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RESEARCH HenryFund.Org

Video Game Industry

February 6th, 2019

Communication Services

Industry Rating Marketweight

Investment Thesis

The video game industry has done a great job adapting to new technology and customer demand. Companies have developed games for new platforms, like smartphones. They also now have games that can be downloaded digitally in the comfort of their customer's home. However, the trade war between the US and China does lead to some concern as China is the largest and fastest growing mobile video game market, with about 64% growth year over year for the past 10 years[12]. Overall, this leads us to a Marketweight recommendation in the video game industry.

Drivers of Thesis

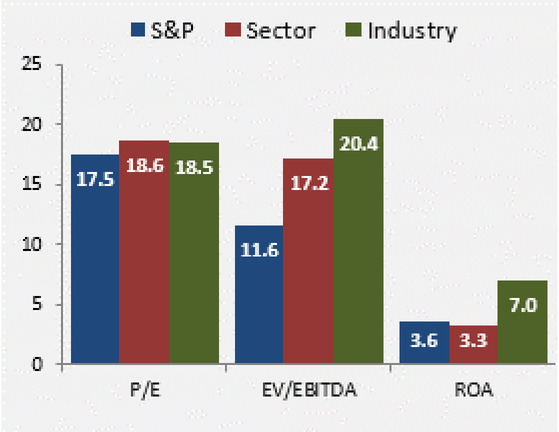
- Video game companies have very strong customer loyalty for their large franchises. Call of Duty has been the most sold video game 9 of the past 10 years. This loyalty leads to repeat purchases.
- As technology advances, there becomes new platforms for people to play video games on and this creates new demand for games. This demand is caused by customers having to buy new video games to be compatible with the new gaming platform.
- Revenue sources have diversified from simply selling video games to now having in-app purchases and advertising revenue from games. This allows video game companies to constantly have potential revenue sources from their customers, after initial game purchase or download.

Risks to Thesis

- The trade war between the US and China hinders the ability of video game companies to expand into the fastest growing video game market. Continued tariffs on video games from China will also continue to lower margins for video game companies.
- With the yield curve flattening there is uncertainty as to whether there could be a potential recession coming soon.

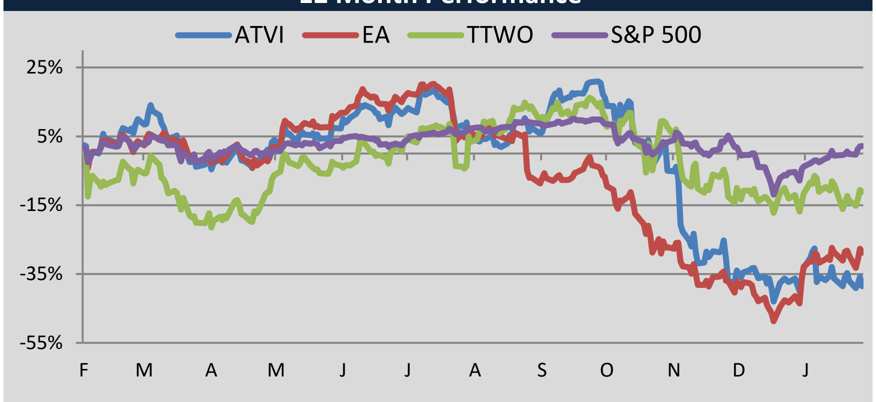
Key Industry Statistics

Profitability Ratio	
Gross Margin	63.6%
Net Margin	12.8%
ROA	7.0%
ROE	12.7%
ROIC	11.0%
EBITDA Margin	26.9%
Industry Ratios	
Price /Earnings	48.6x
EV/EBITDA	20.4x
EV/EBIT	30.2x
Price to Book	4.8x
PEG Ratio	1.7x
Current Ratio	2.4
Cash Ratio	1.7
FCF/Share	2.5



Source: Factset

12 Month Performance



Source: Factset

Industry Description

The video game industry is made up of companies that create different games to be played on different devices. Common devices are consoles, PCs, and smartphones. These companies do not create these mediums so they are reliant on other companies to continue to make new platforms to play their video games on. Video games are usually available on multiple different platforms.

EXECUTIVE SUMMARY

The video game industry has seen some significant changes in the platforms people play video games and the ways they obtain these games. People now prefer to play video games on mobile platforms, and they do not want to have to go somewhere to buy their games. They want to be able to obtain games digitally from their homes.

The industry is facing some headwinds with the US and China trade dispute. China is the largest market for video game companies and the trade issues are leading to increased costs via tariffs. The sooner this is resolved, the sooner video game companies can focus on continued expansion in China.

Even with the challenges in China, we believe the video game industry is positioned well in the economy for growth. Strong GDP growth coupled with low unemployment will help video game demand. Also, VR games are a great opportunity for these companies to seize and expand their product lines.

INDUSTRY DESCRIPTION

The video game industry has been able to grow consistently as the adoption of technology has increased. The industry started with a focus on creating games for consoles and then PCs. While this was the norm when video games were first created, it is no longer. As technology has become more mobile, so has the demand for gaming. This has created a trend for these video game companies to create games compatible with mobile platforms, like smartphones. Companies are doing this through either creating mobile games internally or through merger and acquisition (M/A) activities.

