NEW PRODUCTS – Macintosh scores over other competitors in terms of the unique and user friendly graphical user interface. Its unique touch screen interface is what attracts the high-end users. Apple updated MacBook Air With Next Generation Processors, Thunderbolt I/O & Backlit Keyboard in July 2011 after which Mac sales went up 22% in the next two months.
4. SWITCHING FROM PC TO MAC HAS BECOME EASIER – Switching to a Mac is becoming increasingly appealing to existing PC-Windows users due to Apple's Mac OS and Windows' dual-boot system (Bootcamp). Additionally, low-cost virtualization software, such as Parallels has made it easier to retain Windows features on a Macintosh. Key Microsoft productivity tools, such as Microsoft Office can also be run natively in Mac OS.
5. HALO EFFECT OF IPOD AND IPHONES – Mac has been able to increase its market share due to the halo effect, whereby satisfied iPod and iPhone users purchase more Apple products. The market share increase has been in effect after Apple re-branded its Mac.

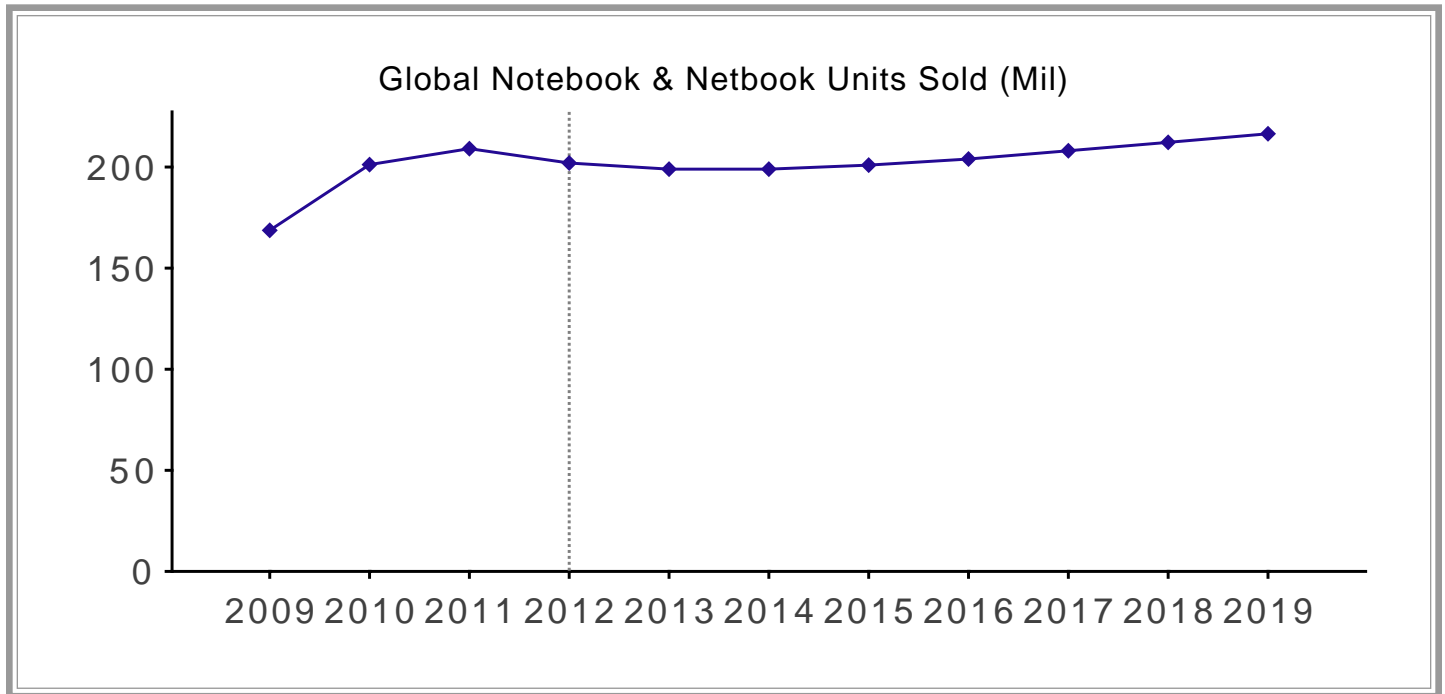
Mitigating:

6. RECESSIONARY ENVIRONMENT TO PREVENT USERS FROM SWITCHING TO MAC – All Mac desktops are in the higher price range when compared to competing PCS by HP, Dell, and Acer. This could be a disadvantage for Apple, as consumers look to cut costs, especially in the recessionary environment.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– GLOBAL NOTEBOOK & NETBOOK UNITS SOLD –

Global Notebook & Netbook Units Sold represents the number of notebooks units sold each year globally.



Global Notebook & Netbook Units Sold have increased more than three folds during 2005-12 reaching over 210 million in 2012.

The growth in notebook shipments has been driven by:

1. INCREASING SHIFT FROM DESKTOPS TO NOTEBOOKS – There has been a significant shift from desktops to notebooks in the last few years, with Q3 08 seen as the inflection point when notebook shipments outpaced desktop shipments heralding the advent of notebooks in a big way
2. NOTEBOOKS – SMALLER AND MORE CONVENIENT – One of the reasons notebooks are gaining increasing popularity over desktops is because of their size which allows consumers the convenience and flexibility to have a mobile computer with them as against a desktop

Going forward we expect Global Notebook & Netbook Units Sold to increase though at much slower than historical rate.

Forecast Rationale

Supporting:

1. NOTEBOOKS ARE GROWING IN EMERGING MARKETS – An increasing share of notebooks is coming from emerging markets. China and India are big markets, with the former representing about [20% of global PC demand now](#), according to Intel's Q4 FY 2011 earnings call. We expect this to continue to be the case over the coming years.

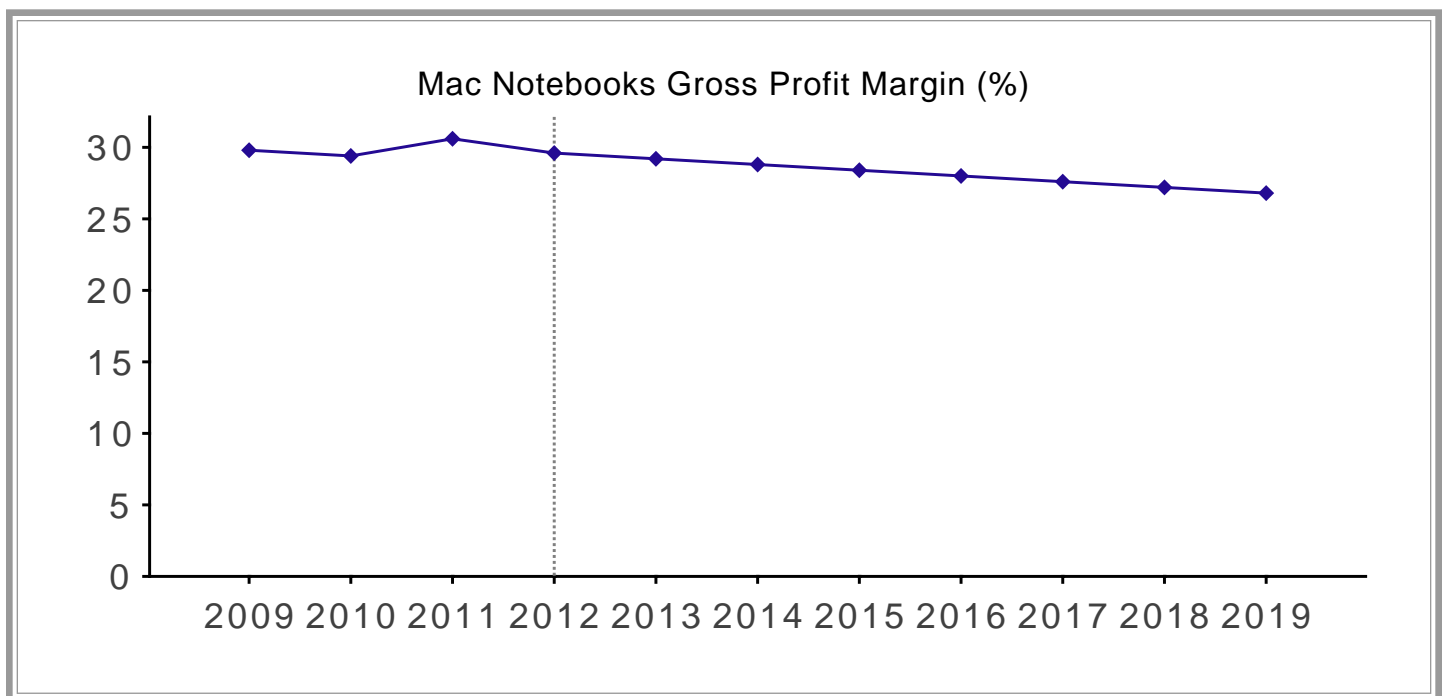
Mitigating:

2. **RISING POPULARITY OF TABLET DEVICES** – After the launch of Apple's iPad, a media tablet in April 2010, a number of firms around the world came up with their own tablet device with increased features and functionality. As companies around the world strive hard to capture a share in the potentially huge tablet market, we believe the tablet devices will soon be competing with notebooks & netbooks in functionality and given their ultra portable nature giving notebooks & netbooks a run for their money. Thus while we estimate Global Notebook & Netbook Units Sold to grow going forward as PC penetration increases globally, increasing competition from tablet devices poses the biggest threat to its growth.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— MAC NOTEBOOKS GROSS PROFIT MARGIN —

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



We estimate that Mac Notebooks Gross Profit Margin has been around 30% historically. 2010 saw margins decline as MacBook price cuts due to the 2009 recession started to pressurize margins. 2011 saw margins bounce back up as economic conditions became better and pricing improved. Also, the launch of the higher-margin MacBook Air in 2011 helped. The long-term declining trend seems to have resumed in 2012. Trefis forecasts that Mac Notebooks Gross Profit Margin will decline at a moderate rate.

Forecast Rationale

Supporting:

- I. **DECLINING NOTEBOOK PRICES AND POTENTIAL MIX SHIFT IF APPLE INTRODUCES A NETBOOK** – We believe notebook prices will continue to decline, which will put pressure on margins. Apple's notebook prices have not declined as fast the competition's prices, which is encouraging. Nevertheless, there is an overall industry decline in average notebook prices. If Apple introduces a netbook to compete in the low-margin netbook market, we would expect further average

margin declines.

Mitigating:

2. FALLING INPUT OR MANUFACTURING COSTS – Mac Notebooks use the Intel microprocessors in most of its models for which the prices are constantly falling. Also, technology improvements as well as the recent Anibot acquisition should enable Apple to decrease the costs of flash memory used in some of its netbooks such as MacBook Air. Apple's industry dominance in smartphones and tablets has made it one of the world's largest consumer of flash memory. This has helped it secure lucrative prices for flash memory and an increasing use of flash in its Mac line may support margins going forward.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	9.77	12.2	16.3	17.0	17.4	17.8	18.1	18.3	18.6	18.8	18.8
Direct Expense (Bil \$)	6.86	8.62	11.3	11.9	12.3	12.7	12.9	13.2	13.5	13.7	13.8
Indirect Expense (Bil \$)	1.54	1.03	1.30	1.31	1.97	1.99	2.15	2.23	2.30	2.33	2.33
Gross Profit (Bil \$)	2.91	3.59	4.99	5.02	5.09	5.14	5.13	5.13	5.14	5.10	5.05
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	3.12	3.15	2.98	2.90	2.84	2.78	2.72

In addition, you can see the detailed P&L for the Notebooks business in the Appendix ([link](#))

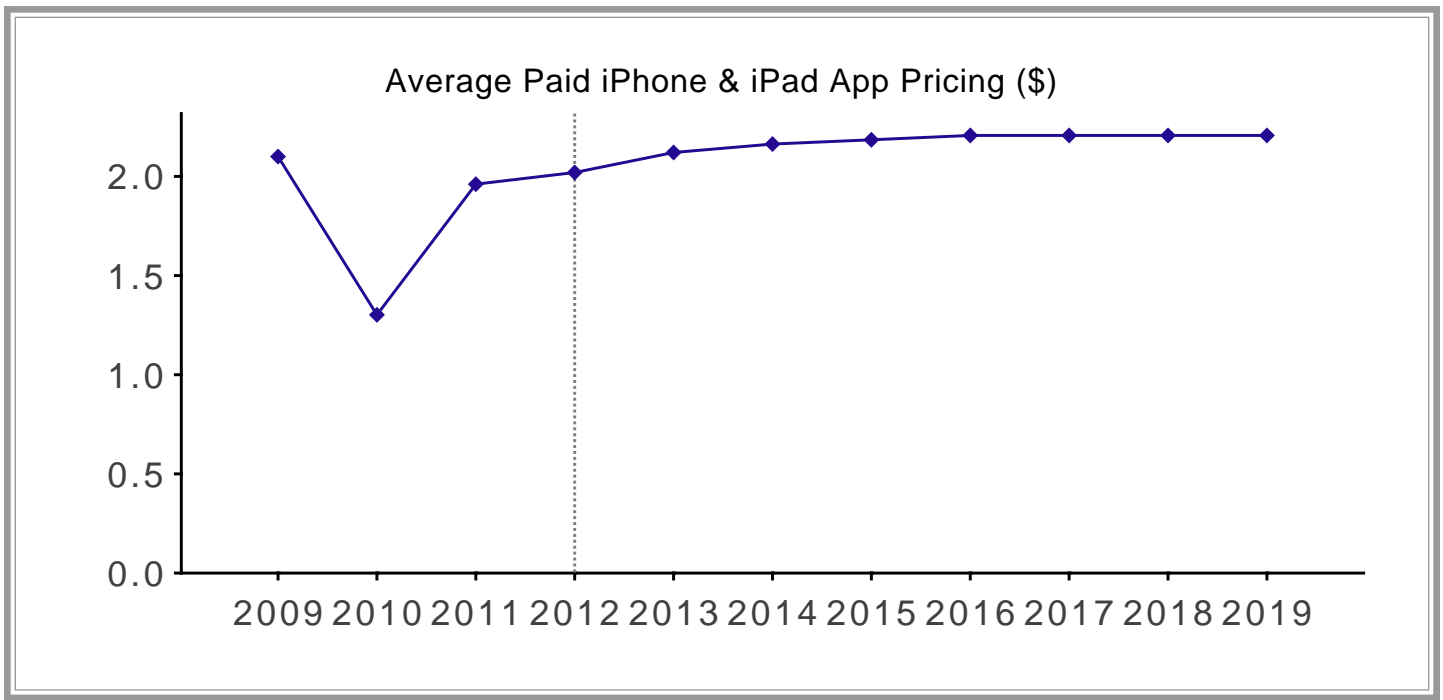
Apps for iPhone, iPod & iPad

The Apps for iPhone, iPod & iPad division is part of the iTunes & iOS Apps business, and constitutes 3.02% of our \$626 price estimate for the stock, based on our sum of the parts analysis. The most important drivers for the Apps for iPhone, iPod & iPad business are:

- Average Paid iPhone & iPad App Pricing
- Number of iPhone & iPad Apps Downloaded
- Paid App %
- iPhone, iPod Touch & iPad Apps Gross Profit Margin

— AVERAGE PAID IPHONE & IPAD APP PRICING —

Average Paid iPhone & iPad App Pricing represents the average price of a paid iPhone, iPod Touch and iPad Application.



The Average Paid iPhone & iPad App Pricing declined from \$2.80 in 2008 to around \$1.30 in 2010 before rebounding to \$1.96 in 2011 and over \$2 in 2012, as per our estimates. Trefis forecasts that Average Paid iPhone & iPad App Pricing will increase at a moderate rate.

Forecast Rationale

Supporting:

- I. IPAD APP PRICING TO REMAIN HIGHER THAN IPHONE APP PRICING – iPad Apps will be optimized for the larger screen. Most of the iPhone Apps are re-developed by developers so as to optimize it for the larger resolution screen of iPad. This could require more effort and cost on the developer’s part. For example, Scrabble App for the iPad is being sold for \$4.99 versus only \$0.99 for the iPhone. There are better features and graphics on iPad Apps. iPad’s larger screen compared to the iPhone gives developers an opportunity to provide more features and improve the graphics of an application. The larger screen also encourages apps for the iPad that wouldn’t otherwise be available for the iPhone. For example, OmniGraffle is a \$50 iPad app that allows for touch-based diagramming and brainstorming and is not available for the iPhone.

