



Holland Views: Apple Inc – Price: \$42 (\$166 pre-stock split); MCap: \$785bn

Sticky, Loyal and Rich

We have been refining our Franchise approach to business and stock selection for almost a decade now and have been drawn into some unexpected sectors. Our latest Franchise is one of the largest, most talked about and perhaps most envied companies in the world. This begs the question, aren't we late to the table and what can value we possibly add to the debate?

For some time now, **Apple** has excelled at two of our three franchise hurdles. It generates >>100% RoNTA and it allocates capital wisely (>100% payout). Yet it trades on 11.5x PE.

"I did mention one thing at the meeting which I don't think people appreciated at all – 'today's great businesses don't require capital' –" Buffett on CNBC post the 2017 Berkshire AGM

Why so cheap? Apple's 'operate' function – that is, the sustainability of its profits and moat – is for the first time, under much doubt – and for good reason. There are perhaps two ways to consider that issue: to focus on the quantifying near-term iPhone replacement cycles (and prices) **or** to qualitatively assess the long-term moat of the business. We choose the latter.

You will be glad to hear that you won't find us flogging 'proprietary channel checks' or the like in this piece. Rather, we encourage investors to start considering Apple under the lens of our Franchise approach perhaps this offers a new perspective on a maturing giant. We outline why Apple's ubiquitous software acts as a sticky force for customer inertia.

Apple, we conclude, is a great company (a Franchise?) – but, at 11.5x PE, is priced just like an OK one. Everyone agrees Apple has had a great past – but we suggest the company and its shares *can* still have a good future. Citing Apple's world-class design innovation, brand or retailing credentials should not be news to anyone. Nor the ginormous returns the company makes: \$70bn of EBIT on just c.\$12bn of Net Tangible Assets last year! We touch on these of course, but opt mainly to focus on a simple Franchise framework for how to think about this mighty but maturing business.

1. **An Installed Base of sticky customers to die for:** aka a cult-like 1.4 billion sticky, loyal and (relatively) rich customers. Customers that have paid top dollar for the product.
2. **Franchise-like behaviour:** Apple we observe is adapting and becoming more Franchise-like in its behaviour. We note its fair approach to customers (recent cheap battery replacement offer) and shareholders alike. (\$238bn in buybacks since 2013).
3. **Value:** Our reverse-engineering of today's share price shows margin erosion is already well discounted. Erosion of brand equity is perhaps already priced-in also.

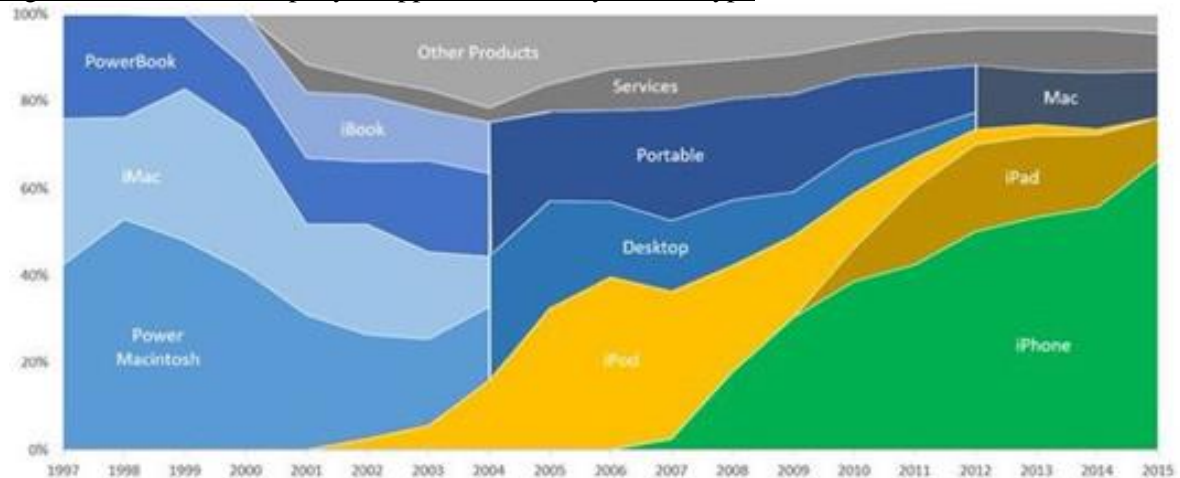
Apple's valuation discounts an eroding hardware business which is likely a prudent assumption. We don't doubt that iPhone upgrades are being delayed and recent higher selling prices look under pressure. That trend may not be your friend in the near term. Even so, especially given the trajectory of Services revenues, we do not think the business is necessarily over-earning. Yes, group profit *growth* will surely slow (as it would for any business this size) commensurate with a mature consumer goods business. But such a business (with such high returns) would still warrant a PE re-rating closer to 14-16x, rather than today's 11.5x (ex-Cash). A re-rating of this nature coupled with prodigious cash generation and buybacks offers attractive IRR for today's

buyers of the shares. For those looking for analogies and precedents and tempted to consider Nokia, another comparable we think is Microsoft in 2012.

First a recap – The past isn't a guide to the future but...

One of your authors is a former technology analyst who had a ring-side seat as the rise and collapse of Nokia's handset business unfolded. So we are acutely aware of the often fleeting nature of success in the technology world. That said, we also have seen mature technology businesses like Microsoft written-off prematurely only to see such a business leverage its entrenched position (and formidable cash generation) into new markets.

Fig.1: Never a one-trick pony – Apple Revenues by Device type



Source: Asymco

Apple, by the numbers:

- 1.4 billion active users of its devices. The company has generated \$1 trillion in hardware revenues in the last five years.
- Apple is the highest cash generating business in the S&P500 by a very wide margin. Last year, the company generated \$77bn in cash from operations (Google and Microsoft generated c.\$45bn each), a year when Apple's operating margin was -300bp off its peak.
- Last year the company made a stunning >500% (not a typo) RoNTA such is its capital lightness. This reflects the fact that Apple not only has excellent margins but turns over its assets c.20x times each. In short it doesn't need much capital, thus profits get returned to shareholders.
- That's not to say Apple isn't investing capital at high rates of return (esp. in Data Centres but also retail outlets etc.). Fixed Assets have doubled to \$41bn since 2014 alone. The kicker to returns is that Apple has negative working capital as a result of its power over the supply chain and efficient logistics (which used to be managed by CEO Tim Cook).
- Many are questioning whether Apple can repeat its incredible track record of innovation (Fig.1). We suggest that a) at today's PE multiple another dramatic iPhone-like step up in revenues is not discounted or needed, 2) actually, a slower pace of incremental innovation on a now massive installed base can still be meaningful. Innovation is more about retaining the installed base than increasing the base by a significant magnitude.
- Apple has what you might call a text-book Moat. Case in point: how much money would an aspiring new entrant need to spend to get to where Apple is today?