The main players in this industry whose core business operations are video games and report to the SEC are Activision Blizzard (ATVI), Take-Two Interactive Software (TTWO), and Electronic Arts (EA). None of these companies produce platforms to play their games on, therefore, companies in this industry are dependent on other companies to produce consoles and other devices to play their video games on.

2018	Sales (M)	Net Margin	FCF Margin
ATVI	7,493	24.20%	22.14%
EA	5,160	35.14%	30.72%
TTWO	1,793	9.65%	24.09%

Data Source: Factset

The chart above, compares these company's sales, net margins, and free cash flow (FCF) margins. While ATVI did have the highest sales in 2018, EA had the best margins. TTWO was able to achieve a FCF margin greater than their net margin. They were able to do this because they had a large amortization expense for 2018.

Console Games

When video games first came around, consoles just came with one game built-in, like Pong in the 70s. There was no option to play multiple games on one console like there is today. However, that quickly changed and consoles were created with the ability to play multiple different games. The ability of consoles to play multiple games has allowed the video game industry to grow extensively. Video game companies are now able to make a plethora of games and then market them on most or all of the consoles available. This allows them to reach customers no matter which console they have, which expands their potential customer base. However, we see traditional console games potentially becoming less popular over time, if virtual reality (VR) devices are able to have large enough processing capacity at a reasonable price. However, we do believe these video game companies will adapt and start to produce games for the VR headsets. This will be an opportunity for the video game companies to create a new product and potentially have better margins than they do on current console games.

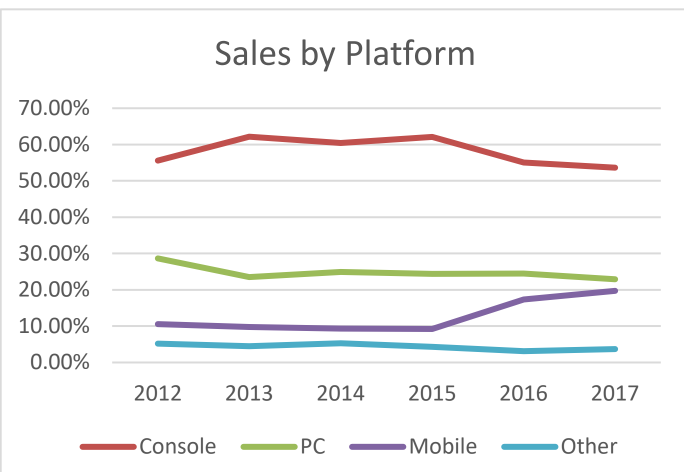
All 3 of these companies we previously mentioned had games that were in the list of the top 10 most sold in 2018. The chart at the top of the next page, shows these 10 top games. ATVI had the number 1 selling game of 2018, Call of Duty: Black Ops 4. TTWO had 3 games in the top 10, Red Dead Redemption 2 (2), NBA 2K19 (3), and Grand Theft Auto V (9). Lastly, EA had Madden NFL 19, which was the 5th most sold game in 2018[7]. This list shows that the top games are consolidated within just a few companies. We do not see this changing as game franchise loyalty is a key factor in games success, which we believe will continue to keep the companies with large game franchises at the top.

Rank	Title	Company
1	*Call of Duty: Black Ops 4*	Activision Blizzard
2	*Red Dead Redemption 2*	Take-Two Interactive
3	*NBA 2K19*	Take-Two Interactive
4	*Far Cry 5*	Ubisoft
5	*Madden NFL 19*	Electronic Arts
6	*Marvel's Spider-Man*	Sony
7	*God of War 2018*	Sony
8	*Monster Hunter: World*	Capcom USA
9	*Grand Theft Auto V*	Take-Two Interactive
10	*Assassin's Creed: Odyssey*	Ubisoft

Data Source: The Motley Fool[7]

PC

Of the 3 major platform revenue sources (console, PC, and mobile), PC revenues have seen the smallest relative change over the past 5 years, as seen below.

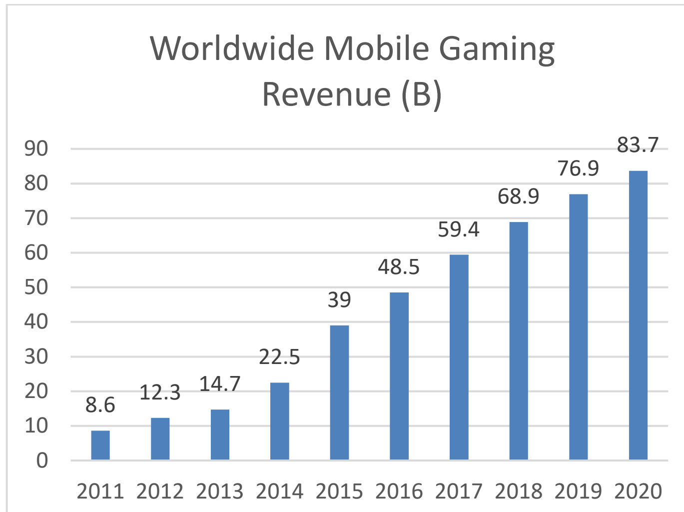


Data Source: 10-Ks[1,5,13]

PC sales as a percent of revenue dropped from 29% of revenue in 2012 to 23% in 2017. Only decreasing about 1% a year on average. We believe this slight decrease is due to some gamers switching to a mobile gaming platform, like smartphones. However, we see PC gaming staying where it is in terms of a percent of revenue due to the fact that PC gaming has a mobile component to it. People are able to play these games on their laptop, which are more easily portable than a console system and makes them more resilient to the shift towards mobile gaming.

