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Links to the Past

2018 Annual Letter | April 2019

"We bought 5% of the Walt Disney Company in 1966. It cost us $4 million dollars. $80 million bucks was the valuation of the whole thing. 300 and some acres in Anaheim. The Pirates ride had just been put in. It cost $17 million bucks. The whole company was selling for $80 million. Mary Poppins had just come out. Mary Poppins made about $30 million that year, and seven years later you're going to show it to kids the same age. It's like having an oil well where all the oil seeps back in…

In 1966 they had 220 pictures of one sort or another. They wrote them all down to zero – there were no residual values placed on the value of any Disney picture up through the 60s. So [you got all of this] for $80 million bucks, and you got Walt Disney to work for you. It was incredible. You didn't have to be a genius to know that the Walt Disney company was worth more than $80 million. $17 million for the Pirates ride. It's unbelievable. But there it was. And the reason was, in 1966 people said, 'Well, Mary Poppins is terrific this year, but they're not going to have another Mary Poppins next year, so the earnings will be down.' I don't care if the earnings are down like that. You know you've still got Mary Poppins to throw out in seven more years… I mean there's no better system than to have something where, essentially, you get a new crop every seven years and you get to charge more each time…

I went out to see Walt Disney (he'd never heard of me; I was 35 years old). We sat down and he told me the whole plan for the company – he couldn't have been a nicer guy. It was a joke. If he'd privately gone to some huge venture capitalist, or some major American corporation, if he'd been a private company, and said 'I want you to buy into this'…they would have bought in based on a valuation of $300 or $400 million dollars. The very fact that it was just sitting there in the market every day convinced [people that $80 million was an appropriate valuation]. Essentially, they ignored it because it was so familiar. But that happens periodically on Wall Street."

– Warren Buffett

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I. INTRODUCTION

We're proud to report that Nintendo, current heavyweight champ of the console world and 800-ton Godzilla of the increasingly resilient, fast-growing videogame industry, became our largest investment during the tail end of Q4 and early January.

Gold coins, indeed.

Our thesis is simple: Nintendo offers a unique opportunity to purchase a dominant, wide-moat business undergoing transformative, value-unlocking change. Moreover, this market leader's unrivaled roster of iconic videogame franchises gives it an overwhelming and durable edge in a high-return industry where intellectual property (IP) is king.

Despite its many successes, Nintendo has long suffered from cyclical volatility in its core videogame console business and massive undermonetization of its beloved game characters. But new leadership turned those pages years ago, setting the stage today for a multi-year run of exponential earnings growth. Yet the company is trading at less than 12 times next year's consensus earnings – and just 8 times after backing out its roughly $9 billion in cash.

That's cheap, but we think Nintendo is actually a far greater bargain then it initially appears. "Mr. Market" has become downright delusional about the medium- to long-term trajectory of the company's increasingly high-quality earnings. Street estimates will have to come up. Way up. We can't recall a company of this quality languishing at such an extreme discount to its intrinsic worth.

So what exactly is Nintendo doing? And why doesn't the market get the picture? We'll explain everything, but first some history is in order.

The original Link

II. LINKS TO THE PAST

Imagine you're the head of a huge corporation that's the leader in a fast-growing, high-return industry. Suddenly, a new competitive threat emerges that threatens to completely disrupt your business model and leave you in the dust. Everything you've worked for is on the line.

What do you do?

Perhaps the most successful response to such a threat came in the mid-90s, when Microsoft founder Bill Gates saw his company's domination of the personal computer business challenged by the rise of Netscape and its Internet browser, Netscape Navigator. Seeing that the future of the computer business lay online, Gates pivoted Microsoft on a dime to focus on the Internet. He added a web browser into Windows, leveraging Microsoft's massive Windows user base. That browser, Internet Explorer, crushed Netscape, and Microsoft's dominance was assured for another decade or so, until the rise of smartphones upended the industry's entire PC-centric paradigm.

Over the past several years, another industry leader has been confronting a similar threat – ironically, from the very smartphones that finally disrupted the personal computing industry. That company is Nintendo (NTDOY, 7974.JP).

While Nintendo has strong rivals in its business of producing videogames (software) and the consoles and devices (hardware) that power them, and has itself had some ups and downs, it has nevertheless been a driving force in the industry for decades. Getting its start as a playing card maker back in the late 19th century, Nintendo was an early entrant into videogames a century later. It first became well-known in the US as the maker of the smash hit arcade game Donkey Kong. (That game had the player control a small mustachioed character eventually named Mario, who went on to become Nintendo's unofficial mascot and the star of an endless parade of hit games in different genres.)

But coin-operated arcade games have long since faded from the limelight. Nintendo would almost certainly never have become the industry force it is today if it hadn't essentially rescued the US home videogame business single-handedly in the mid-80s. That story is worth a brief retelling here, as it encapsulates everything that made, and continues to make, Nintendo great.

In the late 70s and early 80s, Atari was the undisputed home videogame leader. Its VCS console (later renamed the 2600) easily outsold rival entries from Mattel and Magnavox. Originally, only Atari made games for the VCS, but in 1979 a group of disgruntled developers left the company to start Activision, the world's first third-party developer of videogames for home consoles. Activision games were widely praised for their quality, but their success drew less-inspired companies to jump on the third-party bandwagon. By 1983, the market was smothered by a glut of me-too games for the Atari VCS, featuring bad graphics (even for the time) and worse gameplay.

Even Atari's own games had nosedived in quality by that point, as it rushed big titles out the door to meet sales projections. The company's slapdash home version of Pac-Man, the most popular arcade game of the era, was a crushing disappointment. And its shockingly dull adaptation of the hit movie E.T. sold so poorly that Atari eventually buried thousands of the unsold game cartridges in a New Mexico landfill.[1] Angry consumers closed their wallets, companies dashed out of the industry as quickly as they had piled in, and by the end of 1983, Atari was sold off by its then-parent Warner Communications.

In the wake of the "Crash of '83", the US home game industry, once robust, essentially lay fallow for two years. Then Nintendo launched the Nintendo Entertainment System, or NES, in 1985. A remodeled version of the company's Famicom ("Family Computer") that debuted in Japan back in 1983, the NES was a massive hit that pushed home videogames in the US back onto center stage. Its success rested on several features that would later come to be seen as Nintendo hallmarks:

- *It drew people in with unusual hardware*. The original NES shipped with a user-controlled robot that could move spinning tops around to affect action in certain games, and a light-sensitive gun that could be used to shoot onscreen targets in others. While neither of these devices enjoyed long-lasting success, they offered a differentiated gameplay experience that attracted the first wave of consumers to the system.

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[1] For more information, see https://en.wikipedia.org/wiki/Atari_video_game_burial.

- *It emphasized ergonomics*. The NES was the first home console to feature a "crosspad" for controlling onscreen action. This button, shaped like a plus sign, let players move objects onscreen in various directions simply by rolling their left thumb over it, while their right thumb was free to press buttons controlling other game actions such as jumping or shooting. Previous consoles had offered a rogues' gallery of uncomfortable, awkward, or just plain hard-to-use controllers, boasting cramp-inducing joysticks and slippery smooth discs. The crosspad, adopted from Nintendo's own popular series of "Game & Watch" handhelds, was a hit, and thumb-operated controls have been a part of almost every home console and portable device made by all game companies ever since.

- *Its games were subject to quality control*. Nintendo certainly applied its gift for creating great gameplay to its own in-house titles, such as Super Mario Brothers, The Legend of Zelda, and Metroid. But it also strictly controlled third-party developers, requiring them to submit titles for evaluation and licensing in order to earn the "Nintendo Seal of Quality", a gold starburst logo prominently displayed on a game's packaging. Games earning the Seal were allowed to bypass a lockout chip in the NES that prevented unapproved games from playing. Although some publishers found ways around the lockout chip, and some lackluster titles managed to get approved, industry leaders nevertheless regard the Seal as having helped Nintendo avoid the quality control problems of the Atari era.

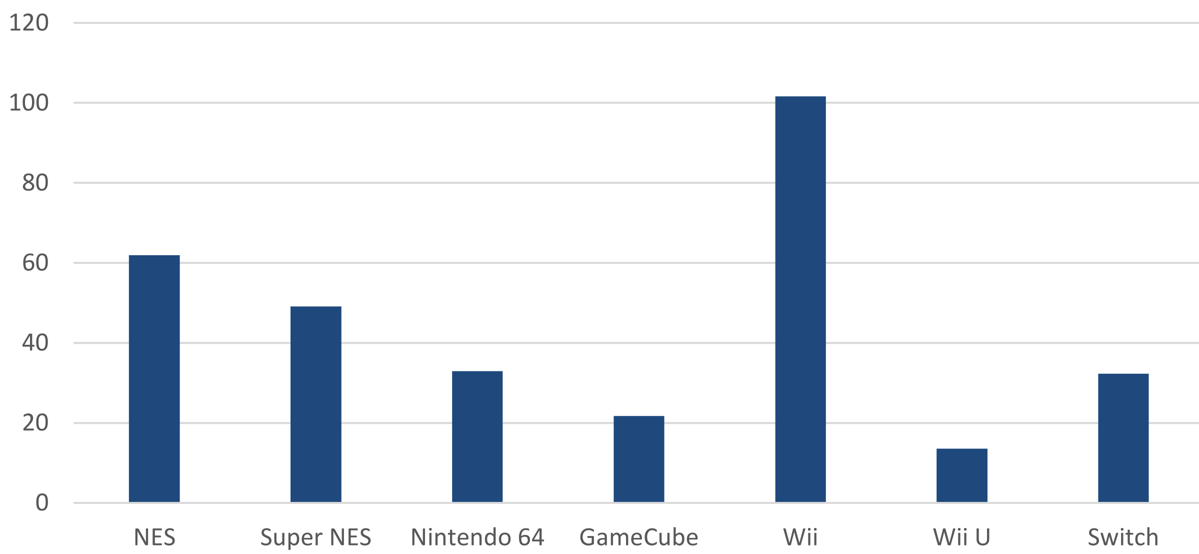
Those three features have been present in virtually every subsequent Nintendo console. And while Nintendo undeniably benefits from its gold-plated, five-star portfolio of videogame franchises, creating the hardware on which its games are played is arguably why it's remained relevant in the industry. In the late 90s, when rivals Sega and Sony switched to CD-ROMs with more room to store music and cutscenes, Nintendo stuck with cartridges for its N64 and produced gameplay classics like Super Mario 64. In the mid-2000s, when Sony and Microsoft released new consoles suited to graphically advanced, violent "first-person shooters", Nintendo emphasized fun and interactivity with the Wii, which let users control characters by waving a controller at the screen.

However, while Nintendo's unusual game systems helped it stand out in the marketplace, not all of them have been hits. For decades, it's seemed as though for every Nintendo hardware success (like the Game Boy, N64, or Wii) there was a follow-up underperformer (like the Virtual Boy, GameCube, or Wii U). This uneven performance has been reflected in the company's share price: Investors embraced Nintendo when it had a hit system on the shelves, only to flee when it was saddled with a dud.

Unfortunately for Nintendo, it was getting harder and harder to attract enough consumers to make the economics of its legacy business model work. With the exception of the Wii, sales of its dedicated consoles had long been in decline. And that was a problem. After all, to be successful, a new console needs lots of users. But to get them, it needs plenty of good games. And, in a classic catch-22, third-party developers usually only make games for consoles with a certain critical mass of users.

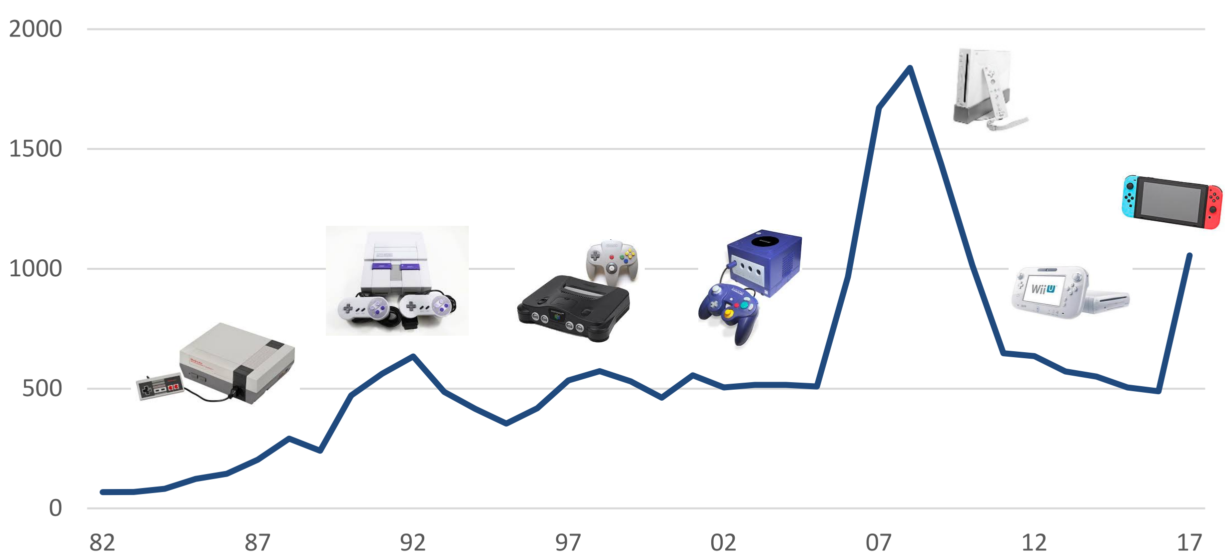
In short, the bigger the installed base, the better. And that makes perfect sense, because the more users a system has, the bigger the end market, and thus the better the odds a developer's efforts will prove profitable. Conversely, if a console doesn't have an installed base of a certain size, most developers won't even consider making games for it.

Nintendo Console Units Sold (m) as of End-2018



Source: Nintendo

Nintendo's Annual Revenue, FY 1982-2017 (¥bn)



Source: Nintendo. (Note: Nintendo's FY ends in March of the following year; e.g. FY 2017 ended on 31 March 2018.)

As a result, for a new game system to recoup its development costs, let alone turn a profit, it has to reach a certain threshold of user adoption. Without that critical mass of users to kickstart a network effect, it will inevitably spiral into a vicious circle of decline. Its maker will be saddled with years of weak earnings if it's lucky, and a one-way ticket to bankruptcy court if it's not. Indeed, the impact of a failed console or two drove once-mighty companies like Atari and Sega out of the console business permanently. Even a titan of the industry like Nintendo could probably only weather two or three big failures in a row before facing a similar fate. Once a company finds itself wondering if it has enough financial and reputational capital to revive itself, it's most likely heading for "Game Over".

So when Nintendo limped into 2015 with the disastrous Wii U console and an aging 3DS handheld still lingering on store shelves, it might have looked like just another cyclical downturn. But many observers felt the company was facing an existential crisis, not just a run-of-the-mill earnings decline.

That crisis was the smartphone. In the years since Apple released the iPhone in 2007, smartphones had surged in market penetration. By 2015, they had effectively become a massive new gaming platform with a business model that threatened to disrupt the entire home and portable console-based videogame industry. Smartphone users downloaded free-to-play games (monetized via in-game sales of premium items and features) on their phones instead of buying expensive games for home consoles or handhelds. And Nintendo, as the only company still making home and portable consoles as well as games, had the most to lose from this apparent shift in consumer tastes.

The thinking at the time went like this: Why would users continue to pay for Nintendo's consoles, handhelds, and games, when they already owned a powerful computing device – a smartphone – on which they could download countless new games for free? Suddenly, it seemed as though Nintendo's recovery might not just be a matter of releasing a new hit console. It seemed as though the unthinkable might happen: Nintendo might not recover at all.

In March 2015, with its back against the wall, Nintendo made a dramatic move. It announced it would create games for smartphones in partnership with Japanese mobile game company DeNA (2432.T), with four or five titles due out in 2016. Nintendo (and DeNA) shares surged on the news. It would be the first time Nintendo ever produced games for a system it didn't create, marking a revolutionary departure from its long-held core business model of selling games exclusively for its own hardware.

But investor excitement over the smartphone announcement faded as Nintendo dragged its feet on bringing those promised new smartphone games to market. Its first mobile release, Miitomo, wasn't even a true game, but merely a glorified chat app gussied up with customizable avatars. Mario, Zelda, and the rest of Nintendo's great franchises were nowhere to be seen. That changed in 2016 with the release of Pokémon GO, an "augmented reality" game that let players wander around the real world, catching Pokémon in their homes, offices, and schools. Pokémon GO was an instant hit. Nintendo shares surged, nearly doubling on reports of the game's massive popularity.

An even bigger shot in the arm came from the announcement of Nintendo's "next generation" console, the Nintendo Switch. Launched in 2017, the Switch was something entirely new, reflecting Nintendo's long history of innovation in the space. Unlike the home entertainment consoles of the past, the Switch was built around a single revolutionary concept: It was a home console and a handheld in one. Players could "switch" between playing its games on their TV at home or taking it


The Nintendo Switch, in its portable mode.

on the road with its huge 6.2-inch built-in color screen. More important still was the fact that it was – and remains – a massive hit. The Switch demolished its PS4 and Xbox One rivals in unit sales from the very start. And that momentum has increased, with the Switch outselling both of its rival consoles *combined* in the 2018 holiday season. (In fact, the Switch is in the running to become the single best-selling console from any company, ever. We estimate its installed base will have already topped 36 million by the end of Q1 2019, a performance that would nearly triple the lifetime sales of its Wii U predecessor in less than two years' time.)

In other words, with the launch of the Switch, Nintendo is once again the reigning heavyweight champ of the console world. That's a stunning reversal almost no one in the industry thought likely just a few short years ago. It's a comeback that exemplifies Nintendo's legendary ability to pivot and endure, reviving its fortunes at the very moment all hope seems lost.[2] Yet even so, we think the true significance of the Switch is only just starting to become clear.

First, the Switch, unlike every major console to come before it, is essentially a generic tablet. This means the vast majority of its component parts aren't highly-customized proprietary hardware. That's a subtle change, but one with profound implications. For starters, it means that Nintendo benefits from the innovation and cost savings driven by the larger smartphone and tablet ecosystem. For the first time in Nintendo's history, its low-margin hardware sales should get incrementally more profitable over time. Better yet, Nintendo's pricing power ensures it will almost certainly reap the benefits of relentless deflation across the mobile hardware cost curve – either by letting those savings drop to its bottom line, or by passing them on to consumers via lower prices in order to expand the addressable market and further grow its installed base.

The Switch in its dock, hooked up to a TV.

Also, the Switch, as a home console and a handheld in one, means that Nintendo can phase out the 3DS and avoid having two incompatible hardware products competing for developer attention and consumer dollars. That's a bigger deal then you might think. First of all, the "two-system" model is horribly inefficient, requiring Nintendo to maintain two customer support teams, two software teams, two hardware teams, and so forth. Even worse, by fragmenting Nintendo's user base into two camps, it deters third-party developers from making

[2] For more on Nintendo's history of comebacks, see https://www.bloomberg.com/news/features/2018-06-21/how-nintendo-s-switch-helped-the-japanese-gaming-giant-win-again

games for either system. And it also lowers both the quality and quantity of Nintendo's own in-house titles – the very games it depends on to drive sales for its own consoles' success.

But even though the Switch has proved to be a smash hit, most observers would say Nintendo isn't out of the woods yet. Why? We can think of a few reasons. Many may be worried that it's headed for another cyclical downturn when the Switch fades in popularity. (At least one prominent analyst is already calling for a decline to begin as early as this year.[3]) Or they might doubt that Nintendo can succeed in mobile games. Pokémon GO has done well, but other titles, such as Super Mario Run, have thus far performed below expectations. And what about the relatively meager share of the underlying economics Nintendo receives from Pokémon GO? What good is a blockbuster title if it doesn't move the earnings needle?

We'll take a close look at all of those concerns, and others, later on. (At the risk of spoiling the surprise, we don't think they carry much weight.) But the truth is that Nintendo stands at the tail end of a multi-year period of restructuring due to a changing of the guard and a grand expansion in the scale and scope of its strategic vision. This shift represents nothing short of an evolutionary leap for this nearly 130-year-old market leader – a leap that neither the buy nor sell side seems to comprehend. We see favorable comments here and there, but nothing indicating an appreciation of the full scope of the ongoing transformation. Most don't see it coming at all. Trapped in confirmation bias, they're unable to understand Nintendo's unique culture or to see the company through fresh eyes, clinging instead to an obsolete paradigm of its cyclical console past.

III. THE OPPORTUNITY

With all that in mind, let's look at why we think Nintendo may be the single best risk-adjusted setup we've encountered in the history of the Fund. Perhaps the biggest reason, outside of valuation, is that Nintendo is changing from a cyclical, "hits-driven" business to a secular growth juggernaut with stable recurring revenues, expanding margins, and declining capital intensity. It's doing this by getting away from having earnings depend on the success or failure of each new console. Instead, it's transitioning to an iterative hardware model, where its installed base continuously grows and never resets. That should ensure the Switch benefits not just from the ongoing structural shift to higher-margin digital distribution of software, but also from the ability to sell high-margin software and related services to an ever-larger installed base. Moreover, the Switch's explosive success has already ignited Nintendo's long-lost network effects, fueling a sustained ascent of sales and earnings that we think will result in nothing less than a tripling of Nintendo's share price in the years ahead.

But Nintendo's business model transformation doesn't end there. Nintendo isn't just surrounding its own indefinitely-lived hardware platform with a proprietary software-driven digital marketplace, like Apple surrounds its iPhone and iPad with its App Store. It's also making games for smartphones themselves – vastly expanding its reach by targeting the world's 2.5 billion smartphone users, and promising to layer on yet another high-multiple stream of stable, recurring, increasingly high-margin revenue.

[3] See https://www.bloomberg.com/news/articles/2019-02-08/longtime-nintendo-bull-slashes-target-says-switch-has-peaked

In short, entering the smartphone space dramatically expands Nintendo's addressable market, stepping up its recurring revenue base while permanently boosting its baseline profitability. (Its operating margins in mobile, at scale, should be over twice the corporate average.) And while some observers doubt Nintendo's ability to succeed in smartphone games, we think that view is nonsense – an ironic collapse in confidence at the very moment our 800-ton Godzilla has finally mastered its mobile gaming powers. Later in this report, we'll make the case that Nintendo is ready to tear into the mobile profit pool with a vengeance.

