



The Impact of the Covid-19 on the Video Game Market

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Abstract. Under the attack of Covid-19, the global economy and business are suppressed. The entertainment chain has been broken, and people were trapped in their houses. Emerging fears, loneliness, and diseases make the world chaos. However, video games' special functions and advantages make the industry survive during harsh conditions. This study aims to analyze leading video game companies and their statistic to evaluate the video game market during the pandemic. Also, derivatives businesses and hardware productions will also be evaluated in the study. SWOT-analysis helps consumers understand video games' strengths, weaknesses, opportunities, and threats during pandemics. The emphasis on video games' social and psychological effects has been highlighted throughout the pandemic.

Keywords: Covid-19 · Video game · market value · Nintendo · Sony · Tencent · psychological effects · socialization effects · connectedness

1 Introduction

Covid-19 dramatically changed lives and the economy globally. Since the first case of Covid emerged in Wuhan, China, in early December 2019 and was immediately recognized as a pandemic in early March 2020, the Covid Virus is still impacting today [1]. The virus outbreak forced every individual and nation to react to stop this catastrophe. Unequivocally, both the domestic and international economies would suffer a heavy blow. A high death rate, incubation time, and infectivity percentage were all associated with the Covid virus. Thus, many business activities such as trade imports or exports would be suppressed in large countries such as the US, Korea, Japan, and China [2]. Businesses such as physical stores or any entities related to face-to-face were affected enormously. At the same time, people were trapped in their houses because almost every country has its preventive measures for Covid-19. Sports fans could not watch sports games, so the phenomenon of "Sport without spectators" happened; DC fans could not go to the movie theater to watch their "Superheroes"; and Students could not attend school usually and had to face the cold-blood metal screen. However, a new star called "video games" is rising in the dark realities of the moment.

The video game industry is no longer unfamiliar to everyone in the 21st century. Video games offer the feeling of accomplishment and reduce stress and anxiety in any age group [3]. Many people enjoy playing video games and spending time with their

friends online. During the pandemic scenario, it is foreseeable that more and more people will begin playing video games as a substitute for socialization and as a gate to escape from stress and fear. As the video game starts to become more popular and have more active users, it will accelerate the development of the video game industry and stimulate the growth of the video game market. For example, League of Legends, one of the most famous teamwork games, reported an average monthly player number of approximately 90 million in September 2019. In comparison, the monthly player number grew to 180 million in March 2022 [4]. Examining different macro and micro factors that emerged during the pandemic helps to evaluate the future trend of the video game market. This study aims to analyze both popularity and market value growth by collecting past financial data and searching for how video games make life more delightful.

2 Method

2.1 Data Filtering

Before collecting the data, the first thing to know is to identify which companies are the leading companies in the video game industry (Fig. 1).

Determining the leading companies in the video games industry is the first step to choosing suitable targets. This graph illustrated the gaming revenue of leading public companies worldwide in 2021, and the unit is calculated in millions of U.S. dollars. According to the graph, Tencent Corporation dominates the video game market with 32.3 million dollars in revenue during the measured period. Its strategies are massive production of mobile game and buying mainstream and potential game subsidiaries such as Riot, which owned the League of Legends and Valorant. Other companies are iconic:

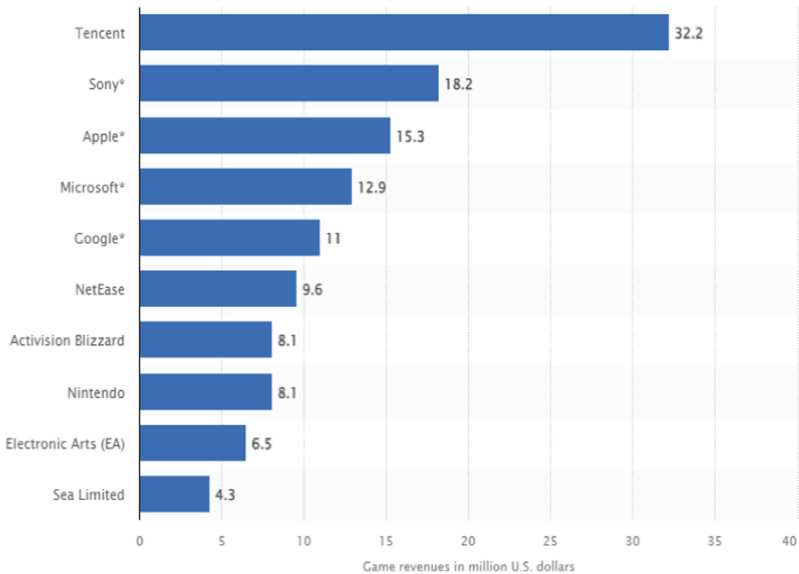


Fig. 1. Comparison between companies on game revenues. (Data were taken from Statista)