Mobile

Mobile gaming is the up and coming segment in the video game world. The growth of mobile game has increased significantly with the creation of smartphones. Below is a chart, of world wide mobile gaming revenue in billions from 2011-2020. Over this time mobile gaming revenue has grown at a CAGR of 25.85%.



Data Source: Statista[12]

This growth is significantly faster than that of console games, which only grew 4.1% from 2017 to 2018 compared to 16% in mobile games[13]. We believe the video game companies may be facing some cannibalism of their console games in terms of time spent playing. If these video games companies are experiencing this, they then should focus on in-game purchases in their mobile games. Most games on smartphones are free to play or have a free to play version. These games make money through either advertising revenue or through in-game purchases. We believe this will be the most efficient use of their time and resources given the trend is toward more mobile gaming. We do not see this trend stopping any time soon, but the rate of the growth could slow down if VR games becomes more wide spread.

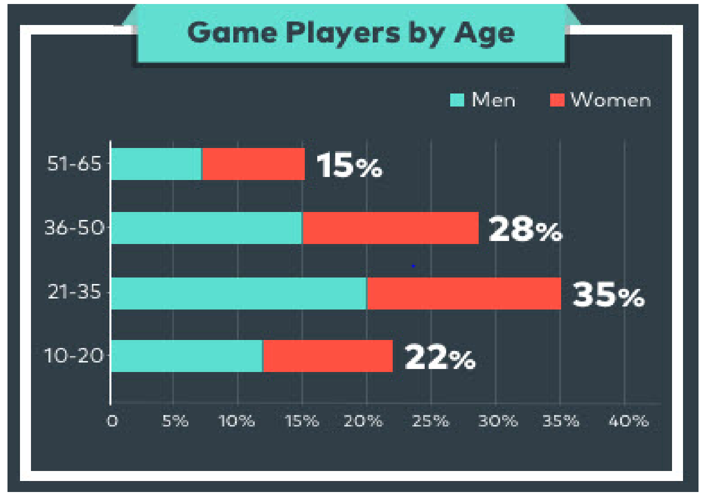
Other

Currently, the other segment of revenue for these video game companies is not a large portion. It usually consists of game memorabilia or major league gaming fees. We are skeptical as to the popularity esports will be able to achieve. We believe that esports are primarily only played by the ultra-competitive video game player and not the casual player. While we do not see these becoming large sources of revenue, we do see the other revenue segment potentially growing due to VR games. At the moment VR games are not common and are mostly still in testing phases. However, if they are fully developed, we could see them becoming extremely popular and eventually becoming their own revenue segment. These video game companies do not produce VR devices. Therefore, VR games becoming popular largely depends on when companies, like Alphabet or Samsung, mass produce these VR devices in a cost efficient manner. We believe these video game companies should attempt to partner with these companies to get a jump start on being able to create VR games, while they are still in their infancy. The worldwide revenue of VR is expected to grow about 193% a year from 2018 until 2022[9]. While not all of this growth will be from VR devices used for video games, we believe a large portion of it will be. This represents tremendous opportunity for the video game industry if VR devices are able to have the processing power needed for video games. However, we are skeptical if VR games will be able to be played on the go as someone will likely need space to move around to play the game. This makes VR games more difficult to play on someone's subway ride to work.

Franchises

Having a successful video game franchise and developing player loyalty to that franchise is key to having long-term success in the video game industry[1]. This can be seen by 9 of the 10 best-selling games in 2018 were franchise sequels that had already developed that player loyalty[13]. We believe that video games not being mutually exclusive helps this game loyalty by players. Video game players are able to own multiple games and play them all. This allows the video game companies to not directly compete, as they can share customers. There are some industries, like automotives, where this is not possible, given the high cost of automotives. We see companies to be best positioned that have their key franchise games available on multiple or all platforms.