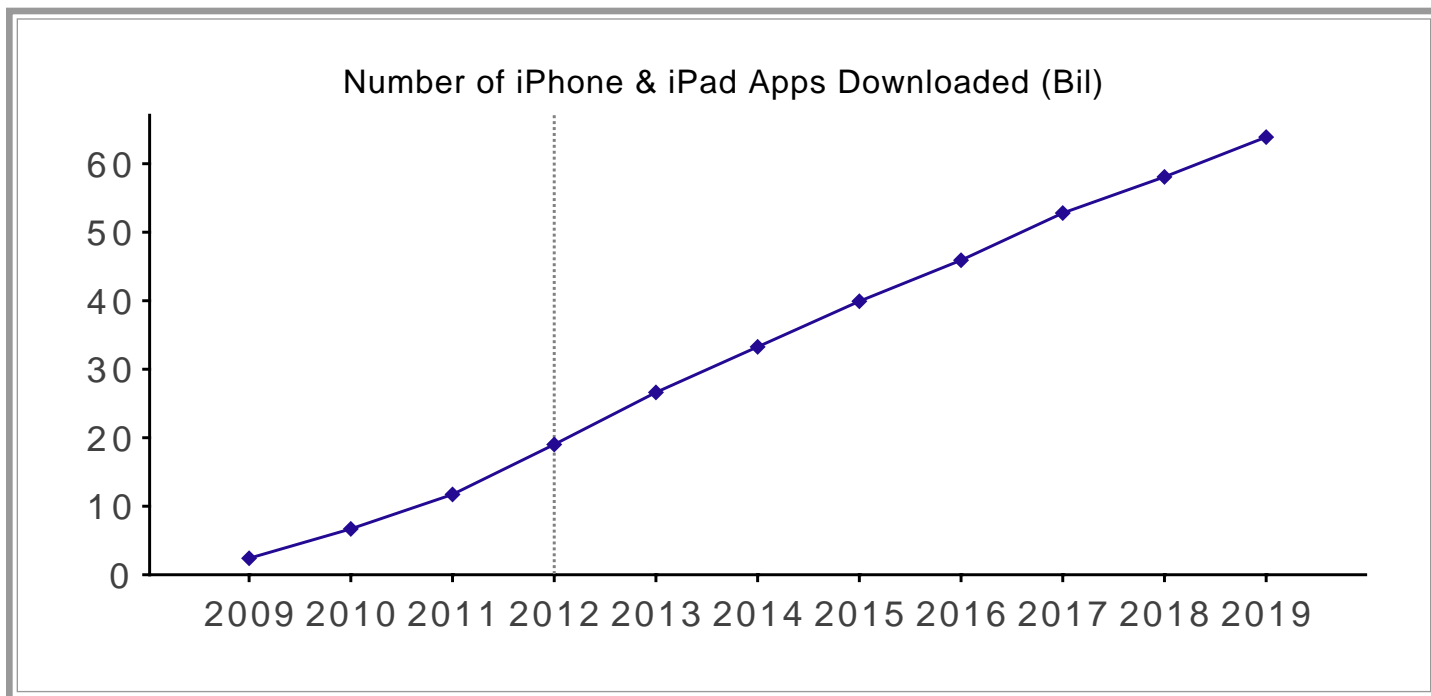
Mitigating:

2. INCREASE IN THE NUMBER OF RE-DOWNLOADS – Apple recently released the iCloud service that enables downloading a previously purchased app more than once for free. As an increasing number of such free re-downloads happen, the average pricing per download may decrease. However, since apps optimized for the iPhone do not work well with the iPad and vice-versa, a lot of re-downloads may not happen, as opposed to music and TV shows, which can be accessed on multiple iOS devices.
3. INCREASING COMPETITION AMONGST APPS – As the number of available download-able applications increases, competition amongst apps for user attention will lead to decreasing apps average pricing. The number of available apps are in excess of 500,000 as of 2011.
4. MORE IPHONE AND IPAD USERS WILL ALLOW APPS TO BE PROFITABLE AT LOWER PRICE POINT AND HIGHER SALES VOLUME – Developers will have an incentive to reduce pricing so as to benefit from the increased number of downloads

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— NUMBER OF IPHONE & IPAD APPS DOWNLOADED —

Number of iPhone & iPad Apps Downloaded represents the number of software applications for the iPhone that have been downloaded through Apple's iPhone App store which was launched in July of 2008.



The Number of iPhone & iPad Apps Downloaded has increased from 500 million in 2008 to close to 20 billion in 2012, as per our estimates. The cumulative Number of iPhone & iPad Apps Downloaded touched the 1 billion mark in April 2009, surged up to 5 billion by June 2010 and exceeded 10 billion as of January 2011. March 2012 saw it cross the 25 million mark and by the end of the year, the App Store had seen over 40 billion downloads.

Trefis forecasts that Number of iPhone & iPad Apps Downloaded will continue growing as more people purchase iDevices.

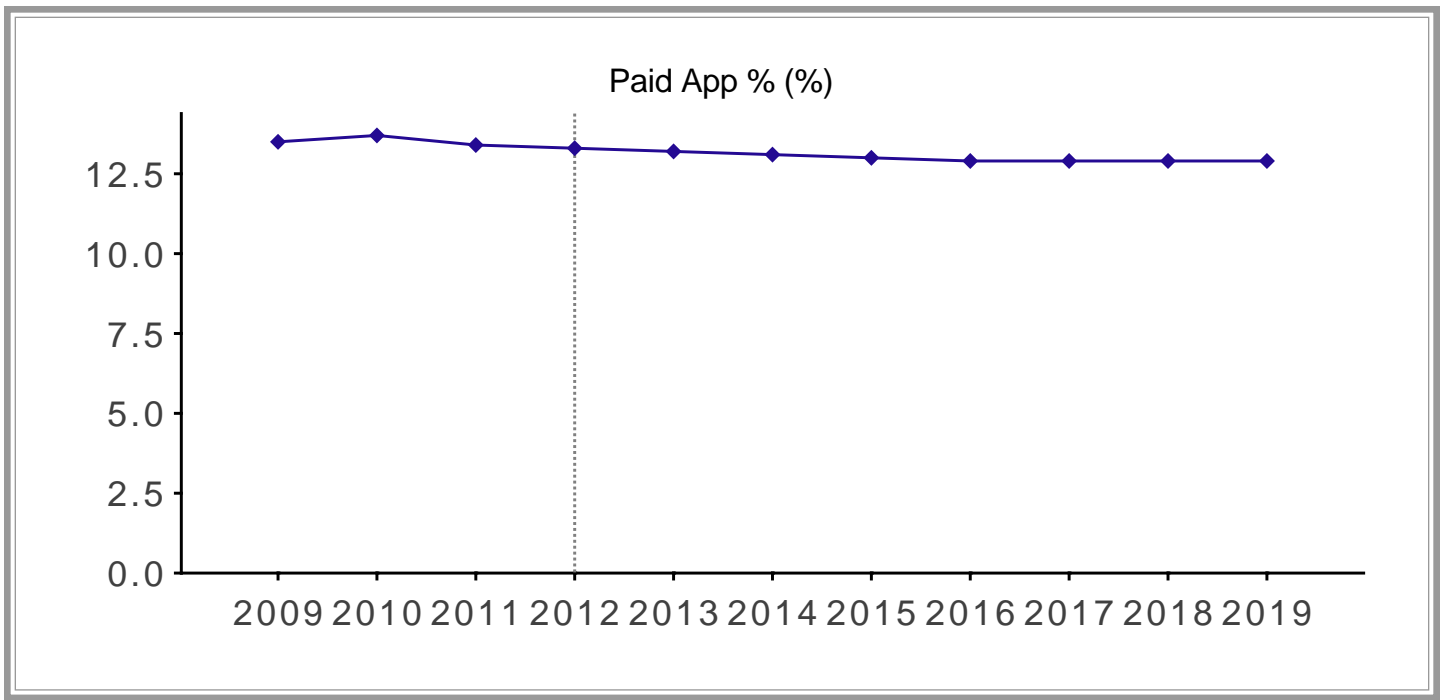
Forecast Rationale

1. MORE IPHONE USERS WILL MEAN MORE IPHONE APPS USERS – iPhone mobile phone sales have shown a healthy growth since the launch of the iPhone in July 2007. The number of iPhones sold has increased at a fast rate. For every additional sale of an iPhone, the Number of iPhone & iPad Apps Downloaded increases multi-fold.
2. APPLICATIONS ARE A CHEAP SOURCE OF OWNING GAMES AND TOOLS – iPhone Apps have become a popular source of owning games and tools at a low price. For example, users can download popular games like Tiger Woods and applications like Skype for free.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— PAID APP % —

Paid App % represents the percentage of downloaded iPhone applications that are paid. The only source of revenue for a developer for free apps is advertisements.



The Paid App % has historically been in the 13-14% range. Trefis forecasts that Paid App % will decline at a very moderate rate to a constant 13% over time.

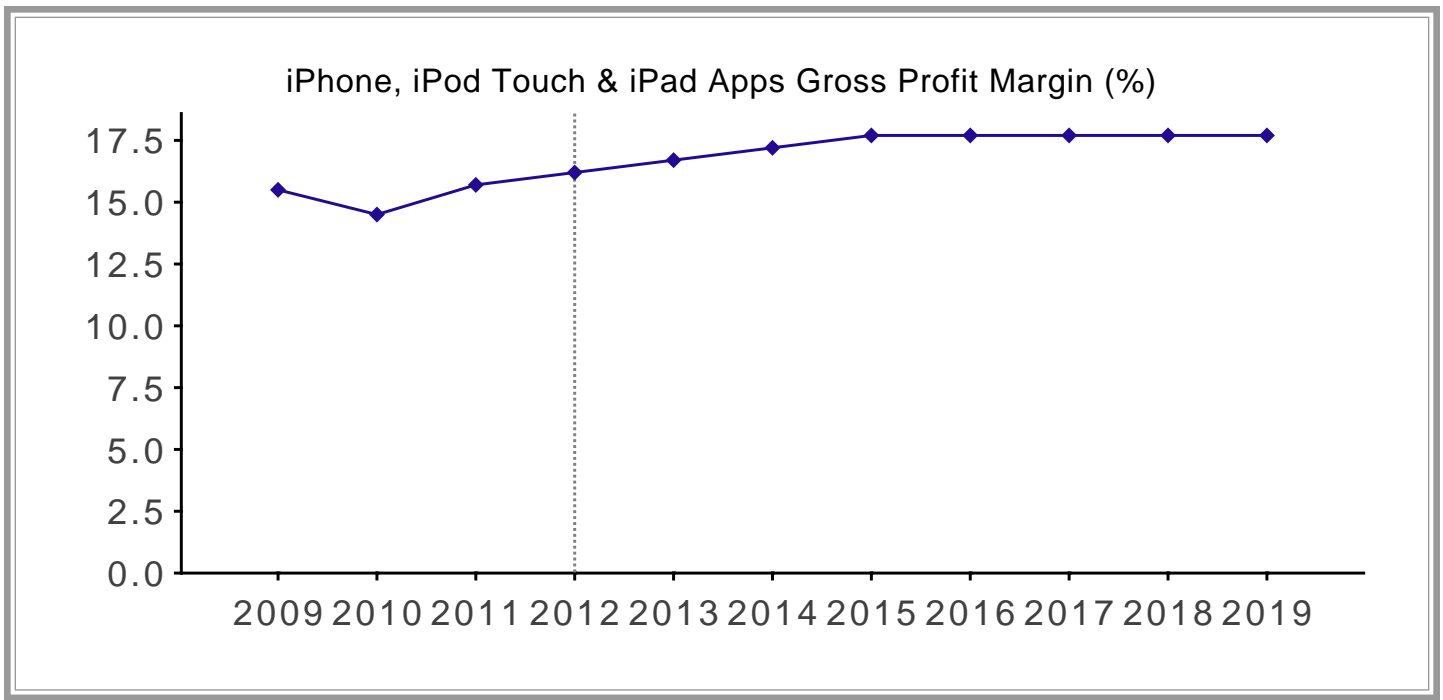
Forecast Rationale

1. EXCESSIVE ADS ON A FREE APP COULD COMPEL USERS TO DOWNLOAD A PAID APP – Since the majority of paid apps are low priced (\$1 to \$2 only), users will not shy away from buying paid apps, if excessive advertising on a free app becomes a nuisance for them. The iAd platform will help developers monetize free apps, but may not necessarily be a good thing for app users.
2. COSTLY IPAD APPS MAY FORCE SHIFT TOWARDS FREE APPS – iPad Apps are optimized for the larger screen. Most of the iPhone Apps are re-developed by developers so as to optimize it for the larger resolution screen of iPad. This requires more effort and cost on the developer’s part. For example, Scrabble App for the iPad is being sold for \$4.99 versus only \$0.99 for the iPhone. OmniGraffle is a \$50 iPad app that allows for touch-based diagramming and brainstorming and is not available for the iPhone.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– IPHONE, IPOD TOUCH & IPAD APPS GROSS PROFIT MARGIN –

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



Apple has a content margin of 30%, meaning 70% of the app store revenues go to the developer of the app. However, of the 30% Apple receives, we assume that it has to pay \$0.20 plus 2% of the ASP to the credit card company, and 1% for storage and delivery. This brings Apple's gross margins to around 14-16%, depending on the average price of apps as well as the percentage contribution of iAd revenues to the app store revenues.

As the average price of apps increases, the gross margins improve because the percentage of fixed costs (to the credit card company) decrease. Also, since Apple gets a higher cut of iAd gross revenues (40%), as the iAd business grows, it should support margins.

Historically, as average prices of apps fell till 2010, the gross margins declined. However, with the launch of the iPad (iPad apps are costlier) and iAd (higher gross margins) in 2010, margins improved in 2011.

We don't expect Apple to change its policy of giving a 70% cut to developers for paid apps and 60% to developers through the iAd platform. As a result, we forecast that iPhone, iPod Touch & iPad Apps Gross Profit Margin will increase only slightly going forward as the mix of iPad apps increases and iAd revenues rise.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	0.68	1.27	3.18	5.26	7.63	9.65	11.6	13.4	15.5	17.1	18.9
iAd App Advertising Revenue (% of total)	n/a	6.09	3.19	2.86	2.42	2.35	2.40	2.69	2.91	3.29	3.71
Paid Apps (% of total)	100	93.9	96.8	97.1	97.6	97.6	97.6	97.3	97.1	96.7	96.3
Direct Expense (Bil \$)	0.57	1.09	2.68	4.41	6.36	7.99	9.56	11.1	12.7	14.1	15.5
Indirect Expense (Bil \$)	0.06	0.05	0.13	0.22	0.49	0.64	0.86	1.03	1.23	1.38	1.54
Gross Profit (Bil \$)	0.11	0.18	0.50	0.85	1.28	1.66	2.06	2.38	2.74	3.03	3.34
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	0.78	1.02	1.19	1.34	1.51	1.65	1.80

In addition, you can see the detailed P&L for the Apps for iPhone, iPod & iPad business in the Appendix ([link](#))

Software & Services

The Software & Services division is part of the Macintosh business, and constitutes 2.88% of our \$626 price estimate for the stock, based on our sum of the parts analysis. The most important drivers for the Software & Services business are:

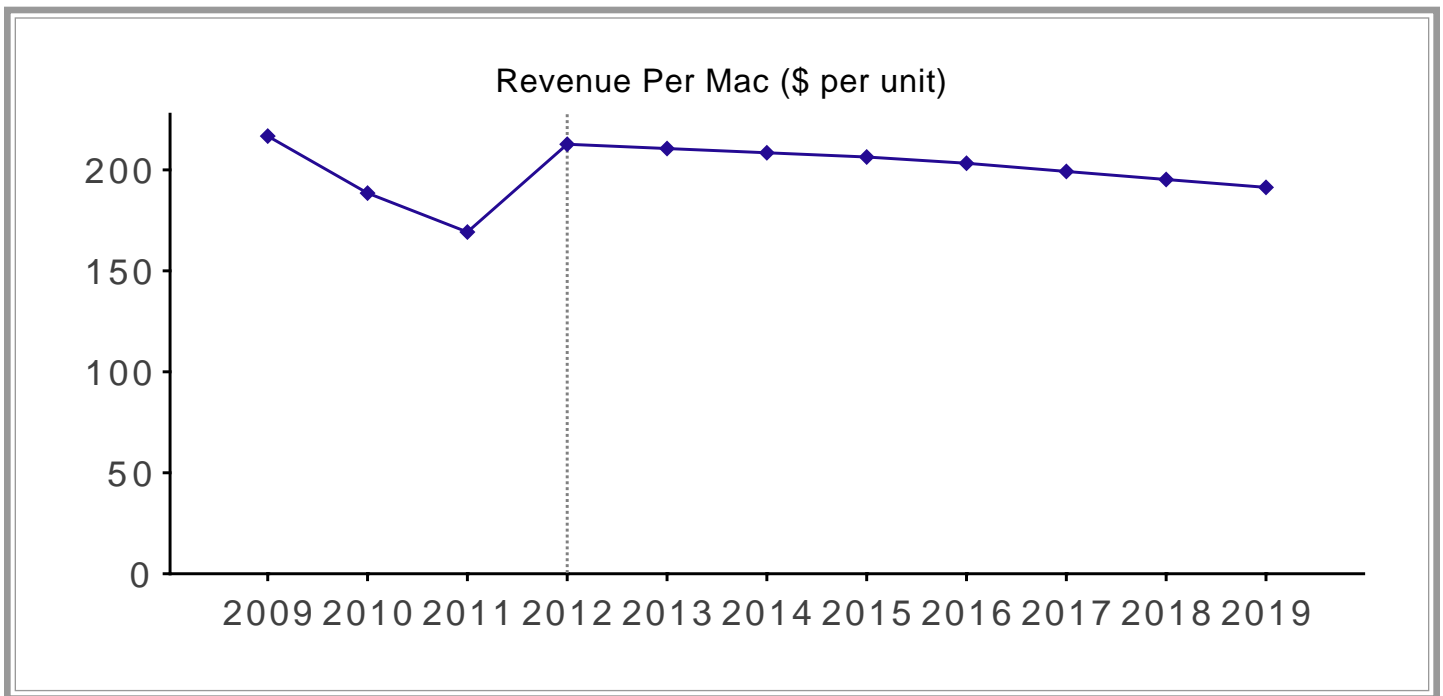
- Revenue Per Mac
- Global Notebook & Netbook Units Sold
- Software and Services Gross Profit Margin

— REVENUE PER MAC —

The software subdivision of Mac consists of software, such as:

1. OS X Lion is the Mac operating system.
2. iLife helps users to organize photos, enhance the movie quality, and carry out other related tasks.
3. iWork helps users to organize software, spreadsheets and presentations.
4. iCloud helps to keep music, email, contacts, and calendar-related data in sync with the Mac, iPhone, and iPod.
5. Aperture is Apple's photo editing software.

The services part of Mac is the extended warranty service, which is called the AppleCare. Users can access it for an extra charge.



The Revenue Per Mac for Software & Services has decreased from approximately \$230 in 2007 to about \$210 in 2012 according to our estimates. Trefis forecasts that Apple will see continuous decline in Revenue Per Mac at a slower rate.

Forecast Rationale

1. **LOW COST OR FREE SOFTWARE ALTERNATIVES COULD NEGATIVELY IMPACT APPLE** – Increasingly, there are a number of cheaper and better quality software options on the market, which could be a substitute for high cost Apple Mac software. For example, iLife is used to organize photos and enhance movie quality. This could be substituted for by Google's Picasa software, which is freely downloadable.
2. **RECESSIONARY ENVIRONMENT FORCING CONSUMERS TO CUT COST ON DISCRETIONARY ITEMS** – We believe the above mentioned software and services are discretionary in nature and consumers will look to cut these types of costs during the recession.
3. **REDUCING COSTS OF ITS NEW SOFTWARE RELEASES WILL HELP APPLE** – Apple released the latest version of its Mac operating system named OS X Lion mid-2011 and slashed its price to \$30 resulting in sales of over a million licenses on the very first day of the launch.

