

Company Valuation Electronic Arts Inc.

Clemens Seidenstecher (152421145)

Dissertation written under the supervision of José Carlos Tudela
Martins

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Abstract

This thesis is aiming to evaluate Electronic Arts Inc and to determine a fair share price on 1st of January 2022 and issue a BUY, HOLD or SELL recommendation. Electronic Arts Inc is a leading company in the interactive media entertainment industry, commonly known as the video game industry.

The valuation is based on a profound analysis of market and company and is using the most appropriate valuation approach suggested by industry and academia. An intrinsic valuation using the Discounted Cash Flow method is used as well as a relative valuation approach using forward looking multiples.

The issued recommendation of EA is **BUY** based on a fair share price of \$152.77 on 1st January 2022 which represents an average of intrinsic valuation and relative valuation. This results in an upside potential of 16% to the traded price of \$131.9.

Resumo

Esta tese tem como objectivo avaliar a Electronic Arts Inc e determinar o preço justo das acções a 1 de Janeiro de 2022 e emitir uma recomendação de BUY, HOLD ou SELL. A Electronic Arts Inc é uma empresa líder na indústria de entretenimento de media interactivos, vulgarmente conhecida como a indústria de jogos de vídeo.

A avaliação baseia-se numa análise profunda do mercado e da empresa e está a utilizar a abordagem de avaliação mais apropriada sugerida pela indústria e pelo meio académico. É utilizada uma avaliação intrínseca utilizando o método de Fluxo de Caixa Descontado, bem como uma abordagem de avaliação relativa utilizando múltiplos prospectivos.

A recomendação emitida pela EA é **BUY** com base num preço justo de acções de \$152,77 em 1 de Janeiro de 2022, o que representa uma média de avaliação intrínseca e avaliação relativa. Isto resulta num potencial de valorização de 16% para o preço negociado de \$131,9.

Acknowledgments

This dissertation is my last step in one of many through my academic journey. Along this path I have experienced unconditional support by my family and friends which motivated me and made me overcome every hurdles.

Especially, I want to thank my parents and my brother who believed in me during the entire process and who I could contact every time of the day whenever I had doubts, questions or needed advice.

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Abbreviations

APV	Adjusted present value
AR	Annual report
Avg	Average
CAGR	Compound annual growth rate
CAPEX	Capital expenditures
CAPM	Capital asset pricing model
COGS	Cost of goods sold
D	Debt
D/E	Debt to equity
DCF	Discounted cash flow
E	Equity
EA	Electronic Arts Inc.
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation, and amortization
EPS	Earnings per share
EV	Enterprise value
FCF	Free cash flow
FCFE	Free cash flow to equity
FCFF	Free cash flow to the firm
FY	Fiscal year
g	growth rate
GDP	Gross domestic product
MRP	Market Risk Premium
MRP	Market risk premium
NPV	Net present value

NWC	Net working Capital
OECD	Organisation for Economic Co-operation and Development
P/E	Price/Earnings
PV	Present value
r	Return
R&D	Research and development
Rf	Risk-free rate
ROIC	Return on capital invested
SG&A	Selling, general and administrative
TTM	Trailing twelve months
US	United States
V	Value of the firm (Debt + Equity)
WACC	Weighted average cost of capital
YR	Year
β	Beta

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1 Introduction

1.1 Topic Relevance and Motivation

The motivation of this Valuation of Electronic Arts Inc. (EA) is based on the recent changes in the world we live in, namely the digital transformation. In every industry it is crucial to adapt to those changes overcome the challenges and seek the opportunity it holds. The video game industry is also exposed to those changes. A shift from traditional disc-based games to digital copies are seen. Additionally, a change of business models. There is a shift from selling video games individually to offering free games and generating revenue via in-game purchases or selling a subscription with access to a various number of games, so called video libraries. Also, big new players entering the gaming industry. For example, Microsoft with their acquisition of Activision Blizzard. This leads us to the interesting question if Electronic Arts is fairly valued at this moment and how valuation is seen by a big investment bank in comparison.

1.2 Methodology

The overall goal of this thesis is to come up with the fair value of Electronic Arts. In order to properly understand how this value is determined, in this thesis a state-of-the-art literature review is presented. Followed by an overview and analysis of the industry its operating in. Hence, the video gaming industry. Then, a company analysis is conducted looking at financials and structure of EA. Lastly, the valuation of the company is composed using the methods described in the literature review.

Two different valuation methods are used in this thesis. The first one is intrinsic valuation. The firm value is tried to be estimated with the discounted cash flow method. The Free Cash Flow to the Firm (FCFF) is computed to come up with the value of the entire firm.

The second approach used is relative valuation. After defining a peer group of similar companies with similar business model, a number of multiples are used to come up with a value and a price target. These two approaches seem to be the most adequate ones since the former is representing assumptions that are made regarding the future of EA in terms of revenue growth, changing margins and cost of capital that is subject to their capital structure. The latter is relevant as it compares EA with the industry peers which in theory should have the same value.

There are two more methods to value a company or assets which are real options and liquidation value. In the former is used when characteristics of options are in place within the company (Damodaran, 2007) As this is not the case with EA this method will not be used. EA has revenues coming from established games that are remade every year (EA Sports games such as FIFA, MADDEN NFL, NHL and more) and recurring revenues with subscription models. The latter “is built around valuing the existing assets of a firm” (Damodaran, 2007) and often used when a company faces financial distress. As Electronic Arts is not facing bankruptcy nor financial distress in the foreseeable future liquidation value will not be applied. Intrinsic valuation and relative valuation are the most suitable way to value EA.

In the end, a comparison with an investment banks analyst report is made as well as an overall conclusion.

2 Literature Review

In the following a state-of-the-art literature review about intrinsic and relative valuation is presented.

2.1 Discounted Cash Flow Method

The value of a company is equal to all the future cash flows which are discounted to present value that are available for all shareholders (FCFF) or the equity holders (FCFE). This is the intrinsic value of a company covering all cash flows, its growth, and all risks, that are covered by the discount rate. The discount rate used to compute FCFF is the weighted average cost of capital (WACC) which takes a weighted average of the required return of equity and debt holders. The discount rate for the FCFE is the cost of equity as the risk for the equity shareholders needs to be considered. The sum of all discounted future free cash flows, the net present value (NPV), equals the enterprise value (EV).

$$EV = \sum_{t=1}^n \frac{FCF_t}{(1+i)^t}$$

Equation 1: Enterprise Value

Where: n = time horizon, FCF_t = Free cash flow at time, i = discount rate

An important assumption to make when setting up a discounted cash flow model is the time horizon of the company's operations and its growth. Assuming constant growth rate (g) and infinite time horizon the EV can be computed as follows using the Gordon Growth method:

$$EV = \frac{FCF_0}{(i - g)}$$

Equation 2: Enterprise value with Gordon Growth method

Alternatively, a time horizon with a specific growth rate can be set with a terminal value after the last growth period. The terminal value is an important part of the model as it captures the majority part of the value. The perpetuity growth (g) represents the steady growth rate for the company and should not be higher than the GDP growth of the country the company is operating in. The EV would be calculated as follows:

$$EV = \sum_{t=1}^n \frac{FCF_t}{(1+i)^t} + \frac{TV_n}{(1+i)^n}$$

Equation 3: Enterprise value with FCF and TV

$$TV_n = \frac{FCF_n * (1 + g)}{(i - g)}$$

Equation 4: Terminal Value

In the following the certain parts are presented that need to be defined for the discounted cash flow method.

2.2 Free Cash Flow

The free cash flow is a metric that gives a clear statement about how much actual cash a company has to pay its employees, pay-out to shareholders and similar. The difference to the net earnings is that they do incorporate depreciation but no investment expenses. Hence, these

differences must be adjusted for the non-cash expenses and actual cash expenses that are not covered by this accounting measure.

2.2.1 Free Cash Flow to Firm

The free cash flow to firm is the cash available depart from any financing decision for all shareholders. It does not consider the interest paid for bonds or loans before tax deduction. Hence, the starting point is the unlevered net income. To calculate the free cash flow depreciation and amortization needs to be added back or subtracted, respectively. To adjust for the cash outflows via capital expenditures (CAPEX) these must be subtracted as well as increases in net working capital (NWC) (Berk & DeMarzo, 2020).

$$FCFF = EBIT * (1 - \tau) + Depreciation - Amortization - CAPEX - \Delta NWC$$

Equation 5: Free Cash Flow to the Firm

2.2.2 Free Cash Flow to Equity

The Free cash flow to equity is the cash available to all equity holders. To compute FCFE the financing of the firm must be considered. As such tax deducted interest payments, principal payments as well as newly issued debt must be taken into account. The FCFE is computed as follows:

$$FCFE = FCFF - interest\ payments * (1 - \tau) - principal\ payments \\ +\ new\ debt\ issued$$

Equation 6: Free Cash Flow to Equity

2.3 Risk Free Rate

The risk-free rate is an important metric and a basis factor that needs to be determined before calculating other discount rates. It is defined as the return that is generated of investing in a riskless asset. Therefore, an asset that will not default in the future. On second terms, the absence of reinvestment risk must be given (Damodaran, 2020).

An investment in a government bond with a long-time horizon fulfils both requirements and is considered as risk-free. Often the 10-year US Treasury Bill or 10-year German government bond is used. Nevertheless, a different rate should be considered when the company is operating in a different country. This is especially true when its operating in an emerging market where the risk-free rate might be higher. Additionally, the discount rate must be in the same currency as the cash flows (Damodaran, 2020).

2.4 Beta

Beta is a measure of risk. More precisely systematic risk (Zenner, Hill, & Clark, 2008). Hence, it represents the volatility of a given asset in relation to the market portfolio. As this represents the sensitivity to the market the asset moves either more, less, equally or in reverse to the market portfolio.

Beta is an essential component to the Capital Asset Pricing Model (CAPM). To calculate the beta on a publicly traded company a regression is conducted between the returns of the company and the market returns. The regression equation is as follows:

$$r_{company} = \alpha + \beta * r_m$$

Equation 7: CAPM

A different approach is to define a peer group of the company and get the unlevered beta from those companies as in theory they should have the same risk. To apply the unlevered beta to the specific leverage of the given company, it has to be levered subsequently. To lever the company's beta, when the ratio of debt to equity remains constant, the following formula is used:

$$\beta_e = \beta_u + \frac{D}{E} * (\beta_u - \beta_d)$$

Equation 8: Beta

2.5 Cost of Capital

The Cost of Capital is essential when it comes to value cash flows. It incorporates the time value of money and the specific risk to the cash flows. The cost of capital can be seen as opportunity costs. In the following cost of equity, cost of debt and average weighted cost of capital are described.

2.5.1 Cost of Equity

The cost of equity represents a premium that is paid by the equity shareholders on the return on their asset that is a certain amount above the risk-free rate. It is equal to a return that is received for investing in an asset with similar risk.

The most common way to compute the cost of equity is the CAPM. It suggests that the portfolio is efficient and well diversified. Hence, it represents the relationship between expected return and systematic risk. Under the CAPM this risk is defined as Beta. Subsequently, two assets with the same beta have equal cost of equity (Zenner et al., 2008).

$$r_e = r_f + \beta * (r_m - r_f)$$

Equation 9: Cost of Equity

An alternative way to estimate the cost of equity is looking at past returns. So, how much would have been gained by investing in this asset over a certain period of time. The disadvantage is that it generates significantly differences depending on the time horizon as well as if returns are compounded or not (Damodaran, 2020). Additionally, past returns are not an indicator of future performance and might be an invalid indicator that the company generates the same returns as in the past.

