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Take-Two Interactive Software, Inc. Equity Analyst Report

Brian Nelson Goncalves
Merrimack College, goncalvesb@merrimack.edu

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Merrimack College Honors Department

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Author Notes

Brian Nelson Goncalves, Finance Department and Honors Program, at Merrimack College .

Brian Nelson Goncalves is a Senior Honors student at Merrimack College.

This report was created with the intent to educate investors while also serving as the students Senior Honors Capstone. Full disclosure, Brian is a long time share holder of Take-Two Interactive Software, Inc.

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Abstract

Most companies throughout history have conducted operations in a way that makes them relatively easy to valuate. Up until very recently this was considered to be the only way to value a company. With the introduction of new technologies and changing consumer demands, it has become increasingly difficult to value most companies. Particularly, technology companies are notoriously hard to value and their valuations are extremely speculative. In this report, the company Take-Two Interactive Software will be discussed and valued. This report will discuss everything about the company and the industry as it relates to investors. In order to understand the company and the industry it operates in, a deep understanding of the history of both is necessary. It is also necessary to research projected changes in technology as it is a major driver of future revenue streams.

About

Take-Two Interactive Software is an application software company that focuses primarily on the creation of interactive entertainment for video game consoles, PCs and mobile devices. It currently operates under several different labels but most notably Rockstar Games and 2K Games. Rockstar Games is most well known for its work on the Grand Theft Auto franchise but has also achieved great success with games such as Bully, L.A Noire, Red Dead Redemption, Max Payne etc. 2K Games is known for having a more diverse portfolio of intellectual properties (IP) including NBA 2K, Borderlands, Civilizations, Bioshock and much more. The overall company chooses to focus mainly on creating titles for consoles and PCs due to an already established market. The mobile market is currently does not have a defined formula to create a successful mobile game. The company is known for taking calculated risks and sticking with creating products that it knows will succeed. Its emphasis is on creating the best quality games for consumers. (Take-Two Interactive Software, Inc. 2015)

Brief History of the Video Game Industry

The beginnings of the video game industry began on early computers during the 1960's but it was not until a company called Atari released the first home video game console, Atari Video Computer System or the Atari 2600, in the mid 1970's that an industry began to take form. At this point in time, games came preinstalled into the home console. It was not until the very late 1970's when the idea of monetizing entertainment content on the devices did video game consoles shift to cartridge based games. This allowed for the introduction of third party developers to enter the market for the first time. This worked for a while until 1983 when the industry virtually collapsed on itself losing over 97% of revenues in the span of just one year. (Hagiu 2007) It is unclear if this was the result of flooding the market with too many games or if it was an aftermath of the early 1980's recession. Despite the crisis, Nintendo introduced the modern video game console. In 1983, Nintendo released what would be named the Nintendo Entertainment System (NES) in Japan and made its way to the United States in 1985. (Hagiu 2007) This console marked a turning point in the industry where the emphasis became on the quality of the entertainment experience. It also was the first time that a major advancement had taken place in the hardware aspect of the business. Later, Nintendo would also release the Super NES which further monetized the industry. The hardware was sold as a loss leader so that consumers would be more inclined to purchase more games for their console. (Farhoomand 2006) At this time more competitors entered the market including SEGA and then Sony. Sony began a new revolution to disc based games which allowed developers to create larger games with more content. With the introduction of Microsoft's Xbox in the early 2000's, the console space had been unofficially set to just three major hardware competitors; Microsoft, Sony and Nintendo. PCs have also been a significant player in the industry despite no single company representing the market. The importance and overall significance of PCs has been severely underestimated as Valve Corporation has begun taking market share in the industry via PCs and a digital based video game catalog strategy. While many third party developers began to take root in the industry making games for all consoles and PCs, the new race became one of first party superiority. Fast forward to the most current generation and the three hardware competitors and PCs are still battling it out for supremacy. The industry is now in a race to see who can create the next best thing with the introduction of new minor companies and the introduction of virtual reality (VR), augmented reality, and competitive eSports games.

History of Take-Two Interactive Software

Take-Two Interactive Software was founded in 1993 by Ryan Brant. Prior to his indictment by the SEC in 2007, Brant made several key acquisitions that included one to form what is now Take-Two's most recognized studio, Rockstar Games. (Giant Bomb 2016) He had also made other acquisitions of small yet creative studios and games that would bolster Take-Two's portfolio of studios and IP catalog. After the indictment by the SEC, a takeover was staged by shareholders and ZelnickMedia. Ben Feder was placed as CEO after the takeover in 2007 to oversee the change in leadership. (U.S. Securities and Exchange Commission 2005) Prior to the takeover, the company was losing money and looking as if the business model was unsustainable. It took several years for the company to turnaround and become profitable again due in part to the nature of video game development cycles. The problem facing Take-Two was that the development of a video game at any of its studios could take anywhere from one to seven years. The newly formed management team began to emphasize a quality over quantity approach that made development cycles take even longer on average. The up side to this was larger profit margins on each game produced. In 2010, Feder resigned and was succeeded by Strauss Zelnick who had spent much of his previous career in the entertainment industry. This put him in a good position to lead this video gaming enterprise. The company was now continuing to create great quality games for its consumers and is now on track to create consistency in the development of its products. The idea was that consumers would become bored with releasing similar video game titles every year or that they would resent poor quality titles. The result was the creation of highly profitable games including the Borderlands from Gearbox and 2K Games as well as the most recent Grand Theft Auto (GTA) from Rockstar Games. The second iteration of Borderlands is the only 2K game to ever gross over $1 billion in revenue. (Starkey 2015) The pinnacle of the company's success however is GTA V in 2013 when it grossed $800 million in 24 hours and $1.3 billion in 72 hours to become the fastest selling piece of entertainment in history. (Take-Two Interactive Software, Inc. 2013) Moving forward, Take-Two has expanded into other markets such as China with its NBA 2K games and trying to monetize its different IPs to create a consistent stream of cash flows. Not only does this make the business model successful but it also places the company in a position to be able to take larger risks with its video game titles. It may also allow for the creation of new and unpredictable games that are currently in development to be released into the market.