[This note centres on Apple as ‘a cheap Franchise’ – we focus on three areas of interest](#)

We will avoid too much discussion on volume forecasts, specific pricing predictions (we take a different approach to modelling earnings power as you will see in the valuation section later on) etc. Instead we use this note to try to steer the conversation about Apple under the framework of a Franchise investor. Specifically:

1. **Moat** (the installed base, the sticky IOS system is now hard wired into your brain)
2. **More Franchise like behaviour by Management**
3. **The Value** on offer in the shares today

The Moat – a sticky ‘installed base’ like no other

“Apple has a very sticky bunch of customers” – Charlie Munger, Daily Journal AGM January 2017¹

Ten years ago, Apple’s moat was primarily derived from its pioneering approach to design and that remains one of the company’s fortes. But today, the company’s moat has arguably widened due to its now huge installed base of users. As consumers flocked to the Apple brand and its products, this installed-base of Apple users has become immersed in a **‘software-defined ecosystem’** of product design, luxury retail outlets, highly integrated software and crucially, a massive 3rd party ‘App’ developer network.

Apple’s moat today is reflected in its installed base of Active Devices – 1.4 billion of them, all of whom use (and are used to) its proprietary software. These users are high-income consumers who value design, trust the Apple brand and, some frankly, revel in the status that an Apple device confers.

It’s easy to count the size of the installed base – but the reasons those users are so sticky is not entirely quantitative. We focus on five points:

0. (First, how to spot a Franchise)
1. The Trusted Remote Control of our lives
2. A massive Installed Base to monetise
3. Toll for other businesses that want to access Apple customers
4. Inertia to change
5. Services – important incremental innovation – but not the panacea

[How to spot a Moat or a Franchise – in theory and practice](#)

Academic Bruce Greenwald has talked at length about competitive positioning in many case studies. One such a discussion below we thought was pertinent for Apple’s case, where its competitive advantage arguably results in higher demand – rather than just lower costs. We like low-cost business models but prefer those tied to brands/network effects as they often have better pricing power. Especially in the world of tech our experience tells us that in areas like semiconductors or consumer electronics, lowest cost is a really, really, tough way to compete.

“A competitive advantage is something a firm can do that rivals cannot match. It either generates higher demand or leads to lower costs. “Demand” competitive advantages give firms unequalled access to customers. Also known as customer captivity, this type of advantage generally arises from customers’ habits, searching costs, or switching costs. “Cost” (or “supply”) advantages, by contrast, almost always come down to a superior technology that competitors cannot duplicate—because it is protected by a patent, for

¹ From 0:50 <https://youtu.be/SzXkNb2wfAg>

example—or a much larger scale of operation, accompanied by declining marginal costs, that competitors cannot match.” – Bruce Greenwald² (emphasis ours)

Apple is not in the lowest-cost game nor, in fact, is it competing solely on superior technology. Arguably, Google has perhaps shown itself to be superior in mastering leading-edge technology. Apple’s mastery of its field lies in its combining aesthetic design, defining/controlling the user experience and employing multi-disciplinary engineering skills to create pioneering products.

This point about pricing is mirrored by Tim Cook:

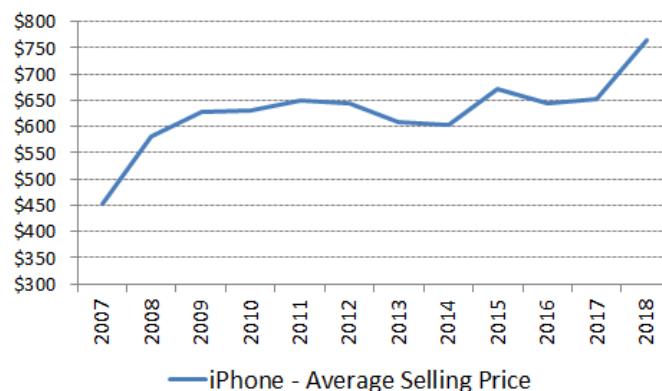
“For us, we’re about making the best product that enriches people’s lives. And so we’re not about making the cheapest, right? We want to make a great value. But that’s not necessarily the cheapest. And so for us, what we’ve seen is there’s enough people in every country in the world that we play in that we can have a really good business by selling the best phones.” Tim Cook, Cramer CNBC interview, Jan 9 2019

This brings us neatly to a point made by Buffett in his 1991 letter to shareholders in which he defines great Franchises.

“Let’s take a quick look at the characteristics separating these two classes of enterprise (businesses and Franchises), keeping in mind, however, that many operations fall in some middle ground and can best be described as weak franchises or strong businesses.

An economic franchise arises from a product or service that: (1) is needed or desired; (2) is thought by its customers to have no close substitute and; (3) is not subject to price regulation. The existence of all three conditions will be demonstrated by a company’s ability to regularly price its product or service aggressively and thereby to earn high rates of return on capital. Moreover, franchises can tolerate mis-management. Inept managers may diminish a franchise’s profitability, but they cannot inflict mortal damage.” – Warren Buffett, Berkshire Hathaway letter to shareholders 1991(emphasis ours)

Fig.1b: Pricing power in action?



Source: Bloomberg

Fighting to be the remote control of our lives

“Software Is Eating the World” – Marc Andreessen, 2011 (highly recommended article³)

Well over 2 billion people across the world; communicate, shop, entertain, navigate, gamble, educate, barter, buy, sell, inform, monitor their kids and monitor themselves daily via their phones. Smartphones have quickly become the ‘remote controls’ for our lives. This point we hope does not need elaboration as we can all relate to it.

A more accurate statement though is that it is really *operating systems (OS)* – the software that controls such hardware – which are the remote controls of our lives. This for us is a crucial point.

² <https://hbr.org/2005/09/all-strategy-is-local>

³ <https://a16z.com/2011/08/20/why-software-is-eating-the-world/>

A decision to change your keyboard, screen or printer brand is unimportant to your office working. A decision to change the software packages you use daily is very, very, significant as your interaction with it is hardwired into your brain. Crucially this was why Microsoft proved such a resilient organisation when challenged in the past. iOS (and Android for its respective users) we feel, has a similar stickiness/loyalty due to users protracted and growingly complex interaction with it.

For smartphones, the world has converged on essentially two operating systems, a duopoly: 1) iOS – Apple’s proprietary software engine that runs Apple devices and 2) Android – which is developed by Google and licensed for free to handset manufacturers. Apple is the only hardware manufacturer that has an in-house proprietary OS.

How those Operating Systems are monetised varies considerably.

In this sense, for all the Samsung’s, Huawei’s and LG’s out there selling devices, the smartphone market is in fact better appreciated as more of a software duopoly? Who then is Apple’s main competitor – Samsung or Google? We suggest, Apple competes as much with Google as it does with Samsung. We discuss later why Google is itself seeking vertical integration (i.e. building its own phones) and why Google pays Apple billions in dollars in royalties to have its search engine on the iOS platform. Samsung’s efforts are increasingly being commoditised largely because it has always lagged behind the competition in software development.