2.5.2 Cost of Debt

The cost of debt is the amount of interest a company has to pay for its liabilities, namely bonds and loans. There are several ways to estimate the cost of debt. For the after-tax cost of debt of an investment grade company it is suitable to take the yield to maturity of the long-term, option-

free bonds. In theory, this is a realistic approximation as the promised yield will not be different as the expected return of the debtholders since the default risk is marginal (Koller, Goedhart, & Wessels, 2005).

$$r_d = YTM * (1 - \tau)$$

Equation 10: Cost of Debt

2.5.3 WACC

With the components defined above we can compute the weighted average cost of capital (WACC).

$$WACC = \frac{E}{V} * r_e + \frac{D}{V} * r_d * (1 - \tau)$$

Equation 11: Weighted Average Cost of Capital

Where:

E = Equity

D = Debt

V = Value of the firm (D+E)

The WACC takes into account the capital structure of the company and consequently the savings due to the tax-deductible interest payments of the company's debt. This is called the tax shield. For the equity and debt component market value is used over book value. The weights should represent the target capital structure rather than the current one as the company could change its current structure on a short-term basis. If that would be the case, that WACC could lead to underestimation or overestimation. For companies that are already close to their target capital structure and are not likely to change it in the future, a constant WACC can be assumed for discounting the cash flows.

2.6 Adjusted Present Value Method

Another method to come up with the enterprise value of a company is the adjusted present value (APV). The APV method is seen as superior to the WACC method as it requires less restrictive

assumptions, entails less errors and provides greater information about the source of value drivers. Additionally, it is stated that the APV method works even when the WACC method does not works (Luehrman, 1997).

The main concept behind the APV method is that it combines the present value of an all equity financed firm combined with the present values that emerge from financing side effects. The WACC in comparison incorporates all those side effects into the discount rate which makes it less clear what components are bundled in (Luehrman, 1997). The formula of the APV method is as follows:

$$V_l = V_u + \tau_c * D - PV(\text{cost of bankruptcy})$$

Equation 12: Value of the firm with APV method

In this case only the interest tax shield and the present value of the cost of bankruptcy are considered as they are the most important ones. The interest tax shield on debt is normally the largest component of the side effects of financing.

2.7 Relative Valuation

The second approach to estimate the firms value is the relative valuation. Koller, Goedhart, and Wessels, 2005 proclaim that DCF valuation beholds various mistakes for example in forecasting growth or estimating the cost of capital, that can lead to “strategic errors”. In relative valuation the intrinsic factors of cash flows, growth and risk are not relevant when applying relative valuation. Instead, similar assets are taken for comparison as in theory they should have the same price. To define those similar assets, a peer group of similar companies has to be created first. Secondly, multiples are used to scale the value from the peer group to the company’s value.

2.7.1 Peer group

The first thing when conducting relative valuation is to set up a peer group. A common mistake is that only companies within the same industry are taken although they do not face similar growth nor risk nor cash flows nor margins. Hence, applying simple industry average does lead

to mistakes in the valuation. To define the peer group, companies with similar ROIC, growth, cash flows and risk should be considered (Koller et al., 2005).

2.7.2 Multiples

Multiples are simple ratios. In the numerator there is mostly the measure of the company's market value. Which can be for example the equity value, firms value or the enterprise value. The denominator holds the measure of what the company is generating. This can be earnings, revenues, cash flows, book values or industry specific measures. The values in numerator and denominator have to be consistent with each other.

The most common multiple types are either equity value or enterprise value multiples. The most common Multiple is the Price-Earnings ratio (P/E). It is reasonable to put price into perspective with earnings. This is the case, because price is the market value of equity of the firm and earnings is an equity value as well. It would not be consistent if a Price-EBITDA multiple would be constructed since the financial structure of the company is not incorporated in the EBITDA but in the market value of equity.

For example, the company borrows money to buy back shares which will decrease the market value of the equity but will not affect the EBITDA. Consequently, the multiple is providing misleading information. In addition to the consistency, it is necessary to adjust enterprise multiples by non-operating items to reach non-dilutive results. Those can be excess cash, other nonoperating assets, operating leases, employee stock options or pensions (Koller et al., 2005).

Multiples can either be based on historic data or on forecasts. It's evidenced, empirically and based on principles of valuation, that it forwards multiples provide the more accurate valuation estimate (Koller et al., 2005). But it comes with the trade-off that not every company has an analyst forecast. Hence, it might reduce the pool of which the peer group can be chosen.

In the following there is a list of multiples that will be used in this thesis.

Multiple	Pros	Cons
Price-Earnings (P/E)	Easy to compute	Leverage will dilute result Prone to accounting measures
Enterprise Value to EBITDA (EV/EBIDTA)	Not affected by leverage differences	Does not include capital expenditures
Enterprise Value to EBIT (EV/EBIT)	Not affected by leverage differences Takes depreciation into account	Does not include capital expenditures

Figure 1: Table of Multiples

3 Industry Analysis

In the following an industry analysis is conducted which gives an overview of the market participants, drivers of growth and revenue.

3.1 Overview

Before giving an overview of the gaming industry it is necessary to address the recent pandemic and its impact on the entire world economy. Since the beginning of the pandemic in March 2020 the world economy took a historical hit. Share prices plunged since March 2020. The Dow Jones lost 37% from its peak in February 2020 to the bottom end of March 2020. The S&P500 index lost 34% in this period.



Figure 2: S&P500 Index (2019-2022, source: Bloomberg)

The graph above shows the massive hit that emerged through the pandemic in the S&P500 and the fast recovery in stock prices since the bottom end of March 2020. Since then, the Dow Jones as well as the S&P500 has more than doubled. This strong recovery clashes with economic fundamentals as there have been worsened unemployment rates, supply chain shortages and the world that was shut down a significant time. With the development of a vaccine in 2021 there has been fewer infection numbers and recovery in the economy as of gross domestic product as can be seen in the chart below.

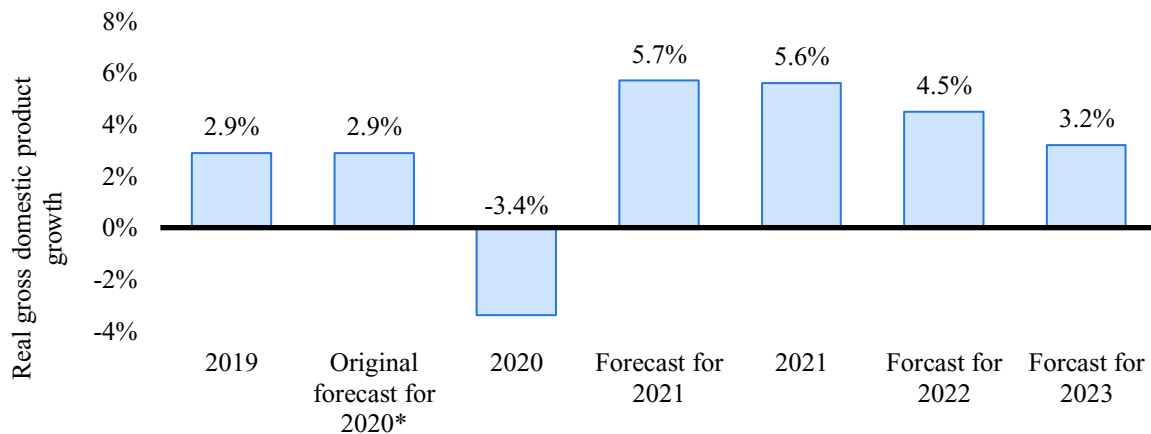


Figure 3: Forecasted GDP (2019-2023, source: OECD 2021))

After a decrease of 3.4% in 2020 of real gross domestic product compared to 2019, there was a relative strong recovery in 2021 with 5.6% compared to 2020. Despite that strong recovery the outlook for the next years cannot keep up with this growth. The world bank articulates “a rise in inflation, debt, and income inequality” is harmful for emerging and developing markets and states that the divergence between advanced economies and emerging and developing ones is going to be greater than pre-pandemic level (WorldBank, 2023).

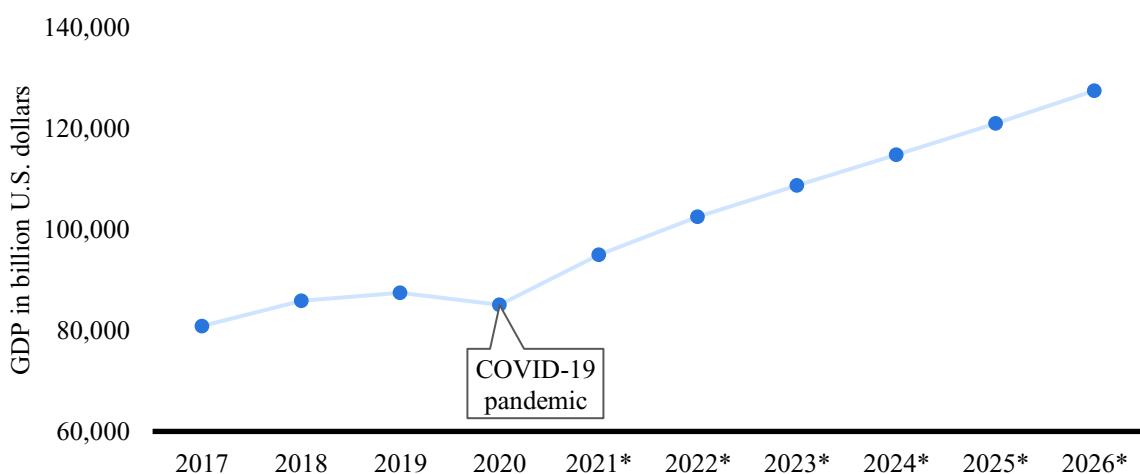


Figure 4: Forecasted GDP (2017-2026, source: IMF 2020))

The figure above shows the total global gross domestic product. From 2019 the GDP dropped from \$87,300 billion to under \$85 billion. After 2020 there has been a recovery. The expected GDP in 2022 is \$102,000 billion which corresponds to a 20% increase since its low in 2020.

Some countries have been recovering faster than others. The German central bank named several countries which economies are even pre pandemic level. Among those are the US or China for example (Bundesbank, 2021).

Supply chain issues during the pandemic caused a shortage in the chip industry. Those semiconductor chips are components for various goods. Under which are computer and video game consoles. The shortage resulted in fewer new video game consoles that can be produced (such as Playstation5 and XBOX One) (Bloomberg, 2022).

3.2 Gaming market

During the pandemic the way of how people lived has changed. Since everyone was forced to be at home and was not able to go out nor cultivate contacts nor socialize, the virtual and gaming landscape did profit from this. People spend their time at home playing more video games and interacting with friends and other people in them. This caused an enormous user growth during the pandemic.

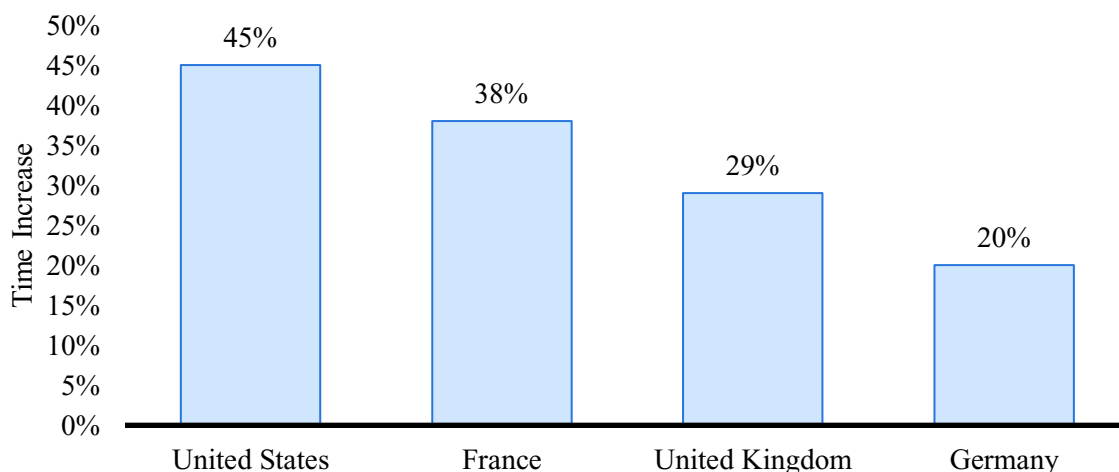


Figure 5: Increase in time spent playing video games (2020), source: Statista 2020

The graph above shows the increased time that was spend on video games caused by the pandemic in March 2020. The US reported the highest rise with 45% in March 2020. A survey

from YouGov (appendix 1) shows that 77% of mobile gamers in the US are saying they will sustain the amount of time spent even after the pandemic ends.