Take-Two Resources and Capabilities

In an industry based on creativity and innovation, the value of human capital cannot be under stated. In the video game industry, it is the people that work on games that drive revenues and not machines. Unfortunately, their value cannot be found on a balance sheet or estimated. Because of this, most companies and studios in the industry are focused on building teams of people that work well together. Take-Two is one of those companies. They have successfully built teams around the world that work in tandem with each other. By breaking up larger studios like Rockstar into multiple units allows for different streams of creativity to flow throughout the company. It also allows each team to work diligently on the video game they have decided to create. What helps this process is the nearly $1 billion in cash Take-Two has been sitting on which accounts for a third of the company's overall market value. (Take-Two Interactive Software, Inc. 2016)

Developing video games can be very expensive and take many years to do and to do right. The cash Take-Two has on hand is a strategic asset that can be used for many things. The first of course is helping teams build the games that they want to build without the fear of depleting financial resources like 38 Studios or THQ. The second thing that this cash can be used for is creating new studios such as Take-Two's creation of Hanger 13 to develop Mafia III in early 2015. (Hanger 13 Games 2016) Along with creating new studios, Take-Two has used their cash to purchase IP from other companies or has purchased entire studios. An example would be the acquisition of Turtle Rock Studios from the THQ bankruptcy. Unfortunately, Take-Two has taken on a large amount of long term debt to support its aggressive growth strategies. This makes them one of the most heavily indebted video game companies which means that debtors are less willing to lend them more money. (Capitalcube 2016) Having large amounts of cash and cash equivalents on hand is a short term solution to a long term problem. If this cash is used to help produce another two or three successful video games such as a Borderlands 3 or a sequel to Red Dead Redemption, the titles will generate substantially more cash as well as eliminating the burden of holding long term debt. They will also create additional value for the firm.

The problem in here is that Take-Two has released a successful new IPs over the past few years. While this is not a problem in and of itself, the cost to create and develop new IPs is exponential and the risks associated with it are enormous. There is no guarantee that consumers will like a new title making it a very risky endeavor but has significant potential to create future revenue. Activision-Blizzard spent $500 million on the developing and promoting of its latest IPs Destiny. While the game was able to gross $1 billion and is still generating revenue a year and a half later. (Activision-Blizzard 2016) While this is the case, it is not generating revenues at the same rates of Activision's already existing properties. Take-Two has already released a new game in the past year called Evolve and is expected to release another new IP called Battleborn at the beginning of fiscal 2017. With management expertly managing expectations for Evolve, it is expected that they will do the same going forward with titles like Battleborn. It is important to note that the management team recognizes that these games are not intended to sell 10 to 20 million units. For new IPs, selling between 4 and 6 million units would be considered widely successful. By continuing to manage expectations, Take-Two can avoid the pitfalls Activision ran into with Destiny where the expectations were set much too high.

Managing expectations is not easily done and Take-Two management has been very good at it. The problem is that the company has not been consistently creating revenue. (Take-Two Interactive Software, Inc. 2015) While competitors release the same titles every year, Take-Two does not believe in this strategy and has no interest in annualizing its big name titles. The exception is with its sports franchises. The reasons for this are simple. By annualizing titles, Take-Two would be committing too many of its studios and resources to creating a very limited portfolio of video games. Activision's annualizing of its premier Call of Duty franchise has worked for them but also has seen a decline in revenues which Take-Two is trying to avoid. (Activision-Blizzard 2016) From an investor stand point, annualizing titles makes a company more attractive to invest in because its cash flows are more easily predicted. Take-Two's cash flows are notoriously unpredictable making the company's stock price unbelievablely hard to calculate. By not annualizing titles, Take-Two is also protecting its greatest asset, its people. The people that develop these games want to work on titles that they care about. By annualizing games, Take-Two would be taking the risk of these developers leaving and going someplace else. They have decided that this is too great a risk to take especially after management proved their point when RockStar released Grand Theft Auto V (GTA V). By managing expectations of gamers and investors, the company made the game extremely successful. The problem is that Take-Two waited until the year of release to let anyone know that the next Rockstar title would be GTA V. They do this with every title they release because they want to build up hype for a title in an effective manner. The more hype there is for a game, the more likely gamers will purchase the title. This means that all information about potential and still in development games is rarely announced by the company. Now that management has established that as their strategy going forward, it makes it relatively easier to estimate the company' future cash flows.