Demographics

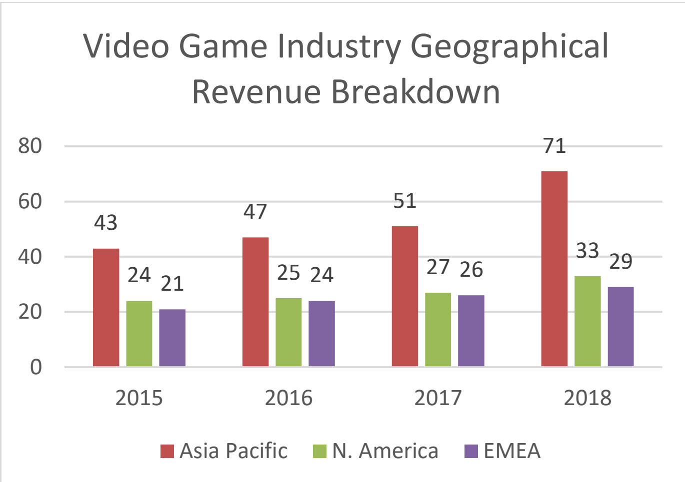


Data Source: Filmora[6]

The demographics of the video gaming industry may be surprising to people in the US. The chart above, shows that 46% of people who play video games are female[6]. This is largely due to the market in Asia, where a higher percentage of girls play video games than in any other region of the world. This is one area where we believe video game companies in the United States could do better. We believe they should do more targeted advertising at women rather than mostly towards men as it is now. The US market is untapped in this way, if they are able to break the stigma that video games are only for males. Also, there is a large age range of people that play video games. This allows the video game industry to create different games geared towards different age groups and expand their potential customer base. Again, we believe these video game companies should do more advertising that is not only geared at teenage boys and men in their 20s. The first company to do this will get a jump on new potential customers and will be competition free on this front, for a least a little while.

Geographic Breakdown

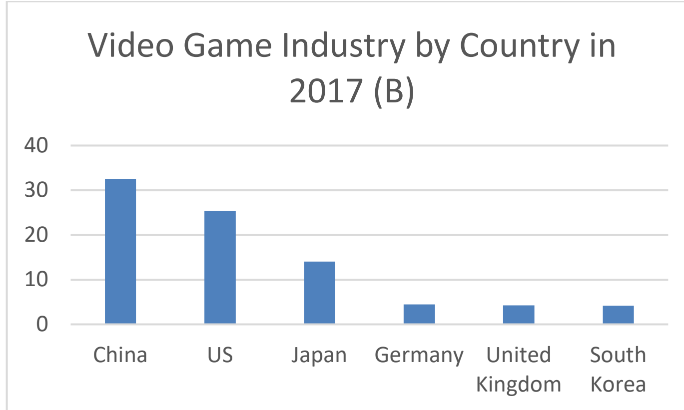
The graph at the top of the next page, shows revenue from video games, in billions, in different geographical areas. The graph shows that the Asia Pacific region has been the largest contributor and also is growing the fastest. We see this region continuing to be the leader in revenue going forward.



Data Source: Statista[10]

We see the growth in this Asia even speeding up. We believe as countries, like India, continue to become more technologically advanced. They will gain access to more technology to play video games on, expanding video game company's potential customer base. This region is experiencing strong growth in population. We believe the North America and EMEA regions will continue to grow at a similar rate as they are now for the next few years. However, after a couple of years we see the EMEA revenue growing quicker as the African economies continue to become more advanced. Therefore, we believe the companies that focus on increasing their presence in the Asian markets will be positioned to take advantage of this trend in the near future.

The graph at the top of the next column, expands on the geographical breakdown of revenue for the video game industry in 2017. The graph shows how heavily concentrated video game revenues are in the Chinese and US markets, both of which made up well over half of their respective regions revenue. We see this trend continuing as time goes on. These are both technologically advanced economies, which we see continuing to quickly adapt new video game technology, like VR potentially.



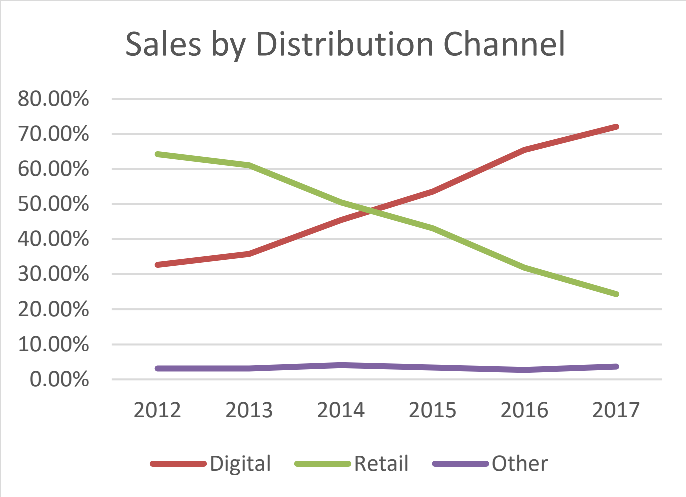
Data Source: Statista[11]

INDUSTRY TRENDS

Retail to Digital Sales

Console games used to only be available in hard copy form, now they can be downloaded off a device that has internet connectivity, which is essentially on all devices used today. We see this trend continuing as people will be able to buy a video game without going to the store. This is much more convenient and can lead to potential cost savings for the both the customer and the video game company, because the company will no longer have to produce physical copies of the games. There is no cost difference between the physical copy of a game or if it is digitally downloaded.