The gaming market is in a steadily changing environment. There are new products (e.g., virtual reality, mobile games) new business models (e.g. free games with in-app purchases), new distribution channels, new upcoming platforms as well as a very competitive landscape.

3.3 Segments and Main Players

In the following the gaming industry is divided into five segments.

1. Downloaded Games: Games that can be downloaded via PC and Console without a physical disc
2. Gaming Networks: Subscriptions that allow to play online on a console or grant access to gaming libraries
3. Mobile Games: Games that are played on smartphone or on tablets
4. Online Games: Games that are free to play but have in-game purchases for premium memberships, premium content
5. Physical Games: Games that are sold with a disc in retail stores

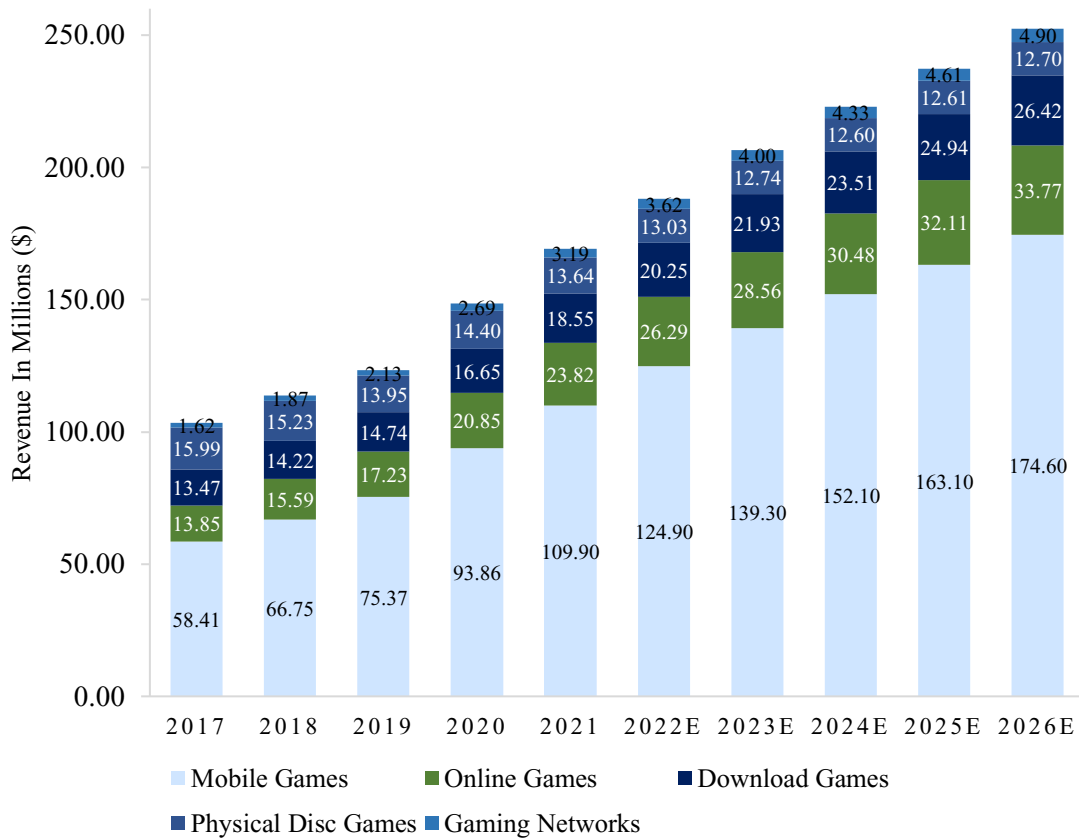


Figure 6: Revenue by segment in billion USD, source: Statista 2020a, own calculations

Figure 6 above illustrates the revenues generated from 2017 to 2021 and a projection of future revenues up to 2026. The revenue in 2017 totaled \$103 billion and rose to \$169 billion in 2021. In 2026 the revenue is projected to reach \$252 billion. This translates to a compounded average growth rate of 10.4% (appendix 2). The growth of revenues in 2022 is estimated to be pre-pandemic level.

Gaming Networks are contributing the fewest to total revenue with less than 2% in 2021 (appendix 3)

Physical games that are sold in retail stores via discs are experiencing a drastic lack of demand and therefore are having negative growth rates (CAGR of -3.9% from 2017-2021, appendix 2) over the past years as well as projected ones for the next years. In 2021 the share of revenue was 8% which is \$13.6 billion.

Downloaded games are facing inferior growth rates to both mobile and online games (appendix 3). Nevertheless, in 2026 the rest of the segments are expected to converge to a similar growth

rate of 6-7%. Since 2017, online games have a higher contribution to total gaming revenue than downloaded games but also are experiencing a decline in contribution to total gaming revenue. Most of the revenue is generated through mobile games. Mobile games are expected to increase its share on total revenue and become more important in the future (appendix 3). From 2017 to 2021 it rose from 56.5% to 65% on total gaming revenue in 2021. In 2026 it's expected to be 69.2%. Many companies are introducing mobile game versions of their established console or PC games.

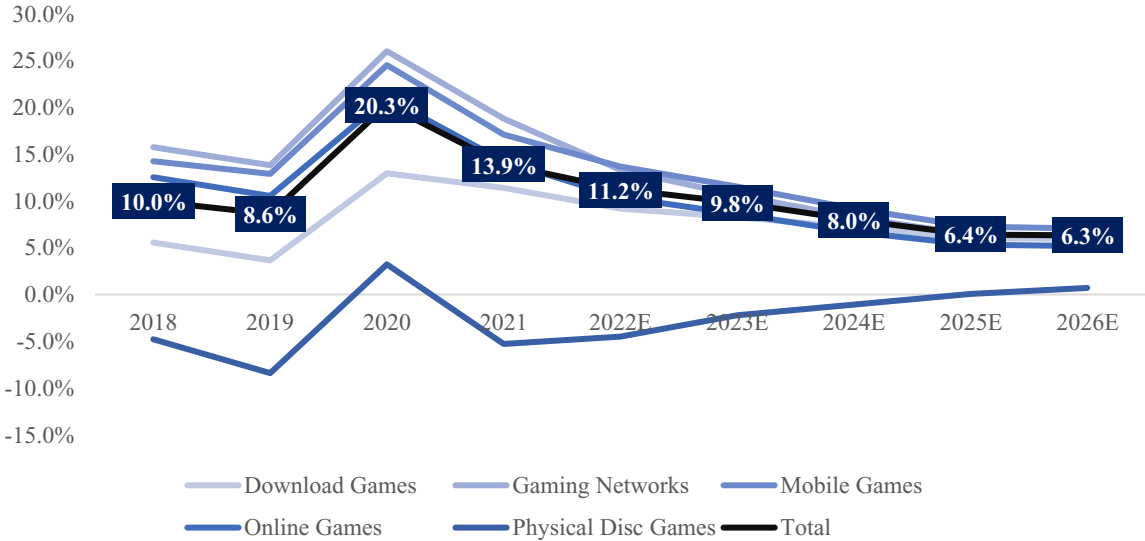


Figure 7: Revenue growth by segment, 2021: Video Games – worldwide, source: Statista 2021

The chart above shows that during the start of the pandemic in 2020 the growth rate of total gaming revenue peaked with 20.3% as lack of social activity in physical terms was offset with social interaction in a virtual world. The high growth rates during the pandemic are not estimated to continue after 2022 in that high manner. In 2022 the estimated growth rate is 11.2% and reaching 6.3% in 2026. Mobile games are expecting to continue with the strongest growth with 13.6% in 2022 and 7% in 2026, respectively (appendix 5).

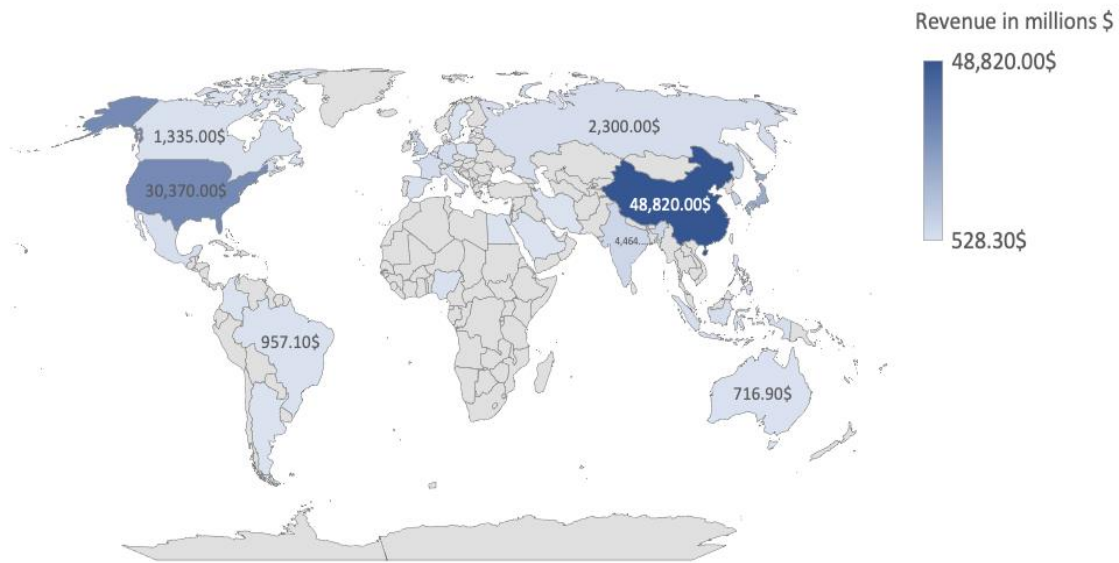


Figure 8: Video Games Revenue – by Geography, source: Statista, 2021

The above graphic shows the revenue distribution by geography of the biggest countries. China has been the biggest market with 31% share on total revenue which was \$48 billion in 2021. Since 2017 it has been gaining market share. Second and third contributors are the United States and Japan with 19% and 12%, respectively. In both countries there was a slight decline since 2017. India experienced a relatively high growth since 2017 and contributes in 2021 as much as UK, Germany, South Korea, and France. This relates to 2-3% of the total revenues. Russia sees a decline in revenues which is projected to continue to 2026 (appendix 6, 7 and 8).

The main players and competitors to EA in the video game market are the following.

Company	Market Cap	Revenue	CAGR 5 Yrs
Activision Blizzard	60,177.90	8,297.00	0%
Take-Two Interactive	14,433.30	3,414.20	14%
Ubisoft	5,192.20	1,883.00	5%
Zynga	9,621.40	2,800.40	30%
Netmarble	6,405.60	2,190.50	10%
Nintendo	62,287.00	15,256.00	32%
Tencent	410,099.10	27,022.00*	27%
Total	568,216.50	60,863.10	-
Average	81,173.79	8,694.73	-

Figure 9: Main competitors and biggest players in the video game market. Source: Bloomberg and Electronic Arts, 2021 (*gaming only)

According to EA the trend is going to be that big tech players such as Alphabet, Amazon, Facebook and Microsoft are focusing on entering the gaming and entertainment industry. For example, Activision Blizzard was recently bought by Microsoft. This strengthened Microsoft's position in the gaming market.

4 Company Analysis

Note: In the following the term "in the past 5 years" is used. This covers the period from FY2017 up until today, 01/01/2022. Technically, this covers a period of more than 5 years (5 $\frac{3}{4}$ years). Due to simplicity, the above-mentioned term is used.

4.1 Company overview

Electronic Arts Inc. was founded 1982 and is a global operating and leading company in interactive media entertainment. It "develops, markets, publishes and delivers games, content and services that can be played and watched on game consoles, PCs, mobile phones and tablets" (Electronic Arts, 2021). Its Headquarter is in Redwood, California in the US. They employ currently around 11,000 people. The main vision of founder Trip Hawkins back then was to create video games that are a pieces of art. Therefore, the former name Amazin' Software was changed to Electronic Arts in 1982.

EA published Madden NFL in 1983 for the first time. This American football simulation game was the first of the sports games that EA is known for today. In 1994 FIFA was introduced, a soccer simulation game and the most successful game of EA so far. With this success of the sports games EA introduced a sperate division, EA Sports, that was solely responsible for creating sports games. Those games include for example tennis, cricket, golf, snowboarding, fighting, Formula 1, and ice hockey.