First party competition

The first party video game developers are currently Microsoft, Sony, and Nintendo. Valve represents PCs from a first party stand point as it has become a large service provider in the industry. The significance of these companies is extremely important to the success of third party developers like Take-Two. These companies develop the hardware that runs the actual software making up a video game. The current hardware cycle includes the Xbox One from Microsoft, Play Station 4 (PS4) from Sony, and the Wii U from Nintendo. Take-Two develops and publishes games on all three consoles and PCs. It is important to understand each of these companies as they provide insight into the future of the industry.

Microsoft is the largest of video game developers and mainly because of its success in creating Windows and dominating the PC market. It is not known for creating hardware but the Xbox One is nonetheless an impressive device. Although the company has stopped stating the number of units sold, they are estimated to have sold between 15 and 20 million units by NPD Group consumer reports. Their new strategy is to create a digital client service similar to Valves PC service. This service is Xbox Live. (Hagiu 2007) Because Microsoft uses Windows 10 to run Xbox services through Xbox Live, they have the upper hand in the industry. It makes it easier to convert PC games to Xbox and vice versa. To make this service successful, Microsoft has a team of developers that produce content for Xbox only. Their intellectual properties include Fable, Gears of War, and most notably Halo. The power of Microsoft is its virtually unlimited reserve of cash which makes it a threat to all companies in the industry. It has the ability to purchase almost every company in the industry with cash alone. What they have recently been able to do is purchase the rights to other IPs like Square Enix's Rise of the Tomb Raider to make it exclusive to Xbox One. Although Square Enix is a third party developer, they agree to this deal because of Microsoft's willingness to spend money on important game titles. (William 2014) They even spent $50 million to help Electronic Arts' Respawn Entertainment develop Titanfall. (Makuch 2014) While Microsoft's first party content directly competes with third and first party publishers alike, it most directly competes against Sony and the Play Station 4.

Sony's PS4 console is the most fasted adopted console ever. (Entertainment Software Association 2016) It has currently sold an impressive 34 million units across the world. While they have been subject to several major cyber attacks, support for the console has still supported growth. Sony currently lacks the first party support of Microsoft and Nintendo but has been able to bring third party content exclusively to PS4. What currently hinders the company is that the PS4 is one of its only successful businesses. It has been selling off assets such as its computer division to generate cash. This brings in much needed capital that they can use to finance their core businesses. The problem is that Sony has too many core businesses. Even though they lack funds and support, their strategy to attack Microsoft's Xbox One at the annual E3! event in 2013 has been paying them dividends. The console started to gain more support over Microsoft due to Sony's gamer first strategy that put gamers at the center of its business rather than making the PS4 an overall entertainment system like the Xbox One. (Tassi 2013)

Nintendo is the most interesting of the three console developers. After its surprising success with the release of the Wii, it has failed to gain traction with its latest console the Wii U. Despite being the first console to enter the next generation, the Wii U lacked the hardware capabilities of the Xbox One and PS4 as well as lacked any third party support. While the Nintendo franchises have still been successful with high market penetration rates, it was not enough to stop the company from putting the console out of its misery. Because of this, Nintendo has a unique opportunity this upcoming year as it sets to release its next generation console codenamed the Nintendo NX. If Nintendo can execute the release perfectly in conjunction with the release of several major titles, the console has the potential to be a great success. The problem is that the company has failed to execute well on the home console business for the better part of the past decade. The content on the console however has ranked higher and penetrated the market better than most games on Xbox One and PS4 by Metacritic. Part of the problem with Nintendo is that there have been many questionable management decisions over the past decade leading to poor execution. The management team has failed to realize that the market for video games has changed rapidly over the past decade. Instead of comparing the company to the industry around them, they have focused on comparing the company to its past success. It is an inside looking in instead of an outside looking in strategy. The threat that Nintendo possesses is the studios, franchises and most importantly people that develop great products. It all comes down to their execution. The other side of the company is its handheld device division which has been driven almost entirely by first party support. It has also helped to keep the company afloat throughout its failed Wii U console cycle.

Valve is an online PC based video game service that is a major competitor to the traditional home gaming consoles. What makes Valve unique is that it does not develop much hardware but is one of the largest PC publishers in the business through its Steam service. While they publish games for AAA developers their services are superior to small independent developers that are not necessarily looking to produce a AAA video game. These developers have recently been challenging the AAA video game business model with superior quality games despite the fact that the graphics are not even close to being on par with major titles. This allows for a lower cost structure on the development side of games which makes them very attractive to third party publishers. On Steam, Valve also produces its own content which includes its hit Major League Gaming (MLG) property Dota 2. Even though it does not directly produce Counter-Strike: Global Offensive (CS:GO), it is the only place to play the game which is one of the leaders in the MLG community. The company has become popular among MLG gamers as well as hardcore gamers due to its low cost structure for consumers and the ease of streaming game play to sites like Twitch. The problem with Valve is that it is not an effectively managed company. It has several major IPs that its community has been eagerly awaited for nearly a decade but management refused to create new iterations. The company has announce that it has no plans in place to continue some of those titles because they are currently working on other products and are afraid that they will not be able to meet consumers high expectations. Of course they may be intentionally lying to consumers to drive interest. Since they are the only first party developer that is not a public company, they do not have to announce anything that they do not want to.