We believe the video game companies that are already in the process of shifting their focus to these digital channels will be best positioned for this trend going forward. As seen in the chart at the top of the next page, this trend of video game sales switching from retail to digital is happening very fast. We believe that the physical retail sales of video games will become non-existent soon as there is no motivation for customers to go to the extra work to go to the store, rather than just download the game online in the comfort of their own home. While ATVI, EA, and TTWO do not give us margins on games sold by distribution channel, we believe digital sales would have higher margins as they do not have to product a physical copy of the game.



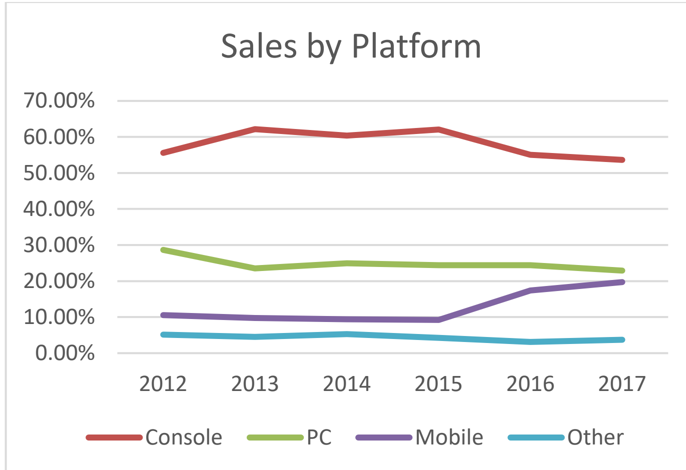
Data Source: 10-Ks[1,5,13]

Scrutiny of Violent Video Games

Violence in the video game industry has been a hot-button issue for the past 10 years. A study was done on 17,000 adolescents with ages ranging from 9 to 19. The study showed that the kids playing violent video games, like Grand Theft Auto and Call of Duty, showed increased physical aggression[13]. However, these studies have data that is highly subjective and very hard to quantify. In 2011 the Supreme Court overturned California's ban on selling violent video games to minors[8]. While the video game industry faces scrutiny about violent video games, there has been no legal restrictions on them yet. However, we do believe that in the future there could be, if studies could produce more objective data on violent video games. As with data regulations, we believe any legal action against violent video games will occur in the European Union before they do in the United States.

Console to Mobile Gaming

A recent trend in the video game industry, is a shift in the desired platform people play on. When video games started, they were only available on consoles. However, with advances in technology, video games can now be played on other devices like PCs and mobile devices. The chart at the top of the next column, shows that console and PC video games are experiencing a decrease in their relative sales, while mobile games are experiencing an increase. We believe this trend will continue to happen and mobile gaming growth will increase at an exponential rate, if VR games become more prevalent in the video game industry.



Data Source: 10-Ks[1,5,13]

Cross-Platform Games

Another trend in the video game industry is to create games for multiple gaming platforms, like the game Fortnite has done[3]. This allows someone to play a game on a console, PC, and a mobile device. This expands the number of potential customers and can cause a customer to buy the game multiple times for each different platform they want to play the game on. This will increase revenue on a per customer basis. Also, this will help develop customer loyalty as they will be able to play their favorite game at home on their console and then continue to play the game on the go on their preferred mobile gaming device. Currently, there are only two games that are available on all platforms, Fortnite and Rocket League, but we see more companies taking advantage of this cross-platform idea with their games. We believe these are the only two games that are completely cross-platform, because companies want to slowly enter new platforms rather than all at once. This is a more conservative approach, but could lead to lost revenue opportunities.

MARKETS AND COMPETITION

Competition

Competition in the video game industry is moderate. While there are multiple platforms to play video games on and numerous different games in each genre, top names in the industry dominate. These top games are typically franchise ones, like Call of Duty or Madden. These games are remade or update year after year and have developed an extremely loyal customer base. It is very difficult for other games to take the place of these games. However, the industry is only moderately competitive, because games are not mutually exclusive. For example, a customer can play multiple first person shooter games, like Call of Duty and Battlefield, and do not have to choose between the two. This helps reduce the direct competition between them. Furthermore, it is more difficult for a new game to compete with these established franchises. On the other hand, these companies are competing for customer's time. The more time a customer plays a game, the more opportunity they have to make in-game purchases or click on an advertisement. We see companies with multiple popular franchises to perform the best. However, we do see continued consolidation within the industry as with Activision Blizzard acquiring King, which could further reduce competition. This could reduce competition by having one company own multiple top franchises within a certain genre of video games.