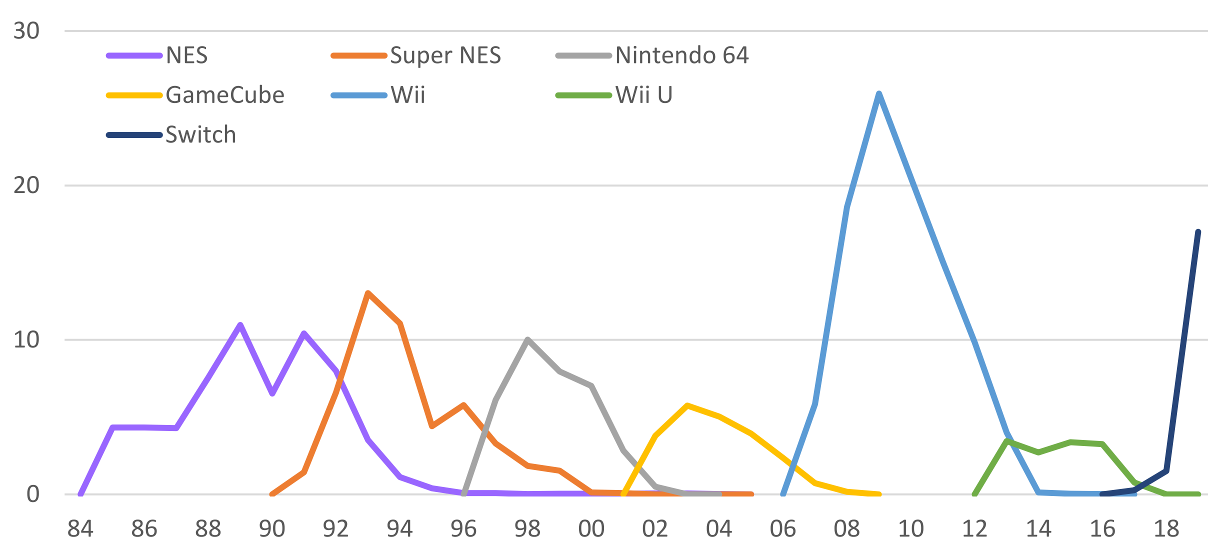
Finally, Nintendo is aggressively ramping up monetization of its peerless library of game franchises and classic characters – the most valuable such collection in the videogame industry by far. Television shows, theme parks, movies, stand-alone retail locations, toys, and various licensed products are all in the works. Monetizing its IP is an area in which Nintendo has traditionally lagged, but over the last few years it's been hard at work making up for lost time. These efforts promise to provide it with yet another pillar of defensive, high-margin, annuity-like revenue and cash flow.

Taken together, the above moves – de-cyclifying the console business, moving to digital distribution, making smartphone games, and effectively monetizing its IP – should not only transform Nintendo's business model, but permanently improve its ROE, rapidly expanding the sources and quality of its underlying revenue base and exponentially increasing its earnings power. Below, we take a close look at each of these potentially game-changing shots on goal:

A. "De-cyclifying" the game console business

First, and perhaps most important, the company appears to be pulling out the biggest thorn in its side: the cyclicality and volatility of its earnings.

Nintendo Console Unit Sales (m) by Year



Source: Nintendo

As we've mentioned, Nintendo's near- to medium-term earnings have always depended on the success of its game systems. Investors have remained wary of it due to this cyclicality and the inherent unpredictability that's par for the course with any hits-driven business. But Nintendo has been working hard to eliminate that cyclical volatility altogether, by creating a console platform that can last, effectively, forever. That means Nintendo's most valuable asset – its installed base of console users – need never again reset to zero, as it has every five to six years in the past.

At first such a goal might seem unattainable: How can the hardware of today run the more advanced software of tomorrow? Well, for many decades it couldn't. More sophisticated hardware enabled the creation of more technologically sophisticated games that older systems just couldn't handle. But today, the magnitude of the incremental improvements made by each new generation of hardware has diminished. Almost thirty years ago, the Super NES debuted with graphics far beyond what the NES could offer. But when the Switch launched in 2017, its games looked pretty much the same as those of its immediate predecessor, the Wii U. Indeed, videogame graphics provide us with an excellent example of the law of diminishing marginal returns at work.

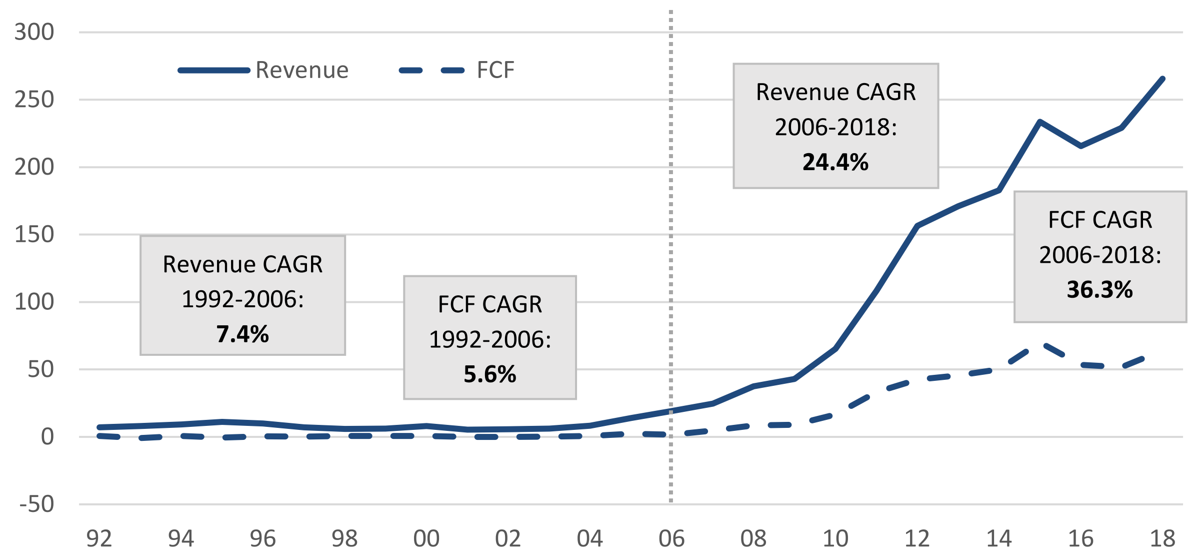
Does that mean today's Switch will be able to play the games of the distant future? In theory, yes. We can see proof of this in another game-playing device: the smartphone. Smartphones have been around for over a decade now, but the improvements to their basic design have been incremental, not revolutionary. There's a much bigger difference between a 2006 Nokia flip phone and the original 2007 iPhone than there is between that 2007 iPhone and today's iPhone XR. In general, apps made for the original iPhone will still run on the XR – although more recent apps may take advantage of the XR's higher specs and greater capabilities. And even if your iPhone is several "generations" old, you can still use it to interact with users on more recent models.

Another reason for the iPhone's longevity is the fact that today's models run on essentially the same operating system, iOS, as older versions. There have been updates to iOS, of course, but it hasn't been replaced wholesale with an entirely different operating system incompatible with older apps. Similarly, today's Android devices use fundamentally the same OS as previous iterations.

These two factors – the increasingly modest size of technological advances, and the longevity of operating systems – mean that Apple hasn't had to build a new user base from scratch each time it rolls out a new iPhone. And it hasn't had to worry that each new iPhone might be a total flop, either, because they're all still basically the same device that millions of users love. That's massively reduced Apple's revenue volatility– not only from the phones themselves, but also from the countless products and services related to them.

As a result, Apple went from basically a standing start in 2007 to a 1.3 billion-strong installed base of networked devices in just over 10 years. And it's selling high-margin services into that base at a current annual run rate of $37.2 billion – a level that continues to rise at over 20% a year, nearly a decade after the transformation of Apple's business model began in earnest. That's surely one of the great wealth creation stories of all time. Just look at the following chart, showing Apple's annual revenue and free cash flow CAGR before and after the iPhone debuted:

Apple's Annual Revenue and Free Cash Flow, 1992-2018



Source: Apple

Apple's transformation is one of many "links to the past" we'll showcase throughout this letter to provide much-needed perspective, along with a number of key insights outlining our favorite investment's road ahead and the ongoing business model transformation propelling it. (Other "links" include Sony's and Microsoft's online game services, Disney's licensing empire, and Electronic Arts' shift to digital distribution of software, all of which we'll get to in due course.)

So how does all this affect Nintendo? Well, various Nintendo officials in recent years have strongly suggested that the company is looking to embrace what we might call the "Apple approach". The first hint that Nintendo was moving in this direction may have come in 2013, when the late Satoru Iwata, then Nintendo's president, unified the company's home console and handheld device divisions into a single group. That laid the groundwork for centering the company's hardware on a single device with a single operating system. Then, in a 2014 investor presentation, he foreshadowed the creation of the Switch:

> *[H]ome consoles and handheld devices will no longer be completely different, and they will become like brothers in a family of systems… To cite a specific case, Apple is able to release smart devices with various form factors one after another because there is one way of programming adopted by all platforms. Another example is Android. Though there are various models, Android does not face software shortages because there is one common way of programming on the Android platform that works with various models. The point is, Nintendo platforms should be like those two examples. Whether we will ultimately need just one device will be determined by what consumers demand in the future, and that is not something we know at the moment.*

It seems the Switch is the "just one device" Iwata hinted at. Then, on a 2018 investor call, Nintendo creative lead and industry legend Shigeru Miyamoto said that the company is aiming to extend the Switch's lifespan beyond the typical five to six years enjoyed by most consoles:

> *Up until now, the hardware lifecycle has trended at around five or six years, but it would be very interesting if we could prolong that life cycle, and I think you should be looking forward to that.*

And in April 2018, CEO Shuntaro Furukawa hinted at the strategic shift underway from a slightly different angle, saying that "there will be times when business is good and times when business is bad. But I want to manage the company in a way that keeps us from shifting between joy and despair."

The vision hinted at by Iwata, Miyamoto, and Furukawa – a single device platform with a very long, if not indefinite, lifespan that allows a huge installed base to build up – is the foundation of the Apple approach. But resting on that foundation is another crucial feature: the ability to sell high-margin software and digital services to an ever-growing user base. As CEO Furukawa put it:

> *I think that the number of hardware units in active use is an equally important [metric]… The reason why these numbers in active use are important is because consumers who continue to play with the hardware have more opportunities to purchase subsequent software.*

Apple famously sells that "subsequent software" in its online App Store, where users can purchase, download, and install any of thousands of programs, or "apps", for use on their iPhones or iPads. Many apps also let users buy special "in-app" items or features for a separate, additional fee that's effectively pure profit. And because users store their credit card information in their user account, these purchases are frictionless. (That's another way of saying they're quick and easy to make.) Of course, the more Apple-based services consumers use, the more locked in to Apple's ecosystem they become. Eventually, the lock-in strengthens into a true kung-fu grip, and the very idea of transitioning to Android or other products becomes almost inconceivable.[4] If you doubt that, consider that, on average, about 90% of iPhone users purchase a new iPhone once it's time to replace it. If you're looking for a data point that illustrates the power of locking consumers into your software ecosystem, that's it.

Of course, if Nintendo wants its own ecosystem to succeed, the Switch needs to be a long-lived, iteratively-improved hardware platform like the iPhone. Can it? If history is any guide, the answer is yes: Nintendo has actually taken an "iteratively improved hardware" approach with its previous handheld game systems, to great success. The Game Boy went through multiple incarnations, from a clunky brick with a monochrome LCD screen to a sleek device with a full-color screen and other incremental improvements. And the original DS multiplied into a family of different versions, with larger screens, more rugged form factors, and even 3-D capabilities. As a result, the Game Boy and

[4] Commenting on the stickiness of Apple's lock-in last August, Warren Buffett said, "*I have a plane that costs me a lot, a million dollars a year or something of the sort... If I used the iPhone like all my friends do, I would rather give up the plane.*"

DS each remained in production for 14 years or more – roughly *triple* the average home console lifespan. It's a tried and true tactic Nintendo has long used to reenergize sales and keep its console momentum going. The original DS, for example, came out of the gate to little fanfare, performing below expectations at launch – that is, until the release of the DS Lite six months later, a breakthrough follow-up that was largely the reason the DS went on to sell a whopping 154 million units. So while Apple may have inspired Nintendo to "think different" about console longevity, it's actually a problem Nintendo started solving decades ago. All Nintendo needs to do now with its Switch is integrate its own tried and true playbook for extending a handheld system's lifespan with Apple's blueprint for an iterative hardware model sustained by a sticky ecosystem of software and services.

Nintendo now knows how to do what it needs to do – and better yet, it's actually doing it. This past January, at the company's quarterly results meeting with certain investors, management directly confirmed that an iterative approach for the Switch family of devices is in the works.[5] As Japan's Nikkei financial newspaper reported:

> *They're taking measures as for what is to come – one of those being a smaller version of the Switch. The company said that it "couldn't comment" on their plans for the product but has informed multiple suppliers and game development companies that they intend to release them as early as 2019. According to their affiliates, they are 'miniaturizing the console with portability and playing outdoors in mind, as well as cutting features to reduce the price and expand the userbase.'* [6]

We think that means that later this year, Nintendo will launch two new models appealing to opposite ends of the user spectrum. The first will be a lower-priced "mini" version of the Switch that's portable-only, with a smaller, brighter screen better suited to outdoor play and no home docking station or detachable controllers (called "joy-cons").

The "mini" will also be more durable, lighter in weight, and an all-around better choice for young kids – not to mention an easier sell to parents, given its lower price point and increased durability. The last thing parents want to worry about is their investment instantly becoming worthless when Junior drops it down the stairs. Last but not least, the "mini" will help fill the air pocket in demand from Nintendo's rapidly declining 3DS.

But what about us grown-ups? Well, we think a higher-end Switch "pro" will be the "mini's" opposite. We expect it will take advantage of price drops in console components to offer higher specs. These could include a better battery for longer playing time, an updated CPU and sharper screen for more sophisticated games, and an Ethernet port that lets the Switch use services that

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[5] Management also made a number of other encouraging comments at the Q3 (end-December) results meeting. For example, they reaffirmed their belief in continued year-over-year growth in Switch adoption, sticking to the claim that the Switch installed base will ultimately reach 100 million. That's Wii-like levels of adoption, even after resetting guidance for this fiscal year. And they hinted at plans to add new games and services to the new Nintendo Switch Online recurring subscription service, raising ARPU as a result. From the same article: "The Switch's monthly online service launched in 2018, and the company plans to launch a new service aimed at game enthusiasts willing to pay more sometime in 2019." But we'll dive into that part of the story later on.

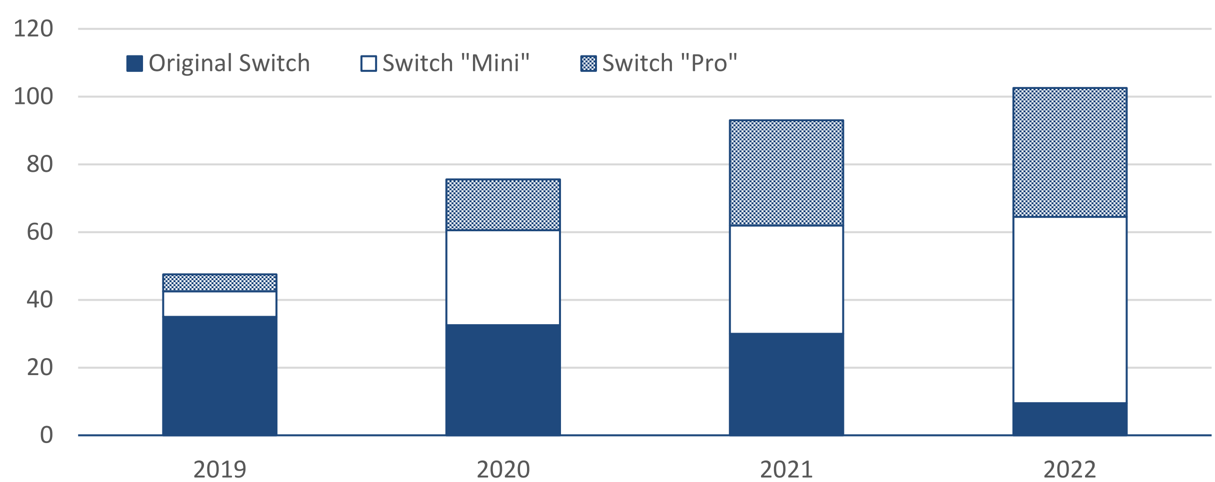
[6] Translation by Nintendo Everything.

stream these more sophisticated "triple-A" titles over the Internet. All this should "future proof" the Switch, while making it more popular with hardcore gamers, who Nintendo hasn't courted since its release of the GameCube in 2001. More important still, it lays the groundwork for a potential tie-up with Microsoft's xCloud, a potential game changer for the company that we'll discuss later on.

Finally, the addition of a higher-resolution screen and, eventually, a camera will dramatically improve the Switch's embedded VR (virtual reality) and AR (augmented reality) capabilities. A hint of what's to come can be seen in Nintendo's recent announcement of VR compatibility with The Legend of Zelda: Breath of the Wild and Super Mario Odyssey. If it proves popular in games like those, VR (and AR) could crack open a much larger addressable market, yielding enough "gold coins" to make even Mario blush.

At any rate, the release of these new Switch models should expand the addressable market in both directions, driving meaningful incremental demand around the margins by offering a very Apple-like array of models and price points, while increasing the functionality and value proposition of each. Moreover, we expect new generations of the Switch will be released every two to three years thereafter, followed by iPhone-style price drops on the older models, where earlier models become more affordable as newer versions are continuously improved.

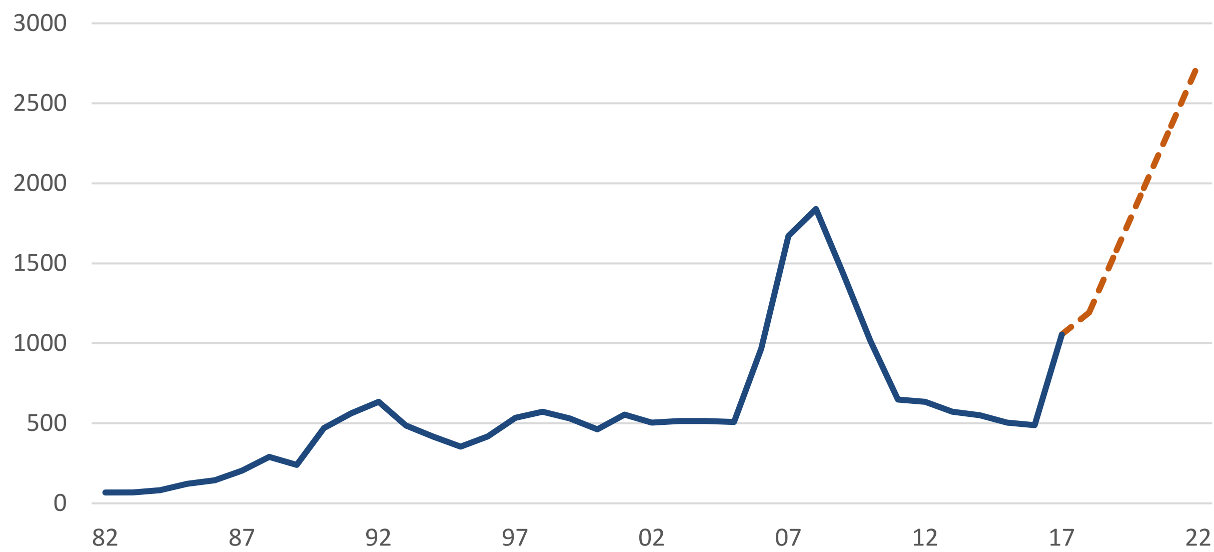
Estimated Switch Installed Base (m) by Generation



Source: Crossroads estimates

Of course, the exact event path could play out differently. But we think the basic game plan with respect to iterative updates and price drops will remain the same, resulting in a continuous expansion of the Switch installed base and an end to Nintendo's longstanding hits-driven cyclicality. The bottom line is that an iteratively-improved hardware plan should massively improve Nintendo's core console and device business, while ensuring momentum in Switch sales continues to increase as it enters its third year, typically the sweet spot for software development, when the number of first and third-party games has historically hit its stride.

Revenue Impact of Nintendo Shifting to Iterative Hardware Model (¥bn)



Source: Nintendo, with Crossroads Capital estimates after FY 2017

B. Digital distribution of game software

There's another key driver at work here, and that's the industry-wide shift to digital distribution of game software. Unlike the shift towards an Apple-like software ecosystem, this lever is a well-established and well-understood phenomenon in the videogame industry. And it promises to be a hurricane-force tailwind for Nintendo's earnings.

Consider that Nintendo still sells most Switch games in exactly the same way it sold NES games thirty-five years ago: It copies them onto physical storage media and puts them in boxes on store shelves. Then consumers go into the stores, take the boxes off the shelves, and pay for them at the cash register. In fact, about the only real changes to this process over the past few decades have been that the games are now also sold through e-commerce (albeit still on physical media that must be stored in warehouses and shipped to the consumer), and the once-hefty cartridges that games were copied onto have shrunk down to tiny bits of plastic.

But this time-honored – and time-worn – method of distributing videogames is being disrupted. Nintendo's hardware rivals Sony and Microsoft may still sell their own consoles in stores, but for many years they've also operated popular online game services.[7] These services charge a high-margin, annuity-like recurring subscription fee to console users who want to challenge other players over the internet or use a myriad of other features only available online.

And the same goes for game publishers like Electronic Arts ("EA") and Activision. Western game developers have been selling an increasing percentage of their games (and additional in-game items)

[7] PlayStation Plus and Xbox Live, respectively.

online for nearly a decade. As a result, digital software sales represent about half of their annual revenue, and we think that proportion will inevitably increase as time passes.

For all these companies, the transition to digital has been an extraordinarily powerful earnings driver. That's in part because digital sales carry much higher margins than sales of software on media that needs to be physically distributed – think 80% or higher for digital, versus 60% or lower for physical. Freed from physical distribution, videogames are so profitable that even Google is getting into the act with its new Stadia streaming service, which we'll discuss in more detail later.

But there's more to this story. Digital distribution also turns what was once the one-off sale of a videogame into a stream of stable, recurring revenue. In the old days, a user paid $60 for a new game, played it until he got bored, and that was that. The digital distribution model, on the other hand, works something like this:

1. User pays $60 for new game, preferably through higher-margin digital distribution.
2. User then buys additional downloadable content ("DLC") and other in-game items and features that keep the game interesting, while generating incremental high-margin revenue to its developer long after the initial sale.
3. New DLC and in-game purchase options are released on a regular, ongoing basis until a follow-up game is ready, and the cycle repeats.

So digital sales have turned videogame software into an even better, higher-multiple business than it was before. Following Gillette's famous "razor-and-razor-blades" business model, lower-margin game consoles used to be the razor, an initial expensive one-off purchase for the consumer. Individual games were the higher-margin razor blades. They cost much less than a console, but consumers kept on buying them over time. Now, in the digital age, each individual game can be a razor unto itself, with DLC as its even higher-margin blades. Indeed, popular titles often require annual subscriptions and have plenty of DLC available for purchase. The result is that game publishers today make a substantial chunk of their profits from a videogame *after* its initial sale.

Another subtle but important aspect of digital distribution is that it lets game companies fully exploit their users' propensity to spend. They can sell a $60 game to a casual user, the same game plus a modest amount of DLC to a more heavily-engaged user, and the game plus hundreds (if not thousands) of dollars' worth of DLC to their truly hardcore users – the "whales" of the industry, as it were.