Third Party Competitors

Take-Two has many competitors in the video game development space. Some are mobile companies while others are large corporations. The unique part about the business is that it is relatively easy to differentiate IP between developers. An example would be the success of Activision-Blizzards Call of Duty and EAs Battlefield franchises. Both franchises are similar in many ways yet both are very successful for their respective companies. Another unique part about the business and its competitors is that they all rely on each other to be successful. The gaming community does not take kindly to games that are defective, unfinished or otherwise poor quality. Cycles of poor quality products result in a decline in sales across the industry which has been seen in the past with the video game crash of 1983 and more recently with mobile developers. Out of these cycles there is always someone ready to capitalize on the market with much more superior products such as Nintendo in 1983 and the AAA game developers in the current gaming market. Currently the big three developers are Activision-Blizzard, Electronic Arts, and Take-Two Interactive. There are also many smaller developers that produce high quality games that directly compete with the large developers.

Activision-Blizzard is the largest third party video game publisher in the industry to date. Their market cap is currently hovering above $22 billion after its mega $5.9 billion merger with Candy Crush maker King Digital. (Activision-Blizzard 2016) It has several major franchises that generate over $1 billion in revenue annually which makes it a fierce competitor. The company is not known for taking big risks but recently it has made a couple key acquisitions like King Digital and MLG. What makes these acquisitions interesting is that they are not a part of Activision's normal AAA strategy. King is a mobile game publisher while MLG is a professional gaming community. Activision has worked with MLG to sponsor tournaments for its major franchises such as Call of Duty and Hearthstone in the past. The question going forward will be Activision's response to its competitors developing products that end up in the MLG community such as CS:GO which directly competes with its Call of Duty franchise. Clearly since MLG is the industry's premier outlet for bringing competitive gamers together, Activision will have to allow competitors into MLG. Activision's intentions and plans for the organization are still secretive but as the major conferences come up throughout the summer, they will be force to discuss their plans more openly.

Electronic Arts, more commonly known as EA, is the second largest third party publisher at a $20 billion market cap. (Electronic Arts, Inc. 2016) Back in 2012, they were voted as the most hated company. (Kain 2012) The reason for this is that they were not treating their workers fairly compared to the rest of the industry but also because they had great games that lacked the quality to retain loyal consumers. EA currently has made several improvements to their business by acquiring the rights to several major titles. Their subsidiaries Dice and BioWare are revered as two to the best teams in the industry putting out premier titles such as Battlefield, Mass Effect, Dragon Age and Star Wars Battlefront. The problem is that EA may not be known for great quality games but they are known for generating great sales numbers. To better increase the quality of its games, EA has made efforts to expand its major studios and now employs 8,500 people. (Electronic Arts, Inc. 2015)

In terms of size, Ubisoft is a relatively small competitor in the industry but they operate several major blockbuster franchises such as Assassins Creed and the Tom Clancy games. Currently undergoing a hostile takeover from French media conglomerate Vivendi, Ubisoft is currently looking to more than triple revenues in the next three years to fend off the takeover attempt. (Ubisoft 2016) In order to do that, the company would need three more Assassins Creed type releases every year for the next three years. Due to the nature of the company and the quality of the products that it produces, this seems unattainable. The company has not been able to produce a game without significant defects in a while which undermines its ability to be a threatening competitor.

Time Warner is arguably one of the largest third party publishers in the world but only because of its other business units. When they began investing in video game development, they already had the IP in place; all they needed was great people to put together truly outstanding products. They have since been able to produce several Game of the Year contending titles such as Batman and Shadows of Mordor as well as creating 2015s game of the year, Witcher III. (Makuch 2015) The threat of Time Warner is that it is a large corporation with lots of bargaining power, cash and most importantly IP. They currently own the rights to Warner Brother's titles as well as DC Comics titles. This gives them a unique advantage over other third party competitors because they can leverage the already established brand names under its umbrella to create new video games. The best example is the Batman trilogy which has sold phenomenally well with gamers despite the last iterations glitches.

By far the most interesting third party developer in the industry is not even a single company. It is the small independent developers that create their own companies and their own games at will. These developers are known for creating small corporations of 1 to 100 employees and take on an enormous degree of risk when developing games. (Siwek 2014) The reason for this is because the cost to produce a game can be extremely high especially if a company is trying to create a AAA title. What has been occurring however is that these small companies have been putting out games with subpar graphics. The most interesting part about this is that a small percentage of these companies are creating games that challenge the standards of the industry. The best example of this is a game called Shovel Knight created by Yacht Club games. Although the game has subpar graphics and old school 8-bit video game feel similar to

Nintendo's classic Mario games, it challenged games like GTA V, Bayonetta 2 and Mario for Game of the Year in 2014. (Makuch 2014)

Changing business model

The business model in the video game industry is changing at a startling pace. It is partly due to a change in consumer demand, change in technologies and also change on monetizing IP. All three of these areas have caused significant shifts in the industry. Another are that has caused the most recent shift to eSports.