Barriers to Entry

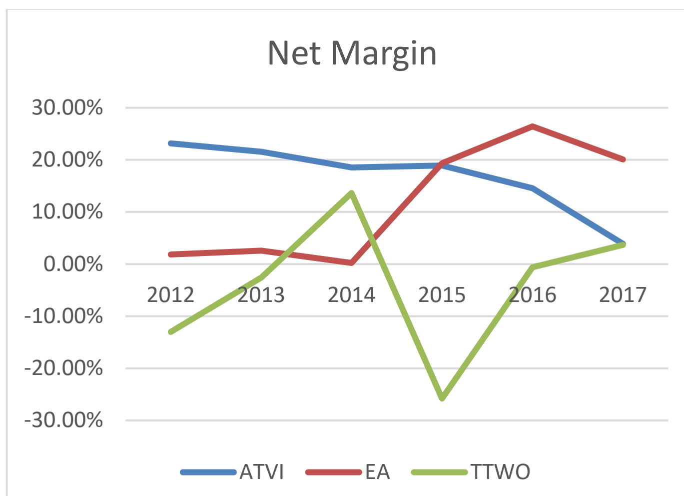
The video game industry is easy to enter overall. A simple game to be played on smartphone is relatively cheap to make and, if it can become addictive or gain a large player base, can be profitable as well. These games typically make money from either advertisements or in-game purchases. Also, these smartphone games are usually free to play so it is easy to get people to try your game, whereas console games usually cost money and is harder to entice people to try them. It is more difficult to join the console game side of the industry, as those games are typically more complex and more costly to make.

Threat of Substitutes

The threat of substitutes in the video game industry is high. Similar games like Red Dead Redemption 2 and Call of Duty Black Ops 4 are both priced around the $60 price range at GameStop and Amazon. Since there is no real price difference between comparable games in the industry, the threat of substitute games is high. It just comes down to personal preference of which game someone prefers for that games genre. Therefore, if one video game company would create a game that appeals to more customers they would likely win those customers over as there is no difference in price. Video games are usually available on all devices on that platform, so no matter which device you have, you are able to switch games easily. This only increases the threat of customers to switch to your competitor's game. We only see companies minimizing this threat by developing strong customer loyalty to their franchises where their customer does not even look for better alternatives to the game they are playing. However, someone can split their time between multiple different games, which does not mean someone has to completely substitute a game for another.

Peer Comparisons

The chart below, shows the net margin for ATVI, EA, and TTWO. Since 2012 ATVI's net margin has been slowly declining. The dramatic drop from 2016 to 2017 was due to ATVI repatriating cash, which artificially reduced their net income. However, the slow reduction from 2014 was due to an increased interest expense from their acquisition of King to expand ATVI's mobile gaming presence. We see this acquisition as a very smart move on their part as mobile gaming is on the rise and ATVI did not have a large mobile gaming presence before this acquisition. We believe ATVI's net margin will increase substantially in 2018 because they will not have the repatriation tax.

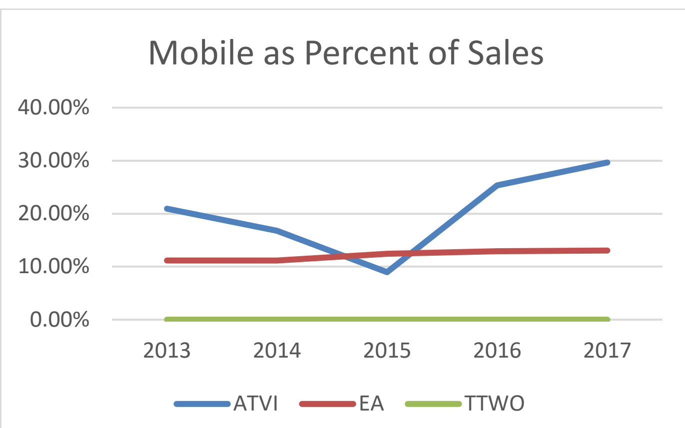


Data Source: 10-K[1,5,13]

EA's increase in net margin from 2014 to 2017 was due to an increase in sales. EA's cost of goods sold remains relatively constant, even when sales fluctuates. We believe this is due to digital downloading, which allows EA to scale up sales without having to produce more of a physical product and incur a variable cost.

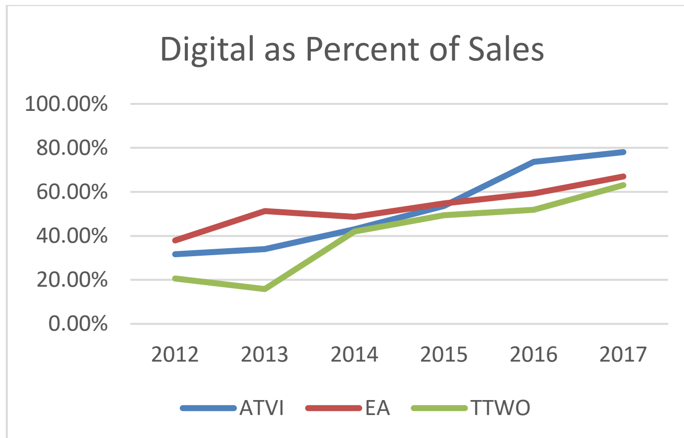
The reason TTWO's net margin went negative in fiscal 2015, was they had no major game releases that year. The year before they released Grand Theft Auto V, which is their largest franchise game. For example, the Grand Theft Auto franchise has attributed 90.6% of TTWO's revenue since the company was formed[13]. This shows how sensitive video game company's revenues are to their large franchise releases. We expect TTWO to have a higher net margin in 2018 than they did in 2017, because they released Red Dead Redemption 2 in late 2017. That is one of TTWO's big franchises and we expect it to do very well.