How could Nintendo have ignored digital distribution until now? Well, it actually offered online sales of games for its various consoles and devices starting with the Wii in 2006, but these efforts amounted to little more than dipping a toe in the water. The company didn't fully embrace digital until late 2018, with the launch of its first online subscription service, Nintendo Switch Online ("NSO"). We chalk the delay up to the Wii U-era crisis many refer to as Nintendo's "dark age". Those lean years ultimately pushed Nintendo to revolutionize its strategy, embracing the restructuring and investment necessary to take the company in a new direction. In fairness, there's a lot about Nintendo's old leaders that we admire, but their obstinate, longstanding refusal to acknowledge structural changes in the videogame industry, or to modify their legacy business model in the face of its disruption, kept Nintendo on the sidelines of the digital revolution for far too long.

Even today, with all of those issues firmly in the past, this period of recalcitrance still colors the perceptions of many investors.

So, is Nintendo's digital strategy working? Just look at its Q3 (end-December) results for the proof. Digital as a percentage of revenue grew 120% year over year, from 15.5% to 21.8%. Even though NSO didn't launch until late September, it still racked up more than 8 million paid subscribers in a mere two months' time. If we assume the lowest possible annual revenue per user of roughly $20, NSO is already generating a run rate of about $160 million a year in recurring, high-margin revenue.

We'll take a closer look at NSO's revenue potential later on. For now, we hope you're pretty excited about what digital distribution could mean for Nintendo. And if this were an infomercial, this is where we'd say "But wait – there's more!" Going digital won't just let Nintendo expand its margins via digital downloads, recurring subscriptions and add-on sales of DLC. It'll also let Nintendo collect pure-profit fees from third-party companies selling their own games and content in its e-Shop. Revenue from third parties more than doubled in its most recent quarter, and its e-shop is still in the first inning of a longer-term trend.

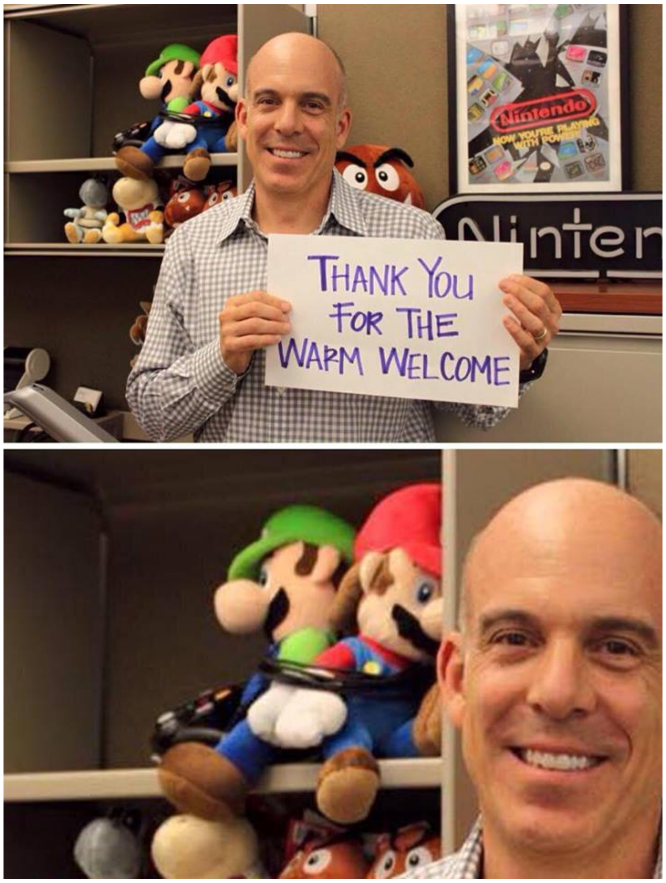
If you doubt how large a revenue source third-party fees can be, just ask Apple: In 2017, its App Store took in over $21 billion in fees from third-party game and music sales, with about 70% of that sum coming from games and in-app purchases. The fact that the App Store went from zero to roughly $14.5 billion in run-rate game-related iOS revenue in less than a decade is mind-blowing, and hints at the raw power of the transition currently underway at Nintendo. Bear in mind, too, that Nintendo's e-Shop takes a 30% cut of every third-party sale, just like the app stores for Android and iOS do.

Comparing Nintendo's e-Shop today to the early years of Apple's App Store, which launched in 2008, provides some perspective. Like the App Store in early 2011, the e-Shop should see its revenue growth accelerate as it benefits from the rapid expansion of the Switch installed base and the adoption of the Switch platform by more and more third-party game developers.[8] Said another way, software- and service-related revenue and profit don't scale linearly with hardware adoption. Rather, they should increase exponentially as the number of hardware devices in use continues to grow.

As a result, Nintendo's "digital storefront" should produce a continuously-growing stream of revenue and cash flow from storage, services, and both homegrown and third-party apps and games. After all, the more hardware Nintendo sells, the more software- and service-related revenue it will generate. And the more software and services users buy, the more likely it becomes that those very same users will buy another Switch down the line. Will over 90% of current Switch owners buy another Switch when their existing console wears out, like Apple users dutifully replacing their

[8] Key metrics from the early days of the App Store offer a rough but promising roadmap for the e-Shop's growth curve. For example, total App Store app downloads increased 400% in the three years from FY 2010 to FY 2013. And the Switch has now been around about as long as the iPhone had been back then. Total App Store revenue (including in-app purchases) grew even more quickly, with digital revenue rising from roughly $1 billion to $7.1 billion over the same period. Games were responsible for 35 to 40% of downloads and a whopping 75% of all app store-related consumer spending. And at the end of that period, iOS app store revenue from mobile games actually accelerated even further. Year-on-year growth in iOS game app revenues was 200% in 2010, 100% in 2011, and 67% in 2012, but it returned to 100% in FY 2013 and increased from there.

iPhones? It's hard to say for sure – but knowing the loyalty of Nintendo fans and their deep affection for the brand, our hunch is that at least a substantial chunk of them will do exactly that.[9]



Doug Bowser on his first day at Nintendo. A close-up shows Mario and Luigi tied together on his shelf, causing fans to wonder if he was related to the Bowser villain in Mario games.

Nintendo is a company its customers feel deep affection for, in a way that Sony and Microsoft (or EA, Activision, and Take Two for that matter) simply aren't. For example, it's hard for us to imagine any other game company's personnel becoming its users' beloved "fan favorites". Yet from the days of spokesman Howard Phillips appearing in comic strips in the old Nintendo Power magazine, to game designer Shigeru Miyamoto being swarmed by adoring teenagers like a rock star,[10] to now-retiring Nintendo of America President Reggie Fils-Aime joking with fans at E3 conferences, Nintendo representatives have been just that.

As one more example of how Nintendo users personally invest themselves in the company and its games, consider that Reggie Fils-Aime's replacement will be a man named Doug Bowser. So yes, a guy named Bowser – the ferocious, fire-breathing turtle villain of the Mario games – will be running Nintendo of America going forward! Nintendo fans reacted with due, if tongue-in-cheek, concern, to Bowser's appointment, flooding the Internet with tweets and comments fearing for Mario's safety. We think the North American unit is in good hands with Mr. Bowser, although we certainly got a good laugh from a picture (see above) taken on the day he joined the company.

In any case, it's hard for us to think of another company with executives that ordinary customers care so much about. If we had to pick one, it would be Apple, with legends like the late Steve Jobs and star designer Jony Ive. In our book, that's high praise indeed.

But why are Nintendo fans so loyal? Why do they love the company so much? Well, for one reason, the company's knack for game development is unparalleled. As the table below shows, Nintendo has released a staggering 21 of the 25 best-selling console and handheld games of all time:

[9] I'm a longtime owner of both an iPhone and a Switch, I absolutely love both products, and I currently have several games saved on the Switch cloud service. I can already feel that Apple-like lock-in taking hold.

[10] See http://www.mtv.com/news/1510449/nintendo-fans-swarm-marios-father-during-new-york-visit/

All-Time Top 25 Console/Handheld Games by Units Shipped

	Game	System	Publisher	Units
1	Wii Sports	Wii	Nintendo	82.86
2	Super Mario Bros.	NES	Nintendo	40.24
3	Mario Kart Wii	Wii	Nintendo	37.14
4	Wii Sports Resort	Wii	Nintendo	33.09
5	Pokémon Red/Green/Blue versions	GB	Nintendo	31.38
6	New Super Mario Bros.	DS	Nintendo	30.80
7	Tetris	GB	Nintendo	30.26
8	New Super Mario Bros. Wii	Wii	Nintendo	30.22
9	Duck Hunt	NES	Nintendo	28.31
10	Wii Play	Wii	Nintendo	28.02
11	Kinect Adventures!	360	Microsoft	24.00
12	Nintendogs	DS	Nintendo	23.96
13	Mario Kart DS	DS	Nintendo	23.60
14	Pokémon Gold/Silver versions	GB	Nintendo	23.10
15	Wii Fit	Wii	Nintendo	22.67
16	Wii Fit Plus	Wii	Nintendo	21.13
17	Super Mario World	SNES	Nintendo	20.61
18	Grand Theft Auto V	PS3	Rockstar	N/A
19	Grand Theft Auto V	PS4	Rockstar	N/A
20	Brain Age	DS	Nintendo	19.01
21	Super Mario Land	GB	Nintendo	18.14
22	Mario Kart 7	3DS	Nintendo	18.11
23	Pokémon Diamond/Pearl versions	DS	Nintendo	17.67
24	Grand Theft Auto: San Andreas	PS2	Rockstar	17.30
25	Super Mario Bros. 3	NES	Nintendo	17.28

Source: Vgchartz

And we're confident stating that no other software development company in gaming today could have created a game so innovative and magnificent as The Legend of Zelda: Breath of the Wild. That game is so good, it not only received perfect scores from nearly every critic in the business, it could genuinely be referred to as the videogame industry's first work of high art. (As absurd as that may sound, I'm being entirely serious.)

Top ratings from game publications for The Legend of Zelda: Breath of the Wild and Super Mario Odyssey

Before we move on, we want to draw one last Apple-related analogy. It's related to the catch-22 we discussed earlier, about consoles needing users to attract game developers but also needing developers' games to attract users. It turns out that mobile operating systems face a similar situation.

In general, app developers prefer building apps for iOS over Android because they know all Apple iOS devices will run them seamlessly. They also know Apple will continue to sell more and more iOS devices, growing the market for their apps over time. So iOS devices end up having a better selection of apps than Android devices do. Of course, the better its selection of apps, the more valuable Apple's App Store becomes to its customers – and the less likely they will be to switch to an Android smartphone down the road.

On the other hand, there are thousands of different Android devices from different manufacturers, each with its own specialized internal software. Adjusting an app to work on every Android device would be all but impossible. So developers know from the start that a significant percentage of the Android installed base won't be able to run their apps. That makes Android's relative value proposition for developers substantially less attractive than that of iOS, all else being equal – despite Android's user base being almost as large, at 1.2 billion devices.

So what does this have to do with Nintendo's e-Shop? We think it's starting to see an Apple iOS-like network effect, due to several factors:

- Better support from Nintendo for third-party developers
- Nintendo's decision to put an indefinitely-lived iterative hardware platform at the heart of a proprietary software-driven digital marketplace (again, like Apple's App Store or Valve's Steam)
- The rapid growth of the Switch average installed base
- The utter explosion in the number of first and third-party titles available in Nintendo's e-Shop over the past 12 months

It seems obvious to us that critical mass has already been achieved and the positive feedback loop should only strengthen from here – not just over the next few quarters, but over the next few years, and likely well beyond that. Just looking at 2019, we have the increasing availability of both "triple-A" and indie[11] third-party games, the recent release of new apps in adjacent niche categories like graphic novels and comics, and the release of new hardware form factors like the aforementioned Switch "mini" and "pro" as early as this summer. These factors, among others, make us think that if the e-Shop hasn't already reached escape velocity, it certainly will have by the end of the year. If we're right, then Nintendo is done worrying about attracting enough users to each new console it makes. And it's all but guaranteed to see its nascent digital marketplace grow into an extraordinarily attractive business with recurring revenues, exponential growth, and nearly 100% pure margins. (This sort of "digital tollbooth" business is worthy of a very high multiple, but we'll get to that later.)

Consider the rapid proliferation of indie games in the e-Shop over the last year. An ongoing topic of discussion on Switch user forums is how hard it's become to choose which indie game to play next

[11] Indie (independent) games are released without the financial backing of a major publisher.

given the legion of award-winning titles available. That's a nice problem for Nintendo to have, but the key point is this: Indie game publishers, long developing titles mainly for PCs thanks to Valve's Steam, are now flocking to the e-Shop. Nintendo hasn't just carved out a foothold in this highly attractive billion-dollar-plus niche of the larger videogame market, it's disrupting Valve's hold on it entirely. And by making indie games easily playable "on the go", the Switch is letting players enjoy them in ways never before possible.

A trusted colleague of ours who attended the recent GDC 2019 conference – the developer community's main annual event – confirmed these views. Apparently, third-party developers for the Switch are making tons of money, and Nintendo is providing them with stellar support (an area in which it's historically lagged). For perhaps the first time in its recent history, Nintendo was arguably the belle of the developer ball. One indie developer that only made games for PC mentioned that it's now bringing all its games to the Switch – and it was quick to point out that the three Switches at its booth were all provided free of charge by Nintendo. That anecdote highlights Nintendo's new emphasis on developer support, an area where it had been weak for some time despite it being critical to maximizing third-party software sales.

Apart from its indie game success, the e-Shop should also benefit in the near term from several major first- and third-party releases, including "triple-A" games like Pokémon Sword and Shield and NetherRealm's Mortal Kombat 11. Finally, Nintendo's Switch platform should also generate recurring revenue from storing players' games in the cloud. The transition to digital, coupled with the lack of storage capacity on the Switch, means users will need to pay Nintendo for online data storage. That's another powerful, essentially pure-margin revenue and cash flow stream that's barely begun to register on Nintendo's financial statements.

Thus, all the pieces now seem to be in place for Nintendo to hit the gas on its "Apple-fication". So what might the company look like a few years down the road? For a peek at what's to come, let's look at Nintendo's software-centric game publisher peers at similar points in their respective digital evolutions. They've been "going digital" for nearly a decade, and their results suggest Nintendo's shift to digital will have a huge impact:

Digital Penetration Impact on Videogame Company Margins

	EA	ATVI	TTWO	UBI
Digital % of revenue start	13.7	26.7	5.0	5.0
Digital % of revenue now	71.5	68.6	59.9	65.6
Change	**57.8**	**41.9**	**54.9**	**60.6**
Gross margin start	55.3	61.4	65.6	60.4
Gross margin now	76.9	78.1	84.8	84.9
Change	**21.6**	**16.7**	**19.2**	**24.5**
Operating profit margin start	4.7	25.3	10.9	4.2
Operating profit margin now	31.4	31.5	31.0	25.0
Change	**26.7**	**6.2**	**20.1**	**20.8**

Source: Cowen

Videogame Company Organic Growth Rates

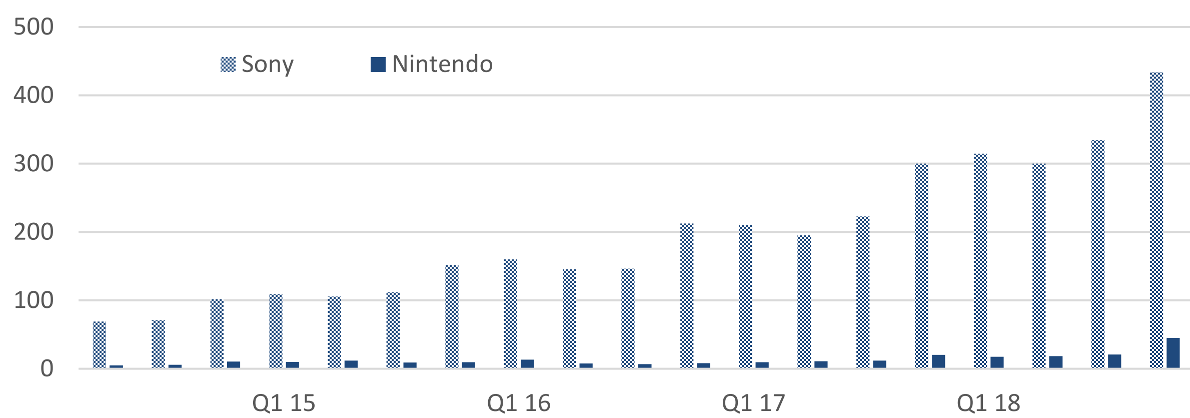
	EA	ATVI	TTWO	UBI
Growth since...	FY 10	FY 09	FY 11	FY 09
Years of growth considered	9	10	8	10
Organic revenue growth rate (%)	**2.3**	**1.5**	**12.7**	**6.6**
Gross margin percentage point improvement	21.9	5.7	12.6	22.2
Operating leverage percentage point improvement	2.2	-3.2	3.2	-1.4
Organic operating profit growth rate (%)	**26.5**	**4.0**	**28.4**	**27.4**
Tax rate percentage point increase	1.9	1.7	-2.4	2.4
Net debt ($bn)	0.9	10.3	-1.1	-4.1
EPS growth rate (%)	**29.3**	**15.9**	**24.8**	**25.7**

Source: Cowen

As the above tables illustrate, companies like EA, Take Two, Activision, and Ubisoft more or less tripled their operating margins as digital distribution went from a standing start to roughly 50% of their total revenue in less than a decade. While these businesses used to bank about 10 cents on every dollar earned, they now earn about three times that – with digital still at just 50% of sales! The resulting surge in operating profit drove shareholder returns of 5 to 10 times since mid-2013. Not too shabby – and not too surprising, either.

Need more evidence of digital's impact? Just look at the following chart. It compares Sony's operating results to Nintendo's, right after Sony launched its online subscription service. The uplift to Sony's revenue and profitability in the following years was breathtaking, and we think a similar fate awaits Nintendo:

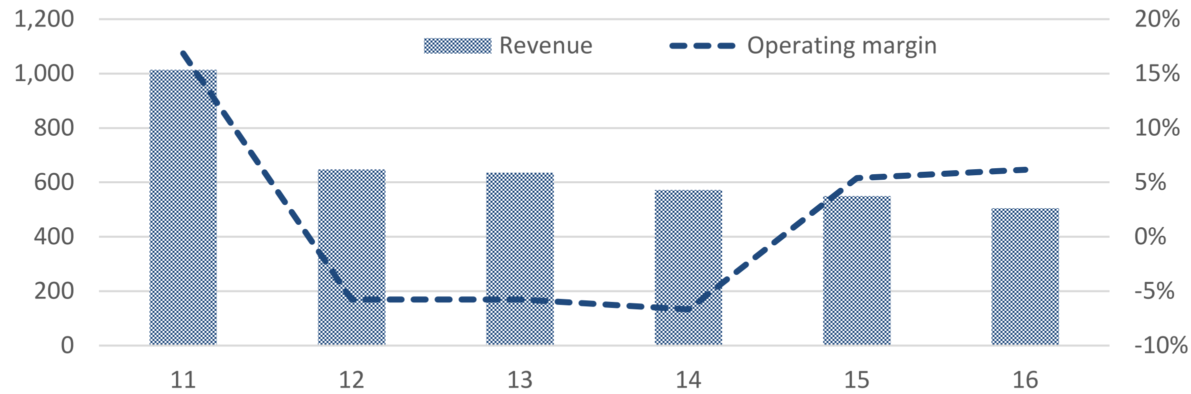
Revenues from Digital Distribution of Games and Related Content (¥bn)



Source: Sony, Nintendo

Increasing operating profit more than sixfold over a four-year period is nothing to sneeze at. We'll show how we get to a similar uplift for Nintendo later on, going from results like these earlier this decade:

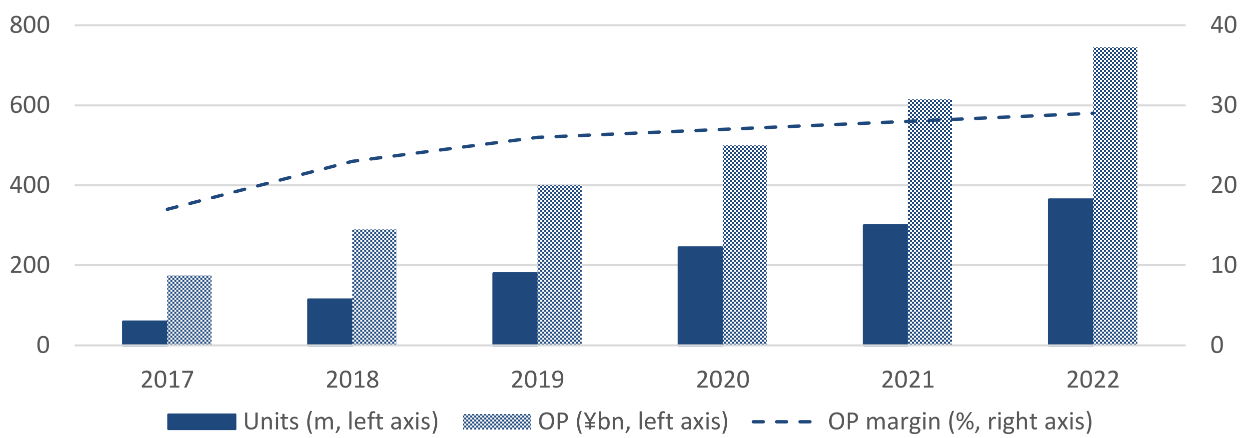
Nintendo Annual Revenue and Operating Margin, 2011-2016



Source: Nintendo

To results and estimates like these for the Switch, from 2017 through 2022:

Switch Software Units, Operating Profit, and Operating Margin, 2017-2022e



Source: Crossroads Capital estimates after FY 2017

In sum, Nintendo is building a sticky ecosystem of software and recurring subscription services, backed by an indefinitely-lived hardware platform. Taken together, they represent a potentially Apple-esque money machine: Nintendo stands to sell more and more games, features, and services, at higher margins, to an effectively permanent user base that we think will exceed 100 million in the next five years. The future is always uncertain, but we feel confident stating that Nintendo's – and its shareholders' – best days are yet to come.

C. Making games for smartphones

Nintendo's console game business may have exciting growth prospects, but it's not the whole picture. The company is also targeting smartphones as a game platform in a way that it traditionally hasn't, and the potential upside is at least as big as what it stands to gain from the Switch. Smartphone titles based on Nintendo's treasure trove of popular game franchises could be a money machine capable of delivering billions of dollars to its bottom line over the next decade.

As already mentioned, smartphones have developed into a major game platform since their launch a little over a decade ago, but it wasn't until 2015 that Nintendo announced it would make smartphone games, and its early efforts debuted to mixed results. However, the company has made impressive progress since then.