One of the major changes in the industry is due largely to the creation of Apples iPhone and a shift toward mobile gaming to capture the casual consumer. This segment now accounts for close to 45% of the overall video game market and accounted for 235 million active gamers in 2012. (Michaud 2014) In an industry that revenues of $23.5 billion, these are some important figures. (Entertainment Software Association 2016) Since the development of creating mobile games is significantly cheaper than creating AAA games, more developers are in the space making it extremely challenging for developers. The other problem that has occurred is the success rate of these games is below 30%. It is by far a much lower than the success rates of AAA games. Regardless of this, investors continually push for third party developers to go mobile because they believe that there is more value in the space. These investors also see companies like King Digital (now part of Activision-Blizzard) creating large sums of cash with high profit margins. Although there is potential for more value in the space and the possibility to generate significant cash flows, the success rate is not worth the risks involved. Take-Two Interactive has taken the stance that it will not strive to create mobile games in the near term. It will remain a primarily AAA developer. This is a wise decision on the company's part because for it, failure is not an option. They are very good at creating high quality AAA games and that is what their developers know best. To have the best developers switch production to mobile games would not go over well as most of them because the developers themselves are gamers and are more geared to the AAA gaming segment of the industry. Take-Two currently has several mobile games but only created them as additions to its existing titles such as NBA 2K.

Another major shift in the industry is the freemium model. The model is a play on words because games that follow the model are typically "free" to play but consumers tend to spend a premium to purchase additional content. Mobile games started this trend but it is what Riot Games did with League of Legends that really took the industry by storm. The game it 100% free to play and players can choose to purchase new color schemes called skins for their characters which they have to pay to unlock. Players can choose to grind the game for endless hours to not have to pay but it is much easier to throw in a few dollars to get the content that they want. Part of what is driving this is that gamers have experienced 0% inflation for over a decade. The price per video game has held at $60 for the past ten years. Because of this, developers like Riot Games have gotten creative with their business model to generate revenue and offset costs. For Take-Two, they have recognized that this model works exceptionally well in China. NBA 2K in the US sells for $60 per unit while in China it is sold under the freemium model. Take-Two's understanding of the industry has resulted in the title being the best selling sports title. (Entertainment Software Association 2016) Take-Two is taking an interesting stance on the freemium model on May 3rd 2016 where it will be launching its latest IP Battleborn. The game will cost $60 but there will be lots of add on content that can be purchased in the game. While this game may not be the next League of Legends, it is Take-Two's new attempt at to finding a better way to monetize its IP. While I believe the game will sell well, it will most likely be a precursor to the next Borderlands title already in development by the same studio creating Battleborn.

The new push in the video game industry is derived from the rise of eSports. This does not refer to sports games but instead refers to competitive video gaming. Riot Games found out through League of Legends that there are many people in the world wanting to watch live video games being played competitively for large sums of cash. Some cash prizes are upwards of $1,000,000. This is in part happening because of the rise of a specific genre of video games called massive multiplayer online games (MMO). The reason for the success of these games is because gamers are much more social than what anyone ever believed. They are not teenagers that live in their parents basements. They are instead individuals that relate to each other through video games. (Entertainment Software Association 2016) It is an interesting phenomenon that no one really expected to take off. Because of this success however, Take-Two has decided to create games like Evolve and Battleborn. It is the company's first attempts at creating truly social MMOs that are fun to watch and play. The long term success is still yet to be determined but it is clear that it knows what direction it wants to push its games and developers. MLG has helped some MMOs gain huge audiences and has created large communities of gamers interested in competitive gaming titles similar to Evolve and Battleborn.

The latest frontier in game is the introduction of virtual and augmented reality (VR) with the creation of new technologies such as Microsoft's Hololens and Oculus' Oculus Rift. These technologies are largely untested by developers but gamers seem extremely intrigued by the hardware. The Entertainment Software Association took a poll that showed that 58% of the most frequent gamers expect to purchase VR hardware in the next year. (Entertainment Software Association 2016) While Take-Two knows this, they have decided to sit back and wait. (Take-Two Interactive Software, Inc. 2016) While in some industries it is imperative to be the first to enter a new market, it is less important with video games. The reason why Take-Two is sitting back is first off due to an unknown cost structure. Secondly, the code to develop games for this hardware could be extremely difficult as it would be unfamiliar to the company's developers. The third and most important reason they are waiting is because they can see how other competitors and consumers use the product. Because there are so many unknowns with VR, the company is taking the wise decision to allow other companies with more cash take the risk of being the first in the market. If Take-Two attempted to make a VR game and failed, they could lose the reputation of its brands and developers which would be detrimental to the company.