These two distinct strategies of the OS developers have, in turn, had a profound effect on the underlying business models of the entire phone industry. Apple’s unique vertically-integrated approach allows it to retain complete control of the ecosystem ‘stack’ – not just Apps, but across all its service developments and distribution. Android allows for 3rd party handset manufacturers to save the huge costs of software development by licensing the Android OS for free. Crucially therefore, Android smartphones thus *seem* cheaper at the point of purchase but prices are in effect, subsidised by Google’s ability to monetise the device usage patterns via advertising (so-called ‘post-purchase monetisation’ – also becoming prevalent in the Smart TV market). This subtle point is crucial but is only starting to be appreciated by lay people via recent issues such as Facebook/Cambridge Analytica. Most technology executives avoid the overt discussion of this point so this was a notable comment from a TV executive at the recent Consumer Electronics Show a few weeks ago.

“So look, it’s not just about data collection. It’s about post-purchase monetization of the TV. This is a cutthroat industry. It’s a 6-percent margin industry, right? I mean, you know it’s pretty ruthless. You could say it’s self-inflicted, or you could say there’s a greater strategy going on here, and there is. The greater strategy is I really don’t need to make money off of the TV. I need to cover my cost. ..and the reason why we do that is there are ways to monetize that TV and data is one, but not only the only one⁴ – TV manufacturer Vizio CTO Bill Baxer at CES 2019

It is in this context – being on the side of the customer (rather than extracting data for them) Apple is the **Trusted Partner** of its users. We think in time more consumers/investors may come round to realising the importance of this fact and we note it is being increasingly emphasised by Apple as a point of differentiation as we discuss later.

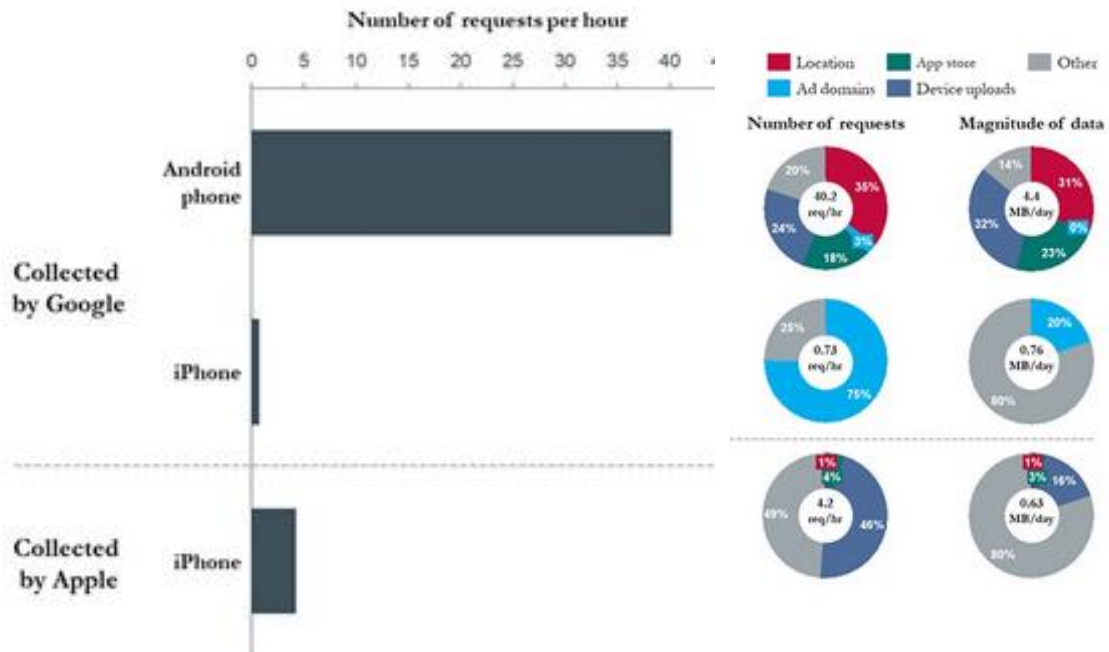
We have seen it said that there are three types of businesses in the world, those that:

1. Solve a problem
2. Scratch a customer’s itch
3. Exploit a customer’s vulnerability

⁴ <https://www.theverge.com/2019/1/7/18172397/airplay-2-homekit-vizio-tv-bill-baxter-interview-vergecast-ces-2019>

We suggest Apple does 1 and 2 and that arguably, some other tech companies are focussed on 2 and especially 3. Fig.2 shows this disparity in action – the vulnerability being users’ private data. This chart shows that 40 times an hour (on an Android phone) Google is looking at what you are doing!

Fig.2: In a nutshell: 50 times more user data is gathered on Android phones than Apple



Source: Vanderbilt University

The magnitude of the iOS installed base is unmatched – in value terms

Apple has started to disclose the magnitude of its installed base in recent years. In January, Tim Cook disclosed that there are 1.4 billion active iOS devices (that’s iPhone, iPad and Mac combined). This is truly a massive number and it is a very ‘real’ number in the sense that each of those devices is a premium-priced device (average iPhone, iPad and Mac prices last year were: \$765, \$431 and \$1339 respectively) and was paid-for up-front. OK, so iPhones are often ‘financed/subsidised by telecom operators’, but these are premium products.

Thus, we suggest Apple has had real pricing power. Contrast this with other so-called FANG platform companies:

- Facebook has 2.27bn Monthly Active Users – but none of them knowingly pay a dollar
- Amazon has over 100m Amazon Prime subscribers who pay c.\$100 a year
- Netflix has 137m users, again who pay let’s say: \$120/year
- Google has billions of users but the vast majority do not pay a red cent directly.

Apple is by far, the consumer goods company with the largest installed base of premium users who pay for the product, rely heavily on it and have a direct relationship with the brand. It generated \$265bn in revenues last fiscal year (\$228bn in hardware and \$37bn in Services).

iOS has become a Toll road for the industry

*“When Apple first launched the iPhone in 2007, Phil Schiller, now the company’s Senior Vice President of Marketing, showed me the original device. He turned it off, put it on the table and asked me what I saw. I replied that it was a block of metal with a glass screen. His reply? **“It’s a piece of glass for Apple to deliver its exciting new software.”**”*

– Time magazine on the iPhone launch, April 2007⁵ (emphasis ours)

You might say that a discussion of the value of Apple’s installed base is going to be very subjective. Yet, on closer inspection, there is actually very real *evidence* that the iOS user base is extremely valuable as demonstrated by the actions of the wider industry.

Apple can monetise its user base in three primary ways:

1. Selling **upgraded** hardware and, increasingly, **new** services to the *existing* user base.
2. Acting as a traffic Toll to search engines like Google to seek access to the ‘Traffic’ (actually the usage patterns) that iOS users generate.
3. Acting as a traffic Toll to App developers who seek access to the lucrative purchasing power and usage of the installed base.