Net Income(In millions of RMB)				
Year	12/31/2021	12/31/2020	12/31/2019	
Tencent	224,822	159,847	93,310	
Net Income(In millions of JPY)				
Year	3/31/2021	3/31/2020	12/31/2019	
SONY	1,171,776	916,271	582,191	
Net Income(In millions of JPY)				
Year	3/31/2021	3/31/2020	12/31/2019	
Nintendo	480,376	258,641	194,009	

Fig. 2. Net Income for Tencent, Sony, and Nintendo. (Data were taken from Yahoo Finance)

Sony generated 18.2 million dollars for the second place, and its PlayStation series is popular and eminent for its quality; Nintendo is also a top-list video game company that generated 8.1 million dollars, and its featured product is the Nintendo Switch. Also, one other company, Valve Corporation, created the software distribution platform Steam. These listed Companies' financial statements, sales of their products, and active users will be evaluated and analyzed.

2.2 Data Collecting-Financial Statements, Active Users, and Number of Goods Sold

The data collection will focus on financial statements and balance sheet information. Understanding the percentage of loss or gain is essential to this research. The data will include mainly Tencent, Valve, Sony, and Nintendo- the leading video game industry companies with their features, products, and strategies (Fig. 2).

This graph listed the net income for Tencent, Sony, and Nintendo in 2021, 2020, and 2019. The trend for the three companies is the same: the net income was continuously increasing from 2019 to 2021. Tencent Corporation has an ending net income of 224,822 million RMB at the end of 2021; When this value compares to the 2019 ending net income-93,310 RMB, it shows an overall growth rate of 141%. Sony has an ending net income of 1,171,776 million JPY at the end of 2021. When this value compares to the 2019 ending net income-582,191 JPY, it shows an overall growth rate of 101%. Nintendo has an ending net income of 480,376 million JPY at the end of 2021. When this value compares to the 2019 ending net income-194,009 JPY, it shows an overall growth rate of 148%. All three companies' net income was increased dramatically by almost double the growth rate.

2.2.1 Steam Users Statistic

This graph demonstrates the number change of active users before and after the pandemic. The capitalized letter "A" represented the time point when the World Health Organization

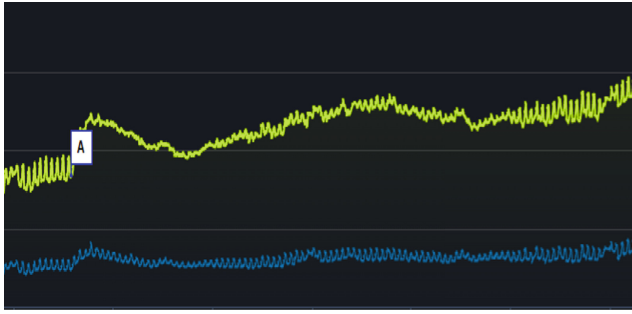


Fig. 3. Steam “Lifetime concurrent users” and in-game users. (Data were taken from Steam DB)