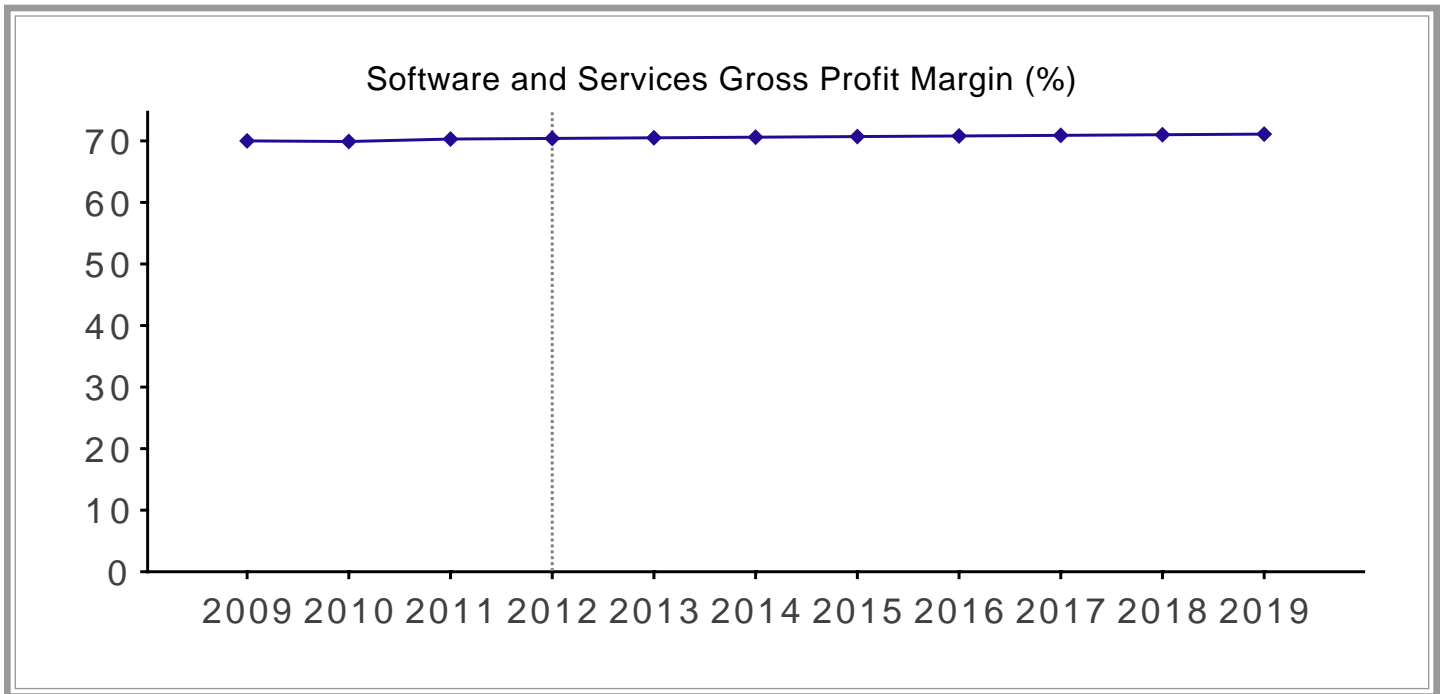
Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– GLOBAL NOTEBOOK & NETBOOK UNITS SOLD –

See our analysis of Global Notebook & Netbook Units Sold in the Notebooks division [here](#).

– SOFTWARE AND SERVICES GROSS PROFIT MARGIN –

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



The Software and Services Gross Profit Margin has been around 70% as per our estimates. Trefis forecasts that Software and Services Gross Profit Margin will increase at a very moderate rate.

Forecast Rationale

1. **MAC OS X PRICE DECLINE TO BE SOMEWHAT OFFSET BY REDUCED COST** – During the [WWDC event held on June 6th 2011](#), Apple unveiled Mac OS X Lion version, and was attractively priced at \$30. The OS can be downloaded online from the Mac App store. The previous versions require installation through physical optical disc available in the retail stores. Although this price cut was a drastic cut from previous OS prices, we believe the online availability of software would have reduced input cost for Apple. Hence the gross margins may not be affected through this change.
2. **INCREASED MAC UNITS SALES TO BENEFIT SOFTWARE & SERVICES SEGMENT** – The Software and Services segment's revenues are directly correlated with the number of Mac desktops and notebooks unit sales. As we expect healthy Mac unit growth, it should directly benefit Software & Services segment of Apple.
3. **NEGLIGIBLE INPUT OR MANUFACTURING COSTS** – Since Software & Services segment manufactures software and provides warranty services, we believe that these mostly involve the manpower costs and negligible manufacturing or input costs.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	2.44	2.72	3.01	3.62	3.58	3.64	3.69	3.74	3.79	3.81	3.82
Direct Expense (Bil \$)	0.73	0.82	0.89	1.07	1.06	1.07	1.08	1.09	1.10	1.10	1.10
Indirect Expense (Bil \$)	0.90	0.54	0.55	0.66	0.98	1.00	1.09	1.15	1.20	1.23	1.25
Gross Profit (Bil \$)	1.71	1.90	2.12	2.55	2.52	2.57	2.61	2.65	2.69	2.70	2.72
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	1.55	1.57	1.51	1.50	1.48	1.47	1.46

In addition, you can see the detailed P&L for the Software & Services business in the Appendix ([link](#))

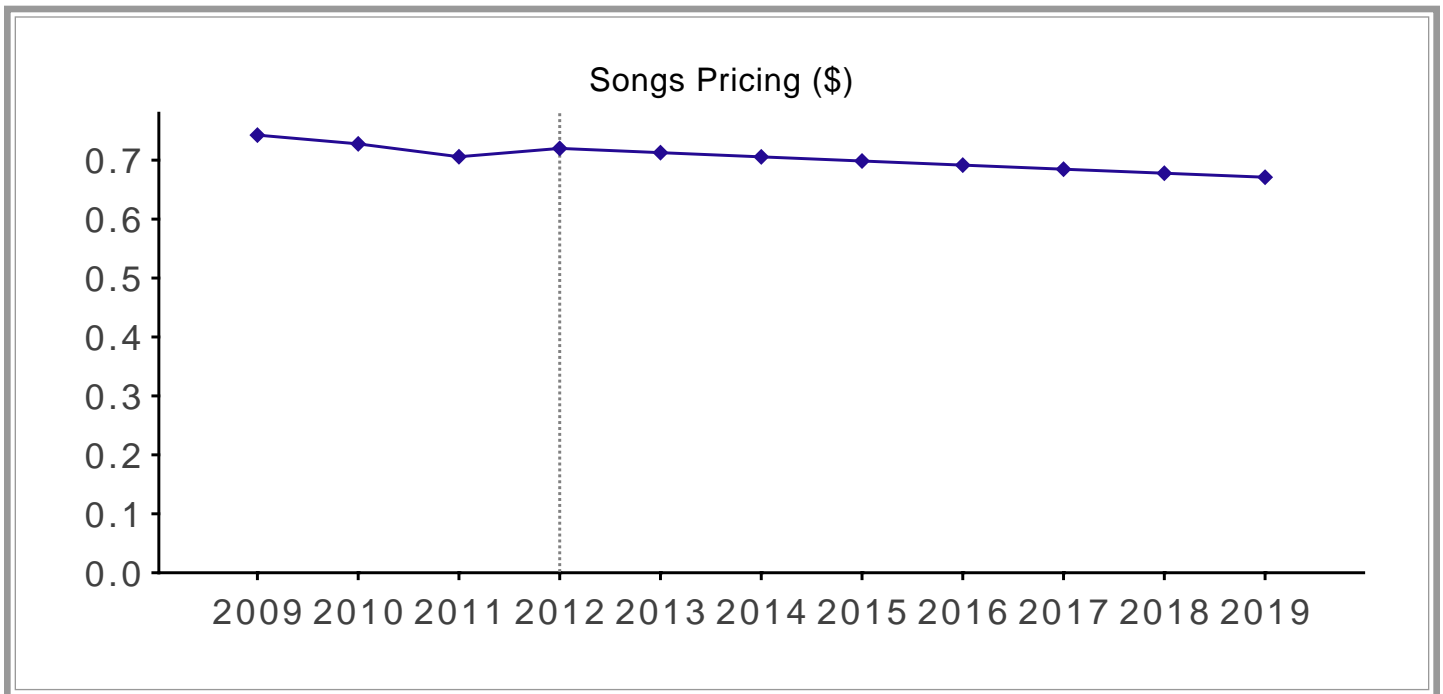
iTunes

The iTunes division is part of the iTunes & iOS Apps business, and constitutes 1.14% of our \$626 price estimate for the stock, based on our sum of the parts analysis. The most important drivers for the iTunes business are:

- Songs Pricing
- Unit Sales of Songs
- iTunes Gross Profit Margin

— SONGS PRICING —

Songs Pricing represents the average price of Songs sold through the iTunes store. Apple has discontinued selling all individual songs for \$0.99; and started offering three tiers: \$0.69, \$0.99 and \$1.29 in 2009.



Songs Pricing is estimated to have declined from around \$0.99 in 2008 to \$0.72 in 2012. Trefis forecasts that Songs Pricing will decline at a moderate rate.

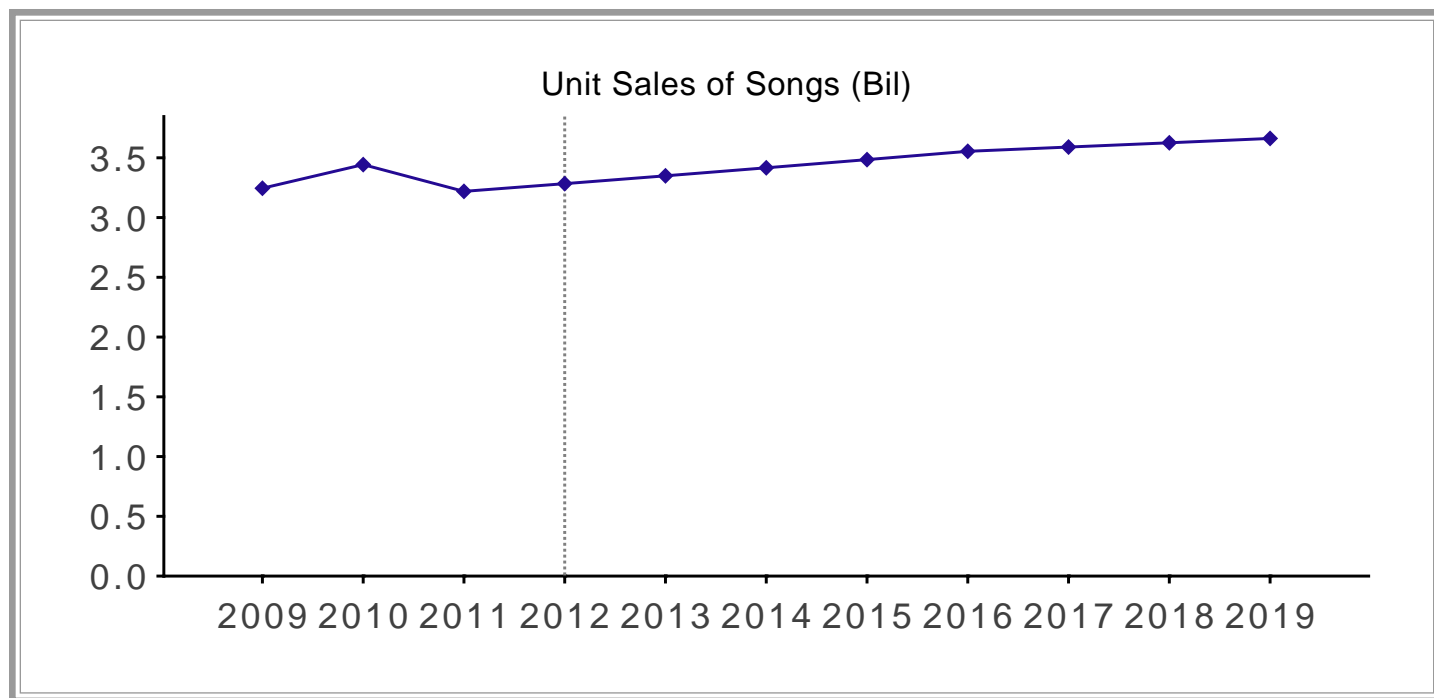
Forecast Rationale

1. INCREASE IN THE NUMBER OF RE-DOWNLOADS – Apple recently released the iCloud service that enables downloading a previously purchased song more than once for free. As an increasing number of such free re-downloads happen, the average pricing per download is bound to decrease.
2. ILLEGAL MUSIC DOWNLOADS STILL PREVALENT – The music industry has realized that it is almost impossible for them to stop illegal music downloads from the Internet. So, to counter-attack, the industry has started reducing the prices of legal music available online. We expect iTunes to lead the industry trend for lower pricing over time.
3. ONLINE MUSIC HAS CHEAP AVAILABLE SUBSTITUTES – What users find the best about iTunes is the voice quality when listened through a iPod or iPhone. But Apple is facing increasing competition from Pandora and Samsung's Media Store, which sells individual tracks for a lower price to iTunes. Another competitor NextTune offers much the same functionality as iTunes.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— UNIT SALES OF SONGS —

Unit Sales of Songs represents the number of units of Songs sold by Apple.



The Unit Sales of Songs has increased from 2.1 billion units in 2008 to about 3.3 billion units in 2012 as per our estimates. Trefis forecasts that Unit Sales of Songs will continue to increase.

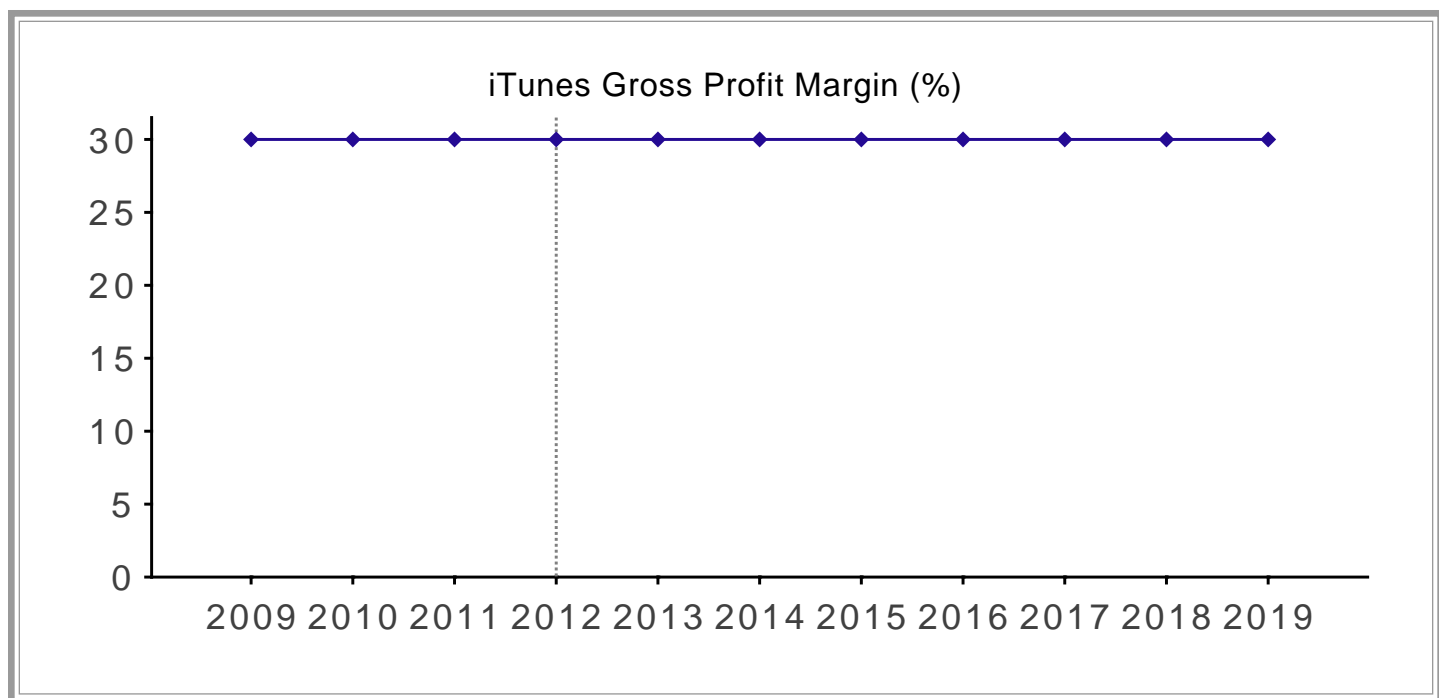
Forecast Rationale

1. RECESSIONARY ENVIRONMENT A BOON FOR ONLINE CONTENT – Due to the prevailing recessionary environment, where users are looking to cut costs wherever possible, we expect the online usage for content to increase as it provides low cost substitutes. For example, users like to download iTunes Music rather than buy a music CD or DVD, which costs much more.
2. COPYRIGHT PROTECTION LAWS DISSUADING PEOPLE TO USE ILLEGAL MEANS OF MUSIC DOWNLOAD – iTunes will gain more if copyright protection laws for illegal music download remain strict and enforceable. We foresee that this is indeed the case that should happen going forward although illegal music downloads have reached record highs. iTunes provides low cost legal music downloads and hence should see increased usage.
3. COMPETITION FROM ANDROID – Google recently announced a music app, called Google Music, that will form part of a new version of Android. As more competitors start providing iTunes-like services on their smartphones, Apple may see declining music downloads through iTunes.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— ITUNES GROSS PROFIT MARGIN —

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold. These margins include the margins for iTunes as well as iPhone Applications segment.



iTunes Gross Profit Margin has remained constant at around 30% from 2007 to 2012, as per our estimates.

Online downloading has always been a low margin business, as major share of profits is taken up by production companies and iPhone Apps developers as they are the content providers.