Addressing points 2 + 3 whilst Apple neither discloses aggregate App revenue it does report that it generates a 30% royalty on all App sales from developers. Nor does it break out the aforementioned TAC income derived from search engine providers. We do note however that Apple has disclosed that cumulative App revenues were over \$40bn since the App Store launch in 2008. We also know from court documents⁶ that in 2014, Apple received TAC payments of \$1bn from google in 2014. Given the rise of the iOS installed base in the subsequent five years, it is fair to assume that this income from Google has risen markedly in that time. Both TAC and App revenues are contained within the \$17.4bn of ‘Other Products’ revenue in FY18 shown in Fig.5 below. These are very high margin income streams.

Customer Inertia – phone users are like banking customers

Most of us can relate to the inertia that accompanies our choice of smartphone and both Apple and Google/Samsung have high incentives to increase that inertia. We observe that smartphone OS inertia is analogous to bank account inertia for numerous similar reasons that are often more about familiarity and apathy rather than cost. This is an important point when combined with:

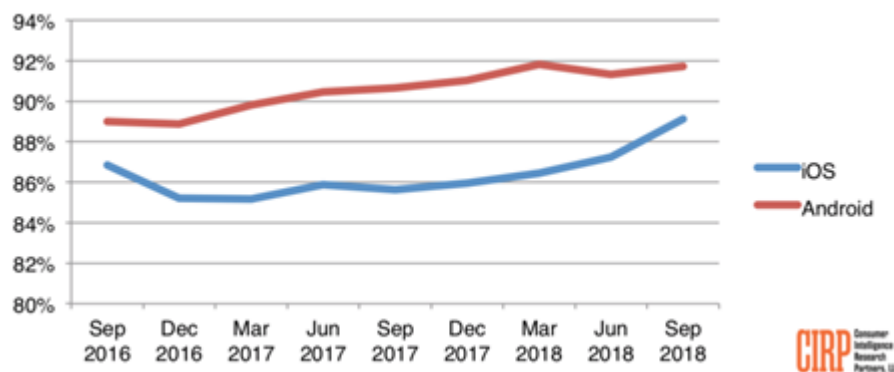
1. Our usage of devices is growing and becoming more complex
2. More franchise like behaviour by management is focusing on customer experience and retention
3. High returns on Capital
4. Good capital allocation

It is easy *in theory* to switch banks, but surprisingly few of us ever do it. Fig.3 shows that we feel the same about our phones – or more likely the software on our phones that we are used to interacting with every waking hour.

⁵ <http://time.com/4723389/apple-strategy-iphone-ipad-apple-tv/>

⁶ Oracle vs. Google <https://www.bloomberg.com/news/articles/2016-01-22/google-paid-apple-1-billion-to-keep-search-bar-on-iphone>

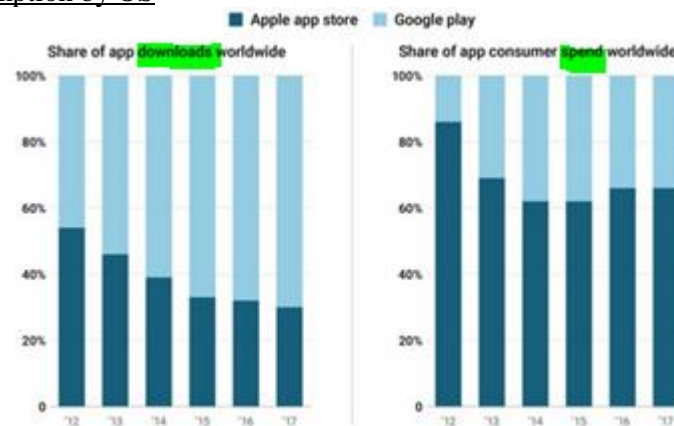
Fig.3: Customer Retention Rates



Source: CIRP

Fig.4 below shows that Apple users are more invested in their devices than Android users are. The Apple App store accounts for 2/3 of the dollar spend on Apps, despite being a much smaller share of the volume of downloads (c.1/3). We draw two obvious conclusions from this – Apple users have a higher propensity to spend and the Apps are in higher demand. This conclusion is backed-up by a myriad of anecdotal evidence.

Fig.4: App consumption by OS



Source: Business Insider

All of this comes back to the point that there is a multitude of factors causing customer inertia? What do these have in common? They are predominantly software-derived and crucially, the propensity to use an alternate system is inversely proportionate to the depth and breadth of the consumer usage of that software ecosystem. **In short, the more we use our phone software for a wider variety of tasks, the less likely we are to want to incur switching cost/friction.**

Technology products are not often associated with customer loyalty and yet look at the quasi monopolies of Intel, Microsoft Outlook and Excel. Ironically, the mobile phone industry were very aware of the dominance of the 'Wintel' in the PC industry and despite its best efforts, once Nokia fell, the phone industry is arguably again subject to a duopoly.

An anecdote:

Twenty years ago, one of your authors was a devoted Reuters user and never likely to change. This was until Bloomberg invested heavily for months and years to infiltrate the investment bank trading floor on which he worked with instructors to educate and indoctrinate him and his colleagues. The tactic worked – twenty years later, he is a die-hard Bloomberg user paying probably double what an alternative provider might now charge for a similar product offering. If he really had to, he could learn to switch back, but he hasn't. Inertia has played a huge part but also Bloomberg have not made the mistakes that might have pushed him away.

What is interesting here is that, the inertia stems from the hard-wiring that constant daily usage leads-to. It's the same with your usage of Windows and we suggest your smartphone – **it's your 'lizard brain' (the resistance), not your pocket that makes the decision to avoid change.**

Fig.4b: Software bundle



Source: The New Yorker

Apple Services – very profitable but not the panacea yet

Apple's first disclosure of Divisional gross margins shows that, unsurprisingly, Services enjoy significantly higher gross margins (almost 2x) than product gross margins. In the December quarter, Services gross margins were 62.8% versus 34% for products. The company does not disclose separate EBIT margins. Obviously this depends on R&D and Marketing cost allocation but we think it is plausible to assume that Services have a c.50% EBIT margin implying a 23% (and falling) EBIT margin for Hardware.

We attempt to quantify the significant impact that Services is having on Apple's earning power later in this note. As shown in Fig.5, Services generated over \$37bn in revenues last year. Our assumptions (in detail later) suggest that Services were probably 25% of group EBIT last year and are likely to rise to over 35% in coming years. The corollary though, is that while Services are clearly very helpful and important to the future of the company, Apple still needs replacement and new user hardware volumes to grow for profits to be sustained. In short, Services are not the profit panacea for this maturing business – yet.

Fig.5: Services disclosure – note 'licensing'

Net sales by product for 2018, 2017 and 2016 were as follows (in millions):

	2018	2017	2016
iPhone ⁽¹⁾	\$ 166,699	\$ 141,319	\$ 136,700
iPad ⁽¹⁾	18,805	19,222	20,628
Mac ⁽¹⁾	25,484	25,850	22,831
Services ⁽²⁾	37,190	29,980	24,348
Other Products ⁽¹⁾⁽³⁾	17,417	12,863	11,132
Total net sales	\$ 265,595	\$ 229,234	\$ 215,639

(1) Includes deferrals and amortization of related software upgrade rights and non-software services.