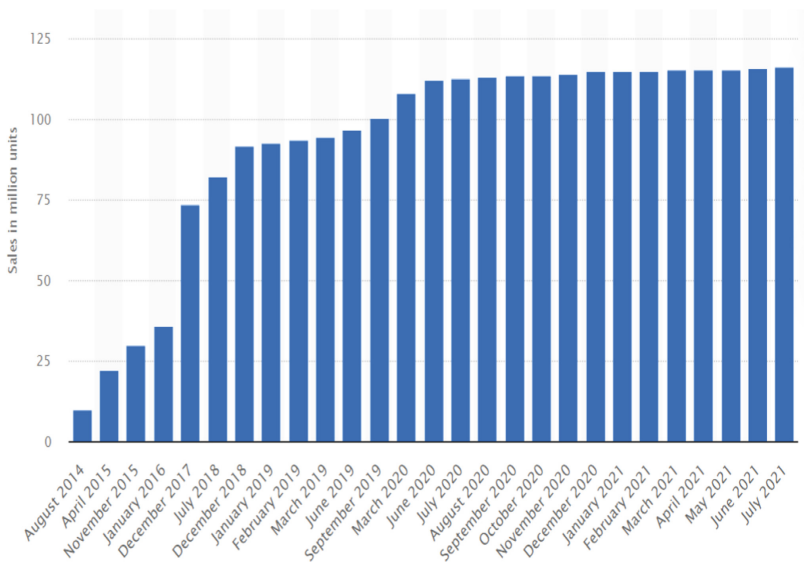


Fig. 4. Cumulative unit sales of Sony PlayStation 4 consoles worldwide. (Data were taken from Statista)

declared that Covid-19 was a pandemic. According to the graph, there was a rapidly increasing number of steam users after the pandemic declaration. As shown in the graph, there were 17,600,742 active players in September 2019, and the number of active players rose to 24,535,923 in April 2020. Although there was some decline in the second half of 2020, it still increased dramatically compared to 2019 and the early years (Fig. 3).

2.2.2 Sales of PlayStation Products

This graph demonstrates the cumulative unit sales of Sony PlayStation 4 consoles worldwide. There is a small growth after the occurrence of the Covid-Virus. The reason why the growth rate is not great is that the Covid-19 more or less affected the production of PlayStation consoles. In September 2019, 100.4 million PlayStation 4 consoles were

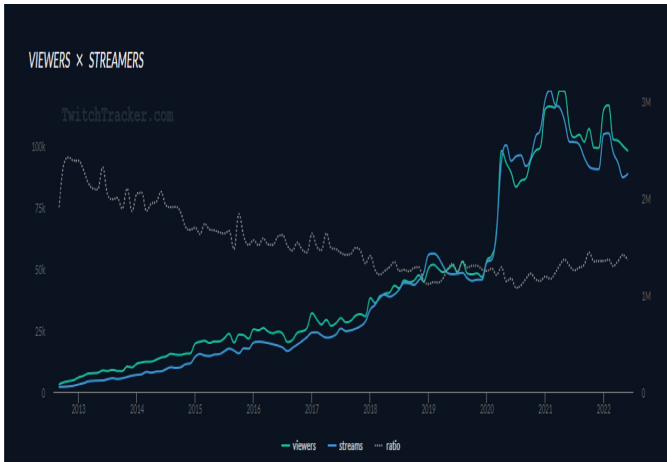


Fig. 5. Twitch Viewers and Streamers graph with streamers and viewers ratio. (Data were taken from Twitch Tracker)

sold; in September 2020, approximately 113 million PlayStation 4 consoles were sold (Fig. 4).

2.3 Growth or Loss of Video Game Derivative Business

Covid-19 affects the video game market as a whole and the derivative industries of video games. For example, Game Streaming Platforms, including domestic and international platforms such as Hu Ya Tv, Dou Yu Tv, and Twitch channel, had more viewers and traffic than before (Fig. 5).

According to the graph, in December 2019, Twitch approximately had 1,184,935 daily viewers and 45,633 streamers. However, in December 2020, Twitch approximately had 2,522,869 daily viewers and 106,845 streamers. The number of both daily viewers and streamers doubled just in one year. This phenomenon makes sense: the number of viewers increased because of the lack of the form of entertainment; the number of streamers increased because most people could not go to work, so they wanted to try a new way to make money and have fun.

2.4 SWOT Analysis

The SWOT analysis represents one business's strengths, weaknesses, opportunities, and threats.

SWOT analysis is suitable for evaluating the video game industry under the pandemic influence [5].

2.4.1 Strengths

There are always pros and cons to the video game industry. However, the influence of the pandemic highlights its advantages much more than its disadvantages. Most entertainment businesses are eliminated: the National Basketball Association (NBA) season

has been suspended; the Disney Parks had to shut down its production on live-action projects [6]. It is a course of matter that people will pick up their gaming laptops or desktops to spend some time on video games. From an economic perspective, March 2020 video game sales in North America were 34% higher than March 2019 sales, and video game hardware sales were 63% higher [7]. Unlike other entities that need physical distribution, the video game is distributed by online platforms such as Steam and Epic game center. Also, most video game companies' employees can work at home without obstacles. The game server is usually maintained.