Future potential

The potential for growth at Take-Two is very high. The management team is very strong and extremely knowledgeable about the industry. Also they have taken a very conservative approach to the industry which has led to several major successes. Currently, I am looking to see the next iterations of titles like Borderlands and Red Dead Redemption announced or released within the next fiscal year. Borderlands is a title that not many investors or outsiders in the industry know but it has a lot of potential to be the company's next GTA V. Borderlands 2 sold over 12 million units making it the best selling 2K title to date. (Take-Two interactive Software, Inc. 2015) I am looking for the game to pick up where its predecessors left off as well as to learn from the mistakes of MMOs like Destiny and the Division. While Borderlands is not an MMO, it has a great deal of potential to become one. It also has potential to take advantage of eSports and Take-Two's new freemium business model.

The other potential growth area deals with Rockstar games. While the studio has not necessarily failed at creating a new title since the release of GTA V, it has broken its own model of releasing at least one new game every year. It has now been almost three years and the studio has not released a new game. This leads to speculation as to whether or not the studio has another big game in the works like Red Dead Redemption. This could significantly boost the value of the firm as it would be an indicator that the studio is shifting to creating only the highest quality games. It is also an indicator that Rockstar is taking much more calculated risks and investing in games that it believes will be major successes resulting in much higher returns.

Valuation

(*All the following values are in millions except for price per share. Price per share at the time of valuation was $34.30. May 4th2016 open*)

Take-Two is currently in an aggressive growth phase. The first model I ran was a perpetuity growth model. From 2009-2012, the video game industry was growing at a 9.7% rate year over year compared to the 2.4% growth in the US economy. To be conservative, I ran a discounted cash flow model off Bloomberg with a perpetuity growth rate of 2%. I am sticking with the current analyst assumptions that the company would see revenues grow by 18% in fiscal 2017 and 10% in fiscal 2018. The reason for this is because I am looking for the company's forecasted projections which will be announced May 16th. I am hesitant to make any deviations from the contentious of analyst predictions until I have more information about the upcoming year. Rockstar Games has not released a title in the past three years which leads me to believe that they are working on a large project. Depending on what that project is, revenues could exceed 18% growth for fiscal 2017. 2K also has some unannounced titles in the works. The company is most likely waiting for the annual E3! conference or the Game Developers Conference (GDC) this summer to make any major announcements. Based off of the company's passed experience with digital content, I fully expect their new titles to drive revenues well into fiscal 2018. GTA V is also still generating large sums of cash and as Rockstar continues to add more content, sees this title continuing to generate cash used to fund other projects. Because the industry has such a high degree of uncertainty in predicting titles going out passed two years, a terminal value at two years is appropriate. Only one analyst on Bloomberg forecasted revenues going out to five years and it results in a very unrealistic price per share of $86.

Perpetuity Growth Model

At the end of two years is when I decided to take a terminal value to estimate enterprise value of the company. The weighted average cost of capital for the company is currently 8.7% and I made the assumption that would hold true for the future. The assumption will also be that revenue would grow 18% the first year, 10% the second year and at a constant 2% rate in the future. The result is an enterprise value of $5,465 and a market cap of $6,027. The resulting price per share for this valuation is $52.87 per share. This resulted in a modest EBITDA multiple of 15.22x.

EBITDA Multiple Model

At the end of two years I decided to use the industry average EBIDTA multiple to use as a comparison. When conducting this I needed to revise what Bloomberg used as competitors of Take-Two. It is clear that Bloomberg did not care or does not understand the industry well enough to create an accurate list of competitors to use for comparison. For competitors I used Activision-Blizzard, EA, Ubisoft, Capcom, Square Enix, Microsoft, Time Warner, Glu Mobile, Nintendo, Sony, and Bandi Namco. These companies are true competitors in the industry and offer better comparison than the ones brought forward by Bloomberg. The average EBITDA multiple for these companies was 14.5x. When using this model, the enterprise value was $5,108 and the market cap was $5,803. The resulting price per share is $50.90 per share. The resulting perpetuity growth was 1.7%.

The current price is holding at $34.30 per share. This is roughly $4 off from its all time and 52-week high of $38.52 per share. The company currently has zero short term debt on hand and $456 long term debt. It also sports a hefty $1,098 in cash which is almost 30% of its current market cap. With this in mind, it is not improbable for Take-Two to reach $52.87 per share. They have the ability to take on more debt as well as the ability to pay off all long term debt at any time. This cash on hand is a wild card in this analysis because the value of the firm can be significantly altered by what management decides to do with its cash. The current consensus by analysts on Bloomberg is $41.10 per share. I believe that this estimation is too conservative and that is because these analysts do not know much about the industry. In order to effectively value a corporation like Take-Two, it is necessary to understand the products in the industry as compared to those offered by the company. Take-Two offers superior products in a market flooded with lackluster or defective products. Another thing to take into consideration is that EA and Activision-Blizzard have experienced recent rapid growth phases over the course of the past few years. These two companies are the best two companies to compare with Take-Two because they are in direct competition with each other. Even though a target price of $52.87 per share is a 52% increase in share price, Take-Two has averaged almost 40% growth in the past two years. Now that the company has become profitable and under great management team, they are in a position to have great consistency. Because of this I am confident in my target price of $52.87 per share.