Every year there is a new version published. There are some critics about the little changes of the new games, nevertheless, they make up the most of EA's revenue, especially FIFA and MADDEN NFL. Besides sports games EA is famous for the gaming series Need for Speed and The Sims. The former is a racing game series, the latter a real-life simulation game. Both

gaming titles have frequently new versions published. In 2000 EA introduced Battlefield, a first-person shooter that as well is published frequently with new versions of the game.

As of today, there are 13 versions of the game. In 2019 EA published a free to play Battle Royale¹ shooter called Apex Legends. With its competitors Fortnite and PUBG it's the most successful Battle Royal games of all time. All the above-mentioned games are also introduced for mobile.

EA has a long list of acquisitions that were made since 1982. Over 40 deals have been made that added titles such as The Sims or Formula 1 to its gaming portfolio. Its recent acquisition of Codemaster, that had a deal value of \$1.2 billion, helped EA to strengthen its position in the racing game sector. The acquisition of Gluu Mobile which had a deal value of \$2.4 billion is expected to gain market share in the mobile game market which EA did not put its focus on the past.

4.2 Revenue segments

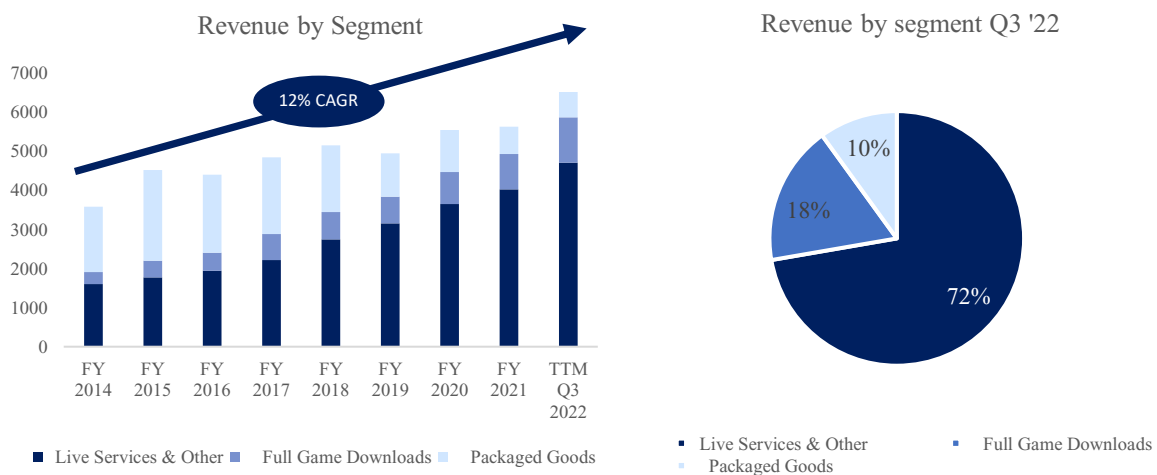


Figure 10: Revenue by Segment, source: Electronic Arts, 2021

EA had solid growth since 2014 with a CAGR of 12%. Live Services & Other contribute the most to its revenues. The biggest driver of this segment is in-game purchases that are coming from its EA Sports gaming mode “Ultimate Team”. Players can buy so called loot boxes (digital

¹ Online Multiplayer Gaming Mode where a larger number of players are fighting against each other until there is one winner

content that contains virtual items used in the game) that are that allow them to enhance their game play with superior equipment in the game itself. The revenue in FY2021 from Live Services & Other was \$4,016 million. A \$366 million, and 10% increase to FY2020 (Electronic Arts, 2021).

Full Game Downloads and Packaged Goods are experiencing similar growth rates in the past as the gaming industry and have a high correlation with it. The contribution of revenue was \$1,613 million in FY2021 which decreased by 15%, or \$274 million from FY2020 (Electronic Arts, 2021).

EA’s total revenue growth could not keep up with the total revenue growth of the gaming industry since 2018. The shift to mobile games might be the reason of it which has not been the focus of EA. But with the acquisition of Gluu Mobile and Apex Legends Mobile they are strengthening their share in the mobile gaming market.

As of 1st January 2022, Live Services & Other made 72% of total revenue. Full Game Downloads 18% and Packaged Goods only 10%.

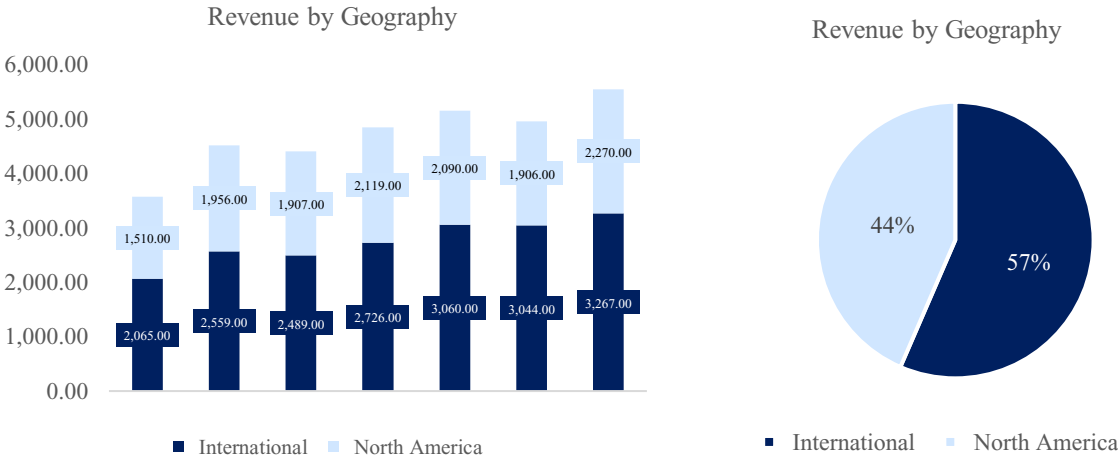


Figure 11: Revenue by Geography, source: Electronic Arts, 2021

EA is operating worldwide. In its annual statement they state that 57% of its revenue is coming from all around the world whereas 44% are coming from North America. From the latter, most of its revenue share comes from the US. EA does not breakdown the specific countries.

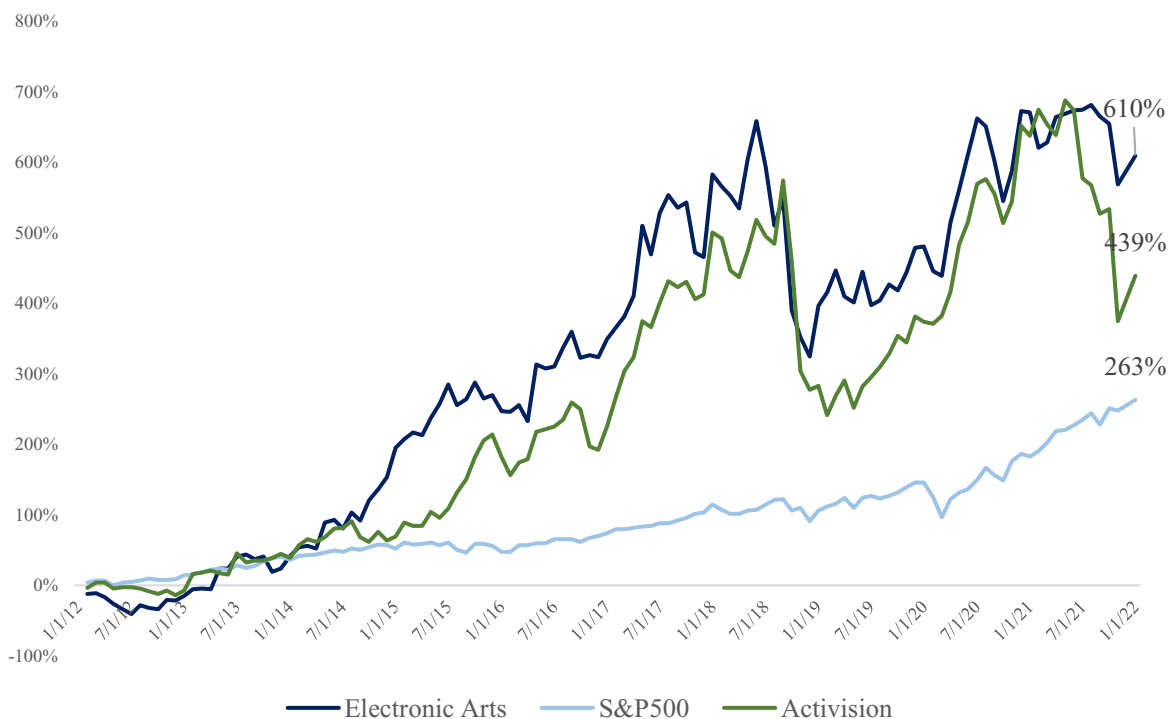


Figure 12: Stock performance, source: Refinitiv Eikon and own calculations

EA has outperformed both the S&P500 and its main competitor Activision over the period of the last 10 years. EA had a cumulative stock return of 610% compared to Activision Blizzards cumulative return of 439% and 263% of the S&P500. In January 2022 it had a year over year return of -8%, in 2021 it was 34%. The plunge in end of 2018 was due to macroeconomic factors where the monetary policy was expected to be tightened and the trade war between China and USA was an additional factor of fear and uncertainty.

5 Company Valuation

As mentioned above, this thesis is following two approaches to value EA. Intrinsic and relative valuation. With the former various assumptions has to be made. These assumptions are based on industry forecasts and statements – historical financial data and expected future outlooks – from EA itself. The data used to forecast specific items in the projection period was based on the period of FY2017 up to Q3 FY2022. The third quarter is also included as it was the latest data that was published. Additionally, it is the date of which the valuation is based. To establish a better understanding for specific items the analysis goes even more far back than FY2017.

The forecasting period was chosen to be 10 Years. 5 years were chosen to be forecasted specifically and 5 years are used to converge to the mature state and close to the terminal growth

rate. This is in the range of the industry standard, and it is rational for the following reasons. COGS and other items such as SG&A or Research & Development are rather stable but experiencing a slight decrease which is expected to continue over the next years as there are some structural changes in the gaming industry regarding the digital transformation and less focus on physical goods. Additionally, new drivers of growth are in place which are reflected in the revenues. Those drivers arise from general digitalization and are accelerated by the recent pandemic. As mentioned in the industry overview, the high growth rates are not expected to continue in this extent. Additionally, the 5-year converging state is needed to build the bridge between current growth drivers and EA’s long-term growth. All other items are expected to be stable after the specific forecasting period of the first 5 years.

5.1 Revenue Forecast

The revenue forecast was based on a benchmark of the industry research from Statista digital market outlook, which was used to project the cash flows 5 years into the future. Additionally, there is a 5-year converging state up to FY2031. The growth rate is decreasing in a linear manner based on the last decrease from 2025 to 2026 which is 0.55% per year.

The first step was to analyze historic growth of revenue. For this, sales were divided into three segments. Live Services & Other, Full Game Downloads and Packaged Goods. As mentioned in the company overview, Live Services & Other experienced strong growth rates with a CAGR of 17% since 2017 (appendix 2). To forecast this segment, it was necessary to divide further into two sub-segments. The sub-segments are “extra-content” and “other”.

“Extra-content” incorporates the projected growth rates of mobile gaming and in-game purchases. With EA’s acquisition of GLUU and introduction of APEX Legends Mobile, as mentioned above, its mobile growth rates are expected to be aligned with the forecasted industry growth rates from the Statista Digital Market Outlook (Statista, 2021). Additionally, the in-game purchases are also aligned with the benchmark which is the forecast from Juniper Research, 2021.

Forecast Consumer spending on in-game purchases worldwide from 2020 to 2025 (in million U.S. dollars)							
Segment	2020	2021E	2022E	2023E	2024E	2025E	2026E
In-game spending revenue	54,009	61,074	65,163	68,004	71,068	74,457	78,007
		13.1%	6.7%	4.4%	4.5%	4.8%	4.8%

Figure 13: Forecast consumer spending on in-game purchases, source: Juniper Research, 2021

Even though in-game purchases contributed more revenue to Live Services & Other in the past, it was assumed that the share of mobile revenue will increase in the following years. Hence, an average of mobile growth rates and in-game purchase growth rates was taken to forecast “extra-content”. As the forecast of JuniperResearch and Statista is referring to year-end data, a conversion to the fiscal year of EA has been made as it ends end of march.