From a psychological and socialization perspective, video game products can bring more emotional things to everyone during this particular time. For example, the new social simulation video game called "Animal Crossing: New Horizons" that Nintendo released received countless reviews and likes. In the world of Animal Crossing, the players' journey begins on a desert island. All players can try to expand their home and land by collecting materials from the map, exploring the mystery forest, and interacting with the adorable animal NPCs [8]. There are no fears, viruses, or loneliness. For many, gaming not only provides a way to keep in touch with friends in quarantine, but it is also a parallel universe where the reality of a global pandemic can be temporarily forgotten. "Animal Crossing" is just one part of the whole video game industry. Other video games that promote teamwork and connectedness were also popular during the pandemic, such as the League of Legends, Among Us, and Fall Guys [9]. The words "belongings and connectedness" endow video games with "a soul." Video games not only connect young adolescents with their peers but also connect the whole family. According to one research, 287 adolescents and their parents took a questionnaire that included behavioral, family, and video game questions. The results are surprising: it has been proved that co-playing video games with parents can have positive effects on prosocial behavior and decrease aggressive behaviors or levels of internalizing [10]. Under the pandemic circumstances, people are locked in a small house with their family. Why don't they try to play some video games with each other?

2.4.2 Weaknesses

Although the pandemic provided an excellent chance for the whole video game industry to grow, there were some accompanying disadvantages within the pandemic. The production of the hardware was one of the problems. For instance, Nintendo set up most manufacturers and factories in Asia, especially in China, for a lower cost of goods. Due to the strict quarantine and preventive measures, workers were forced to leave the workplace, so the necessary components of the Switch could not be produced efficiently [11]. The shortage of essential components indirectly reduced the sales of the Nintendo Switch. Also, many physical and repair stores were closed, which caused many inconveniences to the consumers. In addition to the hardware production, the pandemic delayed some new game publications and forced all kinds of E-sport matches or activities to become fully online or canceled. The Entertainment Software Association officially canceled the Electronic Entertainment Expo or E3 because of the pandemic. Due to the lack of audiences, E-sport's income is suppressed at the same time.

2.4.3 Opportunities

As the globe is gradually recovering from the pandemic and preventive measures are getting loose, more workers are returning to the production line, and game designers are gathering together to design and develop new games for players. Also, all the Esports activities and tournaments can return to the regular schedule.

The pandemic provided large amounts of data for video game companies to guide them in knowing which game categories or themes are the mainstream and trends. Video game companies' sights had changed to designing more teamwork and cooperation games, such as *Dread Hunger*, the newly released game.

2.4.4 Treats

Older generations generally have a stereotype against video games: video games are harmful. As children spend more money and time on video games, some parents do not show empathy or understanding toward the adolescents. As more and more children join to play video games, at the same time, more and more people are boycotting and opposing video games. They argued that video games could potentially lead to violent behaviors and severe addictions.

3 Results

After analyzing certain leading companies' financial statements and daily active users, we found that the video game market is in a stable growth trend. Video game companies will put more money into developing new video games to satisfy new players who just started to play video games during the pandemic. The video game industry has much more advantages compared to other entities.

One milestone success is that video games were widespread, and more people noticed them. Before the pandemic, most people held biases and stereotypes against video games and gamers. Things started to change after the bond was built between players and games. When people find satisfaction and connectedness in one video game, they will become "loyal" to it. Both the market values and the popularity increased to a peak in the recent 50 years.

4 Conclusions

Due to the pandemic, video games have become a necessary means of psychological and social communication in society. It changes many people's views and makes video games a new skill and formal sport. The rising of video games is inevitable in a century when technology is constantly advancing. Instead of avoiding it, we should use better game modes and methods to make it a socially healthy video game. When it is impossible to avoid and abandon video games, we should find new growth points and innovative advantages of video games that match the times and achieve both social and economic benefits.

The attitude and perception of customers towards the game is also a significant part that affects the economic growth of the video game market. In the past, everyone tended

to look at the superficial things that covered the video games, such as violence, addiction, and worthless. However, the pandemic makes video games' market value peak because they exhibit hidden values behind the scenes.

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