Trefis forecasts that iTunes Gross Profit Margin will remain constant as we don't expect Apple to change its policy of giving 70% cut to production companies and applications developers.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	2.65	3.20	3.00	3.25	3.34	3.41	3.46	3.50	3.53	3.55	3.58
iPod Games Revenues (% of total)	0.10	0.10	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10
Movie Revenues (% of total)	0.73	0.65	0.74	0.69	0.68	0.66	0.65	0.64	0.63	0.63	0.62
eBooks Revenues (% of total)	n/a	13.3	15.7	16.8	17.5	18.3	18.9	19.5	20.3	21.1	21.9
Audiobooks Revenues (% of total)	0.25	0.22	0.26	0.24	0.24	0.23	0.23	0.23	0.22	0.22	0.22
TV Show Revenues (% of total)	8.04	7.37	7.37	9.29	9.96	10.0	9.69	9.36	9.09	8.83	8.57
Music Revenues (% of total)	90.9	78.4	75.8	72.8	71.5	70.7	70.5	70.2	69.7	69.1	68.6
Direct Expense (Bil \$)	1.86	2.24	2.10	2.27	2.34	2.39	2.42	2.45	2.47	2.49	2.51
Indirect Expense (Mil \$)	421	274	233	254	387	396	434	456	474	485	495
Gross Profit (Bil \$)	0.80	0.96	0.90	0.97	1.00	1.02	1.04	1.05	1.06	1.07	1.08
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	613	626	601	594	584	580	579

In addition, you can see the detailed P&L for the iTunes business in the Appendix ([link](#))

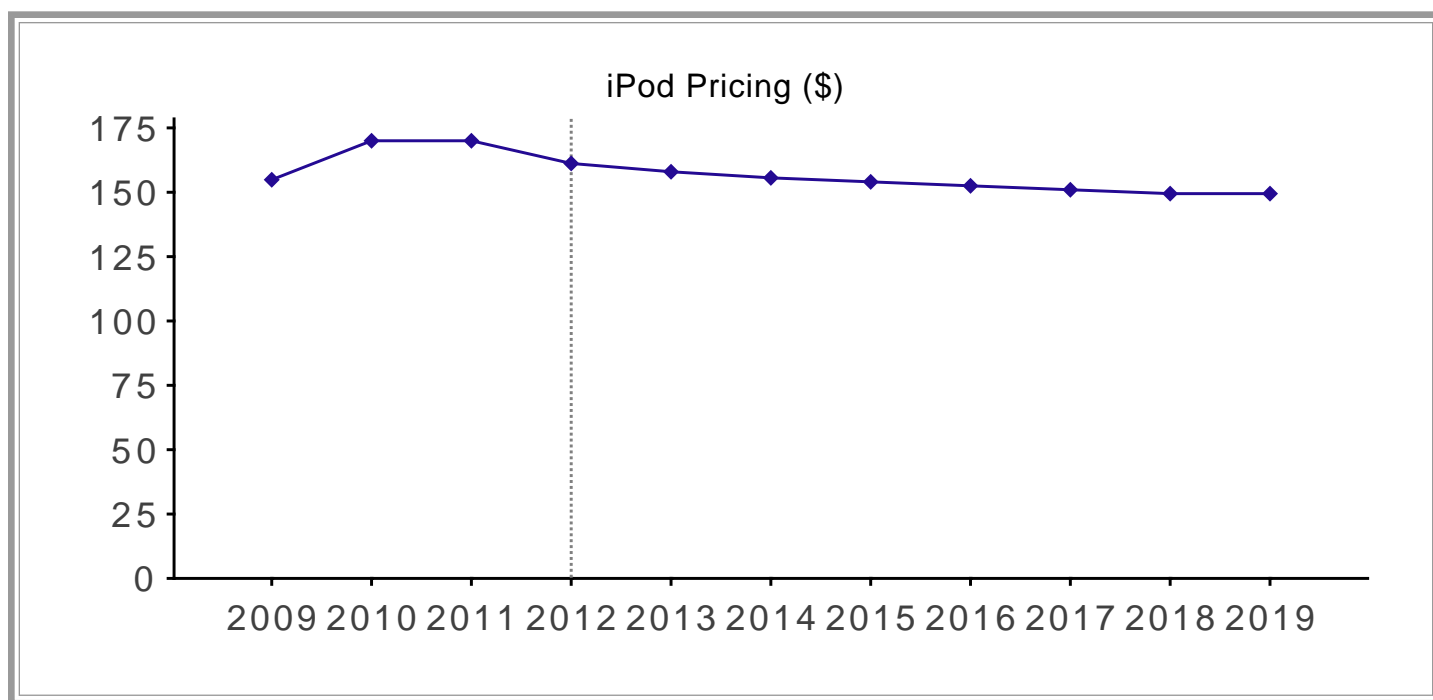
iPod

The most important drivers for the iPod business are:

- iPod Pricing
- iPod Market Share
- Portable Media Players Units
- iPod Gross Profit Margin

– IPOD PRICING –

iPod Pricing represents the average price of the iPod.



iPod Pricing decreased from \$168 in 2007 to \$155 in 2009. However, pricing decline was arrested in 2010, when average prices increased to \$163. The trend persisted into 2011 as well due to the increasing mix of iPod Touch. 2012 saw a return to the long-term declining trend. Trefis forecasts that the iPod Pricing will decline at a moderate rate before stabilizing towards the end of the forecast period.

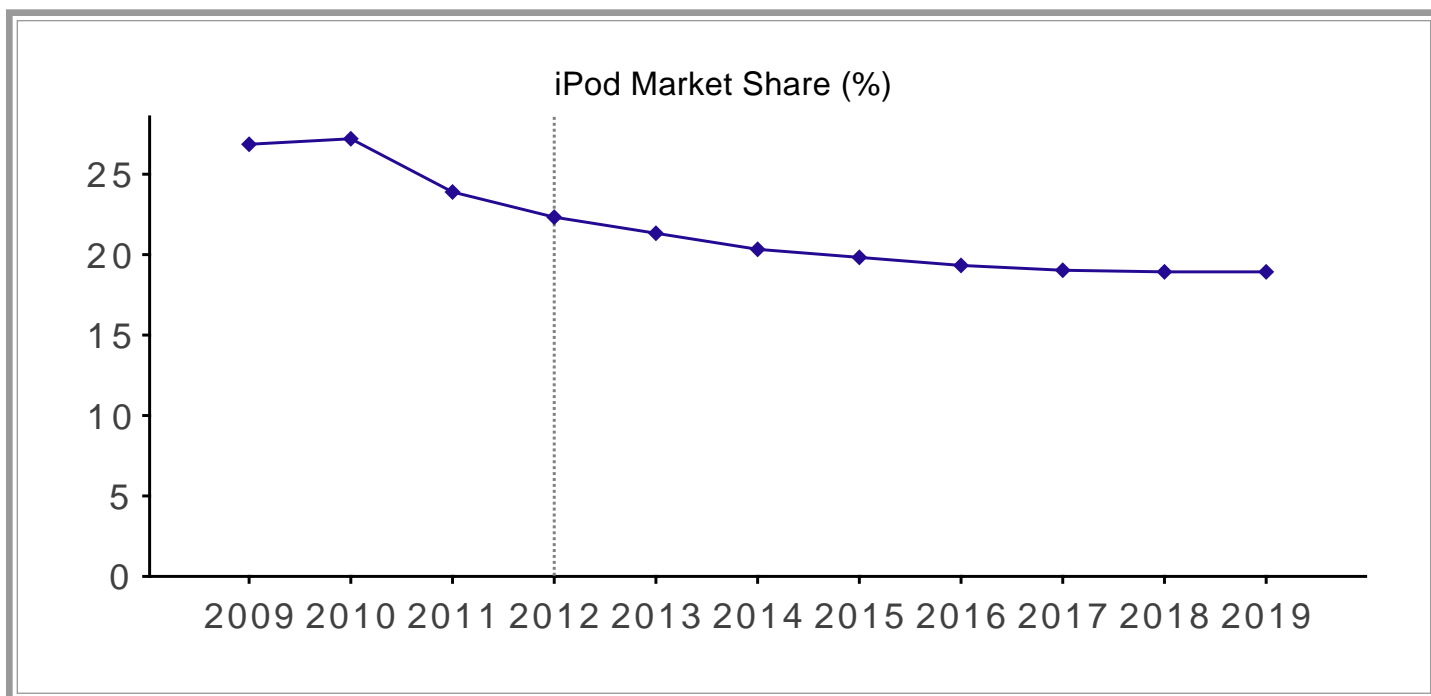
Forecast Rationale

1. **TECHNOLOGY IMPROVEMENTS AND REDUCED INPUT COSTS** – iPod uses NAND flash memory for most of its models, for which costs are constantly falling. Also, technology improvements and the recently concluded Anibot acquisition should enable Apple to decrease its manufacturing cost; and hence, pass on the cost saving to its customers.
2. **IPOD TOUCH POPULARITY** – Increasing mix of iPod Touch driving average prices up. iPod Touch accounts for over half of iPod sales. We believe this ratio will increase in the coming years as touch-screen interface becomes more popular, thereby supporting margins.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— IPOD MARKET SHARE —

iPod Market Share represents the percentage of worldwide media player units sold by Apple. Its primary competitors are Sandisk, Creative and Microsoft.



iPod has always been a market leader and has been able to maintain a large portion of market share primarily due to its marketing strategy and brand name. iPod Market Share has declined from 25.4% in 2008 to 22.3% in 2012, as per our estimates. We expect to see iPod continue to lose market share at a moderate rate for a few years before stabilising.

Forecast Rationale

Mitigating:

1. CANNIBALIZATION FROM IPHONE – We expect that higher-end iPod versions such as the iPod Touch will experience sales cannibalization from customers opting for iPhones with similar functionality. Since iPod Touch has been contributing the most to iPod sales, decline in the sales of iPod Touch will impact overall iPod sales. As smartphone demand grows, smartphones become an easy substitute for Media Players, as most of the features present in Portable Media Players are also available in today's generation of smartphones. Falling smartphone prices will increasingly cause users to buy a smartphone, instead of going for a dedicated music player.
2. APPLE'S FOCUS SHIFTING TOWARDS SMARTPHONES AND TABLETS – Apple has now shifted its attention to the high-margin iPhone and iPad business, where higher growth is being seen. This is in line with the market trend as customers increasingly use their smartphones for music purposes as well, removing the need for an additional dedicated music player. Falling smartphone prices will increasingly cause users to prefer a smartphone over a portable media player.
3. INCREASED COMPETITION FROM SONY, CREATIVE AND SANDISK – Many of competitors products are priced much cheaper than the iPod. Although the iPod has always enjoyed a bigger chunk of market share since its inception, better and cheap products from Sony, Creative and Sandisk should serve a warning to iPod near monopoly. For example, the Sanza Fuze from Sandisk has many features which helps it compete directly with the iPod Nano and is

priced cheaply as well.

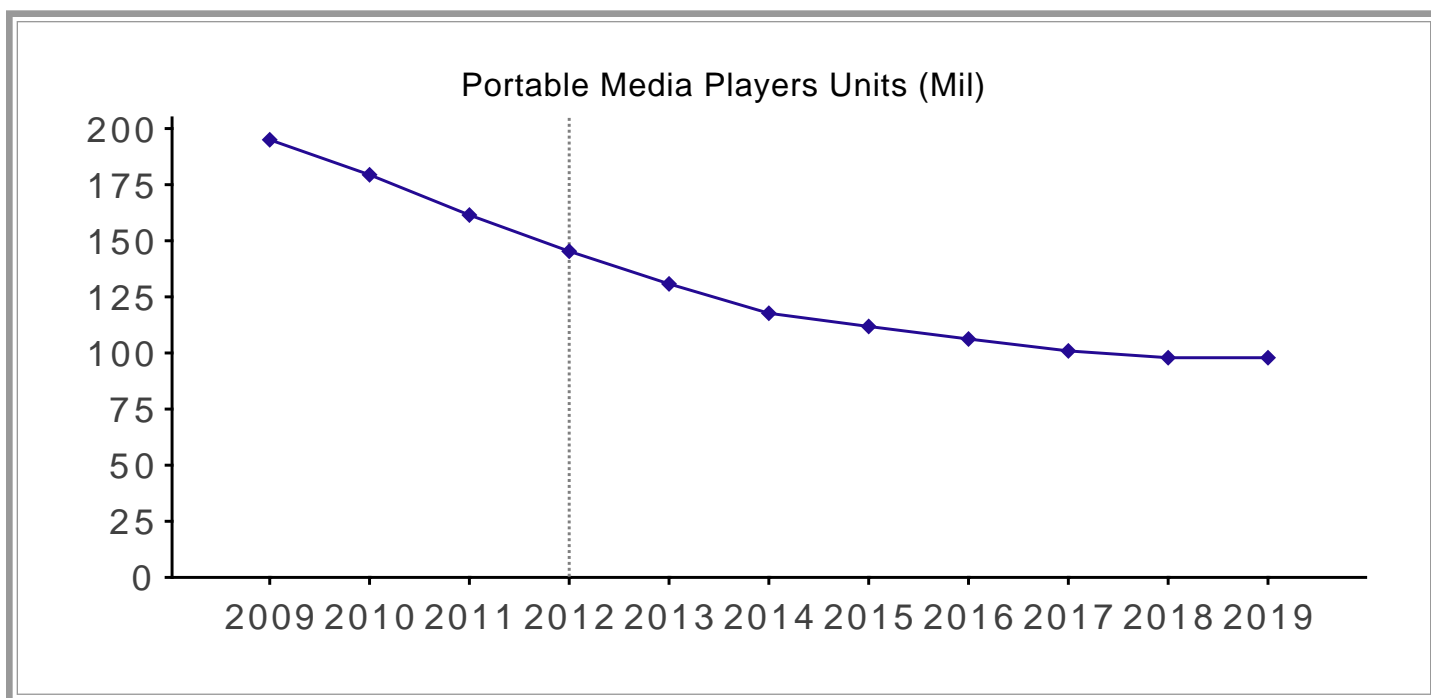
Supporting:

4. MICROSOFT WILL STOP INTRODUCING NEW VERSIONS OF ZUNE – [According to a March 2011 Bloomberg report](#), Microsoft will stop introducing new versions of the Zune music and video player because of the tepid demand. Microsoft's only chance of maintaining market share was to keep coming out with the compelling new versions of Zune. However, now Microsoft will only be selling the existing versions of Zune. This means that its market share could continue to decline to almost zero levels in a few years from now. However, this may not affect Apple much as the Zune never managed to catch on anyhow.
5. SEAMLESS INTEGRATION BETWEEN IPOD AND ITUNES – The expansion of content--including Digital Rights Management (DRM) free content--on Apple's iTunes Store, as well as the designed synchronization of iPods and iTunes, makes Apple's products more appealing to many consumers.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– PORTABLE MEDIA PLAYERS UNITS –

Portable Media Players Units represents the number of media players sold each year globally.



Historically, media player units sales have increased from 120 million units in 2005 to around 145 million units in 2012. We expect the global media players market to decrease.

Forecast Rationale

Supporting:

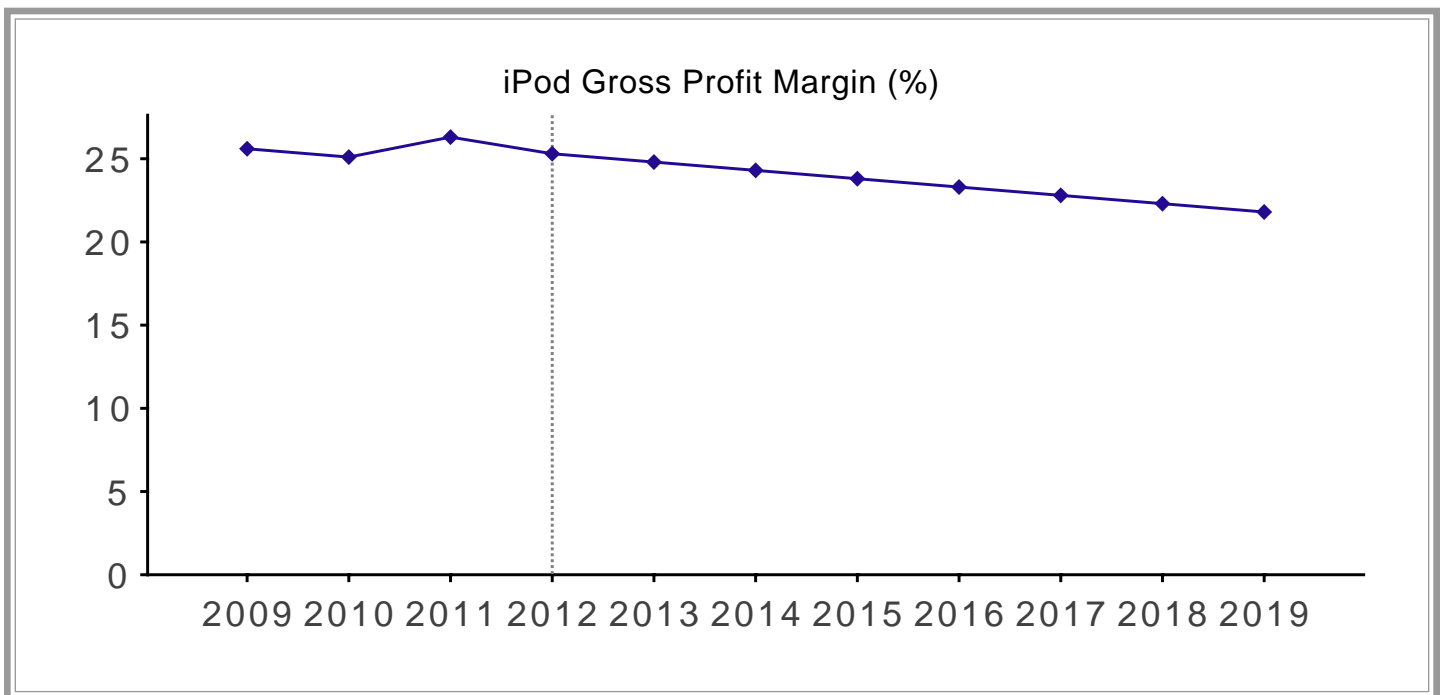
- I. SMARTPHONES ACTING AS SUBSTITUTES FOR PORTABLE MEDIA PLAYERS – As smartphone demand grows, smartphones become an easy substitute for Media Players, as most of the features present in Portable Media Players are also available in today's generation of smartphones. Falling smartphone prices will increasingly cause users to buy a smartphone, instead of going for a dedicated music player.