(2) Includes revenue from Digital Content and Services, AppleCare, Apple Pay, licensing and other services. Services net sales in 2018 included a favorable one-time item of \$236 million in connection with the final resolution of various lawsuits. Services net sales in 2017 included a favorable one-time adjustment of \$640 million due to a change in estimate based on the availability of additional supporting information.

(3) Includes sales of AirPods, Apple TV, Apple Watch, Beats products, HomePod, iPod touch and other Apple-branded and third-party accessories.

Source: Apple 2018 10-k

Franchise-like behaviour

“I want the customer to be happy. We work for them. And so the important thing is that they're happy. Because if they're happy, they will eventually replace that product with another and the services and the ecosystem around that will thrive” – Tim Cook, Cramer CNBC interview, Jan 9 2019

In our view, one of the core aspects of assessing an Investment Franchise, is how management nurture, reward and retain their loyal customers. **Amazon, Costco, Richemont, Disney**, and closer to home: **JD Wetherspoons** all use this approach to win customer loyalty and thus secure future growth.

Apple's management we observe are increasingly thinking now in this way too and we believe this is a crucial observation for Franchise investors' looking for sustainable, defendable market positions. Up until 2017 it was widely assumed that Apple, along with the industry designed products to slow or become obsolete after c.3years, the company even tacitly admitting this point (hence the Class Action law suits). Thus, we think the current change of tone that is evident from management (see below) and coming after the popular subsidised battery replacement scheme marks an important change in the company's attitude to customers.

“For millions of customers, we made it inexpensive and efficient to replace the battery and hold on to their existing iPhones a bit longer. Some people have suggested that we shouldn't have done this because of the potential impact on upgrades, but we strongly believe it was the right thing to do for our customers” – Tim Cook

Apple's now greater focus on customer retention and earning their lifetime loyalty may or may not mean that near term sales are depressed, but we feel this is classic 'Franchise behaviour' of deferring short-term profits to benefit the customer. This is importance evidence to support an improved “Operate” function that we outlined on page one had been absent from Apple's past.

An investment in Apple is more a bet on the horse than the jockey but we still need to appraise the management team. It would be over-stating the point to say that Apple management have suddenly transformed into customer centric re-investors overnight, but Apple's attitude to customer-centric design and value was always in place dating back to Steve Jobs' early years. That said, we can't help but be impressed by CEO Tim Cook's and his teams recently very obvious attitude to improving existing (past sales) customer satisfaction.

We expand briefly on four areas:

1. 'Stewards enquiry' – a word on the people at the top of Apple
2. Apple's steady innovation: Customer centric, privacy, product longevity etc.
3. A word on Industry innovation: hype versus reality
4. Precedents of other similar business

Stewards Enquiry - Tim Cook, Jony Ives and Angela Ahrendts

“let me tell you the way I look at it. We manage the company for the long term. The most important things in Apple, one, a culture of innovation. This team is unbelievable in creating hardware and software and services and getting them all to work together. It just works. Second, we have a very large active install base. It hit 1.3 billion a year ago, and we've added about 100 million in the last 12 months. Third, highest customer satisfaction and loyalty in the industry...

...so you put those two things together, if you got a lot of a big, active install base, and you got a lot of heavy customers, then you have a recurring revenue stream on your product business. ... And then, of course, we are shareholder friendly on our capital

allocation. So you put all these things together, and those are the most important things for us: innovation, customer satisfaction, and the overall size and loyalty of our customers” – Tim Cook in interview with Jim Cramer, January 2019 (emphasis ours)

The messianic story of Steve Jobs and Apple’s revival has been well told. But Apple’s continued success since Jobs’ untimely death seven years ago serves as a reminder of just how well positioned the company had been. With hindsight, it is also fair to say that many underestimated Tim Cook’s excellence as a business leader and his potential as CEO.

Tim Cook was very much an ‘operations guy’ at heart but those who suggest that Apple’s creative potential diminished significantly post Jobs maybe forget about Jonny Ives, Jobs’ right-hand-man and now Chief Design Officer at Apple who oversaw all of Apple’s pioneering designs including the iPhone⁷ and the latest additions like iWatch etc.

We think Cook’s hiring of Angel Ahrendts (former Burberry CEO) as Head of Retail was also impressive addition to the management bench of a well-proven executive with a great track record of branding.

Steady innovation and building user trust – Phil Fisher would approve

“Our capital, our equity, is our ideas and the technologies that we’re developing” – Jony Ives, Lunch with the FT, October 2018

Apple’s innovation, it is true, has been more incremental than step-change in the post-Jobs era. But that should not worry investors excessively. In fact, one could argue that steady *incremental* innovation is sufficient when you already have a sticky customer base of 1.4bn users. That said, Apple grew R&D expenses by +15% in the December quarter and now has an annualised run-rate spend of \$16bn! (This is not a company cutting expenses to ‘make the numbers’). This of course reflects a broad portfolio but surely has much optionality within its scale. Note too that much of burden of App development is externally conducted and expensed by 3rd parties (yet Apple receives a 30% royalty!..... this is the toll road in action).

Tim Cook, might not be the pioneer that Jobs was, but that’s not to say he will not nurture the hugely valuable installed base of Apple devotees. A few common themes are clear in Cook’s approach of late: Environmental sustainability (no longer a fad and an issue customers care about), Product longevity (demonstrating an element of patience with user upgrade decisions), Health monitoring and not least – Data privacy. All of these are very human issues and are central to the importance of trust that exists between Apple customers and the corporation. We return to this point at the end of the section.

- **Sustainable products:** All of Apple’s data centres and buildings are being powered by 100% green energy. It might seem qualitative (or ‘fluffy’) to some observers but these types of corporate commitments are really resonating with Apple’s customer base and consistent with its brand ethos.

“If you genuinely have a concern for humanity, you will be preoccupied with trying to understand the implications, the consequences of creating something that hasn’t existed before. I think its part of the culture at Apple to believe that there is a responsibility that doesn’t end when you ship a product.” As he speaks, his face rearranges itself into a troubled frown. *“It keeps me awake.”* – Jony Ives, Lunch with the Ft, October 2018

⁷ Any doubt about Ives’ brilliance and his instrumental contribution to Apple’s success over his 30 year career at Apple can be resolved by reading this recent article: <https://www.forbes.com/sites/davidphelan/2018/11/20/apples-jony-ive-talks-about-the-iphone-design-and-nearly-giving-up/#56284b164117>

- **Product longevity:** Apple products are now said to be intentionally designed and built to last as long as possible. This, again, is contrary and new thinking in an industry that was long suspected (and quasi-admitted) to the planned obsolescence in products. It is an important change of tact by the company and a welcome one for its longevity we feel.