Sure, some of Nintendo's first smartphone titles hit snags. Even Pokémon GO, which was (and remains) immensely popular, drew criticism after a brief "honeymoon" period. Players complained about the scarcity of Pokémon in rural areas, the inability to trade them with other players, technical glitches, inaccurate tracking, and, perhaps most damning of all, a lack of depth to the gameplay after the initial thrill wore off.

We think it's worth remembering that Nintendo is a company that iterates new concepts, learning from what it's done before. As we've mentioned, its initial Game Boy handheld, originally a chunky gray brick with monochrome graphics, evolved into a sleek color portable in later versions. Similarly, Nintendo saw the Wii U's problems and created an improved follow-up, the Switch. And its approach to smartphone games has been no different. Nintendo (with development partner Niantic) has addressed or fixed essentially all of Pokémon GO's initial issues. There's more to do for rural players. Raid battles and other events add depth to the gameplay. Trading is now possible. And so on.

As a result, Pokémon GO has roughly 147 million monthly active users and over 800 million total downloads, helping it generate over $2 billion in total revenue in just over two years since its launch. Only two other smartphone games – Clash of Clans and Game of War – have reached that milestone more quickly. And unlike those games, Pokémon GO did it with essentially no marketing spend and with minimal monetization.

That brings up another key point: Unlike many other publishers, Nintendo has avoided taking what is often derisively called a "pay-to-win" approach to monetizing its smartphone titles. There's plenty to do in Pokémon GO even if you don't spend lots of real-world money on in-app items and features. However, in many games from other publishers, it's hard to make progress unless you spend big on "leveling up" your fortress, farm, character, weaponry, or what have you.[12]

[12] These "pay-to-win" tactics have increasingly drawn the scrutiny of regulators, due to their casino-like addictive aspects. But even worse, companies that cynically prioritize monetization over gameplay risk a backlash from their most loyal users. Nintendo isn't one of those companies. It's taken a considered, strategic approach to mobile monetization, rather than trash its reputation for quality in hopes of getting a quick blast of "pay-to-win" revenue. This thoughtful approach highlights just how protective Nintendo is of its moat. A great example of the power of patience and a truly long-term view versus the perils of instant gratification.

In contrast to Pokémon GO, Nintendo's other smartphone title based on one of its blue-chip franchises, Super Mario Run, has been a revenue underperformer. However, that seems to be because Nintendo chose to monetize it by charging a flat fee to download the game, rather than by charging users for in-app items, extra levels, and so forth via the so-called "freemium" model.[13] Nevertheless, this "underperformer" still managed to garner over 200 million downloads. That's a testament to the power of Nintendo's brand, the peerless nature of its IP, and the sheer scale of its inherent advantages.

We think Nintendo's approach to monetizing Super Mario Run, as with all its smartphone games thus far, has been an experiment of sorts. But now the "test" phase of Nintendo's entrance into mobile appears complete. The company itself acknowledged this in late 2017, stating that "As a result of these experiments with monetization styles, we're gaining what you might call confidence in our mobile business efforts."[14] So Nintendo now knows that flat fees don't monetize gameplay as effectively as in-app sales. And it knows how to use in-app sales to engage players, instead of alienating them – first with Pokémon GO, and more recently with the hugely successful Fire Emblem Heroes. That's a crucial, yet underappreciated, advantage for Nintendo as it pushes ahead in mobile.

Our view is that the experience gained from Nintendo's early smartphone releases means that its subsequent efforts will be even more successful, especially given the vast array of potential smartphone hits it could create based on its many popular game franchises. Remember, most of Nintendo's smartphone games thus far have been based on its successful but lesser-known franchises like Animal Crossing and Fire Emblem. But that trend is set to change in a big way this summer, as Nintendo starts rolling out the "big guns" with smartphone versions of Mario Kart and Dr. Mario (which was arguably the "inspiration" for King's Candy Crush). Those are two titles based on "triple-A" IP, and they have massive, broad-based appeal.

Moreover, unlike its other smartphone titles, Mario Kart Tour was developed solely by Nintendo. That means Nintendo won't have to share the revenue pie with development partners like it's had to since entering the mobile space in 2015. It also shows Nintendo's substantial confidence in the game itself, as the company has deliberately avoided using the lower-risk joint venture development model it's long preferred. Instead, it's taking on 100% of the risk, in hopes of getting 100% of the reward. In the film version of Michael Lewis's book The Big Short, one trader offers another almost all the profits from a deal – "the ice cream, the hot fudge, the banana, and the nuts" – keeping only "the sprinkles" and "the cherry" for himself. Well, when it comes to Mario Kart Tour, Nintendo wants the whole sundae, cherry on top included. That's a move with real signal value. And still unmentioned are countless other "triple-A" Nintendo franchises like The Legend of Zelda, Metroid, Donkey Kong, Starfox, Kirby… The list goes on.

In short, we view the release of smartphone games based on these top-drawer franchises as no less than a license to print money, not to mention an important signal that a key operational inflection

[13] The word "freemium" is a combination of "free" and "premium". It describes a monetization model in which a game is free to download and play at a basic level, but let's players purchase "premium" items and features to enhance gameplay.

[14] See http://time.com/4662446/nintendo-president-switch-interview/.

point has been reached. But despite all this, the market is discounting the company's mobile-related optionality to zero. That's a nonsensical state of affairs, for several reasons.

- First, mobile is a $50 billion-plus global market that would expand Nintendo's theoretical reach by a factor of 100, given the scale that comes with an installed base of roughly 2.5 billion smartphones in the world today – a number, mind you, that should only grow with time. Recall as well that mobile gaming is the largest and fastest-growing niche in the industry, yet the massive optionality inherent in this future pillar of growth is being completely ignored.

- Second, at this point, the idea that Nintendo is in any way adverse to releasing smartphone versions of its core gaming franchises is simply absurd on its face. As just discussed, the company's mobile efforts to date can more accurately be described as experimental – a multi-year window in which it carefully studied various monetization methods before risking its most valuable assets: its IP and its reputation. And yet, despite a less than full-throated effort to date, Nintendo has built a mobile business that's already generating nearly half a billion dollars in high-margin revenue annually. That result speaks to just how relevant Nintendo's IP can be in mobile, especially now that it's confident in its skill set.

- Third, the capital intensity and lead times on mobile development are a fraction of what console games require. Thus, mobile success would drive a permanent improvement not just in Nintendo's overall capital efficiency, but also in the stability and quality of its revenue base. Indeed, if Nintendo realizes even a fraction of mobile's revenue potential, it should see not just rapidly growing earnings, but a permanently higher multiple.

- Fourth, Nintendo's deep suite of beloved entertainment properties includes some of the most recognized characters of all time – not just across the globe, but across generations and entertainment mediums. In fact, according to at least a few recent polls, Mario and Pikachu have better global name recognition then even Mickey Mouse![15] This matters, as the ubiquity of Nintendo's brand and classic characters mean it won't need to spend heavily to market its games, giving it structurally lower customer acquisition costs relative to mobile peers.[16] That's a massive and durable competitive advantage the competition can't match.

- Finally, Nintendo's ability to understand and connect with a wide range of gamers of all ages in a family-friendly way is unrivaled in the history of the space. Better yet, mobile games are inherently casual, and Nintendo is hands down the king of casual videogame development. Its Wii console was such a massive success precisely because it attracted huge numbers of casual users who didn't usually play videogames. And it's hard to imagine any other

[15] See https://www.baltimoresun.com/news/bs-xpm-1993-05-18-1993138174-story.html

[16] Skeptics may doubt whether Nintendo can succeed without the "home field advantage" of its own proprietary hardware, but we think they're underestimating the power of this competitive edge. Marketing is typically the largest expense in mobile game development, often representing 20% of revenue. And as EA recently said on its Q4 conference call, "while the mobile market is strong and expected to continue to grow… it's harder than ever for new games to break through." That means the edge will go to companies with game franchises people already know and love. And no company has more of them than Nintendo.

company's games being played on a sports stadium's Jumbotron for a charity fundraiser, like the Kansas City Royals baseball team did with Mario Kart.[17].

So there are lots of good reasons to expect Nintendo to succeed in mobile. And from our standpoint, anyone who'd broadly dismiss a company as patient, thoughtful, and rich in talent as Nintendo – particularly after it's spent four years ramping the mobile learning curve – is simply not paying attention.

In fact, Nintendo ultimately dominating this segment of the industry, given enough time and effort, strikes us as a quite reasonable outcome. There simply isn't another developer of gaming software in existence capable of going toe to toe with Nintendo, full stop.

And again, Nintendo's share price suggests that the market is anticipating its complete and utter failure. Hence, any success this summer with respect to Mario Kart Tour or Dr. Mario should quickly send Nintendo shares skyward. And with a valuation this low, even small changes in how the market perceives the larger mobile opportunity should catalyze explosive upside.

D. Aggressively exploiting its intellectual property

Thus far, we've talked about a rosy outlook for Nintendo in console and smartphone games. But the company has one more ace up its sleeve: the immense, untapped value of its dozens of videogame franchises and classic characters. After all, Mario, Pikachu, and Link are at least as familiar to today's children as Luke Skywalker, Donald Duck, or Iron Man. But when you compare Nintendo's monetization of its characters to Disney's, it's easy to see that Nintendo has been falling woefully short.

The company has tried to leverage its IP before, with disappointing results like 1993's disastrous Super Mario Bros. movie. So perhaps it's understandable that it hasn't been as aggressive as it could have been on that front, but back then it lacked a blueprint for how to do things right. Now it's gearing up to unlock the immense value of its characters in a variety of smart and asset-light ways. And this time around, it seems clear it's taken a page from a playbook perfected at Disney – another company, like Apple, that shares Nintendo's gift for delighting users with high-quality content, and that succeeded by dramatically transforming its business model. Disney under Bob Iger bought up underutilized IP libraries through M&A in order to better monetize them. We think following in Disney's footsteps on monetization – but with its own homegrown IP – makes perfect sense for Nintendo, since its dozens of beloved characters mean it's essentially the Disney of videogames.

<u>1. Theme parks</u>

The most obvious sign of Nintendo's "Disney strategy" is Super Nintendo World, an upcoming attraction at Universal Studios theme parks that will feature rides and mascots based on Nintendo's characters. The first park is scheduled to open in Osaka, Japan in time for the 2020 Tokyo Olympics. Two more should quickly follow at Universal's Hollywood and Orlando locations. And

[17] See https://www.businessinsider.com/mario-kart-kansas-city-royals-jumbotron-2019-1

Promotional image for Super Nintendo World

additional Universal theme parks are slated to open in Singapore, Beijing, Moscow, and South Korea between late 2019 and 2022.

We think the partnership with Universal is a smart move that should not only enhance Nintendo's brand, but provide a beachhead for further high-return expansion. And while these joint venture developments with Universal will take another one to three years before flowing through Nintendo's financials, eventually they'll add yet another source of stable, high-margin, recurring revenue worthy of an outsized multiple – this time, due to the asset-light, annuity-like nature of the management contracts associated with operating the attractions on behalf of Universal across its global network of theme parks.

2. Motion pictures and TV

Nintendo is also developing a new Super Mario Bros. movie with Illumination, the American computer-animated film production company behind the "Despicable Me" films and several successful Dr. Seuss adaptations. "Despicable Me" is the highest-grossing animated film franchise in history, with total box office receipts approaching the $4 billion mark. It's also the only animated franchise to have to two of its films each gross over a billion dollars worldwide. We think Nintendo's joint venture with this market-leading strategic partner shows that this time it intends to get Mario movies right. Another sign is the direct involvement of Mario creator and videogame legend Shigeru Miyamoto. He'll will be working closely on production alongside Illumination founder Chris Meledandri to ensure that Mario's Mushroom Kingdom is brought to theatres with depth and proper care.

We think using computer animation this time around will let the movie stay true to the nature of Nintendo's games and characters. And it certainly doesn't hurt that animation is the highest-margin niche in film production. Just look at the strategic acquisition multiples Disney and Comcast paid for Pixar and DreamWorks Animation, or the historical earnings power of those targets' blockbuster franchises like Toy Story (roughly $2 billion in worldwide revenue) and Shrek (roughly $3.5 billion).

Finally, there's one more reason to be excited about the Nintendo-Illumination tie-up: Illumination is owned by Universal. That means lucrative tie-ins between Nintendo's Illumination movies and Nintendo's Universal theme park attractions should be a given.

Of course, we can't know whether Super Mario Bros. will turn out to be a "Despicable Me"-like blockbuster, but we think it's reasonable to expect that this time Nintendo will do Mario justice on the silver screen. And the same goes for Detective Pikachu, its upcoming Pokémon-based live-action movie. It's due for release this May, with two more Pokémon films set to hit theatres over the next few years.

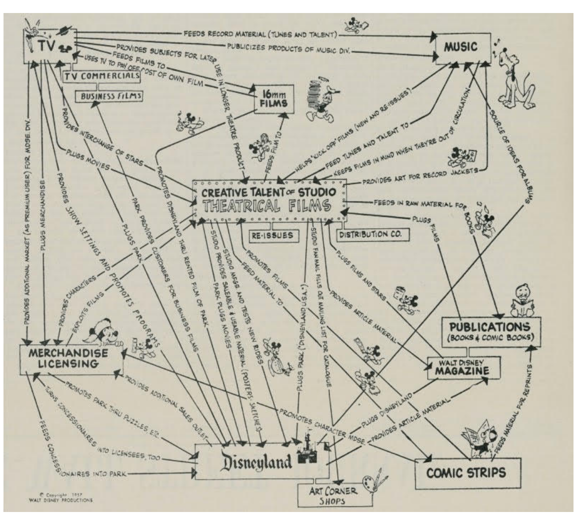
Detective Pikachu movie poster

Also, let's not forget that a family-friendly movie franchise based on Super Mario Bros. or Pokémon characters stands to profit not just from ticket sales, but from a myriad of other high-margin ancillary revenue streams associated with the proper monetization of TV and film properties – not just while its movies are in theaters, but in perpetuity. (That's a game plan Disney has leveraged all the way to the top spot in the IP licensor record books. No other company even comes close.)

Luckily, Nintendo, like Disney, has a variety of monetization levers it can pull. They include everything from traditional cable channels like HBO, to streaming platforms like Netflix and Amazon Prime, to digital marketplaces like Apple's App Store, to an endless array of licensed toys and merchandise. The depth and breadth of the opportunities are simply massive.

Better still, family-friendly blockbuster films are like the oil well Warren Buffett mentions in this report's opening quotation, where the oil seeps back in after it's sold: They're a gift that keeps on giving. Even if they're not huge hits in the theater, they can live forever via syndication agreements that bridge the physical and digital divide. (And Nintendo doesn't have to worry about Mario or Link demanding hefty raises and profit-sharing deals before they'll agree to star in any sequels!)

Finally, the extreme competition for family-friendly IP among streaming platforms hungry for such content will increasingly benefit Nintendo – especially now that Disney has decided to keep its content on its own proprietary streaming platform, Disney Plus. We wouldn't be surprised if Netflix – or any of its non-Disney streaming peers – ultimately pays through the nose to license properties like Super Mario Bros. and Pokémon, no matter how they fare in theaters. Content is king, as they say. And frankly, we're hard pressed to find a more valuable strategic asset in the family-friendly entertainment space than Nintendo's IP.



The Disney "flywheel"

So the potential for Nintendo to make huge profits from IP licensing is clear. But note too that all of the above efforts will represent free marketing for its core videogame efforts. Its movies, theme parks, and toys should further boost sales of its games and grow its fan base in a very Disney-like virtuous circle, akin to the previously discussed "flywheel"-like network effect that Disney has followed since its earliest days.

And as we've pointed out previously, low marketing spend has long been a Nintendo hallmark: Its well-known characters and game franchises essentially sell themselves. Better leveraging of the company's IP in movies, theme parks, and other areas should only enhance this phenomenon. Again, as with Disney, the strategic logic of all this boils down to Nintendo's ability to endear its characters to a continuously growing universe of fans. The more people who encounter Nintendo's characters in one medium, such as theme parks or movies, the more who will likely seek them out in another, such as console or smartphone videogames.

3. Retail stores

Finally, bear in mind that Nintendo has other brand-boosting plans in the works, including its very own retail stores selling Nintendo systems, games, toys, clothes, accessories, and more. The first one is due to open in Tokyo this fall. And we think following in Apple's footsteps by building out a physical retail presence is a great use for Nintendo's Mount Fuji-sized pile of excess cash.

Concept image of Shibuya PARCO, the building scheduled to house the first Nintendo store later this year.

Why? Well, just look at Apple. Its stores are the most profitable in the history of retail, with annual sales of over $5,500 per square foot. But they also dramatically enhance the value of its brand through a new retail model tailor-made for a digital, millennial-dominated future. That's a path we believe Nintendo is wisely trying to follow.

Like Apple, Nintendo seamlessly combines products and services, hardware and software, physical and digital into a new kind of company perfectly suited to our evolving "experiences" economy. In other words, Nintendo appears to see its upcoming stores not just as places for people to buy things or get customer support, but as destinations where they can meet other Nintendo fans, play games, and have fun.

Think about how record stores used to serve as gathering places for local bands, musicians, and fans. Or how Apple's flagship stores now offer free classes and creative workshops on computer-based photography, music, art, design, and more. The point is, stores can be way more than just places to sell stuff. And we think they should be, at least for companies who want to attract younger consumers. Several studies have shown that these "digital natives," many of whom have never known a world without the Internet, actually crave in-person human contact above all else.[18]

Angela Ahrendts, Apple's former senior vice president of retail, once said about Apple's retail stores, "It's funny, we actually don't call them stores anymore. We call them town squares because they're gathering places where everyone is welcome." And again, Nintendo seems to view its upcoming retail expansion similarly. Indeed, from what we've been able to gather, the Tokyo flagship store (and those that follow) will act as near-perfect expressions of its brand. They'll be destinations where Nintendo fans can gather – not to be sold products, but to be delighted and surprised by friendly videogame competitions and other Nintendo "experiences". Letting Nintendo users engage with the

[18] See, for example, https://hbr.org/2015/05/how-to-market-to-the-igeneration

company, and with each other, in this way will strengthen their sense of community and help Nintendo build a deeper, longer-lasting (and, yes, more lucrative) relationship with them. And it will also be perfectly symbiotic with Nintendo's core business of selling videogame hardware, online services, toys, accessories, and other licensed merchandise.

But what promises to truly set Nintendo's retail stores apart is the company's decision to have them host eSports (electronic sports) competitions as their main attraction, with people playing videogames against each other either in person or online in global tournaments. They'll be "game arenas", not just typical brick-and-mortar retailers hawking products and services.

If that sounds weird, silly, or oddly non-commercial to you, consider that the eSports industry is growing like wildfire. It's already generating nearly $1 billion in annual revenue, with millionaire star players and over 300 million fans worldwide.[19] And eSports doesn't just offer lucrative high-margin revenue streams from sponsorships and advertising. It's also the perfect activity for turning Nintendo's stores into places where videogame fans gather, like arcades were for a previous generation of videogame fans.

How profitable can such game arenas be? Consider Europe's Game Digital. It began converting its used-videogame shops into the kind of gathering places Nintendo is aiming for, albeit on a more modest scale. But the results to date have been far from modest: Its "game arenas" open a year or more are delivering 40% cash-on-cash returns. Turning old retail shops into game arenas costs Game Digital around €300,000 per location, and the average arena generates roughly €200,000 in annual profit within a year's time. A concept with unit economics this good is a highly attractive business by any reasonable objective measure.

And if that's what a company like Game Digital can do, it seems fair to assume that Nintendo's retail locations will be even more successful. Its brand, pricing power, massive global fan base, and unmatched library of family-friendly videogame IP should add up to a huge advantage in eSports. Nintendo could link tournaments across its global footprint of stores to determine "World Champions" for its hit titles. Its arenas could be the go-to place for kids' birthday parties. Or they could just be a place for teens to mingle – the modern version of mall food courts in the 1980s. At any rate, the possibilities and potential associated with a retail concept like this are vast.

Bear in mind that much of the foregoing discussion is speculation, based on bits of information we've gathered here and there from the company and various other sources. It's hard to say exactly how Nintendo's retail expansion will play out. But if the company steps on the gas and puts a few billion dollars to work over the next decade building out a network of locations in its largest markets, we think the impact on its long-term earnings could be significant. As with so many other aspects of Nintendo's ongoing transformation, this is yet another needle-moving call option with transformative potential. And better yet, it's free!

[19] See https://www.weforum.org/agenda/2018/07/the-explosive-growth-of-esports/

IV. WHY DOESN'T MR. MARKET GET THE PICTURE?

We've taken such a rosy view of Nintendo's prospects that it's only fair to ask why the market hasn't priced all this potential into the company's shares. We think there are several reasons:

A. Investors are suffering from confirmation bias.

A reasonable place to start is by asking what the odds are of us having an edge with a business as big, liquid, and well-known as Nintendo. Isn't our bread and butter uncovering grossly mispriced small- and micro-cap growth businesses? Yes, it is. And we'd be the first to admit that if the goal is predicting, say, Nintendo's exact EPS next quarter or the quarter after that, our advantage isn't large. But it's still entirely possible to gain a material edge from a solidly-researched variant view, backed by plenty of patience and discipline. Indeed, in an industry where many sell-side analysts, and "investors" more generally, look just six to twelve months ahead, the rewards for looking out several years are larger than ever.

Also, as Warren Buffett suggested in his quotation at the beginning of this report, the market often ignores obvious opportunities because of common misconceptions. We think that's a profound point. If we had to choose just one reason why well-known large-cap stocks get mispriced, it would be familiarity. It's precisely because large caps like Apple and Nintendo are so well known, with information so widely available, that large swaths of the investment community develop shared biases around certain narratives that often carry the day in the short run.

Just look at how many times Apple has traded down to absurd valuations based on the narrative that it's simply a hardware company that will eventually have its above-average margins competed away. That could be the most mistaken view of the last decade, and yet to this very day you can find people parroting a similar narrative despite reams of data proving it wrong at every turn. I'm always amazed at how people will go to great lengths to protect preconceived notions and the larger narratives that support them, regardless of clear evidence to the contrary.

B. Investors don't trust management.

After the wild success of the Wii in the late 2000's, Nintendo's next six or so years were largely a disaster for which investors blame management. And there was plenty to blame it for, whether it was the failure of the Wii U, multiple years of red ink, a track record of overpromising and under-delivering, or the company's initial refusal to make smartphone games and its perceived lack of progress on that front afterwards. Clearly, any analyst judging Nintendo's management on its performance during the Wii U era is likely to have a pessimistic view. However, the management team responsible was replaced years ago, and the specific operational and cultural issues of the dreadful Wii U era are now rapidly receding in Nintendo's rearview mirror. We think the current management team is outstanding.

C. Investors are wary of Japan and Japanese companies in general.

There's also the larger issue of investing in Japan to consider. Many investors are concerned about Japanese corporations' reputation for indifference to efficient capital allocation and realizing shareholder value, in favor of maintaining illiquid "cross-shareholdings" and other self-serving tactics that are anathema to the principles of long-term wealth creation and good governance. Others are worried about macro factors, such as Japan's shrinking population, its central bank's monetary policy, and its ever-mounting debt burden relative to GDP.