As previously noted, mobile game revenue is growing while console is dropping, relatively. Below is a graph that shows how well these companies are adapting to this change. TTWO still had 0% of their revenue from the mobile gaming platform at the end of 2017. We see this is a huge disadvantage for TTWO going forward and makes us question their management's ability to see the video game industry's changing landscape and adapt to it. Perhaps they are hesitant to enter the mobile gaming space, because they have no experience in it. They could be waiting to perform an acquisition of a company that already has mobile gaming.



Data Source: 10-Ks[1,5,13]

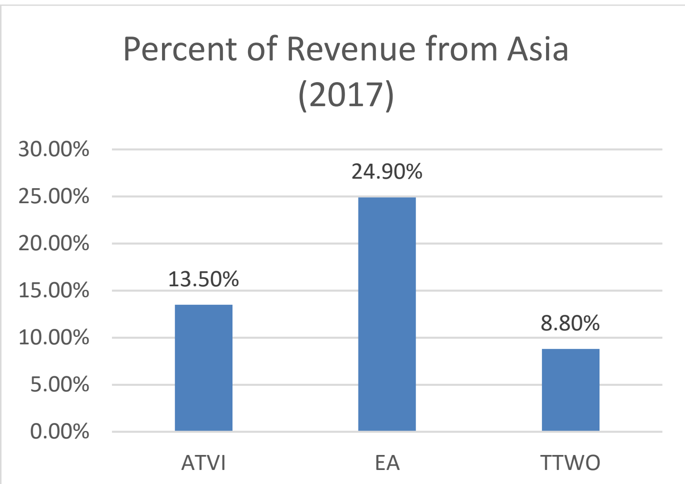
The graph above shows that EA's mobile gaming revenue has had a consistent mix, with only slight increase over the past 5 years. We see no reason for this trend to not continue the way it has been, unless they merge or acquire (M/A) a company that has a big mobile game name, like Clash of Clans by Supercell. We see this as a possibility, because EA does have about $5.3B in cash[5]. Potential M/A could be a reason they have been increasing their cash position over the past few years. ATVI was able to increase their mobile revenue when they acquired King in the start of 2016, whose biggest mobile game is Candy Crush. We see this acquisition as something that positions ATVI very well in this industry. Acquiring a company that specializes in mobile games is good for ATVI, because they originally started as a company that created console games. Given this, we believe that ATVI is the best placed in the industry to take advantage of this trend of gaming becoming more mobile.



Data Source: 10-Ks[1,5,13]

The chart above shows what percent of each company's sales came from digital channels over the past 6 years. All three companies have done a good job shifting their sales from traditional retail to digital channels. They can have their video game in a matter of a few minutes with digital downloads. Also now, digital channels are the most popular ways customers get their video games. ATVI appears to be best positioned for this trend, where in 2017 about 78% of their overall sales came from digital channels. EA and TTWO are both close to each other with about 67% and 63% of sales coming from digital channels, respectively. Going forward we see ATVI to be best placed to continue to adapt to this trend. They have expanded their mobile game offering with the acquisition of King, which most mobile games can only be obtained through digital channels. TTWO on the other hand has no mobile games and we see this slowing their adoption of digital video game sales.

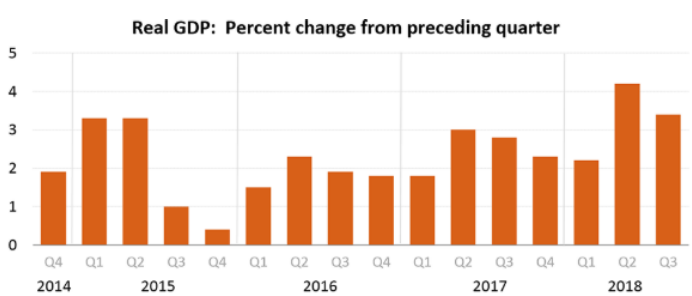
The chart at the top of the next page, shows each company's percent of revenue from Asia in 2017. As Asia is the largest and fastest growing market for video games, we believe companies with the most exposure there are best positioned geographically. Therefore, we believe EA is the best positioned given they have more than 11% and 16% exposure to Asia compared to ATVI and TTWO respectively. Given the trade war between the US and China, we believe these percentages will drop for 2018. However, we do believe after a trade deal is done, that these percentages could see significant increases. A trade deal would also help these company's margins, assuming tariffs are reduced or taken away after the trade deal.