“keeping iPhones in use is the best thing for the planet” – Lisa Jackson, Apple VP of Environment, Policy and Social, Sept 2018 iPhone launch

- **Health monitoring via wearable technology:** is being driven by the launch of the iWatch. The interesting part of this market is that it could stimulate significant Service growth via apps that monitor activity and body signals for health purposes.

Importantly, incremental innovation on a massive installed base can be very meaningful as the Wearables statistic here shows:

- *In our last fiscal year, we had \$100 billion of revenue that was not iPhone, \$100 billion. And in this last quarter, if you take everything outside of iPhone, it grew at 19 percent. Nineteen percent on a huge business*
- *...revenue for wearables is already more than 50 percent more than iPod was at its peak* – Tim Cook, January 2019

“I believe, if you zoom out into the future, and you look back, and you ask the question, “What was Apple’s greatest contribution to mankind,” it will be about health.” – Tim Cook, Cramer CNBC interview, Jan 9 2019

- **Privacy:** Tim Cook has been forthright in condemnation of the lax attitude that many of his technology peers are showing towards their users’ privacy. Many will say that Cook is being opportunistic (a tad hypocritical even) by taking advantage of the rising consumer opposition post the Cambridge Analytica scandal at Facebook.

Given that Apple facilitates and gains money from some ad revenue indirectly (via Apps and Traffic license deals) there is some truth to that. But it should be borne in mind that Cook, himself is a deeply private man and this issue clearly resonates with him personally. **We think his and Apple’s efforts to ensure consumer privacy rights are authentic⁸ and will resonate with customers.**

Fig.6: Clever Marketing (if indeed not entirely true!)



Source: 9to5mac.com

- **Opening-up to competitors:** Cook plays a delicate balancing act with his competitors. Apple derives massive traffic (Licensing) fees from Google yet has been vigilant not to

⁸ See Cook’s recent Op-ed in Time magazine: <http://time.com/collection/davos-2019/5502591/tim-cook-data-privacy/>

give Google too much access – it removed Google Maps and YouTube as default apps from iPhones some years ago.

In a surprising move therefore, Apple has very recently started to open-up its iTunes software to competitive platforms. Specifically, Apple Airplay (a streaming service) will now be usable from Samsung devices. Perhaps this is a precursor to a broader launch of Apple streaming video services (which necessitates a broader audience)?

Trust and Money

This point about becoming the trusted partner via sustainable products and privacy is not some new-age West Coast philosophy by Apple. It has some hard-nosed business consequences.

There are two central areas of our lives where trust is key: Our money and our healthcare. In these two high growth digital areas, privacy and trust will play a massive role we suggest. If you are going to hand over your money or your most intimate health information to a corporation – trust will be paramount. Readers might be surprised we have not mentioned Apple Pay yet – suffice to say Apple Pay enabled 1.8 billion transactions (not a typo) in the last quarter twice the previous year's level and continues to sign up new retailers (Taco Bell and Target). Apple Pay is pure jam it is so sticky!

"We're offering other payment alternatives that we haven't in the past like Apple Pay. So Apple Pay, in a matter of weeks, if you're on an iOS device, immediately jumped to 12% check out. And that's quite remarkable" – eBay CFO Scott Schenkel, Nov 2018

What's the rest of the smartphone industry up to regarding innovation?

The hype: So what is the next wave of industry innovation? The industry consensus is that the next wave of technology innovation will move from being mobile-centric to AI-centric.

Artificial Intelligence effectively means 'machine learning.' Early practical incarnations of the technology centre on voice recognition. Siri (from Apple), Alexa (from Amazon), and Google Assistant (all centred on voice interpretation) are all vivid examples of this today. An interesting consequence of this innovation though is that the reliance-on controlling underlying hardware will increase – hence Apple's competitors increased focus on proprietary hardware. The trade press suggests that it is for this specific reason that Google developed the Google Pixel phone in-house.

Apple does lag the competition in pure AI capability but perhaps makes-up for this in its ownership of, and thus control of, the underlying hardware platform upon which its use will depend. In other words, Apple's vertically integrated model could be very well suited to AI.

The reality? Everyone in the trade is talking about AI, but what about Medical/Healthcare applications? Fitbits have become a very common sight (even spotted in the Holland Advisors office) and Apple again seems to be at or close to the forefront of this 'wearables' trend with its Watch. Notably, the 'killer app' (awful phrase) for Apple looks to be health monitoring and we expect major services announcements in this area from Apple as evidenced in the recent tie-up with Health Insurer AETNA⁹. A notable part of the AETNA partnership is the rewards program through which the company will subsidise the cost of an Apple watch.

⁹ <https://news.aetna.com/news-releases/aetna-announces-attain-a-personalized-well-being-experience-that-combines-health-history-with-apple-watch-information-to-empower-better-health/>

We were also taken with this throw away remark by Cook on the importance of health monitoring to Apple. It seems likely that innovative services related to this area are imminent.

Tim Cook: *On services, you will see us announce new services this year. There will more things coming. I don't wanna tell you about what they are —*

Jim Cramer: *Material?*

Tim Cook: *I believe it'll be material over time*

Fig.7: Anecdotes on using Apple technology for Health services



Source: @tim_cook

Fig.7b: Cook on the opportunity

<Q - Wamsi Mohan>: If I could just ask you really quick on Apple's role in healthcare, it's been growing significantly since the early introduction in the Watch and then the various kits for developers, including HealthKit, CareKit, et cetera. And when you combine that with your very staunch advocacy for privacy, I see Apple could become a really large disintermediating force in all the friction in the healthcare industry today in the way medical information is shared and distributed. Is this the way that you see the future for Apple in healthcare? And do you see a means to also grow your services business through the healthcare offerings that could become subscriptions to your customers? Thank you.

<A - Timothy Donald Cook>: I think Apple has a huge opportunity in health. And you can see from our past several years that we have an intense interest in the space and are adding products and services, non-monetized services, so far to that. And I don't want to talk about the future because I don't want to give away what we're doing, **but this is an area of major interest to us**. Thank you.

Source: Apple FY18 results call

Risk – Have we seen this movie before?

“So what about Nokia,” you might ask. “It too claimed to enjoy 1 billion customers in its heyday... ..what makes Apple any different today?”

The difference we believe is that Nokia sowed the seeds of its own demise by understating the role that software would play in the future of handset usage. It had no software ecosystem to tie its users whatsoever as Apple’s iOS does today. A Nokia phone was not a remote control for your life. It was a tool, like a car or a printer that you liked at the time of purchase and maybe even on first or second renewal. But in time you could still be tempted to change it for a better alternative.