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Appendix

Appendix A- Output Analysis

Output Analysis

Perpetuity Growth Method - Value per Share	
Free Cash Flow at Year 2	484
WACC	8.7%
Perpetuity Growth Rate	2.0%
Perpetuity Value at End of Year 2	7,059
Present Value of Perpetuity (@ 8.7% WACC)	4,652
(+) Present Value of Free Cash Flows (@ 8.7% WACC)	750
(=) Current Enterprise Value	5,401
Short Term Debt	-
(+) Long Term Debt	476
(-) Cash and Marketable Securities	1,098
(-) Current Net Debt	(622)
(-) Current Preferred and Minority Interest	-
(=) Equity Value	6,023
Shares outstanding	114
Estimated Value per Share (USD)	52.84
Current Price (USD)	37.04
Estimated Upside	43%

EBITDA Multiple Method - Value per Share	
Terminal EBITDA at Year 2	484
WACC	8.7%
Exit Enterprise Value / EBITDA	14.5x
Terminal Value at End of Year 2	6,719
Present Value of Terminal Value (@ 8.7% WACC)	4,427
(+) Present Value of Free Cash Flows (@ 8.7% WACC)	750
(=) Current Enterprise Value	5,177.0
Short Term Debt	-
(+) Long Term Debt	476
(-) Cash and Marketable Securities	1,098
(-) Current Net Debt	(622)
(-) Current Preferred and Minority Interest	-
(=) Equity Value	5,799
Shares outstanding	114
Estimated Value per Share (USD)	50.87
Current Price (USD)	37.04
Estimated Upside	37%

Appendix B Sensitivity Analysis Part 1

Bloomberg — **Discounted Cash Flow**

Ticker	TTWO	Currency	Trading
Name	Take-Two Interactive Software	Data	Adjusted (if available)

Summary Analysis | Input Calculation | Output Analysis

Perpetuity Growth Method - Sensitivity Analysis

Incremental change: 0.5%

Enterprise Value in Millions of USD — Perpetuity Growth

Discount Rate (WACC)	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	6,293	6,818	7,105	7,687	8,392
8.2%	5,761	6,112	6,519	6,998	7,568
8.7%	5,379	5,679	6,023	6,423	6,893
9.2%	5,046	5,304	5,598	5,936	6,329
9.7%	4,753	4,977	5,231	5,520	5,851

Value in USD

	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	54.41	58.05	62.33	67.43	73.61
8.2%	50.54	53.61	57.19	61.38	66.39
8.7%	47.19	49.82	52.84	56.34	60.46
9.2%	44.26	46.53	49.11	52.07	55.52
9.7%	41.69	43.68	45.88	48.42	51.33

Upside Potential

	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	47%	57%	68%	82%	99%
8.2%	36%	45%	54%	66%	79%
8.7%	27%	34%	43%	52%	63%
9.2%	20%	26%	33%	41%	50%
9.7%	13%	18%	[illegible]	31%	39%

EBITDA Multiple Method - Sensitivity Analysis

Incremental change: 1.5x | 0.5%

Enterprise Value in Millions of USD — Terminal EBITDA Multiple

Discount Rate (WACC)	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	5,056	5,538	6,016	6,496	6,976
8.2%	4,968	5,437	5,906	6,375	6,844
8.7%	4,882	5,341	5,799	6,257	6,716
9.2%	4,799	5,247	5,695	6,143	6,591
9.7%	4,718	5,156	5,594	6,032	6,469

Value in USD

	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	44.35	48.56	52.77	56.98	61.19
8.2%	43.58	47.69	51.81	55.92	60.03
8.7%	42.83	46.85	50.87	54.89	58.91
9.2%	42.10	46.03	49.96	53.89	57.83
9.7%	41.39	45.23	49.07	52.91	56.75

Upside Potential

	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	20%	31%	42%	54%	65%
8.2%	18%	29%	40%	51%	62%
8.7%	16%	26%	37%	48%	59%
9.2%	14%	24%	35%	45%	56%
9.7%	12%	22%	32%	43%	53%

Appendix C- Sensitivity Analysis Part 2

Bloomberg — Discounted Cash Flow

Ticker	TTWO	Currency	Trading
Name	Take-Two Interactive Software	Data	Adjusted (if available)

Summary Analysis | Input Calculation | Output Analysis

Value in USD

	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	54.41	58.05	62.33	67.43	73.61
8.2%	50.54	53.63	57.19	61.38	66.39
8.7%	47.19	49.82	52.84	56.34	60.46
9.2%	44.26	46.53	49.11	52.07	55.52
9.7%	41.69	43.66	45.88	48.42	51.33

Upside Potential

	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	47%	57%	68%	82%	99%
8.2%	36%	45%	54%	66%	79%
8.7%	27%	34%	43%	52%	63%
9.2%	20%	26%	33%	41%	50%
9.7%	13%	18%	24%	31%	39%