Segment	2022E	2023E	2024E	2025E	2026E
In-game spending	11%	6%	4%	5%	5%
Mobile growth	16%	13%	11%	9%	7%
Extra content growth rate (average)	14%	10%	8%	7%	6%

Figure 14: Extra content growth rate calculations adapted to EA’s fiscal year, source: Juniper Research, 2021 and Statista, 2021

The sub-segment “other” is mainly driven by subscription revenues coming from EA Play. These projected growth rates were benchmarked with the industry forecast of gaming networks. The following table shows the outcome of the forecast.

Segment	Live Services & Others Forecast								
	2019	2020	2021	Q3 2022	2022E	2023E	2024E	2025E	2026E
Live services and others	3157	3650	4016	4707	4869	5349	5766	6145	6516
Extra content	2373	2826	3068	3593	3717	4075	4387	4678	4958
Other	784	824	948	1114	1151	1274	1379	1467	1558
Change		16%	10%	13%	21%	10%	8%	7%	6%

Figure 15: Live services & others forecast, source: own calculations

Full Game Downloads and Packaged Goods were also aligned with the industry forecast (appendix 10). Analysis of historical data showed a strong correlation (0.76 for Full Game Downloads and 0.73 for Packaged Goods) in these segments. Therefore, it is a reasonable assumption to incorporate this projected growth rates. To avoid forecasting errors, the specific games were not forecasted.

	Actual					Forecasting Period						Transition Period				
	2017	2018	2019	2020	2021	Q3 2022	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Sales																
Live Services & Other	2,215	2,743	3,157	3,650	4,016	4,707	4,869	5,349	5,766	6,145	6,516	6,873	7,213	7,530	7,820	8,078
% YoY Growth		24%	15%	16%	10%	17%	21%	10%	8%	7%	6%	5%	5%	4%	4%	3%
Full Game	2,630	2,407	1,793	1,887	1,613	1,805	1,829	1,921	2,018	2,115	2,210	2,296	2,372	2,435	2,485	2,520
% YoY Growth		-8%	-26%	5%	-15%	12%	13%	5%	5%	5%	4%	4%	3%	3%	2%	1%
Full Game Downloads	659	707	681	811	918	1,155	1,186	1,292	1,396	1,493	1,583	1,665	1,736	1,795	1,841	1,871
% YoY Growth		7%	-4%	19%	13%	26%	29%	9%	8%	7%	6%	5%	4%	3%	3%	2%
Packaged Goods	1,971	1,700	1,112	1,076	695	650	643	628	622	622	626	631	635	640	645	649
% YoY Growth		-14%	-35%	-3%	-35%	-6%	-8%	-2%	-1%	0%	1%	1%	1%	1%	1%	1%
Total Revenues	4,845	5,150	4,950	5,537	5,629	6,512	6,698	7,269	7,784	8,260	8,725	9,169	9,585	9,965	10,305	10,598
% YoY Growth		6%	-4%	12%	2%	16%	19%	9%	7%	6%	6%	5%	5%	4%	3%	3%

Figure 16: Revenue forecast, source: Bloomberg and own calculations

As can be seen above the top line forecast grows strong for the FY2022 with 19% compared to FY2021. This corresponds to the influence of the pandemic and its increased demand of gaming. From FY2023 onwards growth rates are decreasing as the demand due to the pandemic are not expected to continue in that high manner. The average growth from FY2023 to FY2026 is 7%. After FY2026 it will decrease linearly corresponding to the decrease in the growth rate from FY2025 to FY2026. In FY2031 the YoY growth rate of total revenue is 2.85%.

Physical discs are expected to decrease over the next years and reach a stable demand in FY2023 onwards. In FY2022 it is expected to decrease 8%. From FY2027 onwards it will reach a stable growth rate of 0.7%. This demand is expected to come from PC games. There is still a customer base who are prefer physical discs over downloads. This can be explained by people collecting games or older people who do not want to adapt to the recent digitalization. However, this has not a significant impact on revenues in the future.

Full game downloads are increasing more than physical discs are decreasing. This also reflects the trend of the increased demand of gaming. In FY2022 this growth will estimate to be 29% compared to FY2021. Over the following years it cannot keep up with the high growth and its growth rate will decrease and reach a growth of 1.7% in FY2031 (Figure 16).

The main drivers from full games are from games such as FIFA, The Sims, Madden NFL, Star Wars Franchises and Need for Speed. As these are established games it can be assumed that there is no high uncertainty in future success. In other words, it is expected that these games continue to be as successful as in the past and will not be abandoned by the gaming community.

Regarding the FIFA Franchise, there have been licensing issues for certain teams (Juventus Turin and AS Roma) that are highly popular in the football community since FIFA 20. These teams do not appear with their authentic names in the game. Nevertheless, FIFA contributes the biggest share of revenues regardless.

The most important source of revenue will continue to be Live Services & Other. For FY2022 this is expected to grow 21% compared to FY2021. Like Full Game Downloads this growth cannot be kept up in the following years but is still moderately high with an average of 7% from FY2023 to FY2026. After FY2026 it is assumed to linearly decrease to converge to the long-term growth.

For the conservative (bear) case it is expected that EA sports games are abandoned by the community due to a continuously worsened playing engine that makes other games more appealing. This might become reality as the community complains since some years about this.

This means that eSportler and streamers are switching to competitors. EA is losing in sales in full game downloads as there are fewer public people playing EA titles and they are losing in sales in Live Services & Other since less people tend to pursue in-game purchases. There are some rumors that the naming rights of EA's FIFA franchise are being dropped. This might play a role as people connect the name FIFA with the "real" or authentic football. The growth rate of in-game purchases and full game downloads is set to 25% of the one from the base case. This assumption is due to the fact that most revenue is coming from EA Sports titles, especially FIFA.

Mobile growth is set to 75% of the base case. This might decrease less since EA has other titles that will be contributing to mobile growth than the EA Sports titles.

Packaged goods are not affected.

Bear	Actual						Forecasting Period					Transition Period				
	2017	2018	2019	2020	2021	Q3 2022	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Sales																
Live Services & Other	2,215	2,743	3,157	3,650	4,016	4,707	4,771	4,980	5,168	5,332	5,478	5,628	5,767	5,894	6,007	6,107
% YoY Growth		24%	15%	16%	10%	17%	19%	4%	4%	3%	3%	3%	2%	2%	2%	2%
Full Game	2,630	2,407	1,793	1,887	1,613	1,805	1,628	1,809	1,626	1,823	1,646	1,848	1,666	1,867	1,682	1,881
% YoY Growth		-8%	-26%	5%	-15%	12%	1%	11%	-10%	12%	-10%	12%	-10%	12%	-10%	12%
Full Game Downloads	659	707	681	811	918	1,155	985	1,181	1,005	1,201	1,020	1,217	1,031	1,227	1,037	1,232
% YoY Growth		7%	-4%	19%	13%	26%	7%	20%	-15%	20%	-15%	19%	-15%	19%	-15%	19%
Packaged Goods	1,971	1,700	1,112	1,076	695	650	643	628	622	622	626	631	635	640	645	649
% YoY Growth		-14%	-35%	-3%	-35%	-6%	-8%	-2%	-1%	0%	1%	1%	1%	1%	1%	1%
Total Revenues	4,845	5,150	4,950	5,537	5,629	6,512	6,399	6,790	6,795	7,155	7,124	7,476	7,434	7,761	7,689	7,988
% YoY Growth		6%	-4%	12%	2%	16%	14%	6%	0%	5%	0%	5%	-1%	4%	-1%	4%

Figure 17: Bear case: revenue forecast, source: own calculations

For the optimistic (bull) case it is expected that EA can reach a significant higher share in the mobile gaming segment and therefore its growth rate is doubled to the one from the base case. This would consequently also affect lead to an increase in in-game spending.

Bull	Actual						Forecasting Period					Transition Period				
	2017	2018	2019	2020	2021	Q3 2022	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Sales																
Live Services & Other	2,215	2,743	3,157	3,650	4,016	4,707	4,914	5,559	6,176	6,748	7,322	7,975	8,615	9,231	9,808	10,334
% YoY Growth		24%	15%	16%	10%	17%	22%	13%	11%	9%	9%	9%	8%	7%	6%	5%
Full Game	2,630	2,407	1,793	1,887	1,613	1,805	1,829	1,887	1,903	1,967	1,985	2,046	2,053	2,103	2,098	2,137
% YoY Growth		-8%	-26%	5%	-15%	12%	13%	3%	1%	3%	1%	3%	0%	2%	0%	2%
Full Game Downloads	659	707	681	811	918	1,155	1,186	1,258	1,282	1,345	1,359	1,415	1,417	1,463	1,453	1,487
% YoY Growth		7%	-4%	19%	13%	26%	29%	6%	2%	5%	1%	4%	0%	3%	-1%	2%
Packaged Goods	1,971	1,700	1,112	1,076	695	650	643	628	622	622	626	631	635	640	645	649
% YoY Growth		-14%	-35%	-3%	-35%	-6%	-8%	-2%	-1%	0%	1%	1%	1%	1%	1%	1%
Total Revenues	4,845	5,150	4,950	5,537	5,629	6,512	6,743	7,446	8,079	8,716	9,308	10,021	10,668	11,334	11,906	12,471
% YoY Growth		6%	-4%	12%	2%	16%	20%	10%	9%	8%	7%	8%	6%	6%	5%	5%

Figure 18: Bull case revenue forecast, source: own calculations

5.2 Expense Forecast

	2017	2018	2019	2020	2021	Q3 2022	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Cost of Good Sold	1,283	1,277	1,322	1,369	1,494	1,759	1,744	1,862	1,979	2,093	2,211	2,328	2,434	2,530	2,617	2,691
% of Revenue	26%	25%	27%	25%	27%	27%	26%	25%	25%	25%	25%	25%	25%	25%	25%	25%
Gross Profit	3,562	3,873	3,628	4,168	4,135	4,753	4,953	5,407	5,805	6,168	6,514	6,841	7,151	7,435	7,689	7,907
% of Revenue	74%	75%	73%	75%	73%	73%	74%	74%	75%	75%	75%	75%	75%	75%	75%	75%
% YoY Growth		9%	-6%	15%	-1%	20%	20%	9%	7%	6%	6%	5%	5%	4%	3%	3%
Selling/General/Admin. Expenses, Total	1,112	1,110	1,162	1,137	1,281	1,594	1,491	1,618	1,732	1,838	1,942	2,041	2,133	2,218	2,293	2,359
% of Revenue	23%	22%	23%	21%	23%	24%	22%	22%	22%	22%	22%	22%	22%	22%	22%	22%
% YoY Growth		0%	5%	-2%	13%	33%	16%	9%	7%	6%	5%	5%	4%	3%	3%	3%
Research & Development	1,205	1,320	1,433	1,550	1,778	2,075	1,862	2,021	2,164	2,297	2,426	2,550	2,665	2,771	2,865	2,947
% of Revenue	25%	26%	29%	28%	32%	32%	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%
% YoY Growth		10%	9%	8%	15%	22%	5%	9%	7%	6%	6%	5%	5%	4%	3%	3%
Amortization of Intangibles	6	9	23	22	30	145	23	25	26	28	30	31	32	34	35	36
% of Revenue	0%	0%	0%	0%	1%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% YoY Growth		50%	156%	-4%	36%	288%	-24%	9%	7%	6%	6%	5%	5%	4%	3%	3%
Interest/Investment Income - Operating	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-
% of Revenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% YoY Growth				-100%												
Unusual Expense (Income)	15	-	14	5	-	-	-	-	-	-	-	-	-	-	-	-
% of Revenue	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
% YoY Growth		-100%		-64%	-100%											
Total Operating Expense	3,621	3,716	3,954	4,083	4,583	5,573	5,120	5,526	5,902	6,256	6,609	6,949	7,264	7,553	7,810	8,033
% of Revenue	75%	72%	80%	74%	81%	86%	76%	76%	76%	76%	76%	76%	76%	76%	76%	76%
% YoY Growth		3%	6%	3%	12%	16%	12%	8%	7%	6%	6%	5%	5%	4%	3%	3%
EBIT	1,224	1,434	996	1,445	1,046	939	1,578	1,744	1,882	2,004	2,117	2,220	2,320	2,413	2,495	2,566
% of Revenue	25%	28%	20%	26%	19%	14%	24%	24%	24%	24%	24%	24%	24%	24%	24%	24%
% YoY Growth		17%	-31%	45%	-28%	-8%	51%	11%	8%	7%	6%	5%	5%	4%	3%	3%

Figure 19: Expense forecast, source: Bloomberg and own calculations

Cost of Goods sold have been relatively stable in the past. It can be noted that due to the decrease in packaged goods sold, the gross margin improved over the years. In FY2012 COGS attributed 39% of sales whereas in Q3 FY2022 it has improved to 27%. From FY2017 onwards it has been stable with 26% to 27%. In the COGS forecast it is assumed that the gross margin will improve further corresponding to the decreasing packaged goods. However, this decrease is marginal. From FY2022 onwards COGS will be around 26% to 25% of sales. For the

transition period COGS will be stable with 25.4% which is the percentage of sales from FY2026 (appendix 11).