Data Source: Factset

ECONOMIC OUTLOOK

Real GDP



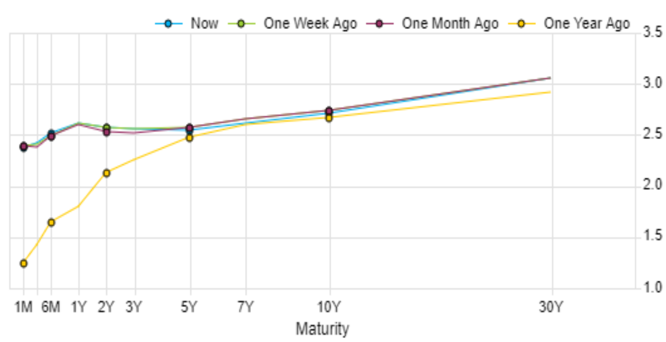
Data Source: BEA[2]

The chart above, shows historical real GDP growth in the US. The growth has been at about or above 2% for most of the time since Q2 of 2016. We believe that 2% real GDP growth is fairly strong and sustainable long-term, unlike the over 3% growth we saw in Q2/3 of 2018. However, we do believe that the GDP numbers for Q4 2018 and Q1 2019 will be lower than 18Q3, due to the government shutdown and continued trade dispute between the US and China. We believe that the video game industry will be able to maintain consistent solid growth once the government has a long-term budget and begins to run as usual.

Trade War

Currently, the largest economic issue we see is the trade dispute between the US and China. The trade war has increased input prices for US companies. The largest market for video games is China and we believe the trade war will hurt video game companies as the divide between the US and China continues. We believe that some nationalism could happen where customers may only buy games created by companies from their nation. This would hurt ATVI, EA, and TTWO. Unfortunately, we do not see the US and China coming to a deal anytime soon. We believe Trump has to fight the battle of a long-term government budget before he can truly focus on a resolution to the trade dispute with China. Therefore, we believe the video game industry could face some headwinds in the near future and have some slowed growth in revenue in China, until the trade war is over. ATVI and EA have 5.2% and 2.8% of their total revenue coming from China[5]. Therefore, we see the trade war as more of a growth hindrance for these company rather than a decrease in current revenue. TTWO has negligible exposure to China.

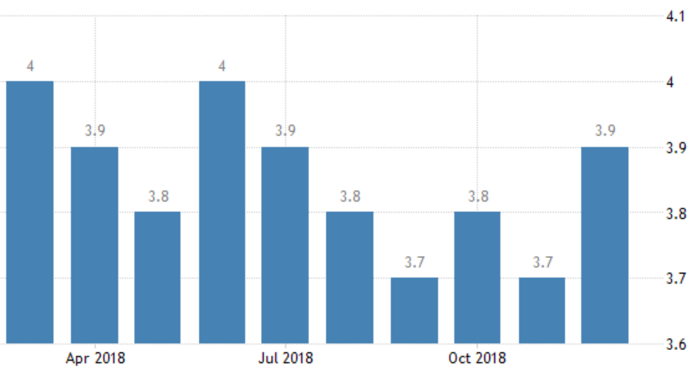
Interest Rates



Data Source: Factset[4]

The chart above, shows the yield curve in the US and how it has changed over the past year. A large concern we have is that the yield curve has shown significant flattening over the past year. We are concerned that the yield curve could invert. This would be a bad signal to the economy and we believe a recession would follow. While we do not think this will happen, it is still something we will watch closely. If this were to happen, we believe it could be a good and bad thing for the video game industry because video games are a form of cheap entertainment. People who became unemployed from a recession might use their time to play video games and maybe even make in game purchases, given their low cost. However, this would affect ATVI, EA, and TTWO equally so no company would be better positioned than another. On the other side, people may also cut video game spending as it is not a necessity.

Unemployment



Data Source: Trading Economics[14]

As seen above, unemployment has been very low recently. We believe unemployment will stay below 4.2% for the next year. This continued low employment will help increase people's discretionary income and likely their discretionary spending. We believe some of this increased spending would go to video games and help the industry grow. However, this continued low unemployment could lead to increased wage pressures for video game companies competing for top talent.

CATALYSTS FOR GROWTH

- The biggest catalyst we see for the video game industry is the end to the trade war between the US and China. China is the largest and fastest growing video game market. A trade deal could lead to exponential growth opportunities for video game companies.
- Another catalyst we see is the expansion into emerging economies, like India, as they progress technologically. We see this as very important, given how large India's population is and how fast it is growing.

INVESTMENT POSITIVES

- As more economies become advanced technologically, the potential customer's video game companies can reach increases. This is aided by digital downloading of games, where companies do not have to worry about the logistically issues of getting their games to customers.
- Companies in this industry are not necessarily direct competitors, because customers can have games from multiple different companies. This reduces the likelihood of price wars between companies, because companies can share customers.

INVESTMENT NEGATIVES

- An investment risk is that if the bigger companies, like Microsoft, that make the consoles or smartphones, would get into the video game industry and not just devices to play the games. These companies are a lot larger than the video game companies and have a lot more capital to create games. These companies could even make consoles that exclusively use their games.
- The relationship between the US and China is uncertain going forward. This uncertainty with the largest video game market is concerning. While these companies do not have a large exposure to China at the moment, we believe it slows or even stops these companies expansion into China.

INDUSTRY POSITIONING

Overall, we believe that ATVI is best positioned in the industry. ATVI has the highest percent of their sales coming from mobile gaming platforms and the highest percent of sales coming from digital downloads. Being on the forefront of these industry trends will allow them to best meet customer demands/preferences. While they do not have the largest exposure to China, EA does not have a significantly more exposure, only 2.4%, we see growth in China after there is a trade deal being more important than current exposure.

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