Mitigating:

2. **FALLING DIGITAL MEDIA PLAYER PRICES COULD STIMULATE DEMAND** – Digital media players are undergoing reduced prices due to technology improvement and increased competition. For example, Apple, Sandisk, and Creative are vying to take the share of Media players. We believe the decreased average selling price of media players could help slow a decline in demand. Emerging markets, where smartphones have still not penetrated could support demand for some time.
3. **VIDEO PLAYING AND VOICEOVER CAPABILITIES PROVIDE MULTIPLE FEATURES** – Media players have transitioned from a pure digital audio player to a video-playing device with voice-recognition capabilities, which makes them arrange playlists according to a user's voice commands. These innovative additions to the features could prevent declines. Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– IPOD GROSS PROFIT MARGIN –

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



iPod's margins have remained more or less in the 25-26% range, as per our estimates. We forecast that iPod Gross Profit Margin will decline at a moderate rate.

Forecast Rationale

Supporting:

1. **PRICE CUTS** – Apple has aggressively reduced pricing of each iPod model, which has and will continue to contribute to reducing gross margins.

Mitigating:

2. **FALLING INPUT OR MANUFACTURING COSTS** – Since the iPod uses NAND flash memory for most of its models, for which the cost are constantly falling. Also, technology improvements and the recent Anibot acquisition should enable

Apple to decrease the iPod's manufacturing cost.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	9.01	9.13	7.29	5.92	5.01	4.25	3.92	3.60	3.35	3.21	3.22
iPods (% of total)	90.0	90.9	89.9	88.3	87.9	87.5	87.2	86.9	86.5	86.2	85.9
iPod Accessories (% of total)	10.00	9.09	10.1	11.7	12.1	12.5	12.8	13.1	13.5	13.8	14.1
Direct Expense (Bil \$)	6.70	6.84	5.37	4.42	3.77	3.22	2.98	2.76	2.59	2.50	2.52
Indirect Expense (Bil \$)	1.22	0.65	0.50	0.39	0.48	0.40	0.39	0.37	0.34	0.33	0.32
Gross Profit (Bil \$)	2.31	2.29	1.92	1.50	1.24	1.03	0.93	0.84	0.76	0.72	0.70
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	762	633	541	474	421	390	378

In addition, you can see the detailed P&L for the iPod business in the Appendix ([link](#))

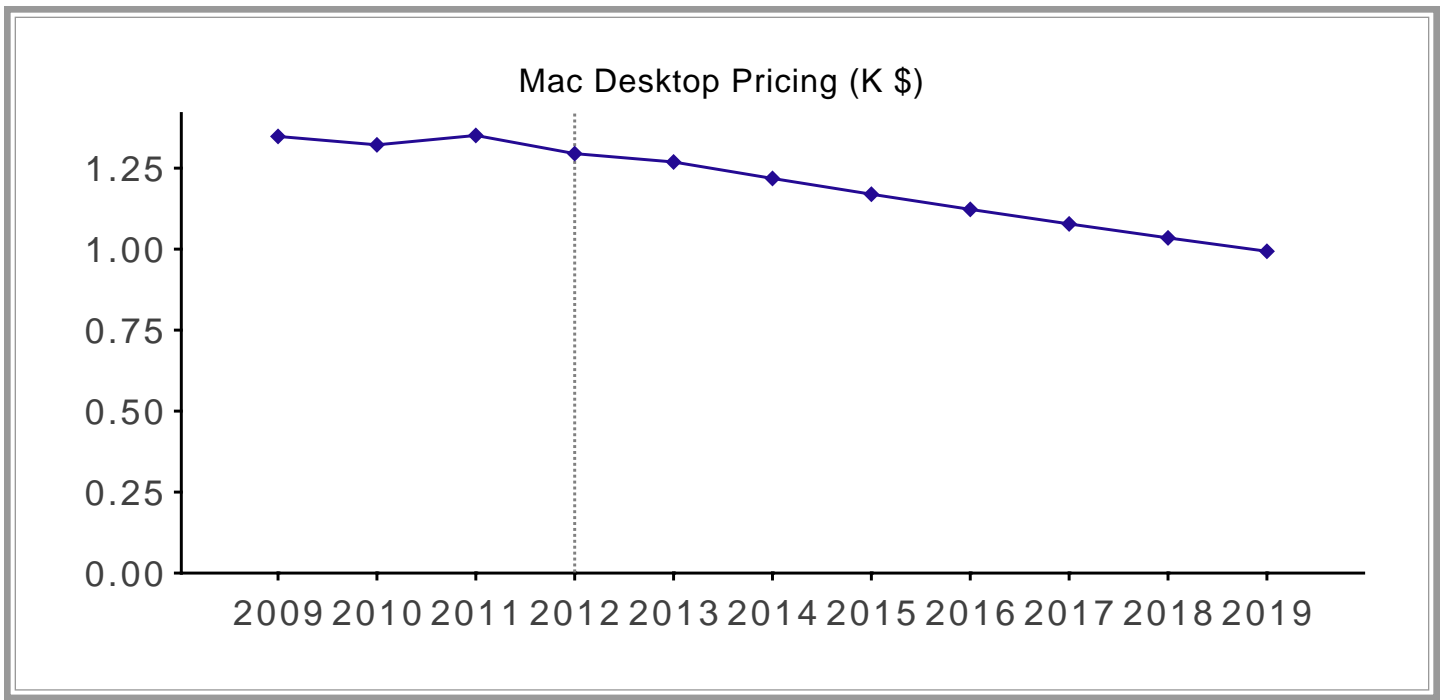
Desktops

The Desktops division is part of the Macintosh business, and constitutes 0.72% of our \$626 price estimate for the stock, based on our sum of the parts analysis. The most important drivers for the Desktops business are:

- Mac Desktop Pricing
- Mac Desktops Market Share
- Global Desktop Units Sold
- Mac Desktops Gross Profit Margin

— MAC DESKTOP PRICING —

Mac Desktop Pricing represents the average price of a Mac Desktop.



The average Mac Desktop Pricing decreased from \$1490 in 2008 to about \$1300 in 2012, by our estimates. Trefis forecasts that Mac Desktop Pricing will continue to decrease.

Forecast Rationale

Supporting:

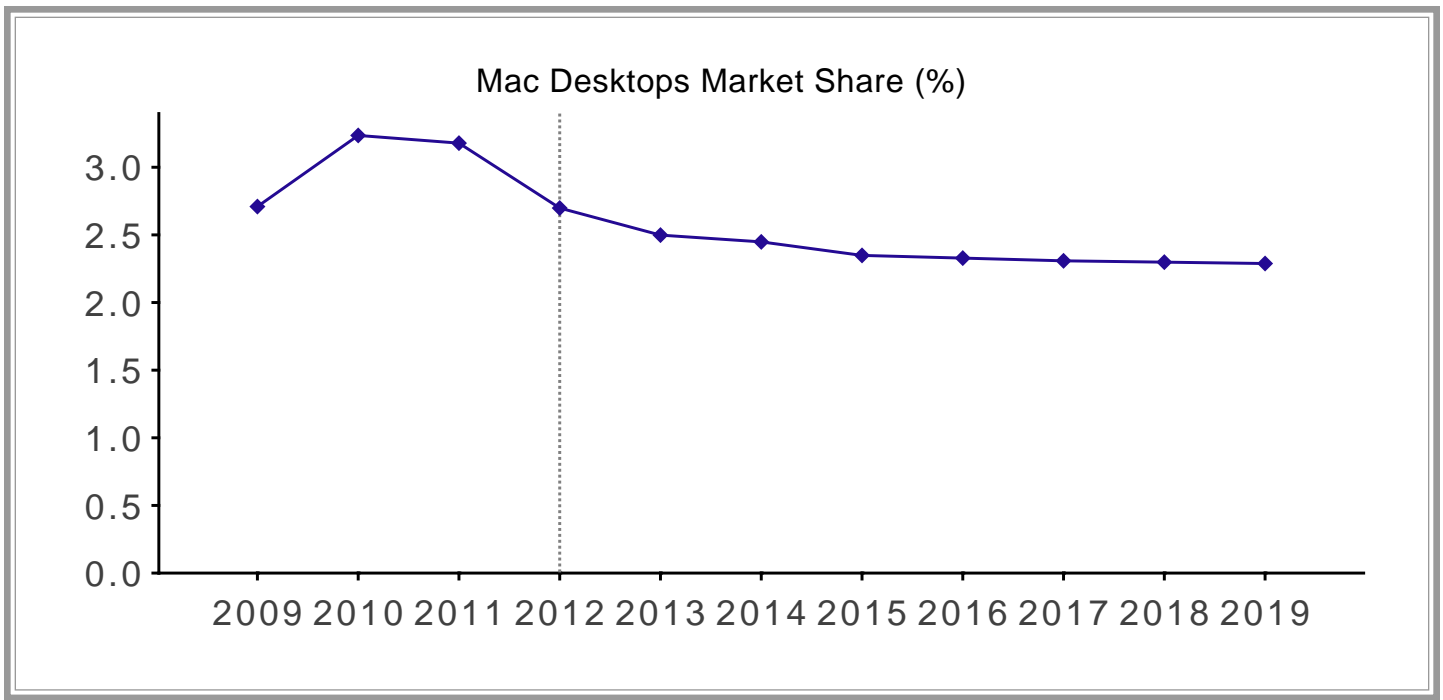
- 1. INCREASING ADOPTION OF NOTEBOOKS OVER DESKTOPS – Increasing worldwide preference for notebooks over desktops means that desktop prices should decline at a fast pace to remain attractive to buyers.

Mitigating:

- 2. GROWING USER BASE OF ITS UNIQUE PC PLATFORM – Surprisingly, Apple's Mac Desktop Pricing has not seen the same level of price erosion experienced by competing desktops from Dell, Acer and HP. Apple has always had a niche market and differentiated product in the crowded personal computer market. Apple's strong brand recognition and the success of its OS X Operating system has contributed to its growing user base.
 - 3. INCREASE IN PRICING AS DESKTOPS BECOME MORE POWERFUL – Demand for desktops may ultimately be limited to very powerful computers, in which case the average pricing for such computers may be higher than historical averages.
- Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— MAC DESKTOPS MARKET SHARE —

Mac Desktops Market Share represents the percentage share of Desktop Units sold by Apple. Its primary competitors are HP, Dell, and Acer.



The Mac Desktops Market Share increased from 2% in 2007 to around 2.7% in 2012.

Trefis forecasts that Mac Desktops Market Share will continue to increase at a moderate rate.

Forecast Rationale

Supporting:

1. **UNIQUE GRAPHICAL USER INTERFACE AND NEW PRODUCTS** – Macintosh scores over other competitors in terms of the unique and user friendly graphical user interface. Its unique touch screen interface is what attracts the high-end users. Mac has consistently come up with new products, such as. The Mac Pro is specifically designed for professionals and business users. The iMac is targeted at general consumers, users who intend to use it for educational purposes, and business users. The Mac Mini is a small sized desktop, which is priced lower and starts at \$599. Apple announced updates to the Mac Mini to include Ivy Bridge processors and hybrid storage options in October 2012.
2. **SWITCHING FROM PC TO MAC HAS BECOME EASIER** – Switching to a Mac is becoming increasingly appealing to existing PC-Windows users due to Apple's Mac OS and Windows' dual-boot system (Bootcamp). Additionally, low-cost virtualization software, such as Parallels has made it easier to retain Windows features on a Macintosh. Key Microsoft productivity tools, such as Microsoft Office can also be run natively in Mac OS.
3. **HALO EFFECT OF IPOD AND IPHONES** – Mac has been able to increase its market share due to the halo effect, whereby satisfied iPod and iPhone users purchase more Apple products. The market share increase has been in effect after Apple re-branded its Mac.

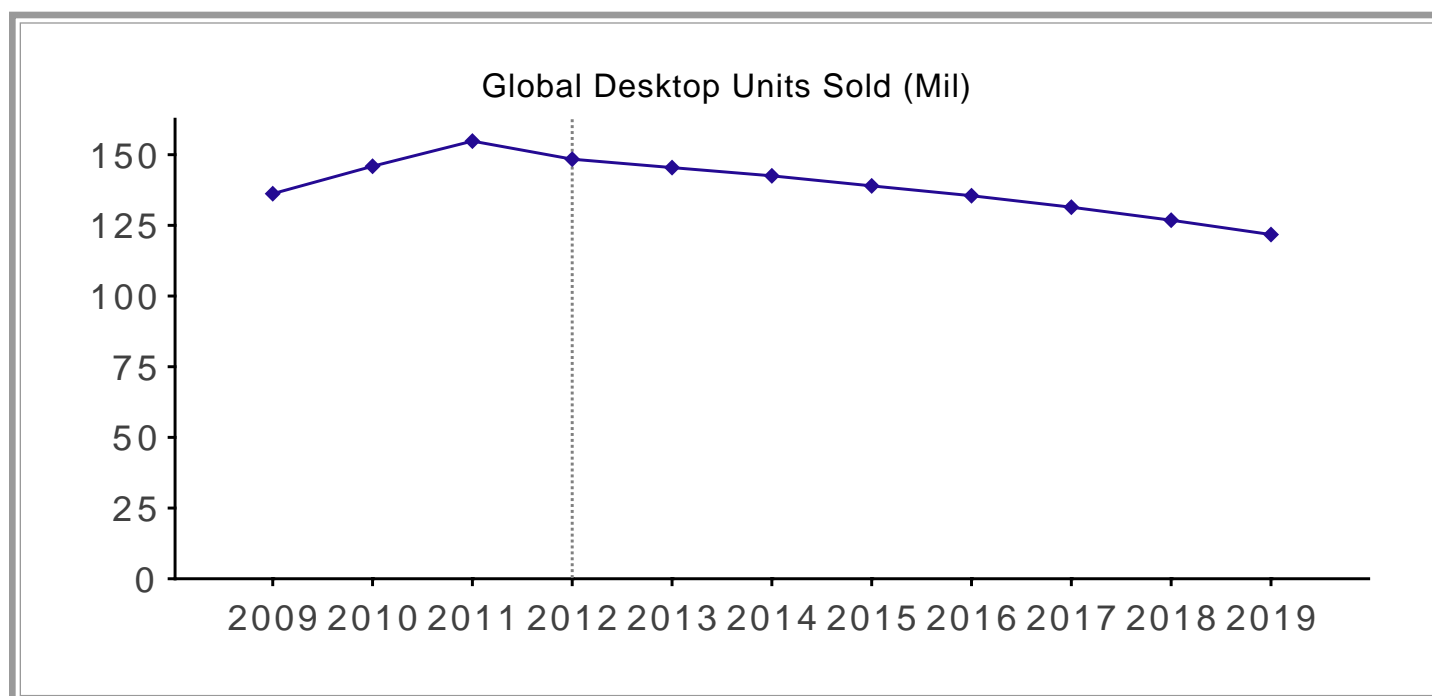
Mitigating:

4. **RECESSIONARY ENVIRONMENT TO PREVENT USERS FROM SWITCHING TO MAC** – All Mac desktops are in the higher price range when compared to competitors like HP, Dell, and Acer. This could be a disadvantage to Apple, as consumers look to cut costs, especially in the recessionary environment.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— GLOBAL DESKTOP UNITS SOLD —

Global Desktop Units Sold represents the number of desktop units sold each year globally.



Global desktop units sales decreased from 151 million units in 2007 to 136 million units in 2009. However, this figure improved in 2010 amounting to 146 million as a result of economic recovery globally and stayed nearly flat for the next two years.

Going forward, we expect slight improvement in desktop unit sales followed by decline in later years.

Forecast Rationale

Supporting:

1. EMERGING MARKET GROWTH CAN HELP – As developed markets show signs of slowdown, emerging markets are offering some hope. China and India are big markets, with the former representing about [20% of global PC demand now](#), according to Intel's Q4 FY 2011 earnings call. Growth in emerging markets can compensate, to an extent, for weakening demand for desktops in developed markets.
2. INCREASING SHIFT FROM DESKTOPS TO NOTEBOOKS – There has been a significant shift from desktops to notebooks in the last few years. Q3 08 is seen as the inflection point when notebook shipments outpaced desktop shipments for the first time. One of the reasons notebooks are gaining increasing popularity over desktops is because of their size which allows for greater mobility.
3. ADVENT OF NETBOOKS & TABLETS – The advent of netbooks and mini notebooks at prices starting at \$200 is giving consumers a very economical and convenient option and this should hurt the growth in desktop shipments in future. Netbooks are now being replaced by tablets. Their popularity has risen meteorically, led by the iPad.

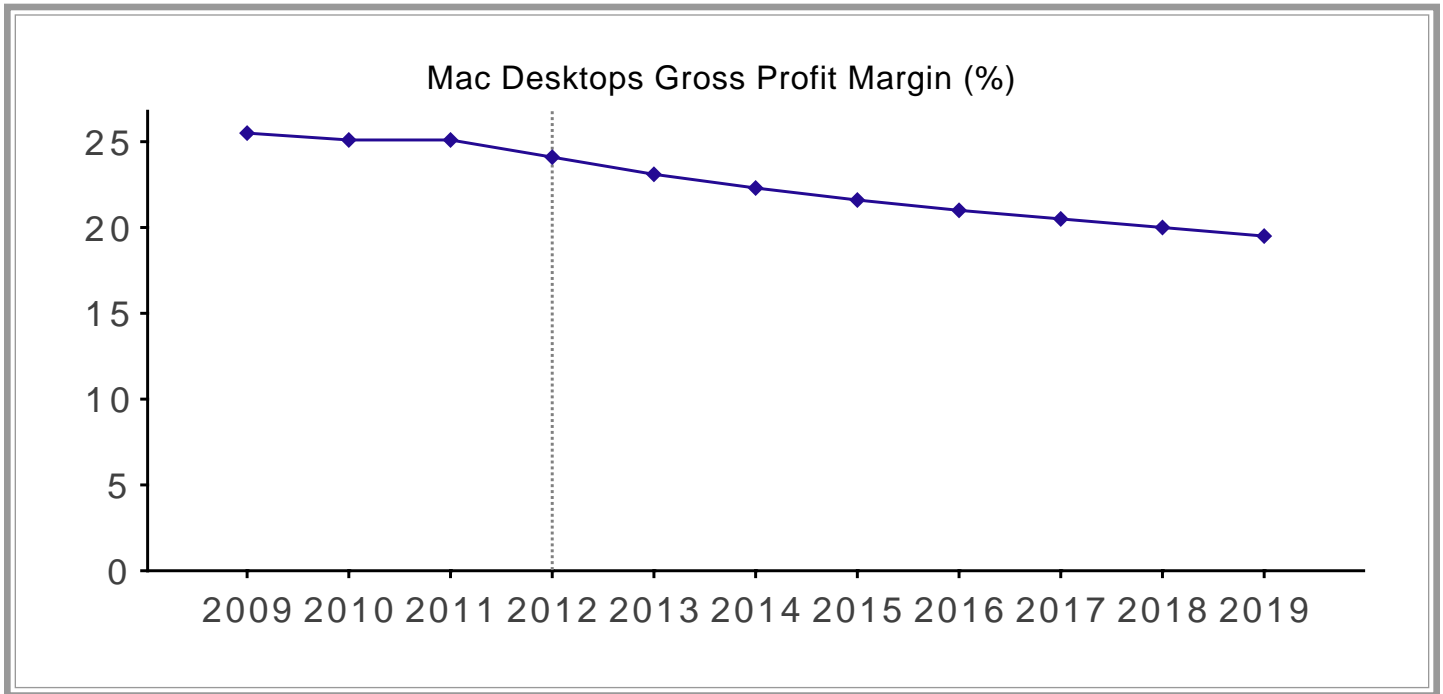
Mitigating:

4. CLOUD SERVICES COULD BE A THREAT TO PC MARKET GROWTH – Apple's iCloud service gives user the ability to listen to music stored in the cloud (remote computers) through iPhone, iPad or Mac. iCloud and other cloud services on offer by Amazon and Google have the potential to replace the traditional usage of the PC as a music, photo and document library, thereby limiting PC's usage. Those customers may choose to just have the iPhone and iPad (which now automatically sync with each other via iCloud) and not own a PC altogether.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— MAC DESKTOPS GROSS PROFIT MARGIN —

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



Mac Desktops Gross Profit Margin has been around 25% historically according to our estimates. Trefis forecasts that Mac Desktops Gross Profit Margin will decline at a moderate rate.