Selling, General & Administrative (SG&A) and Research & Development (R&D) have been stable in the last year with a very low standard deviation. SG&A attributed on average 24.9% of sales since FY2017 with a standard deviation of 1.4% (appendix 11). SG&A includes “personnel-related costs, related overhead costs, advertising, marketing and promotional expenses, net of qualified advertising cost reimbursements from third parties, personnel and related expenses of executive and administrative staff, corporate functions such as finance, legal, human resources, and information technology, related overhead costs, fees for professional services such as legal and accounting, and allowances for doubtful accounts” (Electronic Arts, 2021).

R&D attributed on average 27.9% of sales since FY2017 with a standard deviation of 2.9% (appendix 11). R&D include “expenses incurred by EA’s production studios for personnel-related costs, related overhead costs, external third-party development costs, contracted services, depreciation and any impairment of prepaid royalties for pre-launch products” (Electronic Arts, 2021).

It was assumed to be reasonable to use the average from FY2017 onwards for the forecasting period for both items.

Interest/Investment Income (Operating) and unusual expense/income were neglected as both have been insignificant accounts in the past. There were not included in the table above.

5.3 Tax rate

The effective tax rate in 2020 was -106%. This was a one-time effect that was impacted by EA’s „recognition of the Swiss Deferred Tax Asset related to the Swiss intra-entity sale“ (Electronic Arts, 2021). Excluding this event, the average effective tax rate on was 16.33% over the last 5 years. As over the years there are several one-time affects it is hard to predict the upcoming tax rates. Comparing the average of the last years with Damodaran’s effective tax rate of the corresponding industry it can be seen that they are very similar. For the Software (Entertainment) industry the average effective tax rate for only money-making businesses was 16.36% (Damodaran, 2022b). Therefore, the effective tax rate on income was assumed to be 16.33%.

5.4 FCFF Forecast

5.4.1 Depreciation and Capex

When analyzing historical depreciation and capital expenditure it can be noted that EA does neither has significant depreciation nor capital expenditures. The former consists of 3% as of total revenue over the last 5 years on average. Additionally, it has been very stable with a standard deviation of 0.3%. The percentage of sales of capital expenditure is even lower on average over the last 5 years with 2.35% and a standard deviation of 0.2%. The annual report states that due to build outs a capex of \$250 million is expected in FY2022 (Electronic Arts, 2021). This estimate was taken into consideration for FY2022 (appendix 12).

As both items are very stable as of percentage of revenue and given the fact that EA is not in a capital-intensive industry it is reasonable to make a simplistic assumption that the forecast is based on historical data. Furthermore, the company did not disclose that fundamental changes concerning the two positions were imminent.

5.4.2 Change in Net Working Capital

For the change in the net working capital the relevant positions in the balance sheet have been forecasted based on historical share on revenues as they have been reasonably stable in the past 5 years. EA did not have any inventory since FY2017 on its balance sheet. The item can be seen in the following table. Even though other liabilities had a slightly higher standard deviation of 6.6% over the last years it was still assumed that the average would represent a reliable approximation in the forecasting period.

Accounts	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020	FY2021	Mean (from 2012)	Mean (from 2017)	STD (from 2012)	STD (from 2017)
Accounts Receivable	366	312	327	362	233	359	385	623	461	521	8.46%	9.01%	1.8%	2.1%
% of Sales	9%	8%	9%	8%	5%	7%	7%	13%	8%	9%	% of sales	% of sales		
Inventories	59	42	56	36	33	0	0	0	0	0	0.56%	0.00%	0.6%	0.0%
% of Sales	1%	1%	2%	1%	1%	0%	0%	0%	0%	0%	% of sales	% of sales		
Other Assets	268	239	316	247	254	308	288	313	321	326	6.27%	5.97%	1.0%	0.3%
% of Sales	6%	6%	9%	5%	6%	6%	6%	6%	6%	6%	% of sales	% of sales		
Accounts Payable	215	136	119	68	89	87	48	113	68	96	2.36%	1.59%	1.3%	0.5%
% of Sales	5%	4%	3%	2%	2%	2%	1%	2%	1%	2%	% of sales	% of sales		
Accrued Expenses	772	658	660	680	633	642	713	958	948	1,246	16.96%	17.14%	2.8%	3.7%
% of Sales	19%	17%	18%	15%	14%	13%	14%	19%	17%	22%	% of sales	% of sales		
Other Liabilities	1,133	1,123	1,611	1,397	1,535	1,686	1,730	1,194	1,049	1,622	30.81%	28.05%	7.0%	6.6%
% of Sales	27%	30%	45%	31%	35%	35%	34%	24%	19%	29%	% of sales	% of sales		

Figure 20: Change in net working capital (2012-2021), source: Bloomberg and own calculations

Accounts	FY2022E	FY2023E	FY2024E	FY2025E	FY2026E	FY2027E	FY2028E	FY2029E	FY2030E	FY2031E
Accounts Receivable	603	655	701	744	786	826	864	898	929	955
% of Sales	9%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Inventories	0	0	0	0	0	0	0	0	0	0
% of Sales	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other Assets	400	434	465	493	521	548	572	595	615	633
% of Sales	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Accounts Payable	106	115	124	131	139	146	152	158	164	168
% of Sales	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Accrued Expenses	1,148	1,246	1,334	1,416	1,496	1,572	1,643	1,708	1,766	1,817
% of Sales	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%
Other Liabilities	1,879	2,039	2,184	2,317	2,448	2,572	2,689	2,796	2,891	2,973
% of Sales	28%	28%	28%	28%	28%	28%	28%	28%	28%	28%

Change in NWC	FY2022E	FY2023E	FY2024E	FY2025E	FY2026E	FY2027E	FY2028E	FY2029E	FY2030E	FY2031E
Accounts Receivable	82	52	46	43	42	40	37	34	31	26
Inventories	0	0	0	0	0	0	0	0	0	0
Other Assets	74	34	31	28	28	26	25	23	20	18
Accounts Payable	10	9	8	8	7	7	7	6	5	5
Accrued Expenses	-98	98	88	82	80	76	71	65	58	50
Other Liabilities	257	160	144	134	131	124	117	107	95	82
Change in NWC	-13	-182	-164	-152	-148	-141	-132	-121	-108	-93

Figure 21: Change in net working capital forecast (2022-2031), source: Bloomberg and own calculations

The table above shows the forecasted change in net working capital. The change in the non-cash net working capital continues to decrease as historic analysis showed. It must be noted that EA has significantly high amount of cash on the balance sheet that is continually growing since 2012 (appendix 13).

5.5 Deferred Taxes

Deferred taxes were forecasted based on the historic percentage of revenue since FY2017 as well. They are treated the same as the change in net working capital. FY2020 was omitted since deferred taxes were related to the Swiss deferred taxes and can be seen as an unusuality and one time affect. Hence, a 0.8% of sale was assumed. This was very stable as well with a standard deviation of 2.8% in the past 5 years excluding FY2020 (appendix 12).

	FY2017	FY2018	FY2019	FY2020	FY2021	Q3 2022	FY2022E	FY2023E	FY2024E	FY2025E	FY2026E	FY2027E	FY2028E	FY2029E	FY2030E	FY2031E
(+) Depreciation & Amortization	172	136	145	150	181	154	202	219	234	249	263	276	288	300	310	319
% of Revenue	4%	3%	3%	3%	3%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
% YoY Growth		-21%	7%	3%	21%	-15%	31%	9%	7%	6%	6%	5%	5%	4%	3%	3%
(-) Capital Expenditure	123	107	119	140	124	133	250	171	183	194	205	216	225	234	242	249
% of Revenue	3%	2%	2%	3%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
% YoY Growth		-13%	11%	18%	-11%	7%	88%	-32%	7%	6%	6%	5%	5%	4%	3%	3%
(-) Changes in Net Working Capital	(143)	(67)	(101)	(127)	(624)	(171)	(13)	(182)	(164)	(152)	(148)	(141)	(132)	(121)	(108)	(93)
% of Revenue	-3%	-1%	-2%	-2%	-11%	-3%	0%	-3%	-2%	-2%	-2%	-2%	-1%	-1%	-1%	-1%
% YoY Growth		-53%	51%	26%	391%	-73%	0%	-1502%	-10%	-7%	-2%	-5%	-6%	-8%	-11%	-14%
(+/-) Change in Deferred Taxes	100	204	(16)	(1,871)	(143)	(85)	53	57	62	65	69	72	76	79	81	84
% of Revenue	2%	4%	0%	-34%	-3%	-1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
% YoY Growth		104%	-108%	11594%	-92%	-41%	-162%	9%	7%	6%	6%	5%	5%	4%	3%	3%
Unlevered Free Cash Flow	1,273	1,563	1,047	1,242	1,404	796	1,175	1,746	1,851	1,948	2,046	2,131	2,213	2,284	2,345	2,394
% Margin	26%	30%	21%	22%	25%	12%	18%	24%	24%	24%	23%	23%	23%	23%	23%	23%
% YoY Growth		23%	-33%	19%	13%	-43%	48%	49%	6%	5%	5%	4%	4%	3%	3%	2%

Figure 22: FCF calculations, source: Bloomberg and own calculations

5.6 Discount rate

After reaching the unlevered free cash flow the next step is to determine the discount rate to calculate the net present value. The WACC is used in this case since it takes the capital structure of the company into consideration.

5.6.1 Risk free rate

EA is only publishing data about geographical revenue streams for two regions: North America and International. North America accounts for 44% of its revenues with most of it coming from the USA. The market yield on a 10-year US treasury bill has been taken as EA is headquartered in the US, its main market was and still is in the US, its generally recognized as a good proxy for the risk-free rate and it has the same currency. The yield of the 10-year Treasury Bill from the United States is used. The calculated risk-free rate is 1.76% (Federal Reserve Bank of St. Louis, 2022).

5.6.2 Cost of debt

The cost of debt was calculated as a weighted average of the yield to maturity of all outstanding bonds. EA has only three bonds outstanding with maturity in 2026, 2031 and 2051. The book values from the debt were translated into market values by multiplying the current market price with its amount outstanding. The current market value of EA's debt is \$1,561 million. The weighted average yield, and therefore the cost of debt, is 4.4%.

Bonds	Maturity Date	Amount Outstanding	Current Price	Market Value	Yield
EA 4.800	01.03.26	\$400,000,000	103.10	\$412,408,400	3.91%
EA 1.850	15.02.31	\$750,000,000	81.64	\$612,296,250	4.40%
EA 2.950	15.02.51	\$750,000,000	71.60	\$537,000,000	4.78%
		\$1,900,000,000		\$1,561,704,650	4.40%

Figure 23: Debt summary, source: Refinitiv Eikon and own calculations

5.6.3 Cost of Equity

To compute the cost of equity the CAPM is used.

$$\text{Cost of Equity} = R_f + \beta * (\text{MRP} - R_f)$$

Equation 13: Cost of Equity

For the equity market risk premium, a study from KPMG is used that derives a global MRP of 5% for 1st of January 2022 (KPMG, 2021). To get the equity risk premium, the risk-free rate of 1.76% was subtracted which gives 3.24%.