But whatever merit there may be in such concerns, even a cursory glance at Nintendo shows that it isn't a typical Japanese company. With the exception of the six years between 2011 and 2016, it's had a long history of above-average profitability, solid ROIC, and high shareholder returns. It pays out a healthy dividend equal to about one-third of its annual net profit, amounting to a dividend yield of almost 4% based on this year's consensus estimates. And over the last 15 years it's repeatedly bought back stock when the price was right.[20] So the stereotypical boogeymen of Japanese corporate governance aren't lurking in Nintendo's boardroom.

Moreover, the Japanese government for some time now has been pushing companies to adopt policies designed to improve corporate profitability and, hence, shareholder value. In fact, many of Japan's blue chips have already adopted such measures successfully, reaching valuation parity with global peers as a result.[21] Consider fellow Japanese console maker Sony. While its valuation has yet to close the gap with that of global peers, management has been divesting low-return businesses and shifting those trapped resources towards higher-ROI divisions benefiting from secular growth. So the tide does seem to be changing for Japanese corporate culture in general.

But even so, such issues are largely irrelevant with respect to our investment in Nintendo. What relatively minor old-school "Japan, Inc." drawbacks it does have appear to be unraveling as we type. Indeed, on February 22 Nintendo not only announced that it would cancel 10 million treasury shares, but also committed to repurchasing another 1 million shares (roughly 1% of its total shares outstanding) for the first time since 2014. It appears we're not the only ones who think the stock is cheap!

That announcement was soon followed by news that the Bank of Kyoto, one of Japan's most culturally conservative banks, was in the process of unwinding its Nintendo cross-shareholdings,[22] which at the time amounted to about 4% of Nintendo's total shares outstanding. That's a refreshing move from an institution that's practically a symbol of the old ways of doing business in Japan. And other regional banks in Kyoto are following the Bank of Kyoto's lead, presumably due to the government pressure to improve corporate governance that we just mentioned. All this represents an absolute sea change for investors who know Japan well. (And it's also probably responsible for the temporary forced selling pressure that helpfully kept a lid on Nintendo's stock price while we built our position.)

Okay, so Japanese businesses may be waking up to the importance of creating shareholder value. But what about Japan's macroeconomy? Well, macro fears aren't really relevant to our thesis either. Over 70% of Nintendo's revenues are earned globally, and each market's costs are well-aligned with its revenue. Even the company's gargantuan war chest of some $9 billion in cash and short-term

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[20] The current CEO, Shuntaro Furukawa, was an investment banker before joining Nintendo. He was CFO when the company bought back a pile of stock shortly before the launch of the Wii in 2006, and again in 2014 when it barely traded above net cash.

[21] See, for example, https://www.reuters.com/article/us-japan-stocks-buybacks-idUSKCN1Q60T2.

[22] See https://www.smartkarma.com/insights/bank-of-kyoto-nintendo-sale-a-portent-of-changes-to-come

securities is spread out across multiple currencies and international debt instruments. And this doesn't even address the inherent defensiveness of the videogame industry. Taken together, all this makes Nintendo about as insulated from macro turmoil as a Japanese company can be.[23]

D. Investors aren't deducting excess cash to estimate Nintendo's true enterprise value.

In the past, Nintendo avoided debt and deliberately maintained an outsized cash position as an insurance policy against failure in the "hits-driven" videogame business of old. The idea was that this cash would ensure the company's survival in the worst-case scenario of a failed console like the Wii U, guaranteeing that it could afford to develop and properly market a new one.

This policy meant it was unwise for an analyst to deduct Nintendo's cash from its market capitalization in an effort to estimate the company's "true" enterprise value, as the cash was a necessary part of its business model at the time. In other words, the odds that this money would ever be returned to shareholders or used to fund future growth were essentially zero.

But as we've discussed, Nintendo's business model is changing. Given the increasingly non-cyclical nature of its revenue and earnings, we now view deducting the company's excess cash as an analytically valid choice. How that cash will be used is anyone's guess, but we feel comfortable assuming most of it will eventually be paid out as dividends, returned via value-accretive buybacks, or reinvested to fund Nintendo's high-return expansion plans. That said, we'd expect to see it put to work relatively slowly at first, but more rapidly as management becomes more confident in the company's ongoing transformation. And the fact that Nintendo announced another share buyback while we were writing this report only furthers our conviction in this regard.

E. Investors think Nintendo is still a cyclical company with volatile, hit-driven earnings.

On a related point, we think most investors, even many long the stock, still view Nintendo as a cyclical business. As we've explained, there's been an inherent peak-and-valley pattern to its earnings capacity over a full cycle. That dynamic has resulted in Nintendo getting reliably mispriced in the past. And that pattern is repeating itself today, despite the company's ongoing transition to a stable, recurring revenue model that makes the concerns of the past irrelevant.

To be fair, the company hasn't yet absolutely proven that it can succeed by following the Apple approach we outlined earlier in this report. In fact, it hasn't even officially announced that it's trying to. But then again, Nintendo has never spoon-fed investors its strategic plans. If anything, it's worked hard to conceal them – yet another trait it shares with Apple. Aside from our proprietary

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[23] Even though Nintendo is well-insulated from macro risk, we've still tried to minimize whatever macro risk remains with our recent purchase of a laddered portfolio of long-term put options. It's a cheap hedge, bought as markets rallied into the new year and credit spreads tightened. It protects us against tail risk, preserving our principal should any interest rate or credit shocks hit in the medium term. It also provides a modicum of additional Nintendo-specific protection, which suits the large size of our position. (Actually, while we say "Nintendo-specific", we should say "Japanese macro-specific". The boom in U.S.-sourced leveraged loans, one of the more bubbly parts of a generally overvalued credit market, has largely been driven by Japanese banks starving for yield. See https://www.bloomberg.com/news/articles/2018-12-14/japanese-banks-fueled-the-u-s-leveraged-loan-boom-ubs-says.) Our hedge not only provides cheap protection against the unknown, but it presents an unusually convex, highly asymmetric risk/reward proposition if things get dicey between now and 2022. This triple layer protection should serve us well, especially if global economic turmoil causes Japanese bankers to cease buying the lion-share of U.S. originated leveraged loans, sapping demand for junk credits here in the U.S. as a result.

scuttlebutt and a few data points and comments from suppliers and company leaders, there's just not much explicit evidence that that Nintendo is trying to follow Apple's lead.

So until Nintendo gets more talkative about its plans, investors will have to roll up their sleeves and put all the pieces together themselves. It's not easy. But that's fine with us. One of our big edges as investors is our willingness to search harder and dig deeper, in order to reach powerful insights first. We're quite happy that Nintendo's culture is as secretive it is.

To be fair, hints about Nintendo's plans have been around for years, but neither the sell side nor the buy side appears to be aware of, or interested in, what we think is plainly about to happen. As we've noted above, the market ignoring huge opportunities like this one isn't all that unusual. But in Nintendo's case, unless we're wrong about literally every element of this thesis, the market will eventually wake up.

F. Investors think Nintendo will fail at smartphone games.

Next, we think investors are irrationally dubious about Nintendo's prospects in smartphone games. They see the early problems with Pokémon GO, the poor performance of Super Mario Run, and the lack of mobile titles in key franchises like The Legend of Zelda not as the result of careful efforts to master a new hardware platform and business model, but rather as half-hearted foot dragging.

We think most analysts are trapped in confirmation bias when it comes to smartphone games, just as they are with consoles. They see the absence of many of Nintendo's marquee franchises on smartphones – even now, almost four years after it announced its big strategic shift to mobile – as more evidence that the company is still devoted to making games for its own proprietary hardware, like the Switch, at the expense of all other opportunities.

We think that view is ridiculous. The idea that Nintendo's new CEO Shuntaro Furukawa isn't telling the truth when he talks about how he sees mobile as a pillar of the company's future profitability, or his desire to grow it into a billion-dollar business (among dozens of other similar comments and actions made over the last few years) just doesn't pass the most basic level of scrutiny, in our view. Nor can we take the steady improvement of Pokémon GO, the immediate and substantial success of Fire Emblem Heroes, or the upcoming release of Mario Kart Tour as the actions of a company that's more concerned about window dressing then about exploiting the inherent potential of mobile to blossom into a multi-billion-dollar business.

Nevertheless, if Nintendo's stock price is any indication, investors seem to think the company sees smartphones as an afterthought – a platform built to appease nagging analysts, as opposed to an explosive new growth driver with big implications for the future. And ironically, they're taking this view at the very moment Nintendo looks to be turning up smartphone-driven value creation full blast! Again, we suspect the upcoming release this summer of two "triple-A" software titles, Mario Kart Tour and Dr. Mario, should go a long way toward settling this debate for good.

G. Investors are worried about Stadia, Google's new streaming videogame service.

On March 19th, Google announced that it would be entering the videogame industry with the launch later this year of Stadia, a cloud-based online videogame service. Nintendo shares closed down 3.2% on the news, suggesting investors are concerned that a cheap cloud-based streaming platform like Stadia could cause consoles to go the way of the VCR. However, we aren't too concerned, for several reasons:

- First, Stadia seems more likely to compete with Microsoft, Sony, and Valve users, who tend to favor more violent, action-oriented games. We note the two biggest upcoming titles mentioned along with the Stadia launch were versions of Doom (a gory first-person shooter) and Assassin's Creed (a game in which you play, well, an assassin). These are not the titles one would choose to target the Super Mario Kart crowd.

- Second, while Google is boasting that its impressive network resources will let Stadia overcome issues with the latency (i.e., delays) often associated with web-based gameplay, we question how well most users will be able to play these games over ordinary consumer-grade internet connections. Also, the history of the videogame industry teaches us that technological superiority and first-mover advantages have little to do with success. Just ask Panasonic about its 3DO system, or Sega about its Dreamcast. It's worth remembering that Nintendo's own Wii – one of the best-selling videogame systems of all time – was also the most technologically "underpowered" relative to its generational peers.

- Third, Google has a history of making big moves into new areas to challenge existing leaders, only to drop out of the race fairly soon afterwards. Remember Facebook rival Google Plus? Or Twitter/What's App alternative Google Buzz? We won't hold it against you if you don't. And this tendency can be seen even in huge, capital-intensive new initiatives – just look at Google Fiber. Google gave it a good try for several years, but pulled back massively once it proved unable to gain the market share it sought.

- Fourth, we think Google's Stadia, Apple's Arcade, Sony's PlayStation Now, and Facebook and Amazon's cloud projects will accelerate the overall industry shift toward cloud-based online gameplay – and the sooner this happens, the better for Nintendo. This might seem like a paradox, but in the videogame business, content is king. So having differentiated content that appeals to the widest base of players will likely determine which tech giant's streaming platform ends up dominating the industry. And what better or more exclusive IP to launch a streaming platform with then Nintendo's? Third-party developers usually release their games for multiple systems and services. (They must, as their business models depend on it.) Not so with Nintendo, whose games amount to the missing link vital to helping any streaming platform stand out from the crowd. That's why the companies behind these services have been courting Nintendo for some time,[24] all but begging for exclusive rights to its top-shelf game franchises.[25] They're one thing Google can't build into Stadia. And

[24] See, for example, https://www.barrons.com/articles/apples-next-big-move-it-should-buy-nintendo-51547257452

[25] Which tech giant will successfully woo the big N? For what it's worth, our money is on Microsoft, and the resulting deal could expand Nintendo's reach by a factor of two overnight, potentially adding hundreds of millions in stable, recurring high-margin revenue to Nintendo's bottom line depending on the nature of the deal. To us, Microsoft's technical infrastructure and network know-how combined with Nintendo's world-leading lineup of top-shelf game franchises would be a match made in heaven. For more on rumors of such a tie-up, see https://en.softonic.com/articles/microsoft-nintendo-partnership.

without a deep bench of great games and at least some exclusive content upon release, Stadia is likely to land dead on arrival – closer to Hulu out of the gate than Netflix.[26]

- Finally, while the videogame industry has gone through dramatic change over the last decade, things will likely change even more quickly in the years ahead, shifting the industry in new directions due to the convergence of 5G connectivity, artificial intelligence, and big data. Yet even if today's epic battle for dominance on the videogame industry's next big front somehow makes portable consoles obsolete, we're confident Nintendo will adjust accordingly. Company president Shuntaro Furukawa has explicitly said that "In the long term, perhaps our focus as a business could shift away from consoles. Flexibility is just as important as ingenuity." He's also said that Nintendo is now focused on expanding the population of gamers who interact with its IP, not with its hardware. That statement would have been unimaginable from prior leadership, but it gets to the heart of Nintendo's "antifragility" (to use Nicholas Nassim Taleb's term) amidst rapid, unforeseen change. In any case, we don't think a shift to a pure software approach is likely to happen for a number of reasons – but if it did, Nintendo's share price would probably double overnight.

H. Nintendo's high share price hampers retail participation and index inclusion.

At over 30,000 yen, Nintendo's share price is causing the same problem Berkshire Hathaway's did years ago: It's so high that it's an obstacle to retail investor participation, limiting external demand for the company's shares. In Berkshire's case, Warren Buffett eventually created a new class of B shares in order to make the stock more affordable for "mom and pop" investors who couldn't come up with the tens of thousands of dollars required to buy one of its A shares. And now, for the first time in recent history, there are hints Nintendo may do the same.

To get a better idea of the scale of the problem, consider that minimum lots in Japan are set at 100 shares. That means retail investors would need to invest over three million yen (roughly $27,000) just to get a foot in the door. That's a barrier high enough to lock out the vast majority of Japan's investing public. Moreover, it limits Nintendo's ability to benefit from the rise of passive investing, as index-following passive money flows avoid its high-priced shares. The result is that meaningful ownership of Nintendo by retail investors in Japan, or by indices and ETFs, is severely curtailed, hurting demand for its shares and punishing its valuation in lockstep.

It's true that as part of Nintendo's recently-announced stock repurchase, the company said it would place 2.8 million shares with retail investors in an effort to further diversify its shareholder base. However, due to its high share price, only the wealthiest Japanese would be likely to participate, making the announcement a retail play in name only. But more intriguing than the private placement

[26] The same is true for new gaming services in development from Apple, Amazon, Facebook, Microsoft, and Sony. To be fair, Microsoft at least has some exclusive IP and Sony does have a mildly interesting streaming service. But how can they, or any tech giant entering the space, differentiate their platforms when virtually their entire game libraries are licensed from third parties? In sum, if it can be easily bought, it can be easily copied, and is therefore not a point of differentiation – especially when all the companies behind these monopoly tech platforms have what is effectively an infinite check book for acquiring content. So what will be the swing factor that determines which company ends up the king of streaming? We don't know. But we're sure it won't be expensive data centers, technical features, or a licensed library of third-party IP that determines the winner.

itself was Nintendo's comment that a future stock split was indeed a possibility. That's big news, given the company's longstanding and well-known stance against splits (likely due to fears that a lower share price would attract activist investors or other unfriendly advances). A split of at least 10-for-1 would be required if shares were to drop to a price most retail investors could afford. But should Nintendo do it, a key structural barrier to buying its shares would be removed. Naturally, we'd view such a development as hugely positive for the longer term.[27]

But such a split might not even be necessary to bring retail investors into the game. Shortly before we released this letter, Bloomberg reported that the Tokyo Stock Exchange is mulling the creation of an ETF-like system that would implement a one-share minimum in an attempt to bring more small investors into the market. That's a smart and creative work-around we applaud.

I. Investors are misunderstanding recent news and share price movements.

As with BlueLinx Holdings (BXC, discussed in our November update), a perfect storm of non-economic factors and investor misunderstandings has driven Nintendo's share price down by almost half, from its 52-week high of about $58 per ADR to our average cost basis of roughly $33. At $58, Nintendo's valuation implied expectations of healthy growth. But at $33 it implies the opposite, largely due to fears that a cyclical collapse in Switch demand is right around the corner. And to be sure, Q4 market volatility (which was particularly brutal for the tech sector, and for videogame stocks in particular) certainly hasn't helped.

Other factors hurting Nintendo's share price include the market's misunderstanding of its recent reported results, as well as those of key suppliers like Nvidia. First, traders confused run-of-the-mill hardware seasonality – in this case, driven by a weak software lineup in the first half of fiscal 2018 – with cratering demand for Switch consoles. Next, they compounded that error by mistaking a lull in demand for Nvidia's Tegra chips as confirmation that Switch adoption had hit a wall.

Our view was the exact opposite. What some saw as a permanent reduction in demand, we saw as a clear sign that Nintendo was in an inventory destocking phase. First, the company had spent the first three quarters of last year building inventory like mad. Second, heading into 2019, its historically high level of inventory (both on its balance sheet and in the channel), looked just about right for a company with a major hardware refresh due out soon. So from our vantage point, Nintendo was just safely bridging the working capital gap until newer Switch models were ready for store shelves. Thus, its rapid inventory build throughout 2018 and its beefed-up working capital position heading into Q1 made perfect sense – but only if you knew the company was transitioning to an iterative hardware model, with plans to unveil hardware revisions by late summer.

A related dynamic could be seen in recently-reported results from suppliers like Nvidia. After all, if the original Switch were being replaced by new versions, Nintendo would eventually stop purchasing components like Nvidia's Tegra chips to make room for more powerful replacements. Also, suppliers like Nvidia need a fair amount of time to retool their Switch-related production lines in order to meet Nintendo's launch deadline. (All this probably explains the mysterious $1.5 billion in

[27] On the other hand, if Nintendo keeps on announcing more buybacks, *existing* shareholders should hope it holds off on any split. Shrinking the share count would increase the value of the shares they already hold. At this point, we're indifferent to either outcome.

incremental business included in Nvidia's recent full-year guidance – and management's silence as to its source.)

In addition, elevated inventory levels made sense in light of high demand for the Switch during last year's record-breaking holiday season and its continued sales momentum in the new year. Add to that management's direct confirmation in January of a new Switch in the pipeline,[28] clear indicators of accelerating demand from a number of alternative datasets we follow, and an inventory position large enough to bridge the gap, and we had all the confirmation we needed to be confident that our view – not Mr. Market's – was correct.

Even more absurd to us was how investors dumped Nintendo on management's recent reset of its arbitrary guidance on full-year Switch hardware sales and its announcement of an insignificant two-month delay for the release of Mario Kart Tour. Their overreaction caused our early gains in Nintendo to evaporate, despite the company's objectively stellar quarter. Revenue was up 26% year-on-year and operating profit was up even more, at 36%. In fact, nothing in the latest quarter would cause competent analysts to be concerned.

When it came to the main drivers of its core earnings power, Nintendo shot the lights out – all of them. For example, its high-margin software sales surged, with full-year guidance rising from 100 million units to 110 million for the full fiscal year ending in March. (Sure, Switch hardware sales didn't hit guidance of 20 million units, but we never thought they would.) How investors could be disappointed by Switch platform-related revenue growth of 56% year-on-year is just baffling, especially given Nintendo's historically low valuation and increasing operational momentum.

In short, the actual drivers of Nintendo's sales and earnings growth are getting stronger and stronger. We're looking forward to continued rapid growth in the Switch installed base, and the rising software sales – physical and digital – that will inevitably follow. (The company's blockbuster 2019 game lineup should certainly help in that regard.) Best of all, with Nintendo's previous full-year guidance scrapped, the market's expectations are now completely reset: Investors are discounting a scenario we think is plainly not going to happen. With several perception-altering catalysts just up ahead, all we need to do now is wait.

J. Nintendo's financial statements offer a limited view of its future earnings power.

How long will investors keep fighting the last war? It's hard to say. Inevitably, recognition of Nintendo's new reality will take hold as the business model transformation underway continues to gain momentum, and as investments sown long ago finally start bearing fruit in Nintendo's reported results.[29] Our best guess is that the consensus view could start to change with a successful release of Mario Kart Tour on smartphones this summer. Additional momentum should come with the debut of the Switch "mini" and "pro" later this year, as well as the release of a number of "system-selling"

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[28] This came in comments on its Q3 quarterly results, as we highlighted earlier.

[29] When considering the long-term nature of Nintendo's planning, we're reminded of what Jeff Bezos said about having a good quarter: *"When somebody … congratulates Amazon on a good quarter … I say thank you. But what I'm thinking to myself is … those quarterly results were actually pretty much fully baked about 3 years ago. Today I'm working on a quarter that is going to happen in 2020. Not next quarter. Next quarter for all practical purposes is done already and it has probably been done for a couple of years."*

games, such as Super Mario Maker, Pokémon Sword and Shield (the first Pokémon game built specifically for the Switch), and major third-party titles like Mortal Kombat 11 (due in late April).

With new Switch models set to draw in more users and a software pipeline that's never been better, we think continued growth in Nintendo's installed base is all but certain. And while predicting near-term events is tough, one thing seems clear: As Nintendo's new growth drivers kick in, investors will find it harder and harder to hold onto the outdated paradigms of the past.

V. VALUATION

A. Hidden assets: Hunting beyond the balance sheet

> *"The problem with Apple is that the market gives the company no respect. In liquidation the firm could be worth $20/share.* [Apple traded at $13.25 unadjusted for future share splits at the time.] *Aside from the cash, they own their headquarters, the real estate is grossly undervalued on the books. In addition, Quicktime and OS X technologies should be worth at least a billion or several dollars/share. They've had trouble really monetizing these assets."*
>
> –VIC member "Doobadoo802", April 2003

The market also gives Nintendo no respect. Given its growth prospects, its historically low valuation is nothing short of a gift. In that respect, it reminds us of Apple in 2003, when observers could lament that the company's true value was being overlooked. At that time – after the iPod's release, but before the iPhone's – Apple was a vertically-integrated hardware/software hybrid with a beloved consumer brand and a history of cyclical, "hit-driven" earnings. And it was on the cusp of a multi-year business model transformation that would permanently improve its operations and permanently improve the stability, diversity, and quality of its revenue streams.

But that transition wouldn't bear fruit in Apple's financials for another few years, so most people paid it no attention. And the few who did pay attention were waiting to see if the company could execute. In other words, Apple was in pretty much the same position Nintendo is in today.

The fact that Apple traded at a giant discount to its readily ascertainable liquidation value says it all. The market was essentially claiming that mighty Apple was worth more dead than alive. That might be hard to believe now, with the company's market capitalization hovering around a trillion dollars, but believe it: Apple's stock traded at a split-adjusted $1 per share the day Doobadoo802 posted his above-quoted comment on Value Investor Club's message boards. Buying Apple before its transition to an iterative hardware model and holding until today would have multiplied your invested capital 195 times. *One hundred and ninety-five times!*

Another market titan that once got no respect is Disney. Way back in the 1960s, Warren Buffett (as he recounted in the quotation at the start of this report) spent about $4 million of his partnership's funds to acquire about 6% of Disney's outstanding shares. That stake that is now worth a mind-blowing $12.6 billion (Buffett, however, sold it a year later for a quick 50% gain – a move he's publicly regretted ever since.)