Implied Exit EV / EBITDA Multiple

	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	15.07	16.37	17.89	19.71	21.93
8.2%	14.03	15.15	16.45	17.98	19.81
8.7%	13.12	14.10	15.22	16.53	18.07
9.2%	12.32	13.18	14.17	15.30	16.63
9.7%	11.61	12.38	13.25	14.24	15.37

Value in USD

	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	44.35	48.56	52.77	56.98	61.19
8.2%	43.58	47.69	51.81	55.92	60.03
8.7%	42.83	46.85	50.87	54.89	58.91
9.2%	42.10	46.03	49.96	53.89	57.81
9.7%	41.39	45.23	49.07	52.91	56.75

Upside Potential

	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	20%	31%	42%	54%	65%
8.2%	18%	29%	40%	51%	62%
8.7%	16%	26%	37%	48%	59%
9.2%	14%	24%	35%	45%	56%
9.7%	12%	22%	32%	43%	53%

Implied Perpetuity Growth

	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	-0.9%	0.0%	0.7%	1.4%	1.9%
8.2%	-0.5%	0.5%	1.2%	1.8%	2.3%
8.7%	0.0%	0.9%	1.7%	2.3%	2.8%
9.2%	0.5%	1.4%	2.2%	2.8%	3.3%
9.7%	0.9%	1.9%	2.6%	3.2%	3.8%

Appendix D- Revenue Guidance/ Cash Flow Guidance

Bloomberg — Discounted Cash Flow

Ticker	TTWO	Currency	Trading
Name	Take-Two Interactive Software	Data	Adjusted (if available)

Summary Analysis | Input Calculation | Output Analysis

Summary Analysis

In Millions of USD	Oct 10 A	Mar 11 A	Mar 12 A	Mar 13 A	Mar 14 A	Mar 15 A	Mar 16 E	Mar 17 E	Mar 18 E	Mar 19 E	Mar 20 E	Mar 21 E	Trend
Revenue (Estimate Comparable)	1,159	1,137	826	1,222	2,414	1,669	1,518	1,789	1,968	2,028	2,089	2,149	
% YoY Growth		-2%	-27%	48%	97%	-31%	-9%	18%	10%	3%	3%	3%	
EBITDA	258	245	79	254	702	(101)	220	329	394	406	418	430	
% Margin	22%	21%	10%	21%	29%	-6%	14%	18%	20%	20%	20%	20%	
Free Cash Flow	209	283	16	216	788	119	233	355	464	503	525	503	
% Margin	18%	25%	2%	18%	33%	7%	15%	20%	24%	25%	25%	23%	

Perpetuity Growth Method

Current Price (USD)	37.04
Consensus Price Target	40.75
DCF Estimated Value per Share (USD)	52.84
DCF Estimated Upside	43%

Perpetuity Growth

Discount Rate (WACC)	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	54.41	58.05	62.33	67.43	73.61
8.2%	50.54	53.63	57.19	61.38	66.39
8.7%	47.19	49.82	52.84	56.34	60.46
9.2%	44.26	46.53	49.11	52.07	55.52
9.7%	41.69	43.66	45.88	48.42	51.33

	1.0%	1.5%	2.0%	2.5%	3.0%
7.7%	47%	57%	68%	82%	99%
8.2%	36%	45%	54%	66%	79%
8.7%	27%	34%	43%	52%	63%
9.2%	20%	26%	33%	41%	50%
9.7%	13%	18%	24%	31%	39%

EBITDA Multiple Method

Current Price (USD)	37.04
Consensus Price Target	40.75
DCF Estimated Value per Share (USD)	50.87
DCF Estimated Upside	37%

Terminal EBITDA Multiple

Discount Rate (WACC)	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	44.35	48.56	52.77	56.98	61.19
8.2%	43.58	47.69	51.81	55.92	60.03
8.7%	42.83	46.85	50.87	54.89	58.91
9.2%	42.10	46.03	49.96	53.89	57.81
9.7%	41.39	45.23	49.07	52.91	56.75

	11.5x	13.0x	14.5x	16.0x	17.5x
7.7%	20%	31%	42%	54%	65%
8.2%	18%	29%	40%	51%	62%
8.7%	16%	26%	37%	48%	59%
9.2%	14%	24%	35%	45%	56%
9.7%	12%	22%	32%	43%	53%

Appendix E- Competitor Analysis

Peers Data

Custom	Peers	Rel. Indx.
	EA US	SML Index
	ATVI US	S6HMEN Index
	UBI FP	NASDAQ
	TWX	
	SNE	
	NTDOY	
	MSFT	
	9684	
	7832	
	9697	

Ticker	EV/EBITDA	WACC
EA US	19.06	9.9%
ATVI US	16.91	9.1%
UBI FP	4.90	8.4%
TWX	9.68	5.9%
SNE	5.21	8.9%
NTDOY	47.03	12.0%
MSFT	17.05	10.3%
9684	10.50	9.5%
7832	6.15	9.2%
9697	9.13	10.0%
Median	**10.09**	**9.3%**
IQR	**11.49**	**1.3%**
Up Limit	**34.78**	**11.9%**