Forecast Rationale

Supporting:

1. **PRICE COMPETITION IN DESKTOPS AND FALLING NOTEBOOK PRICES COULD PRESSURE MARGINS** – Notebooks are typically priced at a premium when compared to desktops with similar specifications; and their prices have formed an upper bound for desktop pricing. As notebook prices continue to fall to unprecedented lows--and pricing between desktops and notebooks remains narrow--Apple, along with other PC makers, may be forced to sacrifice margins to continue selling desktops.

Mitigating:

2. **FALLING INPUT OR MANUFACTURING COSTS** – Most Mac desktop models use Intel microprocessors, which are constantly declining in price. Technology improvements have enabled Mac to decrease its manufacturing cost.
3. **APPLE MAY FOCUS EXCLUSIVELY ON HIGH END DESKTOPS** – Rather than attempt to compete in the low-end desktop segment and to make desktop pricing as attractive as notebook pricing, Apple may choose to focus solely on high-end desktops, which have superior performance to notebooks. High end desktops would likely be priced at a premium and afford Apple better margins.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	4.97	6.24	6.65	5.19	4.61	4.25	3.82	3.54	3.27	3.02	2.77
Direct Expense (Bil \$)	3.71	4.67	4.98	3.94	3.55	3.30	2.99	2.80	2.60	2.41	2.23
Indirect Expense (Mil \$)	672	447	433	325	411	367	345	323	300	274	248
Gross Profit (Bil \$)	1.27	1.57	1.67	1.25	1.07	0.95	0.82	0.74	0.67	0.60	0.54
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	653	580	478	420	370	328	290

In addition, you can see the detailed P&L for the Desktops business in the Appendix ([link](#))

Peripherals

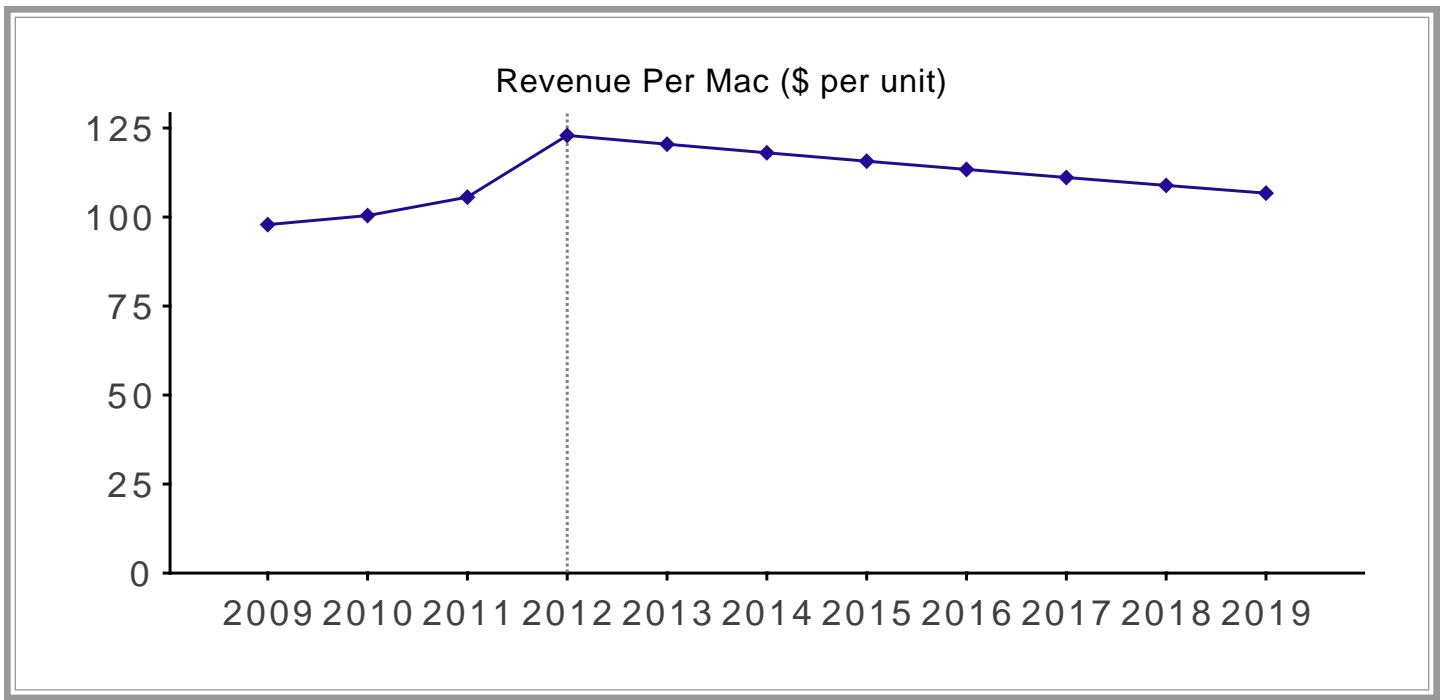
The Peripherals division is part of the Macintosh business, and constitutes 0.69% of our \$626 price estimate for the stock, based on our sum of the parts analysis. The most important drivers for the Peripherals business are:

- Revenue Per Mac
- Global Notebook & Netbook Units Sold
- Peripherals Gross Profit Margin

— REVENUE PER MAC —

The Peripherals subdivision of Mac desktops and notebooks consists of the peripherals or the accessories that can be connected to a Mac to enhance its features and quality. These include:

1. AirportExpress and AirportExtreme – These devices can be connected to speakers or work wirelessly.
2. Time Capsule – This device allows users to backup data wirelessly.
3. Keyboard
4. Wireless Mouse
5. LED Cinema Display – This is a display screen for desktops and notebooks



The Revenue Per Mac for Peripherals has decreased from approximately \$140 in 2007 to about \$120 in 2012 according to our estimates. Trefis forecasts that Peripherals will see a decline in Revenue Per Mac at a slower rate.

Forecast Rationale

1. SLOW ECONOMY FORCING CONSUMERS TO CUT COST ON DISCRETIONARY ITEMS – We believe the above mentioned peripherals are discretionary in nature and consumers will look to cut these types of costs in a slower economy or recessionary environment.
2. DECREASING NOTEBOOKS AND DESKTOPS PRICES MAY ALSO HAVE A MAJOR IMPACT – Since the world is seeing decreasing notebook and desktops price, people may shun away from buying expensive peripherals and instead buy a new Mac. This is because buying a Mac could become cost effective than buying peripherals, as Mac's pricing declines. Apple will have to lower the peripherals pricing in line with Mac desktop and notebook pricing, which also could impact Revenue Per Mac.

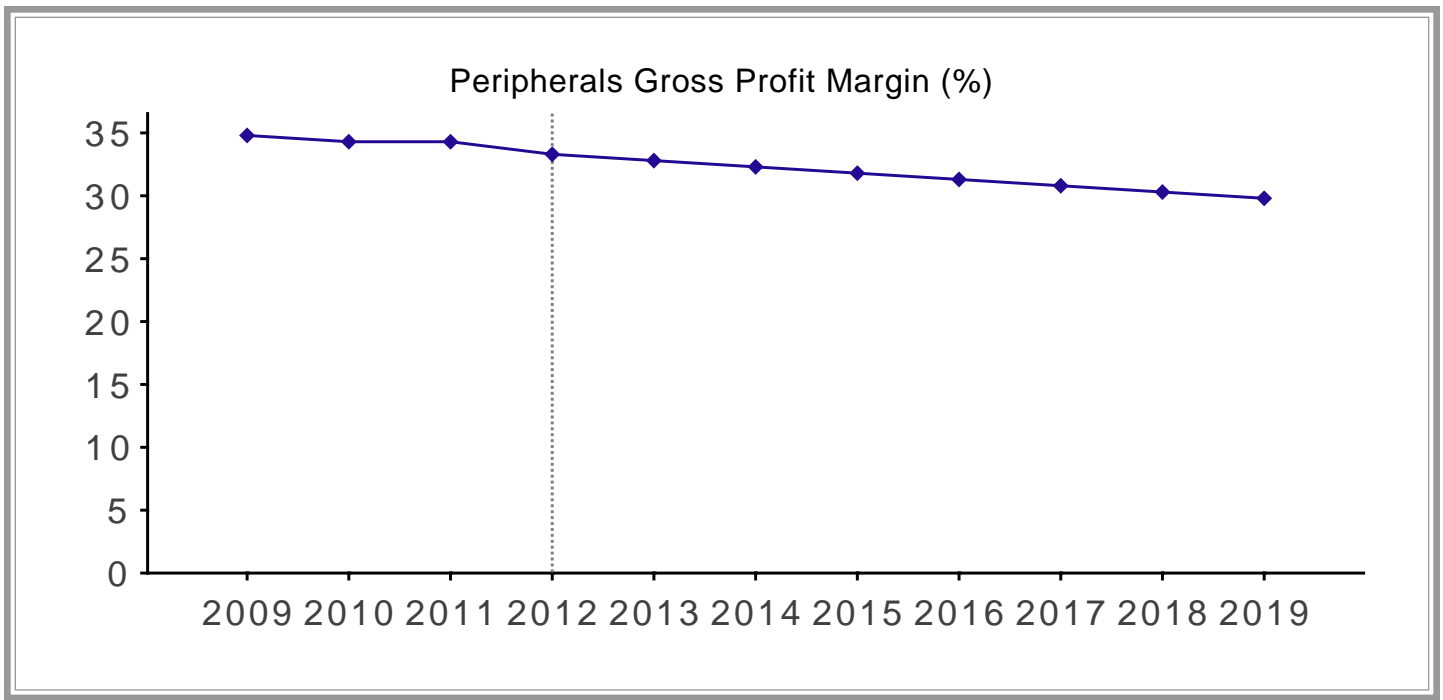
Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

– GLOBAL NOTEBOOK & NETBOOK UNITS SOLD –

See our analysis of Global Notebook & Netbook Units Sold in the Notebooks division [here](#).

– PERIPHERALS GROSS PROFIT MARGIN –

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



The Peripherals Gross Profit Margin has been maintained at around 35% as per our estimates. Trefis forecasts that Peripherals Gross Profit Margin will decline at a moderate rate.

Forecast Rationale

Supporting:

- 1. REDUCED TOPLINE GROWTH FOR PERIPHERALS DIVISION – As peripherals help induce Mac sales, Apple will be inclined to reduce their costs in order to drive sales, thereby impacting gross margins in the process.

Mitigating:

- 2. REDUCED INPUT OR MANUFACTURING COSTS – Since the Mac peripherals subdivision manufactures Mac accessories like LED Cinema displays, keyboards, wireless mice, and other accessories, the input costs for these are constantly falling due to technological improvement and increasing commoditization.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	1.10	1.45	1.88	2.09	2.05	2.06	2.07	2.09	2.11	2.12	2.13
Direct Expense (Bil \$)	0.72	0.95	1.23	1.40	1.38	1.40	1.41	1.43	1.46	1.48	1.50
Indirect Expense (Mil \$)	202	142	167	181	259	257	275	284	291	293	292
Gross Profit (Mil \$)	382	496	644	696	671	665	656	653	650	643	635
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	412	407	381	369	359	350	342

In addition, you can see the detailed P&L for the Peripherals business in the Appendix ([link](#))

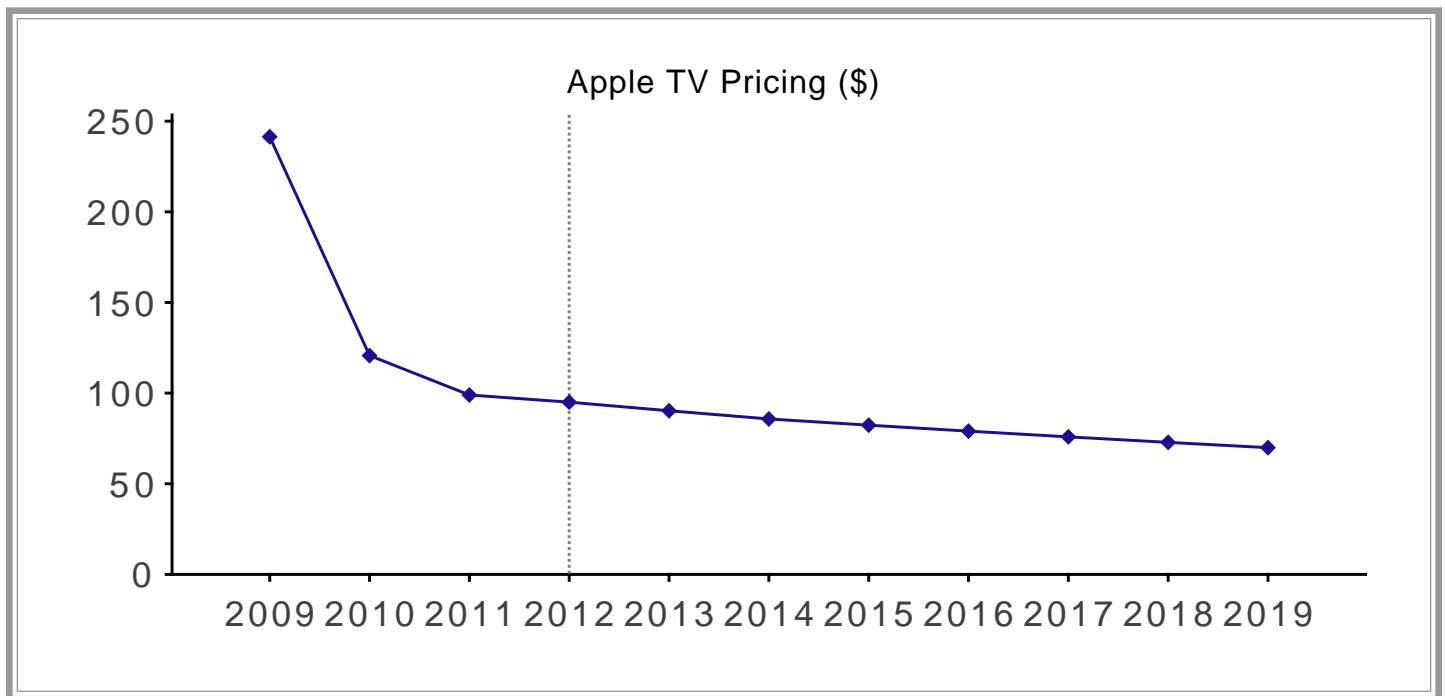
Apple TV

The most important drivers for the Apple TV business are:

- Apple TV Pricing
- Unit Sales of Apple TV
- Apple TV Gross Profit Margin

— APPLE TV PRICING —

Apple TV Pricing represents the average price of Apple TV.



Apple TV Pricing decreased from \$299 in 2007 to \$99 in 2011 and \$95 in 2012 as Apple launched the \$99 Apple TV. Trefis forecasts that Apple TV Pricing will continue to decrease, albeit at a moderate rate.