Disney was cheap for much the same reasons Apple was cheap in 2003 and Nintendo is cheap today. The fact patterns and basic setups are remarkably similar. So will history repeat itself? Well, the bad news is we don't expect Nintendo to generate a return of nearly 200 times our invested capital over the next 15 years. But the good news is a return of 5 to 10 times strikes us as quite reasonable.

How do we get there? It starts with a simple question: What's Nintendo fair value?

Let's begin with our immense downside protection. Nintendo's market capitalization at our average purchase price was roughly $33 billion. Adjusted for approximately $9 billion in excess cash and short-term securities, we get an implied enterprise value of about $24 billion, as the company is debt-free.

But that's not the whole picture. We also need to factor in the value of Nintendo's hidden assets, and in particular its incredibly valuable portfolio of intellectual property – which, mind you, is nowhere to be found on its balance sheet. Below, we do just that. The assets we consider are Nintendo's stakes in (1) The Pokémon Company, (2) Niantic, (3) DeNA, (4) Bandai Namco, and (5) the Seattle Mariners, as well as (6) its other intellectual property assets.

1. The Pokémon Company

When it comes to The Pokémon Co. ("TPC"), the private company that oversees the global licensing operations of the Pokémon business empire, Nintendo's officially-disclosed ownership stake is 33%. So Nintendo and fellow Japanese videogame developers GameFreak and Creature Inc. (who make Pokémon role-playing videogames and traditional games, toys and trading cards, respectively) each appear to own one-third of the company.

The Pokémon logo, with the franchise's most famous character.

But what isn't disclosed or mentioned in Nintendo's filings is its ownership of the actual Pokémon trademark and the associated trademarks of the franchise's vast universe of characters. Nintendo licenses these to TPC at its discretion. Any discussion about Nintendo's true ownership interest in Pokémon IP, specifically with respect to which company has the real leverage in the relationship, should start right there.

Also unmentioned is Nintendo's undisclosed equity stake in Creature, which we put at no less than 33% of its private equity. This stake is part of a classic Japanese cross-shareholding tactic aimed at obscuring Nintendo's *de facto* control of TPC and its above-50% "look-through" economic interest in one of the most valuable intellectual property assets in the world.

Just how valuable is TPC? The last bit of data we could find put it as the 18th most valuable IP asset by revenue in the world. Incredibly, TPC's revenue grew 37% year-on-year as of early 2018, putting

2017 Top Global Licensors by Sales ($bn)

Source: Licenseglobal.com

it just behind the NFL for global licensing volume. That's not bad as far as hidden balance sheet assets go, to understate the obvious.

Better still is that such breakneck growth appears likely to continue for years into the future. TPC's development pipeline appears particularly robust in 2019, given the upcoming release later this year of the first Pokémon videogames developed exclusively for the Nintendo Switch. Then there's Detective Pikachu, the company's first-ever live-action Pokémon movie, which we've already discussed.

If you're wondering how Nintendo can keep all this under wraps, it's because both Creature and GameFreak are privately-held companies. Under Japanese securities law, Nintendo isn't legally required to disclose its stakes in them. If Nintendo were forced to account for its true economic interest in TPC, the earnings power of the 18th most valuable IP asset in the world would be consolidated in Nintendo's financials for all to see. Fortunately for us, it's not – at least not yet.

In any case, we've put a fair amount of thought into how to account for TPC, and we think the best way is to take its most recent trailing twelve months (TTM) of revenue and assume an operating margin to get a rough proxy for its annual pretax free cash flow. It's true that a portion of TPC's revenue does actually run through Nintendo's financial statements, but only from internally-developed games, which are relatively rare. The licensing revenue stream is booked at TPC, so we don't view accounting for the billions earned annually in this fashion as double-counting.

With that in mind, TPC's latest TTM revenue is about $3.5 billion. If we assume an EBIT margin of 75% (reasonable, given the low-cost nature of TPC's primary business model of collecting royalties), that gets us to annual FCF of approximately $2.6 billion. So at a conservative 10 times FCF, TPC is worth about $26 billion, putting the value of Nintendo's stake at approximately $13.2 billion. But even if we assume an EBIT margin of only 50%, we're still talking about some $1.8 billion in pretax free cash flow and an implied valuation of $17.5 billion. That puts the value of Nintendo's stake at roughly $8.8 billion in a truly worst-case scenario.

Bear in mind that the above quick calculations assume Nintendo's total interest in TPC sits at the lowest possible estimate – i.e., about 50%. It also uses a 10x FCF multiple, whereas private markets would almost certainly use a much higher valuation if TPC ever came up for sale (whether in terms of FCF or EV-to-sales). Our guess is something closer to 20x FCF or 9x sales at an absolute minimum, given TPC's structurally high gross margins and growth rate. Moreover, TPC's true run-rate revenue – and profit – could be much higher than we've assumed.[30] Indeed, as already mentioned, the company grew 2018 revenues 37% year-on-year, and yet we're basing our sales numbers on an article with year-end 2017 data.[31]

However you slice it, we think the above methodology undervalues Nintendo's TPC stake materially. We suspect a true strategic acquirer like Tencent, Disney, or Sony would pay a price in line with the above estimates in a heartbeat.

2. Niantic

Now let's turn to Niantic, and Nintendo's decision to join forces with this nascent augmented reality (AR) platform business. Led by CEO John Hanke, the mastermind behind Google Earth, Niantic was born as a subsidiary of Google in 2011. It was ultimately spun off in early 2015 – possibly to let its value be better reflected by the market, or so that Nintendo, which we imagine was quite impressed by early versions of Pokémon GO, could get a larger equity stake in the company.

The Niantic logo, along with those of partners Nintendo and Google.

Immediately following its spinoff, Niantic entered into its Series A with what looked like a consortium of three strategic investors, officially disclosed as Nintendo, Google, and TPC. But, as we've already explained, Nintendo owns over 50% of TPC. So, what appeared to be a consortium of unrelated parties was better understood as a merger of equals between Niantic and Nintendo. Niantic brought the technological resources and expertise. Nintendo brought a good chunk of the seed capital, one of the world's best and most beloved game franchises, and all the wisdom and institutional

[30] In fact, the one thing about TPC we haven't yet been able to make sense of is how an ultra-high-margin licensing business with billions in annual revenue manages to consistently report such meager profits. To be sure, TPC's complex web of private subsidiaries gives it a lot of flexibility in presenting its results, but we're not sure exactly how it's using that flexibility. (If you have any thoughts, data, opposing views, or insights that would shine a light on the issue, we're all ears.) We just can't reconcile the qualitative attributes of TPC's business model with its sub-5% net income margin. Perhaps we've missed something obvious, but a margin that low doesn't even pass a basic sanity test. For more on TPC's profitability, see https://www.serkantoto.com/2018/05/29/pokemon-company-profit-2018/.

[31] With the variability associated with the release of games, movies, and other projects, we realize there is some cyclicality in TPC's model. We also realize it can be risky to extrapolate future outcomes from past results. Yet such concerns are far less significant than factors like TPC's deep pipeline of major motion pictures and system-selling games, plus the torrent of ancillary licensing revenues they'll unleash. While TPC may continue to see some "hits-driven" cyclicality year to year, as its historical results demonstrate, we're highly confident sustained growth over three- to five-year intervals should continue indefinitely.

knowledge you'd expect from a videogame industry pioneer with the single greatest content creation track record of all time.

While Nintendo's initial post-spinoff anchor investment likely earned it a stake of up to 50% of Niantic's equity, we peg its current ownership at somewhere between 20% and 40% after adjusting for $425 million in additional capital Niantic raised later on. (We have to estimate Nintendo's stake because, unfortunately, the details of the original deal and the follow-on capital raises have never been publicly disclosed, but the clues we've managed to piece together put our best guess at no less than 20%.)[32] So, at the low end of our estimate, and given Niantic's recent $3.9 billion valuation in its Series C this past December, Nintendo's stake in Niantic is worth at least $780 million.[33]

We also note that Niantic did the raise not because it needed the capital (according to Hanke, the company is cash flow positive), but as an opportunistic measure that was in equal parts both offensive and defensive. On the one hand, Niantic wanted to forge and finalize key strategic alliances around the company's core AR and machine learning initiatives. On the other, it felt it was important to have the financial flexibility needed to keep executing on its ambitious expansion plans should venture funding dry up at any point over the next few years. We love management teams with this type of "defensive offense" approach.

Of course, valuing early-stage private companies in heavy investment mode is often more art than science. Still, in Niantic's case we think we're dealing with something truly special – and you don't need precise estimates to know when you've found a winner. As Benjamin Graham (the "father of value investing") put it, "You don't need a scale to know that a 350-pound man is fat."

Let's start with AR. Unlike its better-known twin virtual reality (VR), AR is a highly attractive niche of the videogame industry with an almost endless array of potential commercial applications. In other words, AR is more than just hype. It's pretty much everything its less-interesting cousin VR wishes it could be. For example, it's easy to imagine a world in which Niantic ends up with the dominant AR gaming studio *and* the dominant AR platform, on which the majority of all AR apps are built. And these applications will power much more than just videogames.

In fact, for reasons briefly laid out below, it's not crazy to imagine Niantic being worth *hundreds of billions* of dollars at scale, 10 to 15 years down the road. Even at today's roughly $4 billion valuation, it's easy to envision tantalizing upside given its substantial lead in AR-related technology, the nature of its differentiated platform business model, the quality of its leadership, anchor investors and

[32] That's probably a conservative estimate. For example, a recent Sum Zero data piece has Nintendo's equity stake at 20% for Niantic, yet if you look at its most recent annual report, it states that one company is not included in its equity method without providing any details in terms of which company that is. My recollection is to account for it in this way, they need to own over 33% of the asset on the low end and less than 50% on the high end. In other words, if we're correct, both bounds would put the true value of Nintendo's Niantic stake north of $1B, assuming the mystery company is Indeed Niantic. Also, we don't think we'll be in the dark about Nintendo's true ownership percentage indefinitely. Hanke is on record discussing Niantic's plans to eventually go public, so in time we'll get an S-1 and the clarity we desire.

[33] A Niantic IPO should have no shortage of demand and no trouble receiving a generous market multiple. Sophisticated strategic investors like eSports leader and initial Fortnight backer Axiomatic Gaming and 5G pioneer Samsung Ventures were happy to invest at a nearly $4 billion valuation barely 3 months back. Granted, their presence is no guarantee of success, but smart money strategic partnerships of this caliber, especially in techland, don't come together unless the logic of joining forces is compelling for all involved. And something tells us these guys aren't looking for a quick double, either.

strategic partners, the likely size of the industry at maturity, the "winner-take-all" dynamic behind many technology standards, and various other factors.

Just look at Niantic Real World (NRW), an AR-based purpose-built operating system (OS) that powers Niantic's AR-based mobile games. It's due to be made available to outside developers sometime this year. Practically speaking, this means that game developers around the world will soon be able to leverage Niantic's platform and all the technology behind its peerless AR game studio and development tools – especially its proprietary AR-based technology for multi-player gaming capabilities and its ability to connect that gameplay to real-world locations.

So what's its business model? Niantic reminds us of fellow game studio Epic Games. Epic is a well-known industry darling. It's the creator of the disruptive smash hit Fortnite (currently the world's most popular game) and the hugely popular Unreal Engine, an end-to-end game development platform akin to Niantic's NRW. The Unreal Engine provides everything a developer needs to quickly and cost-effectively design the next big mobile, PC, or console hit. Developers are free to use its tools and capabilities as much as they like, but when a game or piece of software built with it starts making money, Epic takes a 5% cut of all revenue above a certain threshold.

We think Niantic will likely take the Unreal Engine monetization approach with NRW. But it also stands to earn significant additional high-margin revenues from its development tool digital marketplace, an App Store-like paid content distribution channel for selling premade stock characters and in-game items, among other tools valuable to game developers. It's similar to third-party paid content distribution platforms like the App Store, except instead of selling third-party apps to users, NRW sells digital "picks and shovels" to developers.

Another reason why NRW is so valuable to Niantic is that it's tied to Niantic's own hit game, Pokémon GO – just like Unreal Engine is tied to Epic's own hit game Fortnite. That means that Niantic and Epic get a constant stream of data on how NRW and Unreal Engine, respectively, are functioning in real-world gameplay. They use this data to continuously improve these games and the software platforms they run on, extending their technological lead over would-be rivals. (And of course, Pokémon GO and Fortnite also rake in huge piles of money, which can be used to fund more development and extend that lead even further. It lets NRW and Epic add capabilities and features that build on existing strengths while expanding into new areas like VR in the case of Epic, or verticals in AR outside of gaming, in the case of NRW.)

In a way, NRW and Unreal Engine are the videogame industry equivalent of Amazon Web Services (AWS): They're examples of a business monetizing the proprietary infrastructure that supports its own core operations. Over time, this infrastructure monetization becomes a core business in its own right. In fact, we expect NRW will eventually be much more than simply an AR game development platform. The inherent potential here is much bigger than that.

So not only is Niantic the market leader in AR, but its differentiated business model is characterized by an Unreal Engine-style network effect that's extremely difficult to dislodge once established. It has all the secret ingredients of platform success; it just needs to continue to execute. So again, imagining a scenario where Niantic is worth north of $100 billion at scale isn't pie-the-sky wishful thinking. (We certainly aren't counting on that happening, mind you. We're just trying to provide some perspective on one of the most attractive hidden balance sheet assets we've ever seen.)

All speculation aside, we're keeping an eye out for the release of Niantic's next AR-driven mobile game, which will be based on the incredibly popular Harry Potter books and films. If Harry Potter: Wizards Unite and other undisclosed titles set to hit the market over the next 18 months are even close to the caliber of Pokémon GO, the private market value of Niantic's AR platform – and Nintendo's stake in it – should increase dramatically.

A promotional image for Harry Potter: Wizards Unite

Moreover, given the rumors that both Niantic and Nintendo have a deep bench of "top secret" AR- and VR-related titles set to be released this year, there's a significant chance that at least one of those titles will end up revealing the considerable, yet latent, VR and AR capabilities embedded in the Switch, possibly driving another step up in Switch adoption. Will those titles be as popular as Niantic's Pokémon games? Well, in January, Hanke said in an interview that Niantic's unannounced projects are "based on equally huge blockbuster IP".[34] That sounds good to us, considering that Pokémon and Harry Potter are two of the top ten family-friendly IP entertainment assets in the world. The fact that companies like Nintendo and Warner Bros. are willing to trust Niantic with these properties speaks to just how remarkable Niantic is, in terms of both its technology and its people.

Last but not least, a 2015 internal email from Facebook CEO Mark Zuckerberg recently hit the wires, and its contents are fascinating with regard to Niantic. Zuckerberg sees AR at the center of the next tech paradigm shift, and mulled acquiring a mobile and AR-focused company called Unity.[35] But in laying out his vision, Zuckerberg basically described Niantic as it currently exists with an almost spooky level of accuracy. Unfortunately for him, his dream acquisition is firmly in the hands of Google and Nintendo.

We're more than happy to take Zuck's seat on the AR train, regardless of whether his larger vision comes to pass. That's the beauty of a free ticket: Heads, we win; tails, we don't lose. And keep in mind that Zuckerberg is hardly alone in his predictions. Plenty of highly-respected tech pundits and thought leaders are envisioning an AR future along similar lines.[36] Should that vision play out, Niantic offers a low-risk call option an AR future that could expire deep in the money. How deep? With a long enough time-horizon, Nintendo's stake in Niantic could end up being more valuable than its entire current market capitalization.

[34] See https://www.hollywoodreporter.com/news/niantic-maker-pokemon-go-raises-245-million-new-funding-1172986

[35] See https://techcrunch.com/2019/02/13/facebook-mulled-multi-billion-dollar-acquisition-of-unity-book-claims/

[36] See, for example, https://www.wired.com/story/mirrorworld-ar-next-big-tech-platform/

3. DeNA

Now things get a little easier for us. DeNA is a listed mobile game developer in Japan, so we can easily look up its market capitalization – about $2.28 billion. Hence, the market value of Nintendo's 10% equity stake is roughly $228 million, or a bit more if valued at cost on Nintendo's balance sheet.

4. Bandai Namco

As with DeNA, Bandai Namco is also a listed company in Japan, so we can easily determine the market value of Nintendo's stake. At present, its shares of Bandai are worth about $171 million. Again, the market value is a bit below where it's carried on the balance sheet, but as with DeNA, you're free to choose whichever value you feel is more appropriate.

5. The Seattle Mariners

Unfortunately, now we're back in the realm of private businesses. In the case of Nintendo's 10% stake in the Mariners though, Forbes magazine recently valued the Seattle club at $1.4 billion, so we'll go with that. We're happy to sign off on Forbes's valuation for a few reasons, but mainly because our independent research suggests there are hidden assets not properly accounted for in Forbes's calculations that should add another $300 to $400 million or so to its estimate.

6. Other IP assets

To estimate the value of Nintendo's "core", IP, let's look at the prices acquirers have paid for similar assets. That should help us think more clearly about the downside protection part of our thesis as well as estimate a theoretical floor for Nintendo's liquidation value.

Nintendo IP Comparable Transactions

Year	Acquirer	Target	Value ($bn)	Key intellectual property
2016	Comcast	Dreamworks	3.8	Shrek, Kung Fu Panda
2015	Activision	King Digital	5.9	Candy Crush Saga
2012	Disney	Lucasfilm	4.0	Star Wars
2009	Disney	Marvel	4.0	The Avengers
2006	Disney	Pixar	7.4	Toy Story, Finding Nemo, The Incredibles

Source: Various

Perhaps the most enlightening transaction of the above group was Activision's purchase of King Digital for roughly $6 billion in 2015. King only had two real assets: the development know-how embedded in its mobile gaming platform, and its only game franchise back then, Candy Crush. At the time of King's acquisition, Candy Crush had a mere 8 million paying users and was on track to post negative revenue growth year-on-year. So, if a game like that was worth nearly $6 billion to Activision, what does that say about the private market value of the rest of Nintendo's library? What would Pikachu, Mario, or Link go for if Nintendo all of a sudden decided to sell the IP to the highest bidder? We don't know, but we're sure it would be a lot more than what Activision paid for Candy Crush. And Nintendo owns probably at least a *dozen* properties for which that case could be reasonably made.

Moreover, the Pixar, Dreamworks, and Lucasfilm acquisitions, and other comparable content deals, took place at EV/EBITDA multiples two to three times higher than Nintendo's implied 2019 multiple. Clearly Nintendo's stock isn't pricing in the "strategic acquisition premium" it deserves. And the disparity is even larger than it first appears, as Nintendo's IP has historically been poorly monetized. Certainly it's undermonetized relative to the IP portfolios in the above transactions at the time the target companies were acquired.

Note, too, that there are very good reasons to believe video game IP is intrinsically more valuable than even the most valuable movie and TV content, such as Disney's Star Wars franchise – especially if one measures such franchises' value by looking at the peak to trough variance of the revenues generated by their respective games or movies. Former Fidelity fund manager and videogame analyst Gavin Baker did just that. He concluded that highly-valued videogame franchises are less sensitive to the quality of their individual entries, and therefore generate more consistent and predictable revenue and profit vs. other forms of IP.[37] While reasonable minds may disagree, it's a fascinating angle to consider, especially as it relates to Nintendo.

So, at our cost basis, what did we pay for Nintendo's core operations and IP assets, and all the optionality embedded within them? A bit under $9 billion.

Nintendo Core Adjusted Enterprise Value ($bn)

Market capitalization ($bn)	**32.234**
Less cash	9.064
Enterprise value	**23.170**
Less Pokémon IP	13.250
Less Niantic equity stake	0.780
Less DeNA equity stake	0.228
Less Bandai Namco stake	0.171
Less Seattle Mariners equity stake	0.140
Core adjusted enterprise value	**8.601**

Source: Various

Think about just how ridiculous that is. At $9 billion, the market is saying Nintendo's other operations are worth less than nothing after taking into account the value of its grossly undermonetized library of IP – which, as the most valuable such portfolio in the videogame industry, is easily worth $9 billion. To put it another way, at the current quote we're getting all the massive embedded optionality with respect to every single earnings engine at Nintendo for free. *Free!*

What's this optionality we're talking about? That's a fair question. Here's just a partial list of what's in the bag:

- All future earnings from the Switch console and games
- All future earnings from DLC/ancillary revenue from console software

[37] https://medium.com/@gavin_baker/franchise-value-videogame-ip-vs-movie-ip-d6dd0a7498d

- All future earnings from properly exploiting the company's IP assets
- All future earnings from smartphone games
- All future earnings from the Nintendo Switch Online digital subscription service
- All remaining earnings from the runoff of the 3DS console and games
- All earnings from toys and other retail merchandise

And the list goes on. But for now, let's focus on quantifying the above items. That will help us paint a proper picture of what they would actually mean for Nintendo's earnings if even a fraction of the inherent potential in its ongoing business model transformation is unlocked over the next three to five years.

B. Switch dedicated console segment: 2022 normalized earnings power

Perhaps the least-understood aspect of our thesis is our view that Nintendo's console business is shifting from a cyclical "hits-driven" approach to an Apple-like iterative hardware platform characterized by continuous growth in the installed base. As a result, Nintendo is losing its longstanding Achilles' heel of having its most valuable asset – its user base – reset to zero every five or six years. That's a true game changer for the dedicated console segment, with profound implications for the quality and stability of its earnings power.

Think of the Switch family of hardware devices as evergreen in the same way that the iPhone is. Moreover, think of the Switch software library, going forward, as evergreen too, just like Apple's iOS, or Valve's Steam for PCs. Lots of different PCs can access games on Steam, and lots of different Switch models will be able to access the Switch software ecosystem. Switch hardware will iterate and improve over time, but the Switch software ecosystem will be "forever".

What does all that mean for Nintendo's earnings? If we're correct, it should set the stage for a very Apple- or Disney-like value creation bonanza. If the Switch eventually gets to an installed base of 100m users like the Wii, and if Nintendo can sell an average of 3.5 games per year to each user, equity holders will end up making enormous sums of money as it all plays out.

But higher earnings are just the first shot of a one-two punch. As already discussed, Nintendo is undergoing a dramatic period of value-unlocking change in which the introduction of regular Switch revisions will transform this once-cyclical business into a secular growth juggernaut characterized by an Apple-like ecosystem of hardware, software, and services. This transition will result in a dramatically more resilient recurring revenue and cash flow model that should deepen Nintendo's moat and permanently improve the overall quality and predictability of its dedicated console segment.

As the underlying quality of the business improves and investors come to a deeper appreciation of the full impact of the console segment's ongoing transformation, we expect Nintendo's historically low multiple will expand to a level that accurately reflects its intrinsic quality and forward prospects. We note that companies with recession-resistant, high-margin, annuity-like revenue and cash flow streams characterized by above-average growth rates and increasing returns, typically trade at no less than 20 times earnings.