Fig.8: 1bn customers, but no stickiness



Source: Forbes 2007 (emphasis ours)

We suggest that if investors focus more on the Apple iOS system and the fact that customers are loathe to leave it, they could consider a different example company from the past: Microsoft circa 2012. Having looked at Microsoft in detail at the time we can clearly remember the bear stories. They centred on free software being offered by competitors and poor developments by Microsoft of its own (remember Vista!). Yes, good management helped turn this company around but a sticky installed base helped greatly too. What was this sticky installed base wedded too? It was the software that hundreds of millions of people interacted-with daily. Even when competitor offered a free similar service we did not switch. Why? Because the price of a licence to Microsoft (\$500 a year say) was worth every penny and more of 40-50 hour weeks office functionality.

As the chart below illustrates despite a well-established foot print and cash on the balance sheet, in 2011, Mr Market offered the shares of Microsoft at a very low price also (EV/EBIT of 6x).

Fig.9: Microsoft's second coming



Source: Bloomberg

iOS, we suggest, creates the same significant loyalty, inertia stickiness that enabled Microsoft to defend itself from challenges to its software products. Such inertia has great value, which we feel is not reflected today in the Apple share price.

Value, Excess capital and implied declines

“we plan to become net-cash neutral over time.” – Apple Q4 18 investor letter

We mentioned earlier Apple's massive cash generation. The pricing power, growth and negative working capital of this business combine to generate a cascade of cash. It is not hyperbole to say that Apple is one of the most cash generative businesses ever to exist. Now obviously, Apple has some capital needs (data centres and retail outlets being the main consumers of capital expenditure) but excess cash balances have steadily built. Since 2013, Apple has embarked on a massive share buyback program as shown in Fig.10 with \$238bn of shares repurchased since 2013 and an average payout ratio vs. Net Income of 105%. This is an important statistic for those considering Apple's likely future investor IRR per share. With Net Cash at currently \$123bn and the company clear in its intention to become 'cash neutral' the PE ex-cash calculation of 11.5x is a real representation of the value on offer today. Needless to say this multiple drops to c.10, 9, 8x roughly each year as buybacks cancel shares in issue.

Fig.10: Since FY13, consistent buybacks

CAPITAL ALLOCATION	5 year cagr	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18
Total Payout (Divi + SBB)		0%	0%	0%	0%	6%	90%	142%	87%	91%	94%	145%
Diluted Shares Outstanding	-5%	6,315	6,349	6,473	6,557	6,617	6,522	6,123	5,793	5,500	5,252	5,000

Source: Holland Advisors, Bloomberg

It is this distribution policy coupled with a low valuation and the company's low capital requirements which is the really powerful combination working in shareholder's favour.

Of course, we cannot rule out the possibility of different future capital allocation (the \$3bn Beats headphones acquisition shows Cook is not shy to spend money) and there are continued rumours that Apple will acquire in other areas. However we are always minded to 'follow the cash', rather than the rumours. Using that yardstick Apple has allocated shareholder capital astutely for some time now. Thus we think it prudent to expect it to continue to do so.

"...I wish we owned more of it"

– Munger again musing on Apple, this time on CNBC May 7 2018 when Apple shares were \$185

So is 11.5x PE (ex-cash) fair or cheap?

We think 'cheap' but to answer that question better, the central issue for Apple observers is that Hardware sales growth (and thus margins) will probably slow and erode. Apple's first profit warning in 16 years has focussed minds on this question.

In fact, we can show that it is likely that Hardware margins have already been eroding for some years. This is not a terminal diagnosis on Apple's business but rather a function of how large (see Fig.12) Apple has become. There is however a powerful partial offset to consider – Services.

Our model below (and in Appendix) tries to discount a plausible scenario whereby hardware sales growth slows (from 8% historical cagr, to say 3% in the medium term). Offsetting this, is the growth in Services (18% cagr since 2013) to \$50bn of Revenue by 2020 which the company has consistently guided to since 2017 and we assess as a plausible target.

Fig.11: Apple's recent history

Fiscal Year / end Sept	2011	2012	2013	2014	2015	2016	2017	2018	2019e	2020e
(iphone + ipad + mac) annual Units sold	121	202	238	256	307	276	280	279		
cumulative (iphone + ipad + mac) Units sold 2011-		323	561	817	1123	1399	1679	1959		
'Active Users' (phone + pad + mac) y/end disclosure						1000	1200	1300		
estimate of active users -year average							1100	1250		
iPhone										
units	72	125	150	169	231	212	217	218		
ASP	651	643	607	603	671	645	652	766		
Sales \$m										
iphone			91279	101991	155041	136700	141319	166699		
services (icloud, music, Apps rev share, Traffic licenses (Google etc)			16051	18063	19909	24348	29980	37190		50000
Mac			21483	24079	25471	22831	25850	25484		
iPad			31980	30283	23227	20628	19222	18805		
Other			10117	8379	10067	11132	12863	17417		
TOTAL SALES			170910	182795	233715	215639	229234	265595		292315
of which Hardware			154859	164732	213806	191291	199254	228405	235257	242315
Holland est Hardware new normal cagr						**key assumption**	997488	3%		

Source: Holland Advisors

As for the profitability – it is fair to assume that the 'Services' EBIT margin is high – we now know its GM is 63%. (Remember all that licensing income from Google and App developers). We assume 50% EBIT margins for Services in the future.

All we are seeking to do is to better understand what is priced into the shares today rather than build a forecast in detail that will most likely be wrong. As such, on a 2-3 year timeline, in order for Apple to report flat EBIT relative to FY18, our estimate suggests, this could be attained even if Hardware EBIT margins fall another 400bp (23% to 19%). (See Fig.12).

We must concede that iPhone replacement cycles have extended and they could extend further meaning that growth might be more muted than many might expect or indeed ASP's and/or margins could be lower. Whilst we have tried to model that into our prudent assumption of the company, Mr Market might not like that realisation. In short things could get worse in profit terms, but if they do we are happy buying the shares at lower prices if profits are falling for the right reasons, i.e. Apple is building customer loyalty.

Fig.12: Reverse-engineering today's earnings power

		2013	2014	2015	2016	2017	2018	2019e	2020e
Group EBIT \$m		48999	52503	71230	60024	61344	70898		70898
EBIT margin		29%	29%	30%	28%	27%	27%		24%
							26%		35%
Services EBIT margin guess	50%	8026	9032	9955	12174	14990	18595		25000
implied Hardware profit		40974	43472	61276	47850	46354	52303		45898
implied Hardware margin		26%	26%	29%	25%	23%	23%		19%

Source: Holland Advisors

We got this far without mentioning China – intentionally! China accounts for about 15% of Apple sales. We are fully aware of the collapse in China's sales in the Dec quarter (-27% YoY to \$13bn). Frankly, we just don't have much value to add in assessing China's near term macroeconomic demand drivers. We are also aware of arguments that iPhone user stickiness is much less pronounced in China than it is in the West as some of the hugely popular Chinese messaging and payment systems are more independent of the underlying devices upon which they are used. Perhaps – but that theory flies on the face of the fact that Apple generated record services revenue in the Dec quarter in China. It also flies in the face of what we know about China's deep desire for Luxury goods brands and status signalling!

We observe only that a trusted service company used by 1.4bn global consumers can still be a very valuable business even were it not to dominate in China.