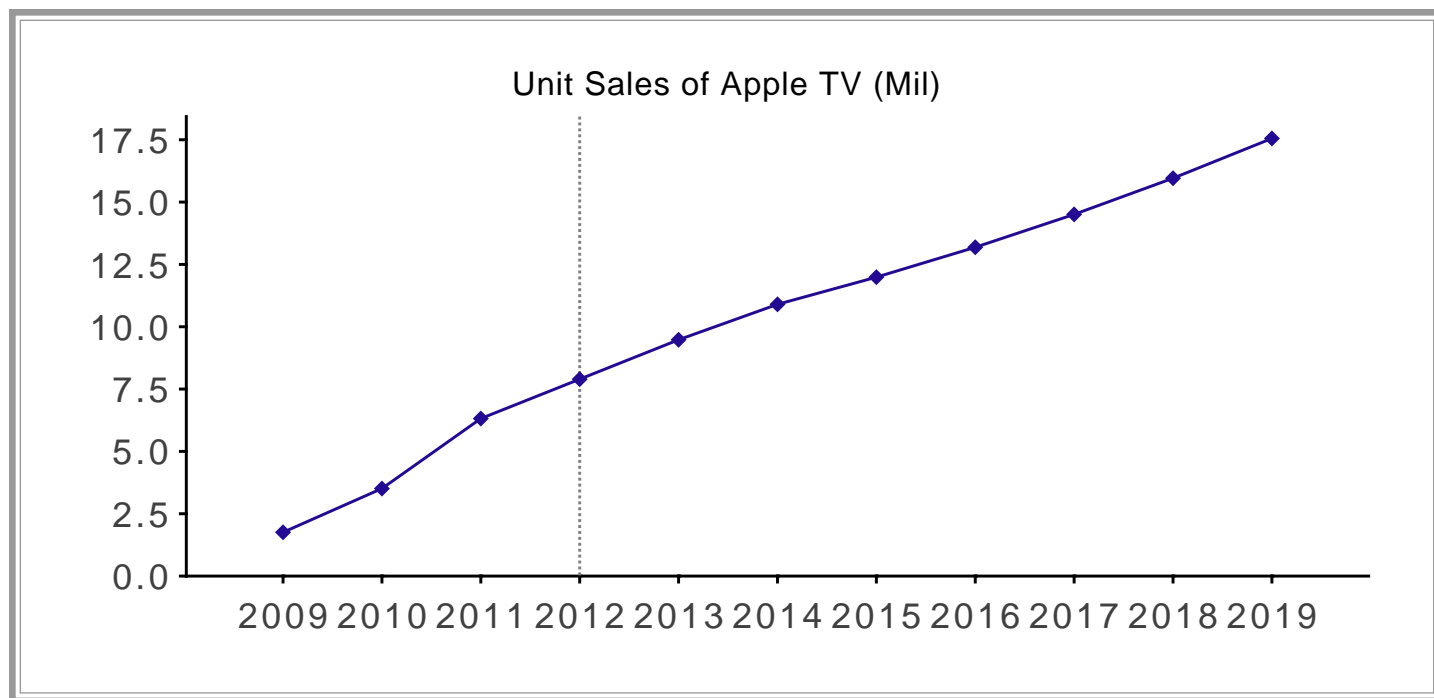
Forecast Rationale

1. **NEW APPLE TV PRICED AT \$99** – Apple unveiled the \$99 Apple TV that is a fourth of the size of the original. It has no local storage and streams the content from the Internet to the TV. Content can be streamed from sites like Netflix, YouTube as well as from PCs.
2. **APPLE TV PRICE LOWERED TO BOOST SALES AND INCREASE PUBLICITY** – We believe Apple TV is currently priced lower than many of Apple's other products on a gross margin basis. This is because Apple TV is a late comer to the digital set top box space and reducing the price is a strategy to gain share in this market.
3. **INTRODUCTION OF GAMING CONSOLE** – The Average Selling Price (ASP) declines of Apple TV may not continue at a fast rate in the future, as Apple integrates value-added features, such as the gaming console. These additional features will help arrest the price declines at a fast rate.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— UNIT SALES OF APPLE TV —

Unit Sales of Apple TV represents the number of units of Apple TV sold by Apple.



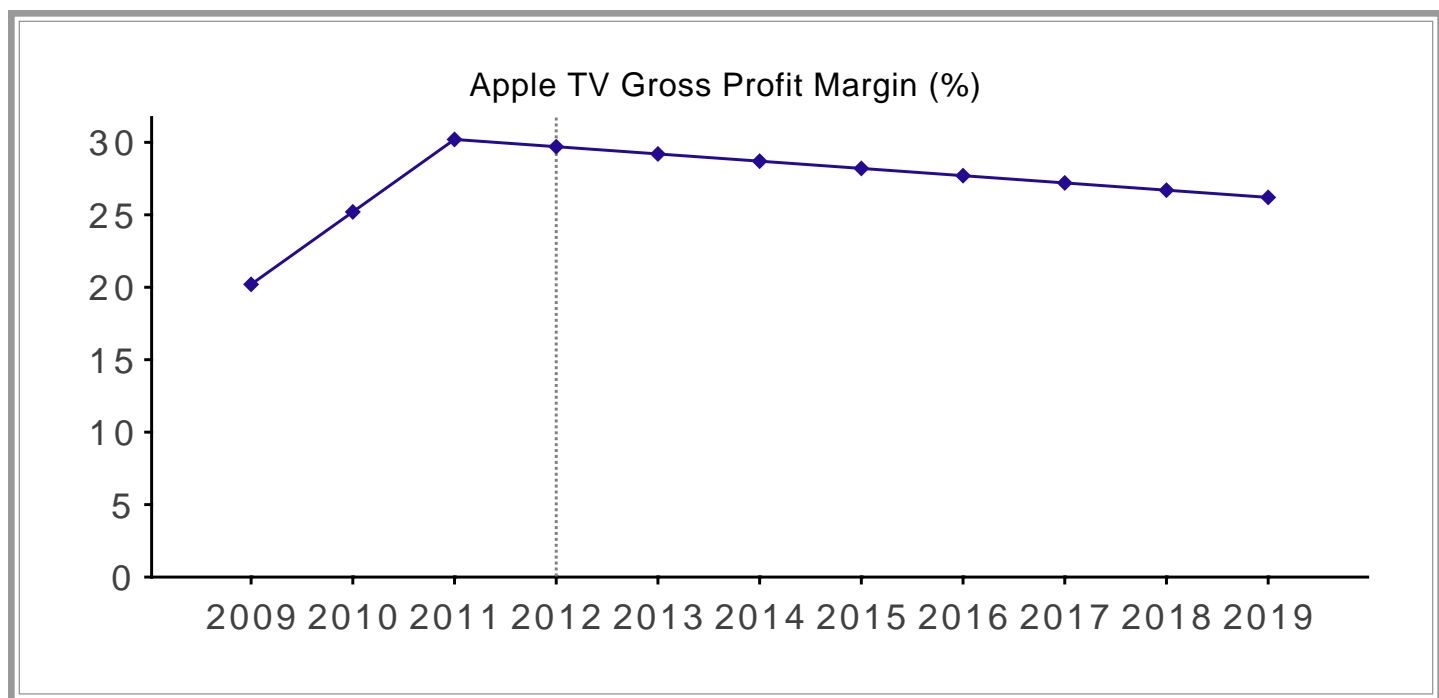
Unit Sales of Apple TV has increased from 1.0 million units in 2007 to around 8 million units in 2012 according to our estimates. Trefis forecasts that Unit Sales of Apple TV will continue to increase at a fast rate for the next few years before stabilizing.

Forecast Rationale

1. **NEW APPLE TV PRICED AT \$99** – Apple unveiled the \$99 Apple TV that is a fourth of the size of the original. It has no local storage and streams the content from the Internet to the TV. Content can be streamed from sites like Netflix, YouTube as well as from PCs. We believe this lower priced Apple TV will help boost its sales.
 2. **ITUNES SUCCESS TO AFFECT ADOPTION OF APPLE TV** – As consumers become conditioned to using their TV as a media entertainment center for downloadable TV shows, films and music, success will be dependent on Apple's ability to provide attractive content for consumers through its iTunes online store by establishing contracts with TV and film producers.
 3. **BROADBAND PENETRATION INCREASE TO BENEFIT APPLE TV** – As high-speed broadband technology improves and becomes cheaper, increased broadband penetration among consumers will increase the market for Apple TV users.
- Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

— APPLE TV GROSS PROFIT MARGIN —

Gross Margin represents Gross Profit as a percentage of Revenue. Gross Profit is determined as Revenue minus Cost of Goods and Services Sold.



The Apple TV Gross Profit Margin for Apple TV was maintained at around 21% from 2007 till 2009. However, according to an iSuppli report, the BOM for the \$99 Apple TV is \$64. Hence we raised our estimate for Gross margins to 25% in 2010 and then to 30% for 2011. We expect margins to have seen a small decline in 2012. Trefis forecasts that Apple TV Gross Profit Margin will decrease.

Forecast Rationale

- I. APPLE TV PRICE LOWERED TO BOOST SALES AND INCREASE PUBLICITY – Apple TV is currently priced lower than many of Apple's other products on a gross margin basis. This is because Apple TV has set its footprint quite late; and hence, reducing the price makes it an attractive bet. We expect Apple to increase its sales, but severe price reductions will not help its gross profit margins.

Sources for historical data and explanations can be found on the Trefis.com website ([link](#))

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenue (Bil \$)	0.42	0.42	0.63	0.75	0.86	0.93	0.99	1.04	1.10	1.16	1.23
Direct Expense (Mil \$)	338	316	436	527	605	666	708	753	801	851	905
Indirect Expense (Mil \$)	45.4	30.5	49.0	58.1	96.6	103	116	125	134	141	148
Gross Profit (Mil \$)	85.6	106	188	222	249	268	278	288	299	310	321
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	153	164	161	163	165	168	173

In addition, you can see the detailed P&L for the Apple TV business in the Appendix ([link](#))

Learn More

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— About Trefis —

Trefis.com was founded by MIT engineers and former Wall Street analysts who realized that most people do not understand the seemingly familiar companies around them including well known companies like Apple, Google, Coca Cola, GE, Ford and Gap to name a few.

The Trefis platform uses extensive data to show in a single snapshot what drives the value of a company's business. We move beyond the qualitative notion "if you love the coffee at Dunkin' Donuts, you should think about buying the stock," to answer quantitative questions like "If their coffee sales are up 10% next year but doughnut sales are down 5%, what happens to the value of the company?"

Trefis analysts spend weeks evaluating each stock that we cover and utilize commonly used valuation methodologies to determine a Trefis price for each company. We present you with not only our synthesized view but also every single step within the valuation process used to determine the Trefis price which you can see via our interactive analysis on Trefis.com.

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Appendix

Summary P&L for Apple

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

Summary P&L for Apple

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Total Revenues (Bil \$)	46.7	76.3	127	164	190	213	228	238	245	246	247
iPhone (% of total)	33.5	39.4	47.7	53.0	53.2	52.4	52.4	51.9	51.6	51.3	50.8
iPad (% of total)	n/a	12.5	19.5	20.9	23.3	26.0	26.8	27.5	27.5	27.3	27.2
Notebooks (% of total)	20.9	16.0	12.8	10.3	9.16	8.37	7.91	7.67	7.60	7.61	7.63
Apps for iPhone, iPod & iPad (% of total)	1.46	1.67	2.49	3.19	4.02	4.53	5.08	5.62	6.31	6.93	7.65
Software & Services (% of total)	5.22	3.57	2.36	2.20	1.88	1.71	1.61	1.57	1.55	1.55	1.55
iTunes (% of total)	5.68	4.19	2.34	1.97	1.76	1.60	1.51	1.47	1.44	1.44	1.45
iPod (% of total)	19.3	12.0	5.70	3.60	2.64	2.00	1.71	1.51	1.37	1.30	1.30
Desktops (% of total)	10.6	8.18	5.20	3.15	2.43	1.99	1.67	1.48	1.33	1.22	1.12
Peripherals (% of total)	2.36	1.90	1.47	1.27	1.08	0.97	0.90	0.87	0.86	0.86	0.86
Apple TV (% of total)	0.91	0.56	0.49	0.46	0.45	0.44	0.43	0.44	0.45	0.47	0.50
Direct Expenses (Bil \$)	27.6	46.7	73.6	95.7	118	138	152	163	171	175	178
iPhone (% of total)	50.0	52.8	61.9	67.1	68.0	66.6	65.7	64.5	63.6	62.5	61.3
iPad (% of total)	n/a	9.71	14.3	14.0	13.7	15.6	16.4	17.2	17.4	17.5	17.7
Notebooks (% of total)	15.2	12.1	9.20	7.27	7.11	6.87	6.78	6.84	6.98	7.19	7.36
Apps for iPhone, iPod & iPad (% of total)	0.55	0.62	0.92	1.23	1.78	2.22	2.72	3.17	3.72	4.26	4.87
Software & Services (% of total)	8.92	6.43	3.91	3.69	3.53	3.44	3.44	3.53	3.65	3.81	3.96
iTunes (% of total)	4.16	3.24	1.66	1.41	1.40	1.37	1.37	1.40	1.44	1.50	1.57
iPod (% of total)	12.1	7.75	3.54	2.17	1.74	1.38	1.23	1.12	1.04	1.01	1.02
Desktops (% of total)	6.63	5.30	3.08	1.81	1.49	1.27	1.09	0.99	0.91	0.85	0.79
Peripherals (% of total)	2.00	1.68	1.19	1.01	0.94	0.89	0.87	0.87	0.88	0.91	0.93
Apple TV (% of total)	0.45	0.36	0.35	0.32	0.35	0.36	0.37	0.38	0.41	0.44	0.47
Gross Profit (Bil \$)	19.1	29.6	54.2	69.0	71.6	74.8	75.7	75.0	73.7	71.0	68.6
iPhone (% of total)	50.0	52.8	61.9	67.1	68.0	66.6	65.7	64.5	63.6	62.5	61.3
iPad (% of total)	n/a	9.71	14.3	14.0	13.7	15.6	16.4	17.2	17.4	17.5	17.7
Notebooks (% of total)	15.2	12.1	9.20	7.27	7.11	6.87	6.78	6.84	6.98	7.19	7.36
Apps for iPhone, iPod & iPad (% of total)	0.55	0.62	0.92	1.23	1.78	2.22	2.72	3.17	3.72	4.26	4.87
Software & Services (% of total)	8.92	6.43	3.91	3.69	3.53	3.44	3.44	3.53	3.65	3.81	3.96
iTunes (% of total)	4.16	3.24	1.66	1.41	1.40	1.37	1.37	1.40	1.44	1.50	1.57
iPod (% of total)	12.1	7.75	3.54	2.17	1.74	1.38	1.23	1.12	1.04	1.01	1.02

Summary P&L for Apple continued

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Desktops (% of total)	6.63	5.30	3.08	1.81	1.49	1.27	1.09	0.99	0.91	0.85	0.79
Peripherals (% of total)	2.00	1.68	1.19	1.01	0.94	0.89	0.87	0.87	0.88	0.91	0.93
Apple TV (% of total)	0.45	0.36	0.35	0.32	0.35	0.36	0.37	0.38	0.41	0.44	0.47
Indirect Expenses (Bil \$)	10.1	8.45	14.1	18.0	27.7	29.0	31.7	32.6	33.0	32.3	31.6
iPhone (% of total)	50.0	52.8	61.9	67.1	68.0	66.6	65.7	64.5	63.6	62.5	61.3
iPad (% of total)	n/a	9.71	14.3	14.0	13.7	15.6	16.4	17.2	17.4	17.5	17.7
Notebooks (% of total)	15.2	12.1	9.20	7.27	7.11	6.87	6.78	6.84	6.98	7.19	7.36
Apps for iPhone, iPod & iPad (% of total)	0.55	0.62	0.92	1.23	1.78	2.22	2.72	3.17	3.72	4.26	4.87
Software & Services (% of total)	8.92	6.43	3.91	3.69	3.53	3.44	3.44	3.53	3.65	3.81	3.96
iTunes (% of total)	4.16	3.24	1.66	1.41	1.40	1.37	1.37	1.40	1.44	1.50	1.57
iPod (% of total)	12.1	7.75	3.54	2.17	1.74	1.38	1.23	1.12	1.04	1.01	1.02
Desktops (% of total)	6.63	5.30	3.08	1.81	1.49	1.27	1.09	0.99	0.91	0.85	0.79
Peripherals (% of total)	2.00	1.68	1.19	1.01	0.94	0.89	0.87	0.87	0.88	0.91	0.93
Apple TV (% of total)	0.45	0.36	0.35	0.32	0.35	0.36	0.37	0.38	0.41	0.44	0.47
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	43.9	45.8	44.0	42.4	40.7	38.6	37.0
iPhone (% of total)	n/a	n/a	n/a	n/a	68.0	66.6	65.7	64.5	63.6	62.5	61.3
iPad (% of total)	n/a	n/a	n/a	n/a	13.7	15.6	16.4	17.2	17.4	17.5	17.7
Notebooks (% of total)	n/a	n/a	n/a	n/a	7.11	6.87	6.78	6.84	6.98	7.19	7.36
Apps for iPhone, iPod & iPad (% of total)	n/a	n/a	n/a	n/a	1.78	2.22	2.72	3.17	3.72	4.26	4.87
Software & Services (% of total)	n/a	n/a	n/a	n/a	3.53	3.44	3.44	3.53	3.65	3.81	3.96
iTunes (% of total)	n/a	n/a	n/a	n/a	1.40	1.37	1.37	1.40	1.44	1.50	1.57
iPod (% of total)	n/a	n/a	n/a	n/a	1.74	1.38	1.23	1.12	1.04	1.01	1.02
Desktops (% of total)	n/a	n/a	n/a	n/a	1.49	1.27	1.09	0.99	0.91	0.85	0.79
Peripherals (% of total)	n/a	n/a	n/a	n/a	0.94	0.89	0.87	0.87	0.88	0.91	0.93
Apple TV (% of total)	n/a	n/a	n/a	n/a	0.35	0.36	0.37	0.38	0.41	0.44	0.47

Detailed P&L for the iPhone business

The most important drivers for the iPhone business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

iPhone: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
iPhones (Bil \$)	15.3	29.0	59.1	85.4	99.3	109	117	121	124	124	123
iPhone Pricing (\$)	608	610	635	628	603	573	538	501	466	433	403
iPhone's Market Share in Mobile Phones (%)	2.07	2.97	5.25	7.89	9.19	10.3	11.3	12.2	13.0	13.7	14.3
Global Mobile Phones Sold (Bil)	1.21	1.60	1.77	1.72	1.79	1.86	1.94	1.99	2.05	2.10	2.14
iPhone Accessories (Bil \$)	0.38	1.07	1.87	1.89	1.94	1.92	1.97	2.02	2.11	2.20	2.29
Accessories Revenue Per iPhone Sold (\$ per unit)	15.2	22.5	20.1	13.9	11.8	10.0	9.03	8.31	7.89	7.66	7.50
iPhone's Market Share in Mobile Phones (%)	2.07	2.97	5.25	7.89	9.19	10.3	11.3	12.2	13.0	13.7	14.3
Global Mobile Phones Sold (Bil)	1.21	1.60	1.77	1.72	1.79	1.86	1.94	1.99	2.05	2.10	2.14
<i>Total Revenues</i> (Bil \$)	15.7	30.1	61.0	87.3	101	111	119	123	126	126	125
Expenses											
Direct Expenses (Bil \$)	6.10	14.5	27.4	41.0	52.6	62.0	70.0	75.5	79.6	82.2	83.3
iPhone Gross Profit Margin (%)	61.1	51.9	55.0	53.0	48.0	44.5	41.5	39.0	37.0	35.0	33.5
Indirect Expenses (Bil \$)	5.07	4.46	8.71	12.1	18.8	19.3	20.9	21.0	21.0	20.2	19.4
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	11.2	18.9	36.2	53.0	71.4	81.3	90.9	96.5	100	102	102
Gross Profit (Bil \$)	9.56	15.6	33.6	46.3	48.6	49.8	49.8	48.4	46.9	44.4	42.1
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	29.8	30.5	28.9	27.3	25.9	24.1	22.7