The beta was derived by regressing the stock return of EA with the market returns of the past 10 years. The market was chosen to be represented by the S&P500 as it gives the best proxy due to its great coverage and number of companies. The slope of the regression line represents the beta and is 0.84. This means that for every 1% move of the market, EA is moving 0.84%. Hence, it is less volatile than the market.

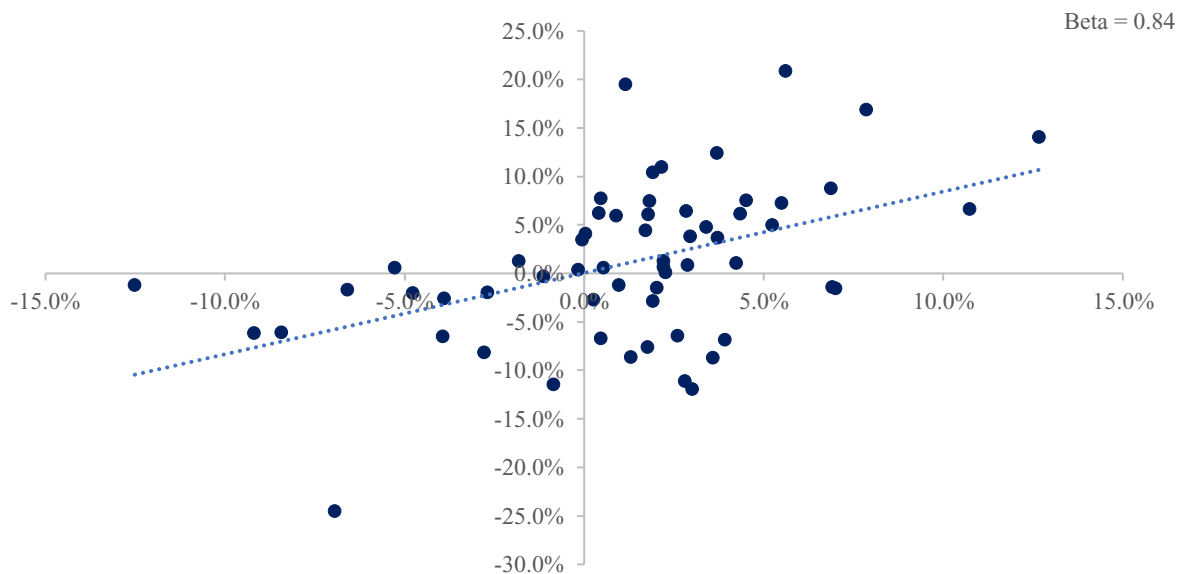


Figure 24: Beta calculations, source: Refinitiv Eikon and own calculations

To account for country specific risk a country risk premium was added to the cost of equity. EA does not publish its revenue stream from specific countries. Therefore, the biggest markets were taken into consideration and a weighted average was calculated. The country risk premium is 0.28%. This makes sense since the markets EA is operating in have little not no risk. This risk is more seen in emerging markets.

Country	CRP	Weight	Weighted CRP
USA	0.00%	44%	0.00%
Germany	0.00%	11%	0.00%
Japan	0.70%	11%	0.08%
China	0.70%	11%	0.08%
UK	0.60%	11%	0.07%
South Korea	0.49%	11%	0.05%
Average			0.28%

Figure 25: Country default spreads and risk premium, source: Damodaran, 2022a

After considering the above inputs a cost of equity of 6.23% is calculated.

5.6.4 WACC

The market value of equity of EA on 1st January 2022 was \$37,855 million which is represented by the market cap. The market value of debt was \$2,062.

Bonds	Maturity Date	Amount Outstanding	Current Price	Market Value	Yield
EA 4.800	01.03.26	\$400,000,000	103.10	\$412,408,400	3.91%
EA 1.850	15.02.31	\$750,000,000	81.64	\$612,296,250	4.40%
EA 2.950	15.02.51	\$750,000,000	71.60	\$537,000,000	4.78%
		\$1,900,000,000		\$1,561,704,650	4.40%

Loans	Maturity Date	Amount Outstanding
Revolver/Line >= 1 Yr.	29.08.24	\$500,000,000

Market Value of Debt
\$2,061,704,650

Figure 26: Market value of debt, source: Refinitiv Eikon and own calculations

WACC	
Market Risk Premium	5%
Country Risk Premium	0.28%
Risk free rate	1.76%
Beta	0.84
Debt	\$2,137
Equity	\$37,855
D + E	\$39,992
Re	6.23%
Rd	4.40%
Tax rate	16.33%
WACC	6.10%

Figure 27: WACC, source: Refinitiv Eikon, Bloomberg, Federal Reserve Bank of St. Louis, 2022, and own calculations

For the tax rate the average effective tax rate of 16.33% was used. The calculated WACC was 6.1%

5.7 Terminal Growth Rate and Terminal Value

The terminal growth was estimated through a weighted average of the national GDP growth of the major countries EA is operating in. The GDP data was retrieved from the World Banks national accounts data and OECD National Accounts data files. Considering a time period of 10 years to be adequate to eliminate short term economic effects, the extracted GDP growth and therefore the terminal growth rate for EA is 2.3%. This seems also reasonable since EA is expected to grow more than inflation in the future. The weighted average inflation of the above-mentioned countries was 1.62% over the last 10 years (World Bank, 2020).

	United States	Germany	Japan	Korea, Rep.	China	United Kingdom
2010-2020	1.78	1.38	0.73	2.95	7.19	0.99
weight (according revenue)	0.40	0.12	0.12	0.12	0.12	0.12
weighted	0.71	0.17	0.09	0.35	0.86	0.12
GDP Growth	2.30%					

Figure 28: Terminal growth rate calculation, source: World Bank, 2020

The calculated terminal value is \$64,544 which equals a present value of \$37,337. As in the literature review mentioned it contributes the biggest part. It is around 70% of the enterprise value.

5.8 DCF Summary

After forecasting the relevant items, the unlevered free cash flow is reached as can be seen below.

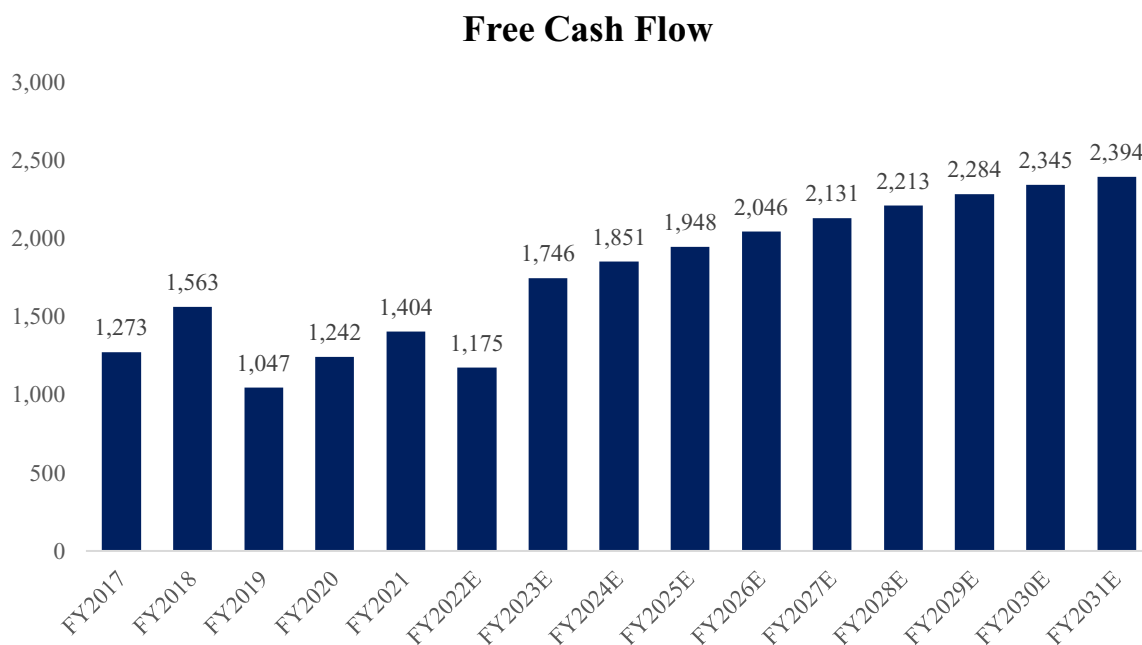


Figure 29: DCF summary, source: Electronic Arts, 2021 and own calculations

	FY2017	FY2018	FY2019	FY2020	FY2021	Q3 2022	FY2022E	FY2023E	FY2024E	FY2025E	FY2026E	FY2027E	FY2028E	FY2029E	FY2030E	FY2031E	TV
(+) Depreciation & Amortization	172	136	145	150	181	154	202	219	234	249	263	276	288	300	310	319	
% of Revenue	4%	3%	3%	3%	3%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	
% YoY Growth		-21%	7%	3%	21%	-15%	31%	9%	7%	6%	6%	5%	4%	3%	3%		
(-) Capital Expenditure	123	107	119	140	124	133	250	171	183	194	205	216	225	234	242	249	
% of Revenue	3%	2%	2%	3%	2%	2%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%	
% YoY Growth		-13%	11%	18%	-11%	7%	88%	-32%	7%	6%	6%	5%	5%	4%	3%	3%	
(-) Changes in Net Working Capital	(143)	(67)	(101)	(127)	(624)	(171)	(13)	(182)	(164)	(152)	(148)	(141)	(132)	(121)	(108)	(93)	
% of Revenue	-3%	-1%	-2%	-2%	-11%	-3%	0%	-3%	-2%	-2%	-2%	-2%	-1%	-1%	-1%	-1%	
% YoY Growth		-53%	51%	26%	391%	-73%	0%	-1502%	-10%	-7%	-2%	-5%	-6%	-8%	-11%	-14%	
(+/-) Change in Deferred Taxes	100	204	(16)	(1,871)	(143)	(85)	53	57	62	65	69	72	76	79	81	84	
% of Revenue	2%	4%	0%	-34%	-3%	-1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
% YoY Growth		104%	-108%	11594%	-92%	-41%	-162%	9%	7%	6%	6%	5%	5%	4%	3%	3%	
Unlevered Free Cash Flow	1,273	1,563	1,047	1,242	1,404	796	1,175	1,746	1,851	1,948	2,046	2,131	2,213	2,284	2,345	2,394	64,544
% Margin	26%	30%	21%	22%	25%	12%	18%	24%	24%	23%	23%	23%	23%	23%	23%	23%	
% YoY Growth		23%	-33%	19%	13%	-43%	48%	49%	6%	5%	5%	4%	4%	3%	3%	2%	
						time	0.25	1.25	2.25	3.25	4.25	5.25	6.25	7.25	8.25	9.25	9.25
						discount fac.	0.99	0.93	0.88	0.83	0.78	0.73	0.69	0.65	0.61	0.58	0.58
						PV	1,158	1,622	1,620	1,607	1,591	1,562	1,529	1,487	1,439	1,385	37,337
						% of PVFC	25%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
						Total	289.47	1,621.64	1,620.33	1,607.50	1,590.77	1,562.18	1,528.51	1,487.30	1,439.13	1,384.71	37,337.00
						NPV	51,469										

Figure 30: NPV calculations, source: Electronic Arts, 2021 and own calculations

The net present value of all future free cash flows is \$51,469 million which equals the enterprise value of EA.

Share Price Calculation	
Enterprise Value	51,469
Net debt	-887
Equity	52,356
Shares outstanding	287
Price per share	182.42
Share price as of 01.01.2022	131.9
Upside Potential	38%

Figure 31: Share price calculation, source: own calculations

After deducting the net debt of -\$887 million, which include long term debt and lease subtracted by cash and cash equivalents, the equity value of EA is \$52,356 million. Divided by the amount of the fully diluted shares outstanding of 287 million as of 1st of January 2022, the fair share price reached with the intrinsic valuation method is \$182,42. In relation to the share price of \$131.9 this represents a 38% upside potential at the time being.