Conclusion - roughly right or...?

By focussing on the Franchise qualities of this company, we are not conveniently avoiding the reality of near-term trading. We recognise that this is a business that, notwithstanding its phenomenal user base – still needs existing users to upgrade in a timely fashion. We also realise that the base level of average pricing from 2018 levels may be hard to maintain. Upgrade volumes and prices are material headwinds to this business for the near-term even if, as we have shown much of this maybe already discounted.

Stepping back from the noise, this work is an example where our approach vs. that of the sector analyst can differ greatly. We can choose not to model or try to quantify the company's future in great detail if we wish. What we are seeking to do instead is to balance all the intangible factors that cannot be measured (customer inertia, service innovation, industry leadership and management reinvesting to help customers) with those that can (value, ROIC and future capital allocation). In addition, understanding what is now implicit in the share price for future possible reductions in product sales margin. We assure you this is not laziness on our part, but rather, as generalists, it reflects the breadth of work that we have now done on other Franchises across many sectors and geographies. Out of that melting pot comes our assessment of Apple as an investment.

We conclude that with high returns, cash generation and excess cash allocation assured, it is highly likely that today's earnings multiple would fall over time (even if profits were flat). Additionally the intangible factors discussed in this note gives us some confidence that Apple is a far better business than multiples of say 8x earnings 2-3 years out would imply. A teens multiple we think far more likely even for an ex growth business, but one that has a strong existing customer base. This implies superior investor IRRs are on offer.

‘Not everything that counts, can be counted and not everything that can be counted, counts’ – sign on Albert Einstein’s office wall

Buy Apple

Andrew & Mark

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Post script

This share ranks very highly on a crude screen of the S&P500 that looks at EV/EBIT vs High RoNTA – Apple ranks #5 out of all 500 constituents. See Appendix for the list of the top 25 names. (Spoiler alert: The next new franchise we are likely writing on is also on the list!)

The Directors and employees of Holland Advisors may have a beneficial interest in some of the companies mentioned in this report via holdings in a fund that they also act as advisors to.

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Appendix

Fig.13: Holland Advisors Crude S&P500 screen for **low EV/EBIT** and **high RoNTA**¹⁰

Name	EV/EBIT	RoNTA	Rank
DISCOVER FINANCIAL SERVICES	6x	622%	1
FRANKLIN RESOURCES INC	5x	396%	2
RAYMOND JAMES FINANCIAL INC	7x	310%	3
NEKTAR THERAPEUTICS	9x	925%	4
APPLE INC	8x	565%	5
CAPITAL ONE FINANCIAL CORP	8x	277%	6
GOLDMAN SACHS GROUP INC	6x	155%	7
H&R BLOCK INC	8x	249%	8
T ROWE PRICE GROUP INC	9x	358%	9
SCHWAB (CHARLES) CORP	10x	322%	10
AFFILIATED MANAGERS GROUP	11x	784%	11
INVESCO LTD	10x	303%	12
ALTRIA GROUP INC	10x	247%	13
E*TRADE FINANCIAL CORP	11x	567%	14
BLACKROCK INC	12x	928%	15
AMERICAN EXPRESS CO	11x	258%	16
GILEAD SCIENCES INC	9x	125%	17
JEFFERIES FINANCIAL GROUP IN	11x	194%	18
KLA-TENCOR CORP	8x	93%	19
NETAPP INC	10x	113%	20
SEAGATE TECHNOLOGY	7x	81%	21
LAM RESEARCH CORP	7x	73%	22
INTL BUSINESS MACHINES CORP	12x	200%	23
APPLIED MATERIALS INC	7x	72%	24
UNITED RENTALS INC	11x	134%	25

Source: Bloomberg, Holland Advisors

¹⁰ This crude screen ranks the entire S&P500 according to those companies which have both a low [EV/EBIT] and a high [EBIT/Net Tangible Assets]. Apple ranks 5th out of the 500 constituents.

APPLE INC

APPLE INC

share price= \$ 166.00 # shares= 4773

M Cap= \$792bn

Net Cash= \$123bn

EV= \$669bn

inputs in blue
notable variables in yellow

Fiscal Year / end Sept	2011	2012	2013	2014	2015	2016	2017	2018	2019e	2020e	
(iphone + ipad + mac) annual Units sold	121	202	238	256	307	276	280	279			2011-18
cumulative (iphone + ipad + mac) Units sold 2011-	323	561	817	1123	1399	1679	1959				13% cagr
'Active Users' (phone + pad + mac) y/end disclosure (January)						1100	1300	1400			
estimate of active users -year average							1200	1350			
iPhone											2011-18
units	72	125	150	169	231	212	217	218			17%
ASP	651	643	607	603	671	645	652	766			2%
		-1%	-6%	-1%	11%	-4%	1%	17%			5%
Sales \$m									145541		2013-18
iphone			91279	101991	155041	136700	141319	166699			13% cagr
services (icloud, music, Apps rev share, Traffic licenses (Google etc)			16051	18063	19909	24348	29980	37190	50000	vs 50bn guided	18% cagr
Mac			21483	24079	25471	22831	25850	25484			16%
iPad			31980	30283	23227	20628	19222	18805			
Other			10117	8379	10067	11132	12863	17417			
TOTAL SALES			170910	182795	233715	215639	229234	265595		292315	2013-18
of which Hardware			154859	164732	213806	191291	199254	228405	235257	242315	9%
Holland est Hardware new normal cagr						**key assumption**	997488	3%			8% cagr
Sales/Share					40.3	39.2	43.6	53.1			2018-20
services/active user						22.1	23.1	26.6			10% cagr
yoy							4%	15%			cagr
			2013	2014	2015	2016	2017	2018	2019e	2020e	
Group EBIT \$m			48999	52503	71230	60024	61344	70898	63000	70898	assume flat EBIT vs FY18
EBIT margin			29%	29%	30%	28%	27%	27%			24%
								26%			35%
Services EBIT margin guess		50%	8026	9032	9955	12174	14990	18595	26%	25000	
implied Hardware profit			40974	43472	61276	47850	46354	52303		45898	
implied Hardware margin			26%	26%	29%	25%	23%	23%		19%	
non operating income			-1156	-980	-1285	-1348	-2745	-2005			
Pre Tax			50155	53483	72515	61372	64089	72903			
tax			13118	13973	19121	15685	15738	13372			
tax rate			26%	26%	26%	26%	25%	18%	18%		
Net Income			37037	39510	53394	45687	48351	59531	54400	FY19 consensus	
# shares					5793	5500	5252	5000	4568	(=\$34bn sbb in next 3 qtrs)	-205 shares
Headline P/E											
Diluted EPS					\$ 9.22	\$ 8.31	\$ 9.21	\$ 13.03	\$ 11.91		
P/E								12.7x	13.9x		
ex-cash PE											
cash neutral Net Income								57894	51444		
cash neutral PE								11.6x	13.0x		

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