Switch Dedicated Console Segment: Normalized Earnings Power 2022 (Base Case)

	2018e	2019e	2020e	2021e	2022e
Hardware units (m)	18.5	20.6	20.6	20.6	20.6
Price (¥)	33,000	33,000	33,000	33,000	33,000
Revenue (¥bn)	611	680	680	680	680
Software units (m)	88.1	154.9	225.4	295.8	366.3
Price (¥)	5,000	5,000	5,000	5,000	5,000
Revenue (¥bn)	440	775	1,127	1,479	1,831
Avg. installed base (m)	25.8	45.3	65.9	86.5	107.1
YoY growth (%)	212	76	45	31	24
Avg. games bought per year per user	3.42	3.42	3.42	3.42	3.42
Mobile revenue (¥bn)	50	63	75	88	100
Other revenue (¥bn)	12	12	12	12	12
Total revenue (¥bn)	**1,113**	**1,529**	**1,894**	**2,259**	**2,623**
Gross profit (¥bn)	445	642	833	1,039	1,259
Gross margin (%)	40	42	44	46	48
Switch % mix (%)	40	51	59	65	70
Research & Dev (¥bn)	100	122	133	136	131
% of revenue	9.0	8.0	7.0	6.0	5.0
Sales & marketing (¥bn)	83	115	142	169	197
% of revenue	7.5	7.5	7.5	7.5	7.5
General & Admin (¥bn)	126	150	153	156	157
% of revenue	11.3	9.8	8.1	6.9	6.0
Total operating costs (¥bn)	309	387	428	461	485
% of revenue	27.8	25.3	22.6	20.4	18.5
Other income (¥bn)	11	11	11	11	11
% of revenue	1.0	0.7	0.6	0.5	0.4
Operating Income (¥bn)	**147**	**266**	**416**	**589**	**785**
% of revenue	13.2	17.4	22.0	26.1	29.9
Taxes (¥bn)	44	80	125	177	235
Tax rate (%)	30.0	30.0	30.0	30.0	30.0
Net income (¥bn)	**103**	**186**	**291**	**412**	**549**
Net margin (%)	9.2	12.2	15.4	18.3	20.9
Shares outstanding (m)	119.1	119.1	119.1	119.1	119.1
EPS (¥)	**863**	**1,566**	**2,447**	**3,463**	**4,613**
@ 20x EPS (¥)	17,256	31,312	48,936	69,263	92,266
ROIC at ¥29,680 per share (x)			**1.6**	**2.3**	**3.1**

Source: Company data, Crossroads Capital estimates. Note: Share price of ¥29,680 is as of 7 February 2019.

So what's Nintendo's dedicated console segment worth? Well, we estimate steady-state after-tax earnings reaching roughly ¥549 billion in 2022. At a multiple of 20x, the value of the console business is ¥10.9 trillion, or roughly three times Nintendo's entire current market capitalization. And again, that's based *solely* on the earnings power of the Switch platform. In other words, the dedicated console segment alone should drive a significant increase in Nintendo's share price even if we completely ignore the company's nascent online subscription service and the massive optionality embedded in its remaining Mobile and IP Entertainment segments.

Once you layer on the value of Nintendo's recently-released Nintendo Switch Online digital subscription service, reasonably conservative estimates for smartphone games and IP licensing, a more realistic longer-term outcome for the profit-enhancing shift to digital distribution, and other cyclical and secular tailwinds benefiting the console segment, the upside potential inherent in Nintendo's business transformation becomes jaw-droppingly huge.

And just in case it's not clear from the model above, we've assigned no value to Nintendo's cash, IP library, or ancillary equity stakes – hidden or otherwise – outlined in the previous section. We know that's highly conservative, bordering on ludicrous, as far as assumptions go, but it just means that we've refrained from making any adjustments at all to Nintendo's market capitalization for the purposes of this exercise. Our rationale is simple: The market will likely continue to ignore these sources of value for the foreseeable future. That's not to say we think the market is valuing Nintendo rationally. Rather, it demonstrates just how cheap Nintendo is, even when huge swathes of its increasingly valuable asset base are ignored.

Our other assumptions are as follows:

- The Switch installed base at maturity tops out at 100 million units, or around Wii levels. We expect the Switch will end the full fiscal year in March with an installed base of 36.3 million, implying full-year Switch sales come in at about 18.5 million units. From there we expect sales to rise year-on-year to 20.6 million units on the back of a stellar 2019 software lineup and a big expansion in the buyer base due to the release of new Switch models in the back half of the year. Finally, we expect annual sales to plateau at 20.6 million units through 2022.
- Our sales outlook leads to our forecast of the average installed base for each year of our forecast period. That figure, coupled with the average number of Switch games a user buys per year, is the main driver of the Switch platform's earnings power.
- Average games per user per year is set relatively low at 3.42 games per user. Keep in mind that the current figure is 5.02 games per year, so we are modeling a meaningful contraction from that level over our forecast period. Yet typically, the number of games a user buys per year *expands* over the life of a console as its library of great games grows.
- Sales of DLC drive a 25% increase in average revenue per game, to ¥5,000, and Nintendo's steady-state gross margin reaches 48%, up six percentage points from today due to a modest increase in the proportion of its digital sales.
- A conservative amount of operating leverage kicks in due to increasing scale, with Nintendo's fixed costs (R&D and G&A) staying flat as sales rise.
- The mobile segment effectively goes nowhere, with annual earnings increasing by roughly 33% from 2017's ¥50 billion – despite Nintendo planning to release between 10 and 15 additional mobile games come year-end 2022.

But wait, hold on a minute. What if Switch adoption fails to reach Wii levels and the 100 million unit assumption that underwrites our normalized earnings model proves meaningfully off-base? What if annual hardware sales have peaked, and Switch units sold in calendar year 2019 really do drop off a cliff from our FY estimate of 18.5 million units to, say, 15 million units next year, never again recovering to prior highs?

In other words, our model may produce pretty numbers, but what if the current trends underpinning our assumptions deteriorate meaningfully, and the Switch doesn't become the all-time heavyweight champ of the console world over the next four to five years? What if its sales not only fail to grow, but actually fall to a structurally lower level and plateau from there through 2022? What does that do to our projections?

That's a good question. We think running through that exact exercise is extraordinarily helpful because it illustrates two things that aren't well understood but are absolutely vital to Nintendo's performance and the ultimate outcome for its shareholders.

The first is this: Let's say the naysayers end up being proven right about FY 2018 setting the all-time high-water mark for units sold, and our 2022 hardware projections prove far too high: The installed base at maturity tops out at 78 million units instead of 100 million. Even then – and this is absolutely key – *the final outcome largely remains the same.*

See the chart below for the math and note that the same basic assumptions governing the original model remain, except for a smaller installed base at maturity. In both cases it should be crystal clear that Nintendo remains unsustainably cheap. And again, that's based entirely on the earnings power of the Switch platform alone.

Sure, the IRR drops from north of 30% annualized closer to the 20% range, but that's still a healthy four- to five-year double. Moreover, that scenario still assumes no contribution from Nintendo's online subscription service, a truly disastrous scenario in mobile where it continues to tread water, and no value uplift from any of the various drivers outlined earlier in the IP Entertainment segment (like movies and retail stores) or any of the other big "call options" we've discussed in these pages.

There's a certain delicious irony in the fact that Nintendo is priced for a no-growth scenario where peak console sales usher in some imagined doomsday of rapidly declining earnings due to the loss of Switch platform momentum, and yet even if that prediction is realized, the stock *still* doubles so long as the CAGR of the average installed base remains stable and the average number of games each user buys per year doesn't drop below 3.42.

That's an outcome that is all but guaranteed at this point. In fact, the irony gets even more delicious in that most analysts continue to model a decline in Switch console sales despite 2019's software lineup (the primary driver of console sales) being absolutely jam-packed with "system-selling" games. Add that to the recent confirmations that new Switch models will debut sometime between late summer and early fall, and predicting a year-on-year decline starts to look embarrassing, bordering on sad. After all, releasing new Switch models will broaden the buyer base materially, driving meaningful incremental demand around the margins by targeting two entirely different sets of customers. We wouldn't be shocked to see unit sales balance out north of 25 million for the fiscal year.

But we wouldn't bet on it, either. We're just stating the obvious, given the base level of Switch demand, (which we peg right around our 18.5 million unit estimate for 2018), plus incremental demand for a less expensive Switch "mini" (attracting 3DS owners and parents on the fence because of price or durability concerns) and a more powerful Switch "pro" (attracting both early adopters and hardcore gamers). Add it all up, and even if one uses draconian adoption estimates on the revisions, it's practically impossible to come up with an intellectually serious estimate that demand will fall, let alone drop off a cliff.

Switch Dedicated Console Segment: Normalized Earnings Power 2022 (Bear Case)

	2018e	2019e	2020e	2021e	2022e
Hardware units (m)	18.5	15.0	15.0	15.0	15.0
Price (¥)	33,000	33,000	33,000	33,000	33,000
Revenue (¥bn)	610.5	495	495	495	495
Software units (m)	88.1	145.4	196.7	248.0	299.3
Price (¥)	5,000	5,000	5,000	5,000	5,000
Revenue (¥bn)	440	727	983	1,240	1,496
Avg. installed base (m)	25.8	42.5	57.5	72.5	87.5
YoY growth (%)	212	65	35	26	21
Avg. games bought per year per user	3.42	3.42	3.42	3.42	3.42
Mobile revenue (¥bn)	50	63	75	88	100
Other revenue (¥bn)	12	12	12	12	12
Total revenue (¥bn)	**1,113**	**1,297**	**1,566**	**1,835**	**2,104**
Gross profit (¥bn)	445	545	689	844	1,010
Gross margin (%)	40	42	44	46	48
Switch % mix (%)	40	56	63	68	71
Research & Dev (¥bn)	100	104	110	110	105
% of revenue	9.0	8.0	7.0	6.0	5.0
Sales & marketing (¥bn)	84	97	117	138	158
% of revenue	7.5	7.5	7.5	7.5	7.5
General & Admin (¥bn)	126	127	127	127	126
% of revenue	11.3	9.8	8.1	6.9	6.0
Total operating costs (¥bn)	309	328	354	374	389
% of revenue	27.8	25.3	22.6	20.4	18.5
Other income (¥bn)	11	11	11	11	11
% of revenue	1.0	0.8	0.7	0.6	0.5
Operating Income (¥bn)	**147**	**228**	**346**	**481**	**632**
% of revenue	13.2	17.4	22.0	26.1	29.9
Taxes (¥bn)	44	68	104	144	190
Tax rate (%)	30.0	30.0	30.0	30.0	30.0
Net income (¥bn)	**103**	**159**	**242**	**336**	**442**
Net margin (%)	9.2	12.3	15.5	18.3	21.0
Shares outstanding (m)	119.1	119.1	119.1	119.1	119.1
EPS (¥)	**863**	**1,337**	**2,034**	**2,825**	**3,712**
@ 20x EPS (¥)	17,256	26,744	40,674	56,497	74,236
ROIC at ¥29,680 per share (x)			**1.4**	**1.9**	**2.5**

Source: Company data, Crossroads Capital estimates. Note: Share price of ¥29,680 is as of 7 February 2019.

The second thing revealed by a look at the "bear case" is how the fast-growing installed base and the average number of games each user buys per year are the real drivers of Nintendo's bottom line – not the number of low-margin hardware units sold in any given year or quarter. As mentioned earlier, we think the idea that investors would dump Nintendo for missing its largely arbitrary hardware estimates by a million or so units in one particular fiscal year, as if that undermined the long-term earnings power of the console segment, is a laugh-out-loud howler.

Yet, as you know, that's exactly what happened. After Nintendo released its Q3 results in January (its fiscal year ends March 31st), the stock sold off heavily from an already ridiculously cheap \$39 (for the ADRs) to around our cost basis in the \$33 range. The plunge was ostensibly due to the "disappointing" hardware result and a *two-month* delay on Mario Kart Tour.

Nintendo delays the release of new titles all the time, and thankfully so. Unlike many of its software-centric peers, it cares more about making good games than about meeting Wall Street's quarterly or annual earnings expectations. We think legendary Nintendo game designer Shigeru Miyamoto put it best when he said, "a delayed game is eventually good; a bad game is bad forever." Of course, nowadays companies can "patch" problems in their games over the Internet, but Nintendo would still rather get things right the first time.[38]

For what it's worth, we deeply empathize with Miyamoto on this point, and this report is proof that we're guilty of similar delays ourselves. Our initial plan was to get it out more than a month ago. But we quickly realized that if we were going to tell this tale, it was important to tell it right. After all, a delayed letter is eventually good, but a bad letter is bad forever. We can only hope you agree it was worth the wait.

C. Nintendo Switch Online: A recurring revenue money machine

Now let's move on and explore the impact of Nintendo's first large-scale foray into online subscription services, Nintendo Switch Online ("NSO").

For this exercise we've once again made highly conservative assumptions. For our base case, we'll use an attach rate of 30% and an installed base of 100 million at maturity. We think these are arguably *too* conservative, given what we know about (1) the attach rates of similar services at Microsoft and Sony, (2) the current trajectory of Switch hardware sales (both relative to the Wii at a similar stage in its evolution, and in absolute terms), and (3) Nintendo's plans to add free features and new games to NSO every month from its near-endless library of "classic" games developed over the previous four decades. For some perspective, NSO's attach rate already stands at 25% only a few months after launch. That's an extremely impressive uptake this early on, given the bare-bones nature of the service relative to what it should look like at maturity.

With all that in mind, NSO at year-end 2022 will have an average installed base of 25.8 million subscribers. To be conservative, we'll set the average revenue per user (ARPU) at ¥2,220 ($20), the lowest possible level at launch. Moreover, we'll keep ARPU static through year-end 2022, even though that's incredibly unrealistic given Nintendo's long history of demonstrated pricing power and all the untapped monetization levers at its disposal. So we're talking about an online subscription service with 25.8 million subscribers each paying ¥2,220 per year. In this scenario, NSO will bring in a minimum of ¥57.2 billion ($515 million) in stable, high-margin, annuity-like revenue in FY 2022. If we tax this pure-margin revenue at 30%, that sends about ¥40 billion ($361 million) in incremental after-tax earnings to Nintendo's bottom line.

But this isn't your average revenue and cash flow stream. Stable, recurring, increasingly high-margin digital subscription-based earnings should rightfully command an above-average multiple. And in Nintendo's case, that multiple should be even higher. Not only is NSO backed by the greatest IP library the videogame world has ever seen, but its rock-bottom price point virtually ensures that Nintendo will be able to exploit an enormous amount of *untapped* pricing power as it layers on new

[38] The late Steve Jobs famously shared Miyamoto's sentiment. Apple had its iPad on the drawing board as early as 2004, but Jobs felt delaying the product until 2010, when he was absolutely certain they could pull it off technically, was the right call.

games and features over time, continuously upping its value proposition. In light of these factors, 20x strikes us on the low side of reasonable, resulting in value creation to Nintendo's equity of roughly ¥800 billion ($7.2 billion). Not bad.

While we're at it, it's not a stretch to believe the ¥40 billion ($361 million) or so in annual recurring earnings just mentioned could triple by 2022, assuming Nintendo boosts ARPU via gradual price increases as it expands NSO's game lineup with classic titles from vintage consoles like the SNES,[39] plus NSO exclusives like Tetris 99.[40]

Now let's get a bit more optimistic. What happens if NSO's ARPU triples over the next 5 years as all of this incremental value is added to it? Well, assuming an ARPU of ¥6,660 ($60), NSO would still only be at parity with what Sony and Microsoft's online services charge.[41] In this scenario, which we think is at least as likely as the previous one, we'd be looking at an incremental ¥171.5 billion ($1.54 billion) in stable, recurring, virtually pure-profit revenue at maturity – and over ¥120.1 billion ($1.08 billion) in recurring after-tax net profit. That's a value uplift, mind you, that requires essentially no incremental investment to achieve. After all, the SG&A load is already embedded in Nintendo's cost structure, and the costs to create and build its treasure trove of retro-gaming IP were fully expensed decades ago. It's a Netflix-like scenario, except Nintendo doesn't have to risk large sums of money creating new content from scratch or paying to license it from others. And it's made all the sweeter by Nintendo's latent pricing power, given the large pricing umbrella provided by competing services. For example, Microsoft's own "Netflix-like" online service option, its "All-Access Pass", already costs users about $100 a year.

For the above reasons, the margin on the incremental revenue stream from NSO is likely north of 90%, making revenue growth and the incremental contribution to Nintendo's pretax cash flow largely one and the same. And revenue from videogame subscription services tends to be very stable, given the defensive nature of the industry, NSO's price inelasticity, and the economically insensitive demand profile of online offerings generally, amongst other qualitative factors. Again, all of that supports an outsized multiple for NSO's earnings.

So NSO is a relatively bulletproof SaaS-like subscription service with a near-endless library of high-quality cost-free content, substantial levels of untapped pricing power, and ¥120.1 billion ($1.08 billion) a year in virtually pure-margin profit. What's it worth? Again, let's be conservative and say 20

[39] We think vintage games could show up on Nintendo Switch Online not just because a few enterprising hackers discovered hints to that effect in the Switch's underlying code, but because Nintendo has promised to do it. It's pledged to add 2 or 3 vintage games to the Nintendo Switch Online library every month, indefinitely. For more on the hackers, see https://www.engadget.com/2019/01/13/switch-online-code-hints-at-snes-games/

[40] Tetris 99 is a genuinely innovative variation of the classic game Tetris that lets elite and casual gamers alike battle for worldwide Tetris supremacy. The game thus far has proven to be a massive hit. (See https://uproxx.com/gaming/nintendo-switch-tetris-99-battle-royale-twitter-reaction/.) It's also great example of the sort of pleasant surprise Nintendo is known for – and the first of many more to come, we're sure.

[41] Sony's PlayStation Plus and Microsoft's Xbox Live are already at $60/year for their base "bare bones"-level subscription services. For an apples-to-apples online offering, you can look to Microsoft's Netflix-like gaming service, Xbox One's "all access" game pass for a true comparable. It'll cost you $9.99 a month, or about $100 a year for an annual subscription. So even at $60 a year, there's an argument to be made that Nintendo Switch Online would still have quite a bit of latent pricing power to exploit in the years ahead. For conservatism's sake we'll stick with the $60 a year assumption.

Nintendo Switch Online Scenario Analysis

Bear Case	2019	2020	2021	2022
Annual Switch Unit Sales (m)	15.0	15.0	15.0	15.0
Unit price (¥)	33,300	33,300	33,300	33,300
Year-end installed base (m)	51.3	66.3	81.3	96.3
Average installed base (m)	52.2	59.7	67.2	74.7
YoY growth (%)	97	14	13	11
Attach rate (%)	30	30	30	30
ARPU (¥)	2,220	2,220	2,220	2,220
Nintendo Switch Online ARR (¥bn)	34.7	39.7	44.7	49.7
Taxes (¥bn)	10.4	11.9	13.4	14.9
Tax rate (%)	30	30	30	30
AR Net Profit (¥bn)	24.3	27.8	31.3	34.8
AR EPS (¥)	204	233	263	292
20x AR Net Profit (¥bn)	486.2	556.2	626.1	696.0
20x EPS multiple (¥)	**4,083**	**4,670**	**5,257**	**5,844**

Source: Crossroads Capital estimates

Base Case	2019	2020	2021	2022
Annual Switch Unit Sales (m)	20.6	20.6	20.6	20.6
Unit price (¥)	33,300	33,300	33,300	33,300
Year-end installed base (m)	56.9	77.5	98.1	118.7
Average installed base (m)	55.0	65.3	75.6	85.9
YoY growth (%)	107	19	16	14
Attach rate (%)	30	30	30	30
ARPU (¥)	2,220	2,220	2,220	2,220
Nintendo Switch Online ARR (¥bn)	36.6	43.5	50.3	57.2
Taxes (¥bn)	11.0	13.0	15.1	17.2
Tax rate (%)	30	30	30	30
AR Net Profit (¥bn)	25.6	30.4	35.2	40.0
AR EPS (¥)	215	255	296	336
20x AR Net Profit (¥bn)	512.4	608.4	704.4	800.5
20x EPS multiple (¥)	**4,302**	**5,108**	**5,915**	**6,721**

Source: Crossroads Capital estimates

Bull Case	2019	2020	2021	2022
Annual Switch Unit Sales (m)	20.6	20.6	20.6	20.6
Unit price (¥)	33,300	33,300	33,300	33,300
Year-end installed base (m)	56.9	77.5	98.1	118.7
Average installed base (m)	55.0	65.3	75.6	85.9
YoY growth (%)	107	19	16	14
Attach rate (%)	30	30	30	30
ARPU (¥)	3,330	4,440	5,550	6,660
Nintendo Switch Online ARR (¥bn)	54.9	86.9	125.8	171.5
Taxes (¥bn)	16.5	26.1	37.7	51.5
Tax rate (%)	30	30	30	30
AR Net Profit (¥bn)	38.4	60.8	88.1	120.1
AR EPS (¥)	323	511	739	1,008
20x AR Net Profit (¥bn)	768.5	1,216.8	1,761.1	2,401.4
20x EPS multiple (¥)	**6,453**	**10,216**	**14,786**	**20,163**

Source: Crossroads Capital estimates

times earnings. Let's further assume that NSO's pricing power is maxed out at an ARPU of ¥6,660 ($60). In that "bull case" scenario, NSO would be worth about ¥2.4 trillion ($21.6 billion) in implied value add to Nintendo's equity.

But what if we ditch our anemic attach rate assumption and go with 40%, at parity with Sony's PlayStation Plus? Well, in that "super-bull case" scenario (not shown in the tables on the following page), we're looking at annual recurring revenue of $2.1 billion, or about $1.4 billion in after-tax earnings. At 20x, this equates to ¥3.1 trillion ($28 billion) in implied value creation. That's nearly equivalent to Nintendo's market capitalization at our average cost, yet it's just a single piece of a much larger puzzle, and an entirely reasonable value to place on a qualitatively superior cash flow stream of this nature. It also means investors are paying essentially nothing for Nintendo's $9 billion in cash, the $13 billion or so assigned to the company's Pokémon IP, its equity stakes in Niantic, Bandai, and DeNA, its 10% ownership of the Seattle Mariners, the entire value of its incomparable IP library, the intrinsic earnings power of the Switch platform, and the massive optionality embedded in the nascent smartphone games division.

What about any additional uplift in revenue and profitability associated with the transition to digital, or the nearly pure-margin revenue that comes from DLC and other types of in-game monetization? Yup, you guessed it. All of that optionality is thrown in for free as well. Amazing.

D. Mobile optionality: Stupid profits from smartphone games

As we've discussed, Nintendo's entrance into mobile represents another call option on the company's business model transformation – and it could very well be the call option that rules them all. Nevertheless, it's being completely ignored by the market. That's simply nuts, since, as we've discussed, it's clear that Nintendo is no longer averse to releasing smartphone versions of its core videogame franchises. And we're talking about a business that's generating roughly $400 million annually in high-quality recurring revenue from a base of just four largely experimental titles. If that doesn't show that Nintendo can succeed in mobile, what would?