Detailed P&L for the iPad business

The most important drivers for the iPad business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

iPad: Detailed P&L

	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues										
iPad Revenue (Bil \$)	9.57	24.9	34.4	44.4	55.4	61.1	65.7	67.4	67.3	67.1
iPad Pricing (\$)	647	614	523	449	431	414	398	378	359	341
iPad Units Sales (Mil)	14.8	40.5	65.7	98.6	128	147	165	178	187	196
<i>Total Revenues</i> (Bil \$)	9.57	24.9	34.4	44.4	55.4	61.1	65.7	67.4	67.3	67.1
Expenses										
Direct Expenses (Bil \$)	6.70	17.2	24.7	34.6	43.7	48.7	52.8	54.6	54.8	55.0
iPad Gross Profit Margin (%)	30.0	31.1	28.1	22.1	21.1	20.3	19.6	19.0	18.5	18.1
Indirect Expenses (Bil \$)	0.82	2.01	2.52	3.79	4.53	5.20	5.60	5.74	5.67	5.60
R&D % of Gross Profit (%)	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	7.52	19.2	27.3	38.4	48.2	53.9	58.4	60.4	60.5	60.6
Gross Profit (Bil \$)	2.87	7.74	9.67	9.81	11.7	12.4	12.9	12.8	12.4	12.1
Free Cash Flow (Bil \$)	n/a	n/a	n/a	6.01	7.16	7.21	7.28	7.07	6.77	6.54

Detailed P&L for the Notebooks business

The most important drivers for the Notebooks business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

Notebooks: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
Revenue (Bil \$)	9.77	12.2	16.3	17.0	17.4	17.8	18.1	18.3	18.6	18.8	18.8
Mac Notebook Pricing (K \$)	1.29	1.26	1.27	1.30	1.30	1.28	1.24	1.20	1.17	1.13	1.10
Mac Notebooks Market Share (%)	4.48	4.83	6.16	6.44	6.72	7.02	7.26	7.48	7.68	7.82	7.94
Global Notebook & Netbook Units Sold (Mil)	168	201	209	202	198	198	200	203	208	212	216
<i>Total Revenues</i> (Bil \$)	9.77	12.2	16.3	17.0	17.4	17.8	18.1	18.3	18.6	18.8	18.8
Expenses											
Direct Expenses (Bil \$)	6.86	8.62	11.3	11.9	12.3	12.7	12.9	13.2	13.5	13.7	13.8
Mac Notebooks Gross Profit Margin (%)	29.8	29.4	30.6	29.6	29.2	28.8	28.4	28.0	27.6	27.2	26.8
Indirect Expenses (Bil \$)	1.54	1.03	1.30	1.31	1.97	1.99	2.15	2.23	2.30	2.33	2.33
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	8.40	9.65	12.6	13.2	14.3	14.7	15.1	15.4	15.8	16.0	16.1
Gross Profit (Bil \$)	2.91	3.59	4.99	5.02	5.09	5.14	5.13	5.13	5.14	5.10	5.05
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	3.12	3.15	2.98	2.90	2.84	2.78	2.72

Detailed P&L for the Apps for iPhone, iPod & iPad business

The most important drivers for the Apps for iPhone, iPod & iPad business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

Apps for iPhone, iPod & iPad: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
iAd App Advertising Revenue (Mil \$)	n/a	77.5	101	150	184	226	278	361	450	562	700
Number of iPhone, iPod Touch & iPad Devices in Use (Bil)	0.08	0.15	0.29	0.45	0.59	0.77	1.00	1.29	1.62	2.02	2.53
Ad Impressions per Device (per Month)	n/a	8.20	2.87	3.01	3.16	3.32	3.49	3.66	3.85	4.04	4.24
Revenue per Ad Impression (\$ per 1,000)	n/a	10.5	10.1	9.17	8.26	7.43	6.69	6.35	6.03	5.73	5.45
Paid Apps (Bil \$)	0.68	1.19	3.08	5.11	7.45	9.43	11.3	13.1	15.0	16.5	18.2
Number of iPhone & iPad Apps Downloaded (Bil)	2.40	6.69	11.7	19.0	26.6	33.3	39.9	45.9	52.8	58.1	63.9
Paid App % (%)	13.5	13.7	13.4	13.3	13.2	13.1	13.0	12.9	12.9	12.9	12.9
Average Paid iPhone & iPad App Pricing (\$)	2.10	1.30	1.96	2.02	2.12	2.16	2.18	2.21	2.21	2.21	2.21
<i>Total Revenues</i> (Bil \$)	0.68	1.27	3.18	5.26	7.63	9.65	11.6	13.4	15.5	17.1	18.9
Expenses											
Direct Expenses (Bil \$)	0.57	1.09	2.68	4.41	6.36	7.99	9.56	11.1	12.7	14.1	15.5
iPhone, iPod Touch & iPad Apps Gross Profit Margin (%)	15.5	14.5	15.7	16.2	16.7	17.2	17.7	17.7	17.7	17.7	17.7
Indirect Expenses (Bil \$)	0.06	0.05	0.13	0.22	0.49	0.64	0.86	1.03	1.23	1.38	1.54
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	0.63	1.14	2.81	4.63	6.85	8.64	10.4	12.1	14.0	15.4	17.1
Gross Profit (Bil \$)	0.11	0.18	0.50	0.85	1.28	1.66	2.06	2.38	2.74	3.03	3.34
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	0.78	1.02	1.19	1.34	1.51	1.65	1.80

Detailed P&L for the Software & Services business

The most important drivers for the Software & Services business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

Software & Services: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
Revenue (Bil \$)	2.44	2.72	3.01	3.62	3.58	3.64	3.69	3.74	3.79	3.81	3.82
Revenue Per Mac (\$ per unit)	216	188	169	212	210	208	206	203	199	195	191
Mac Desktops Market Share (%)	2.71	3.24	3.18	2.70	2.50	2.45	2.35	2.33	2.31	2.30	2.29
Global Desktop Units Sold (Mil)	136	145	154	148	145	142	138	135	131	126	121
Mac Notebooks Market Share (%)	4.48	4.83	6.16	6.44	6.72	7.02	7.26	7.48	7.68	7.82	7.94
Global Notebook & Netbook Units Sold (Mil)	168	201	209	202	198	198	200	203	208	212	216
<i>Total Revenues</i> (Bil \$)	2.44	2.72	3.01	3.62	3.58	3.64	3.69	3.74	3.79	3.81	3.82
Expenses											
Direct Expenses (Bil \$)	0.73	0.82	0.89	1.07	1.06	1.07	1.08	1.09	1.10	1.10	1.10
Software and Services Gross Profit Margin (%)	70.0	69.9	70.3	70.4	70.5	70.6	70.7	70.8	70.9	71.0	71.1
Indirect Expenses (Bil \$)	0.90	0.54	0.55	0.66	0.98	1.00	1.09	1.15	1.20	1.23	1.25
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	1.63	1.36	1.44	1.74	2.03	2.07	2.17	2.25	2.31	2.34	2.36
Gross Profit (Bil \$)	1.71	1.90	2.12	2.55	2.52	2.57	2.61	2.65	2.69	2.70	2.72
Free Cash Flow (Bil \$)	n/a	n/a	n/a	n/a	1.55	1.57	1.51	1.50	1.48	1.47	1.46

Detailed P&L for the iTunes business

The most important drivers for the iTunes business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

iTunes: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
iPod Games Revenues (Mil \$)	2.54	3.08	3.44	3.67	3.74	3.73	3.73	3.73	3.72	3.72	3.72
iPod Games Pricing (\$)	4.84	4.70	4.55	4.42	4.29	4.16	4.03	3.91	3.79	3.68	3.57
Unit Sales of iPod Games (Mil)	0.52	0.66	0.75	0.83	0.87	0.90	0.92	0.95	0.98	1.01	1.04
Movie Revenues (Mil \$)	19.3	20.8	22.2	22.4	22.6	22.3	22.3	22.3	22.3	22.3	22.2
Movies Pricing (\$)	7.65	7.19	6.98	6.70	6.43	6.17	5.99	5.81	5.63	5.46	5.30
Unit Sales of Movies (Mil)	2.52	2.90	3.19	3.35	3.51	3.62	3.73	3.84	3.96	4.07	4.20
eBooks Revenues (Mil \$)	n/a	425	469	546	583	622	651	683	715	749	785
eBooks Pricing (\$)	n/a	5.00	4.25	4.12	4.00	3.88	3.76	3.65	3.54	3.43	3.33
Unit Sales of eBooks (Mil)	n/a	85.0	110	132	145	160	173	187	202	218	235
Audiobooks Revenues (Mil \$)	6.72	7.17	7.65	7.79	7.94	7.93	7.92	7.92	7.91	7.90	7.90
Audiobooks Pricing (\$)	14.6	14.1	13.7	13.3	12.9	12.5	12.1	11.8	11.4	11.1	10.7
Unit Sales of Audiobooks (K)	462	508	559	586	616	634	653	673	693	714	735
TV Show Revenues (Mil \$)	213	235	220	301	332	342	334	327	320	313	307
TV Shows Pricing (\$)	1.87	1.59	1.19	1.55	1.63	1.63	1.55	1.47	1.40	1.33	1.26
Unit Sales of TV Shows (Mil)	114	148	185	194	204	210	216	223	229	236	243
Music Revenues (Bil \$)	2.41	2.51	2.27	2.36	2.39	2.41	2.43	2.46	2.46	2.46	2.46
Songs Pricing (\$)	0.74	0.73	0.71	0.72	0.71	0.71	0.70	0.69	0.68	0.68	0.67
Unit Sales of Songs (Bil)	3.24	3.44	3.22	3.28	3.35	3.42	3.48	3.55	3.59	3.63	3.66
<i>Total Revenues</i> (Bil \$)	2.65	3.20	3.00	3.25	3.34	3.41	3.46	3.50	3.53	3.55	3.58
Expenses											
Direct Expenses (Bil \$)	1.86	2.24	2.10	2.27	2.34	2.39	2.42	2.45	2.47	2.49	2.51
iTunes Gross Profit Margin (%)	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Indirect Expenses (Mil \$)	421	274	233	254	387	396	434	456	474	485	495
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02

iTunes: Detailed P&L continued

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	2.28	2.51	2.33	2.53	2.72	2.78	2.85	2.91	2.94	2.97	3.00
Gross Profit (Bil \$)	0.80	0.96	0.90	0.97	1.00	1.02	1.04	1.05	1.06	1.07	1.08
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	613	626	601	594	584	580	579

Detailed P&L for the iPod business

The most important drivers for the iPod business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

iPod: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
iPods (Bil \$)	8.11	8.30	6.56	5.23	4.41	3.72	3.42	3.13	2.90	2.77	2.77
iPod Pricing (\$)	154	170	170	161	157	155	154	152	150	149	149
iPod Market Share (%)	26.9	27.2	23.9	22.3	21.3	20.3	19.8	19.3	19.0	18.9	18.9
Portable Media Players Units (Mil)	195	179	161	145	130	117	111	106	100	97.9	97.9
iPod Accessories (Mil \$)	900	829	733	690	605	529	500	472	451	444	452
Revenue Per iPod (\$ per unit)	17.2	17.0	19.0	21.3	21.7	22.1	22.6	23.0	23.5	24.0	24.4
iPod Market Share (%)	26.9	27.2	23.9	22.3	21.3	20.3	19.8	19.3	19.0	18.9	18.9
Portable Media Players Units (Mil)	195	179	161	145	130	117	111	106	100	97.9	97.9
<i>Total Revenues</i> (Bil \$)	9.01	9.13	7.29	5.92	5.01	4.25	3.92	3.60	3.35	3.21	3.22
Expenses											
Direct Expenses (Bil \$)	6.70	6.84	5.37	4.42	3.77	3.22	2.98	2.76	2.59	2.50	2.52
iPod Gross Profit Margin (%)	25.6	25.1	26.3	25.3	24.8	24.3	23.8	23.3	22.8	22.3	21.8
Indirect Expenses (Bil \$)	1.22	0.65	0.50	0.39	0.48	0.40	0.39	0.37	0.34	0.33	0.32
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	7.93	7.49	5.87	4.81	4.25	3.62	3.38	3.13	2.93	2.82	2.84

iPod: Detailed P&L continued

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Gross Profit (Bil \$)	2.31	2.29	1.92	1.50	1.24	1.03	0.93	0.84	0.76	0.72	0.70
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	762	633	541	474	421	390	378

Detailed P&L for the Desktops business

The most important drivers for the Desktops business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

Desktops: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues (Bil \$)	4.97	6.24	6.65	5.19	4.61	4.25	3.82	3.54	3.27	3.02	2.77
Revenues (Bil \$)	4.97	6.24	6.65	5.19	4.61	4.25	3.82	3.54	3.27	3.02	2.77
Mac Desktop Pricing (K \$)	1.35	1.32	1.35	1.29	1.27	1.22	1.17	1.12	1.08	1.03	0.99
Mac Desktops Market Share (%)	2.71	3.24	3.18	2.70	2.50	2.45	2.35	2.33	2.31	2.30	2.29
Global Desktop Units Sold (Mil)	136	145	154	148	145	142	138	135	131	126	121
<i>Total Revenues</i> (Bil \$)	4.97	6.24	6.65	5.19	4.61	4.25	3.82	3.54	3.27	3.02	2.77

Expenses

Direct Expenses (Bil \$)	3.71	4.67	4.98	3.94	3.55	3.30	2.99	2.80	2.60	2.41	2.23
Mac Desktops Gross Profit Margin (%)	25.5	25.1	25.1	24.1	23.1	22.3	21.6	21.0	20.5	20.0	19.5
Indirect Expenses (Mil \$)	672	447	433	325	411	367	345	323	300	274	248
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	4.38	5.12	5.41	4.26	3.96	3.67	3.34	3.12	2.90	2.69	2.48
Gross Profit (Bil \$)	1.27	1.57	1.67	1.25	1.07	0.95	0.82	0.74	0.67	0.60	0.54
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	653	580	478	420	370	328	290

Detailed P&L for the Peripherals business

The most important drivers for the Peripherals business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

Peripherals: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
Revenue (Bil \$)	1.10	1.45	1.88	2.09	2.05	2.06	2.07	2.09	2.11	2.12	2.13
Revenue Per Mac (\$ per unit)	97.9	100	105	122	120	118	115	113	111	108	106
Mac Desktops Market Share (%)	2.71	3.24	3.18	2.70	2.50	2.45	2.35	2.33	2.31	2.30	2.29
Global Desktop Units Sold (Mil)	136	145	154	148	145	142	138	135	131	126	121
Mac Notebooks Market Share (%)	4.48	4.83	6.16	6.44	6.72	7.02	7.26	7.48	7.68	7.82	7.94
Global Notebook & Netbook Units Sold (Mil)	168	201	209	202	198	198	200	203	208	212	216
<i>Total Revenues</i> (Bil \$)	1.10	1.45	1.88	2.09	2.05	2.06	2.07	2.09	2.11	2.12	2.13
Expenses											
Direct Expenses (Bil \$)	0.72	0.95	1.23	1.40	1.38	1.40	1.41	1.43	1.46	1.48	1.50
Peripherals Gross Profit Margin (%)	34.8	34.3	34.3	33.3	32.8	32.3	31.8	31.3	30.8	30.3	29.8
Indirect Expenses (Mil \$)	202	142	167	181	259	257	275	284	291	293	292
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	0.92	1.09	1.40	1.58	1.64	1.65	1.68	1.72	1.75	1.77	1.79
Gross Profit (Mil \$)	382	496	644	696	671	665	656	653	650	643	635
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	412	407	381	369	359	350	342

Detailed P&L for the Apple TV business

The most important drivers for the Apple TV business are discussed above, here is the detailed P&L.

Note that Apple reports financial information for fiscal year ended September 30th. We have calendarized Apple's reported financial data for year ended December 31st.

Apple TV: Detailed P&L

	CY09	CY10	CY11	CY12	CY13	CY14	CY15	CY16	CY17	CY18	CY19
Revenues											
Revenue (Bil \$)	0.42	0.42	0.63	0.75	0.86	0.93	0.99	1.04	1.10	1.16	1.23
Apple TV Pricing (\$)	241	120	99.0	95.0	90.3	85.8	82.3	79.0	75.9	72.8	69.9
Unit Sales of Apple TV (Mil)	1.76	3.51	6.32	7.90	9.48	10.9	12.0	13.2	14.5	16.0	17.6
<i>Total Revenues</i> (Bil \$)	0.42	0.42	0.63	0.75	0.86	0.93	0.99	1.04	1.10	1.16	1.23
Expenses											
Direct Expenses (Mil \$)	338	316	436	527	605	666	708	753	801	851	905
Apple TV Gross Profit Margin (%)	20.2	25.2	30.2	29.7	29.2	28.7	28.2	27.7	27.2	26.7	26.2
Indirect Expenses (Mil \$)	45.4	30.5	49.0	58.1	96.6	103	116	125	134	141	148
R&D % of Gross Profit (%)	7.40	6.62	4.82	5.26	5.76	6.06	6.36	6.66	6.86	6.96	7.06
SG&A % of Gross Profit (%)	21.5	19.7	14.7	14.2	14.2	14.5	14.8	15.0	15.2	15.4	15.5
Stock Comp. % of Gross Profit (%)	3.90	3.29	2.38	2.70	2.80	2.90	3.00	3.10	3.20	3.30	3.40
Tax Rate (%)	31.0	23.5	24.6	33.9	34.1	34.3	34.5	34.7	34.8	34.9	35.0
CapEx % of Gross Profit (%)	6.17	9.61	8.05	13.5	13.5	11.5	9.46	8.46	7.96	7.96	7.96
Increase in Net Working Capital % of Revenue (%)	1.86	-3.71	-2.63	-3.23	-2.23	-1.53	-1.03	-0.73	-0.43	-0.23	-0.02
Increase in Net Operating Assets % of Revenue (%)	-0.09	-2.92	-3.45	-4.21	-2.21	-1.21	-0.51	-0.31	-0.11	-0.01	-0.01
<i>Total Expenses</i> (Bil \$)	0.38	0.35	0.49	0.59	0.70	0.77	0.83	0.88	0.94	0.99	1.05
Gross Profit (Mil \$)	85.6	106	188	222	249	268	278	288	299	310	321
Free Cash Flow (Mil \$)	n/a	n/a	n/a	n/a	153	164	161	163	165	168	173