Finally, don't forget the importance of Nintendo's "moat" – the marketing power of its lineup of beloved videogame franchises and characters. The following table, from friend and fellow Nintendo investor Toan Tran of 10 West Advisors, shows just how deep that moat is. Toan's hypothetical is powerful because it helps us think through how to quantify the qualitative, specifically as it relates to mobile. It's also an ideal illustration of just how deeply the market underestimates Nintendo's market position and how its brand and IP translate into a permanent cost advantage. As mentioned earlier, Nintendo's gold-plated brand and incomparable portfolio of IP assets generate a tremendous amount of free advertising that its rivals can't match. Yet the stock trades as if it has no future.

In our view, Nintendo shares are so cheap that a long investment almost can't fail. That might sound like a strange thing to hear from skeptical investors like us. After all, we know just how unexpected and uncertain the future can be. But we also know a few other things:

- Nintendo shares are pricing in another cyclical implosion for its console business, despite 2018 sales of Switch hardware and high-margin software accelerating year-on-year, and through the first three months of 2019 (Nintendo's Q4).

- The embedded optionality of Nintendo Switch Online has been discounted to zero too, despite its ultimate contribution to Nintendo's bottom line being relatively predictable and potentially worth as much as the company's entire current market capitalization.
- The IP Entertainment segment has been discounted to zero as well.

We can't know for certain what those growth drivers will ultimately be worth, but we're pretty sure it's not zero.

Mobile Games: The Power of Nintendo's Moat

($m, except as noted)	King	**Nintendo**
Revenue	2,270	2,270
CoGS	717	717
Gross profit	1,553	1,55
Gross margin (%)	68	68
Research & Development	178	178
% of revenue	7.8	7.8
Sales & Marketing	455	50
% of revenue	20	2.2
General & Administrative	184	10
% of revenue	8.1	0.4
Operating income	736	1,315
% of revenue	32	58
Tax rate (%)		30
After-tax profit per "Hit"		921
Number of "Hits"		3
Implied total net profit from all "Hits"		2,762
Implied value at 20x net profit		**55,240**

Source: 10 West, with Crossroads adjustments

In any case, let's see what Nintendo's mobile segment is worth, if only to help drive home why we're so confident about the company's future prospects that we've decided to make it a 20% position, the largest one (at cost) we've ever taken. First, we'll review some of our assumptions. Then we'll see what a reasonably conservative mobile outcome could mean for Nintendo's bottom line in several hypothetical scenarios.

1. Key mobile model assumptions

While our model relies on several variables, three key ones we want to briefly review here are the percentage of paying users, the average revenue per paying user (ARPPU), and the margin on mobile game revenues.

a. Percentage of paying users

One key assumption we need to make is the percentage of a game's users who will pay to play it. For example, while Candy Crush had about 500 million monthly average users (MAU) just before its acquisition in 2015, only 8 million – just about 1.6% of the total – were spending money on the game. That's a pretty low percentage of paying users. And financial success in mobile gaming isn't just about how many people you can get to download and play your game for free. It's about how many of those people spend real money on it. More important still is how much they spend, and for how long. And viewed on that basis, Candy Crush is less impressive then many of the top titles in global app stores. Most mobile games fall short of Candy Crush-like MAU figures, but plenty of them end up with a percentage of paying users higher than 10%.

In any case, we think most of Nintendo's games will have MAU numbers north of 100 million, and paying user numbers well above those of Candy Crush, even for the type of modest "base hits" we're now contemplating.

b. Average revenue per paying user (ARPPU)

Then there's the issue of the average revenue generated per paying user, or ARPPU for short. Candy Crush did better on this front, sporting a monthly ARPPU of about $25 per month prior to its acquisition. However, plenty of other games have had monthly ARPPUs north of $40. But as we've discussed, we don't expect Nintendo to be overly aggressive in monetizing its games. We've assumed a far more modest ARPPU of $5, or just about the industry average. Again, this assumption strikes us as being on the low side of reasonable.

For example, just look at Nintendo's Fire Emblem Heroes. It's a title in a lesser-known franchise, but it roared out of the gate, quickly racking up more than $500 million in revenue since its release in February 2017. Its impressive ARPPU of $30 should go a long way towards giving proper assurance that much higher monetization outcomes are not only possible, but probable for Nintendo as the company continues to build its mobile skill set.

c. Mobile margins

Finally, there's the question of incremental margins on mobile revenues. We've kept that at 58%, in line with the 10 West model. It's a fairly high estimate versus peers, and that reflects Nintendo's generally lower marketing costs and other brand-related advantages, which we've already discussed. Those advantages remain regardless of whether Nintendo is blasting Pokémon GO-like home runs into the cheap seats or consistently slapping singles into midfield. But it also factors in Nintendo's plans to start rolling out internally-developed titles where it captures 100% of the economics, rather than sharing a portion of its revenues with joint venture partners. And while Nintendo won't always opt for the full sundae, we think it will when it comes to its best games based on its most valuable IP. At any rate, this isn't an exercise in precision so much as an attempt to provide perspective and help our partners think through a realistic range of probable future outcomes. Our view is that for every potential negative like this, it's just as easy to envision an offsetting positive, such as a higher percentage of monthly average paying users and/or higher ARPPU's with each new release.

<u>2. Mobile business scenarios</u>

Now that we've taken a look at some of the key variables in our model, let's see how Nintendo's mobile business might fare in several different performance scenarios.

a. The "Bo" scenario

Nintendo has guided that it plans to release 10 to 15 new mobile titles over the next five years. The first scenario assumes that three of these new games become huge hits with the casual gamer crowd. They're popular, but like Candy Crush, they have a fairly low percentage of paying users. It also assumes that another three resonate with more serious gamers, so their MAUs aren't at Candy Crush levels, but their percentage of paying users is higher. And we assume the remaining games never really find an audience, flaming out as quickly as they came in. If we had to pick a baseball player to represent this volatile performance, it'd be former Kansas City Royals slugger Bo Jackson. Bo crushed monstrous home runs, but he struck out a lot, too. (He was also arguably the single greatest athlete of all time, much as Nintendo is the greatest videogame developer.) So we'll call this the "Bo" scenario, in honor of the electrifying experiences I had watching Bo do his thing while I was growing up watching Royals baseball.

Even though the Bo scenario is a pretty good financial outcome for Nintendo, we think it's hardly aggressive. It's well within a reasonable range given Nintendo's track record of developing top-selling games based on unrivaled, home-grown IP, and its hard-won wisdom in mobile development gained from its years spent climbing the smartphone learning curve. At any rate, the "Bo" scenario implies an eye-opening level of value creation. For example, based on the economics outlined in Toan's model above, Nintendo would still take in about $2.8 billion in annual recurring after tax earnings from its three casual "Candy Crush"-type hits. And based on our own model below, it would earn another $2.6 billion from its hits appealing to more serious players. Add the two together and we're looking at some $5.4 billion hitting Nintendo's bottom line in 2022.

Moreover, that number should only increase in subsequent years as new blockbuster hits join Nintendo's ever-growing smartphone game lineup. Granted, some games will inevitably decline in popularity over time. However, we think the impact of new releases should handily overwhelm any attrition from old titles fading away.

In sum, in our "Bo" scenario, Nintendo would exit 2022 with an incremental six mobile games collectively generating about $5.4 billion in stable, recurring earnings that should command an above-average multiple. At a very reasonable 20 times mobile-derived after-tax earnings, the implied value creation for Nintendo is a stunning $107 billion. That's more than triple the company's current market capitalization.

b. The "Ichiro" scenario

Now let's consider another scenario, in which Nintendo creates modest mobile game successes, but without any true blockbuster hits. That might happen due to Nintendo's refusal to use more aggressive smartphone game monetization tactics that could damage its reputation or the value of its IP. It produces popular games, but it doesn't make as much money from them as it could in a misguided effort to maximize short-term earnings like many of its mobile peers. Nintendo's goal here (and in our "Bo" scenario) is more about protecting its brand while maximizing long-term value. It's focused on maintaining the goodwill of its global fan base instead of squeezing its customers for every last penny.

We think the baseball player who best represents this outcome is retired Mariners legend and future Hall of Famer Ichiro Suzuki. He was no slugger, but what he lacked in power, he made up for with his legendary knack for putting the ball in play. In other words, the "Ichiro" scenario is all about Nintendo grinding out a few singles and doubles every year, not about hitting the mobile revenue ball out of the park. Here, we're looking for consistent hits and plenty of time on base, but without the raw power and slugging percentage of the original analysis.

So let's use our highly conservative Ichiro model below, and assume Nintendo strings together 8 modest hits from 2019 through 2022. (If it releases any other games during that period, then we'll assume they just fade away quickly as in our previous scenario, or that Nintendo doesn't meet its guidance of two to three new games per year. The outcome is the same, either way). This strikes us as more in line with Nintendo's style, but we'd never rule out a much more optimistic result, up to and including total domination of the mobile market. After all, if anyone can do it, Nintendo can.

Mobile Optionality from Freemium Model: 2022 Estimates

	"Ichiro"	"Bo"	"Oh"
Installed base (m)	2,500	2,500	2,500
Penetration (%)	5	10	20
MAU (m)	125	250	500
Paying user %	5	10	20
Paying users (m)	6.25	25.00	100.00
Monthly ARPPU (¥)	555	1,110	3,330
AARPPU (¥bn) = *paying users * ARPPU*	3.5	27.8	333.0
AR Gross Revenues (¥bn) = *AARPPU * 12*	41.6	333.0	3,996.0
AR Net Revenues (¥bn) = *AR Gross Revenues – 30% app revenue share*	29.1	233.1	2,797.2
Operating margin (%)	58	58	58
AR OP (¥bn)	16.9	135.2	1,622.4
Tax rate (%)	30	30	30
AR OP after tax (¥bn)	11.8	94.6	1,135.7
Shares outstanding (m)	119.1	119.1	119.1
2022 EPS per game (¥)	99	795	9,535
Average number of games per year	8	3	5
AR OP after tax per "casual gamer hit" (¥bn)		920.5	
2022 EPS per "casual gamer hit" (¥)		7,729	
Average number of "casual gamer hits" per year		3	
Total annual net profit (¥bn)	94.6	590.4	5,678.3
Total annual net profit ($m)	**853**	**5,319**	**51,156**
2022 EPS from mobile (¥)	795	4.958	47,677
20x EPS multiple (¥)	15,892	99,151	953,538
20x earnings per ADR multiple ($)	**17.90**	**111.66**	**1,073.80**

Source: Crossroads Capital estimates

Continuing to walk through our Ichiro scenario, we're starting with an installed base of about 2.5 billion smartphones. We assume the owners of 5% of those phones – about 125 million people – end up becoming monthly average users. Then we assume 5% of those 125 million users decide to pay for the game. So we're looking at 6.25 million people spending an average of $5 a month on a particular game. That amounts to about $107 million in after-tax earnings per game. Assuming eight games come out between now and 2022, that's some $853 million in after-tax recurring earnings, worthy of a very high valuation multiple given the modest assumptions involved and the more diverse and sustainable nature of the profit streams. After all, it's easier to consistently create a string of moderately successful games than a string of blockbusters, to say nothing of the added goodwill from Nintendo's far-sighted philosophy of refusing to gouge its customers eyes out with Vegas-like monetization tactics. This is harder to quantify, but critical to our comfort level in assigning a multiple to the segment.

But let's stay conservative and apply our standard multiple of 20x to this incremental $853 million in annual earnings, which gives us roughly $17 billion in implied incremental value add to Nintendo's equity. That's nearly double our adjusted EV from earlier in this report, and almost three-quarters of Nintendo's EV if we zero out all its other assets except its $9 billion in cash. And it shows, once again, just how insanely cheap Nintendo is relative to its probable earnings power four or five years down the road. Below is our table translating the above into yen, and the relevant per-share figures.

c. The "Oh" scenario

Just for fun, we've included one more scenario. It's our most bullish, and we've named it after Sadaharu Oh, the Japanese baseball player who holds the world record for most career home runs – yes, way more than even Hank Aaron. In the Oh scenario, Nintendo cranks out massive blockbuster hit mobile games, one after another. We won't walk you through the numbers, because they're so huge that we feel a bit silly talking about them. Let's just say that the more massive hits Nintendo can generate for smartphones, the higher the incremental value creation to its equity becomes. And we don't think it's unreasonable to assume that a company with Mario, Link, Pikachu, Donkey Kong, Starfox, and many other beloved game characters in its portfolio stands to generate plenty of smartphone hits. Note as well that we've sanity checked all our scenarios in order to ascertain the implied market share of each. Our Oh scenario is aggressive in its market share assumption, but we genuinely believe a world in which Nintendo owns some 17% of the mobile market is possible. Is it likely? No. Is it within the realm of reasonable blue-sky scenarios as Nintendo starts to roll out mobile titles based on its top franchises over the next five or so years? Yes.

Mobile Market Share Sanity Test

Nintendo's market share (%)	0.03	8.59	17.2
Value at $50bn market size ($m)	**143.7**	**429.5**	**8,590**

Source: Crossroads estimates

In sum, we've spent a considerable amount of time discerning the assumptions underpinning the outcomes outlined above, and one takeaway has become obvious: Even with an extremely low ARPPU and a variety of other highly conservative assumptions built in, Nintendo's smartphone business could potentially generate billions of dollars in annual incremental revenue and earnings – especially now that the company is finally confident in its mobile gaming powers after more than four years of careful and deliberate experimentation. Again, the current valuation is just nuts – completely divorced from economic reality and unsustainably cheap under essentially every reasonable future scenario we can imagine.

E. Sum-of-the-parts analysis: Putting it all together

Below, we've added up Nintendo's earnings and asset values. The first scenario is more draconian in its conservativism, and the second is more reasonable (but by no means aggressive). The "conservative" scenario assumes the lowest of all possible values we've outlined in this report. The "reasonable" one assumes the base case outcome from our dedicated console segment and Nintendo Switch Online estimates, and our "Bo" scenario in mobile. In both scenarios, we've assigned no value to the nascent IP Entertainment segment. That's not because we think it's worthless – nothing could be further from the truth! – but because it helps shine a spotlight on just how mispriced Nintendo is at recent levels, even if its efforts in IP licensing fail miserably. To put it another way, with an estimated annualized IRR of between 40% and 70% between now and 2022, attempting to estimate a reasonable low-end value for this future growth driver simply isn't necessary.

Sum-of-the-Parts Valuation Analysis: What's Nintendo Worth?

	¥ billions		$ millions	
	Conservative	Reasonable	Conservative	Reasonable
DCS normalized 2022 earnings	442	549	3,983	4,950
Nintendo Switch Online 2022 earnings	35	40	314	361
Mobile normalized 2022 earnings	95	590	853	5,319
General IP licensing-related 2022 earnings	0	0	0	0
Forward earnings multiple (x)	**20.0**	**20.0**	**20.0**	**20.0**
2022 end-of-year market capitalization	**11,430**	**23,598**	**102,975**	**212,596**
Pokémon licensing rights[42]	971	1,457	8,750	13,125
Niantic equity stake[43]	87	130	780	1,170
Bandai Namco equity stake[44]	14	19	126	171
DeNA equity stake[45]	25	30	228	273
Mariners ownership	16	16	140	140
Cash	1,006	1,006	0	0
FCF generation, 2019-2022	1,535	3,342	13,827	30,112
End-2022 equity value	**15,084**	**29,598**	**135,890**	**266,651**
End-2022 equity value per share or ADR (¥ or $)	**126,649**	**248,516**	**142.62**	**279.86**
Current share or ADR price (¥ or $)	29,304	29,304	33.00	33.00
IRR, 2019-2022 (%)	**44**	**71**	**44**	**71**
Discount rate (%)	10	10	10	10
2019 share or ADR value (¥ or $)	86,503	169,740	97.41	191.15
Current share or ADR price as % of 2019 value (%)	**34**	**17**	**34**	**17**

Source: Crossroads estimates. Note: Share price is 8 February 2019 intraday. ADR value calculated proportionate to share price.

[42] Pokémon licensing rights are shown at 50% OP margin in the conservative scenario and 75% in the reasonable scenario.

[43] The Niantic equity stake is shown at 20% in the conservative scenario and 33% in the reasonable scenario.

[44] The Bandai equity stake is shown at the lower of cost marked on Nintendo's balance sheet or current market value in the conservative scenario, and vice versa in the reasonable scenario.

[45] The DeNA equity stake is shown at the lower of cost marked on Nintendo's balance sheet or current market value in the conservative scenario, and vice versa in the reasonable scenario.

Last but not least, we think it's interesting to point out that our conservative fair value estimate of $97 per ADR is "only" about 67% above the high of about $58 in March of last year – as opposed to being roughly three times the current price! So Mr. Market's view on Nintendo was at least somewhat close to being in the ballpark of fair value not all that long ago. We think he'll regain his sanity fairly soon.

VI. CONCLUSION

We believe Nintendo offers investors substantial upside at a fraction of its liquidation value in the private market, and a mid- to high-single-digit multiple to next year's earnings ex cash. If that weren't ridiculous enough, it also trades at a substantial discount to slower-growing peers, despite unrivaled IP assets worth tens of billions of dollars not reflected on its balance sheet, an outsized dividend yield, and a more certain future, among other positive factors.

More absurd still is that it's dirt cheap even when viewed through the cyclical, "hits-driven" lens of the past. After all, even if Nintendo stuck with its legacy business model, it would still only be two years into the cycle. That implies another four or five years remain for the Switch, even if it ends up having a typical home console lifespan and not the eight-year-plus lifespan typical of handhelds. Add in structural tailwinds like the transition to digital, the continued uptake in Nintendo Switch Online, and increasing contributions from mobile games and IP licensing, and Nintendo looks like a hugely attractive long even if we're wrong about its transition to an Apple-like software ecosystem and the iterative hardware model that sustains it.

So at Nintendo's current valuation there are plenty of ways to win and win big. But there's not a single realistic way to lose, defined here as an outcome where the Fund suffers a permanent loss of principal. And remember: We look out four to five years, not four to five quarters.

We've talked about many reasons why Nintendo is so cheap, but we also find ourselves agreeing with our friend Harris Kupperman, who recently wrote:

> *If you had to distill today's stock market down to one overriding narrative, it would be the flow of capital into consistent growth businesses and away from anything with the slightest hint of cyclicality or earnings volatility. I fully subscribe to the market's belief that a business with steady growth should trade at a premium to the mid-cycle earnings multiple of one with more varied earnings. There are lots of reasons for this; from the ability to support more financial leverage to the ability to reinvest capital at constant rates of return. I have never argued with this concept and have made a lot of money by investing in small cap growth companies over the years. However, the spread between consistent growth and cyclical names has now widened to a level that is downright crazy.*[46]

To be clear, we do believe that a business with steady growth should trade at a premium to the mid-cycle earnings multiple of a business with substantial volatility in its full-cycle revenue and earnings. Not only can high-margin growth businesses with predictable earnings support more financial leverage, they usually can reinvest more capital at constant rates of return over a full cycle then

[46] http://adventuresincapitalism.com/2019/03/11/spread-growth-value-gotten-crazy/

cyclical peers, and at much higher returns on incremental capital, among many other virtues. Our point is simply that the sheer magnitude of the valuation gap between the two types of companies doesn't make sense.

Does that mean all cyclicals are a buy? Of course not – and especially not for us. At Crossroads, we rarely buy cyclicals – and on the rare occasions we do buy one, it's because we believe it isn't as cyclical as people think. For example, building products distributor BlueLinx Holdings, discussed in our last letter, may have a cyclical top line tied to a cyclical end market, but like most distributors, its full-cycle bottom-line cash flows are rock-steady. And BlueLinx is also in the midst of a dramatic value-unlocking transformation that's making its business even better. Opportunities like that are our bread and butter. So for us, Nintendo is the best of all worlds. It's a true high-return secular growth business with a nearly impenetrable, ever-widening IP-based moat that's finally being properly exploited. Yet it's trading like it's a no-moat cyclical on the far side of peak earnings.

In time, we expect the market's massive misperception of Nintendo as a "hits-driven" cyclical will yield to economic reality. And when that happens, Nintendo should finally get an above-average multiple appropriate for the secular growth business it is – a business with stable, increasingly profitable recurring revenue fueled by a growing suite of mobile and console games, with multiple secular tailwinds propelling it. Combined with its rapid earnings growth, the result should drive an annualized IRR north of 30% for many years to come. Even better, at our cost basis, the probability of experiencing permanent capital loss under even the unlikeliest bear scenarios is close to nil. As long as we're looking out over a multi-year horizon, we think the preservation of our principal is a near certainty. Consider that the per-share intrinsic value of Nintendo's on- and off-balance sheet assets far surpasses our price paid. And many of those assets (including not only its peerless portfolio of videogame IP and its equity stakes in The Pokémon Company and Niantic, but even trophy assets like the Seattle Mariners) are growing in value, expanding the unsustainably large gap between price and value a bit more with each passing day. That, above all, is why we've made Nintendo the Fund's largest position.

Our reasoning is simple: Intelligent investing boils down to getting the most value with the least risk. At Crossroads, we size our investments first and foremost based on our evaluation of the downside protection available in any given investment. If we get that right, the upside tends to take care of itself. It follows that our larger holdings are those we think have the least risk of permanent loss under all reasonable future scenarios. And because Nintendo offers an extremely low likelihood of loss and an unusually high probability of generating outsized returns, we've made it a very large position. In fact, it might eventually represent as much as 25 to 30% of the Fund if the business continues to perform and its share price doesn't. Rest assured, the opportunity to take another bite at this grossly mispriced, early-stage Apple as the Fund grows is definitely something we're looking forward to.

In conclusion, Nintendo is finally in possession of a leading platform of sufficient scale with the Switch. And it's more than capable of properly leveraging its loyal base of global customers via a sticky ecosystem of software and services. Better yet, growth in this nascent platform's rapidly rising installed base should continue, thanks to a deep pipeline of first- and third-party "triple-A" games and the release of the first set of new Switch models later this year – events that, taken together, should catapult unit sales to even higher highs on the back of a great 2018. We've also got the launch of Mario Kart Tour this summer, continued growth in subscribers and ARPU with Switch Online, and a number of other price-catalyzing irons in the fire.

Like all companies with great platforms, Nintendo will continue to grow, becoming exponentially more efficient the larger it gets. It won't happen overnight. But as its moat deepens and the underlying quality of its business continues to improve, we think investors will gradually start connecting the dots and realizing the financial and operational implications of its ongoing transformation. And we think that revelation should drive at least a tripling of the share price. Again, the downside protection here is immense, while the road ahead is thrilling. This is one game we want to keep playing.

Best regards,

Ryan O'Connor
Crossroads Capital, LLC

A company should be viewed as an unfolding movie, not a still photo. Those who focus on the past see only the snapshot & sometimes reach wrong conclusions. If just looking up past financials would tell you what the future holds, the Forbes 400 would be full of librarians.

– Warren Buffett

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