		Terminal Growth Rate				
		3.61%	3.11%	2.30%	2.11%	1.61%
W a c c	5.44%	\$ 341.9	\$ 279.2	\$ 220.3	\$ 210.2	\$ 189.2
	5.94%	\$ 269.4	\$ 230.4	\$ 190.1	\$ 182.8	\$ 167.2
	6.10%	\$ 253.0	\$ 218.6	\$ 182.4	\$ 175.8	\$ 161.5
	6.94%	\$ 189.6	\$ 170.9	\$ 149.2	\$ 145.0	\$ 135.8
	7.44%	\$ 165.3	\$ 151.4	\$ 134.8	\$ 131.5	\$ 124.1

Figure 32: Sensitivity analysis, source: own calculations

As can be seen above an immense driver is terminal growth and the WACC when performing a sensitivity analysis. The range of the calculated share price is between \$341.9 at its highest and \$124.1 at the lowest. This can be seen as the flaw of the intrinsic valuation method where single small changes can have a significant impact on the overall result and leading to misinterpretation of the fair share price.

6 Relative Valuation

After conducting intrinsic valuation, it is insightful to additionally pursue relative valuation to compare results and explore where differences might emerge and get a more accurate forecast. It additionally helps to understand difference in valuation to its competitors.

„Properly executed, such an analysis can help a company to stress-test its cash flow forecasts, to understand mismatches between its performance and that of its competitors, and to hold useful discussions about whether it is strategically positioned to create more value than other industry players are“ (Koller et al., 2005).

In this section the value of EA is estimated via three multiples that are most suitable as mentioned in the Literature Review part. Price to Earnings, Enterprise value to EBITDA and EV to EBIT. The former is useful to be compared against the latter two as the financial structure of the companies are only taken into account in the P/E ratio. Even though companies with similar D/E ratio were considered in the peer group it does is can be the reason for differences.

6.1 Peer group

The peer group of EA was defined by the following criteria:

- Industry fit
- Business model fit
- International operating activity
- ROIC (current and 5-year average)
- Sales growth (5-year average)
- EBITDA margin (current and 5-year average)
- D/E ratio (current)

ROIC, Sales growth and EBITDA margin were chosen to be 5-year average to get consistency. It was assumed that the financial structure of those companies was not subject to significant changes over the last years. Therefore, the current Debt-to-Equity ratio was considered. To apply those criteria a long list was generated that was extracted from the Global Industry Classification Standard list (Sub-category: Interactive Home Entertainment) as well as the suggested peer groups from Bloomberg and Refinitiv Eikon. The ones in the following table colored in green happen to be suitable regarding the above-mentioned criteria.

Company Name	ROIC	ROIC 5 Year Avg	D/E	EBITDA Margin	EBITDA Margin 5 YR Avg	Revenue 5 YR Hist Growth
Electronic Arts Inc	21%	11%	24%	21%	25%	11%
Activision Blizzard Inc	13%	15%	21%	40%	38%	5%
Take-Two Interactive Software Inc	17%	16%	7%	29%	22%	17%
Ubisoft Entertainment SA	0%	0%	126%	41%	39%	18%
Microsoft Corp	33%	28%	50%	50%	45%	15%
Tencent Holdings Ltd	12%	19%	40%	32%	37%	36%
NetEase Inc	110%	10%	22%	23%	29%	17%
Nintendo Co Ltd	27%		0%	36%	23%	30%
Nexon Co Ltd	14%	7%	2%	34%	38%	7%
Zynga Inc	5%	-5%	43%	13%	-3%	68%
Microsoft Corp	33%	28%	50%	50%	45%	15%

Figure 33: Peer group EA, source: Refinitiv Eikon

In total there are 5 peers that had similar return on invested capital, EBITDA margin, growth, and D/E ratio. Activision Blizzard could be seen as the major competitor of EA and has a very similar capital structure as well as return on invested capital over the last 5 years. Although they had slightly less growth the last five years the EBITDA margin is outperforming EA's. In terms of business model and products Activision Blizzard Inc is the most similar to EA. Take-Two Interactive Software Inc is considered to be the closest after that. NetEase Inc operates besides online gaming services as well in innovative business development and operates Youdao (online search engine). Tencent Holding Ltd is a Chinese multinational tech and entertainment company that is also operating in the video game sector. Nexon Co Ltd is a South-Korean video game publisher and developer.

All companies are operating internationally including the US. Other companies in the gaming industry have not been included because their either were not well suited due to the business model, ROIC, margins, growth, exclusively operated in Japan or have been too small to be relevant.

6.2 Multiples

The three most often used multiples (P/E, EV/EBITDA, EV/EBIT) were considered to be most suitable and used in this valuation.

As mentioned above, earnings are affected by the financial structure of the company as well as accounting measures which can have significant influence and lead to over-or underestimation. To factor in those measures, EV/EBIT was applied too. As depreciation could have similar dilutive influence on the multiple, EV/EBITDA was conducted as well for comparison. This seems to be the most reasonable multiple for a company that is operating in a media/software industry. Such a company does not have extensive capital needs and therefore extensive depreciation. A comparison before deducting depreciation is therefore rational.

For the forward multiple an EPS, EBIT and EBITDA was chosen to be 2-year forward looking (the second next fiscal year) and is taking the average consensus estimates from sell side analyst that was retrieved from Bloomberg Terminal. The time horizon was chosen because the volatility of the pandemic and its impact has been smoothed and, as in the literature review stated, it leads to more accurate results.

A trailing twelve-month multiple was also calculated to compare historic multiples with forward looking ones.

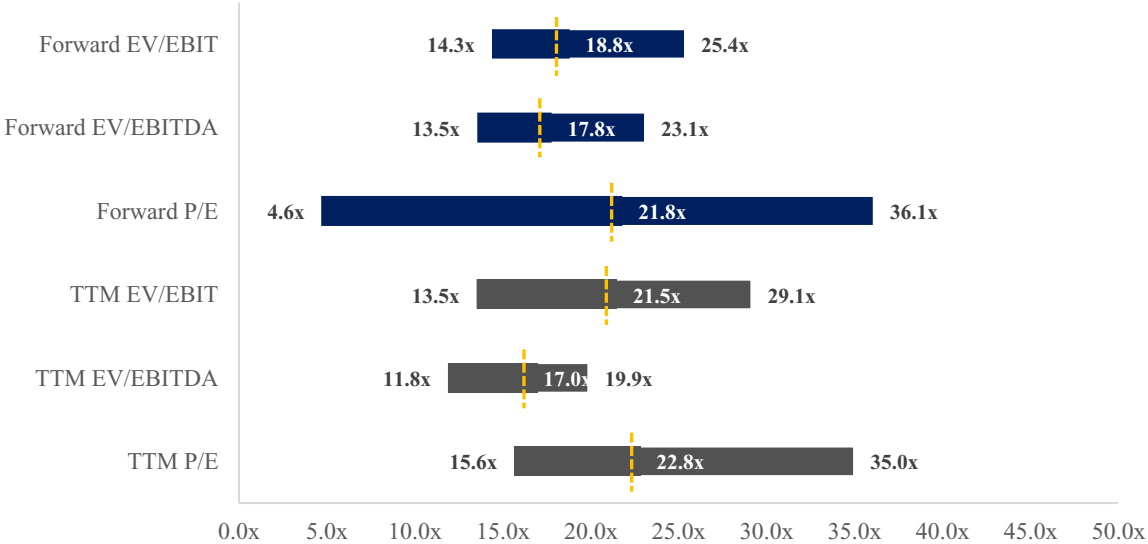


Figure 34: Multiples Summary, source: Bloomberg and own calculations

The table above shows a summary of the computed multiples. The P/E multiple ranges the widest in TTM and forwards calculations. This might be due to accounting effects that the income is subjected to and to the different capital structure of the peer group. EV/EBITDA has the closest range between minimum and maximum in both versions.

Overall, the averages of the peer groups multiples are not varying that much. Only the EV/EBIT tend to be higher for the forward looking multiple compared to the trailing multiple. This could be due to the accounting measures mentioned above to lower the overall taxable income with a higher depreciation to receive a higher tax shield. This might be adjusted by the sell side analyst estimates.

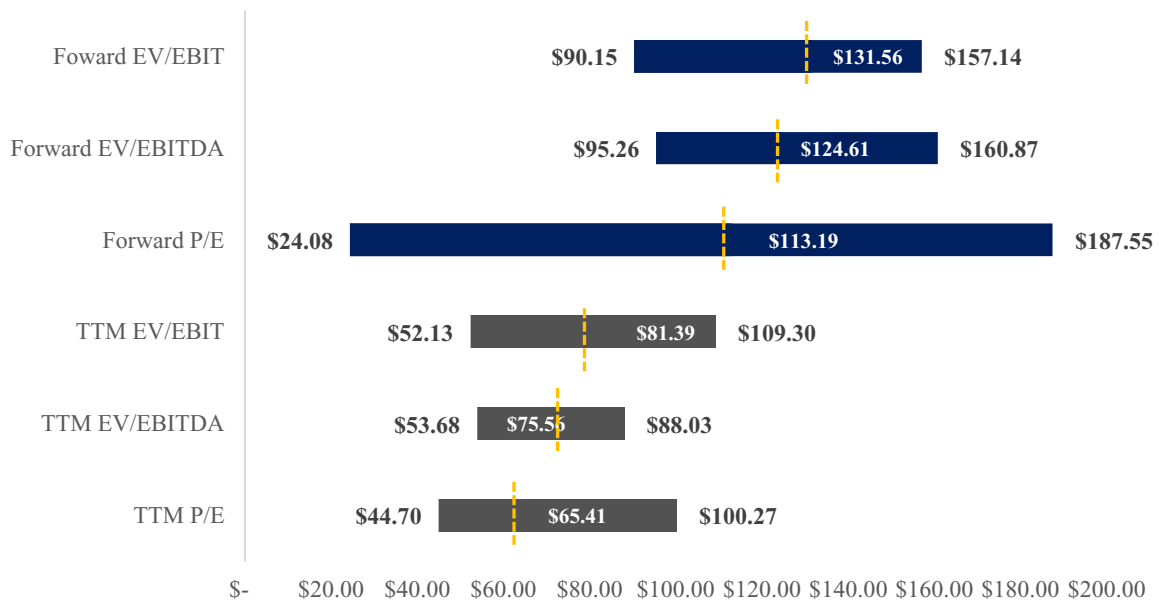


Figure 35: Price Summary multiples, source: Bloomberg and own calculations

The football field chart above shows the different outcomes in valuation between the trailing and forward multiples. The forward P/E multiple has the widest range with a minimum share price of \$24.08 (based on NetEase Inc) and a maximum of \$187.55 (based on Take-Two Interactive Software Inc).

The applied forward-looking multiples on average suggest a range of a fair share price of \$113.19 and \$131.56 (appendix 19). And therefore, at maximum a premium of 14.2%. The applied trailing twelve-months multiples on average suggest a range of a fair share price of \$65.41 and \$81.39. And hence, at maximum a premium of 50.4% as can be seen below.

Premium/Discount	P/E	EV/EBITDA	EV/EBIT
TTM	-50.4%	-42.7%	-38.3%
2Y forward	-14.2%	-5.5%	-0.3%

Figure 36: Premiums of multiples, source: Own calculations

This thesis takes only the forward-looking multiples into consideration of the valuation. The average of the three forward looking multiples suggests a fair share price of \$123.12. This represents a current premium of 6.7% according to relative valuation.

7 Comparison to investment banks analyst report

In the following a comparison between the valuation done in this thesis is made with an analyst report by Alexia Quadrani and David Karnovsky from the investment bank J.P. Morgan that was published the 1st of February 2022 after EA reported its FY3Q results. This time frame aligns with the thesis and is therefore chosen. The analysts are basing its valuation of \$166 per share on a P/E multiple that is forward looking. They use a 20x on F2024E EPS. Compared to the multiple valuation of this thesis with a FY2023E, the time period is chosen to be longer by the analysts. With a 21.8x FY2023E EPS it does make sense that its higher because it's one FY earlier. But considering FY2024E, the valuation with the same multiple would lead to a significantly different result. The FY2024E EPS was estimated with 5.7 (appendix 20) which would result in a share price of \$114.

Comparing the reports share price prediction with the intrinsic valuation of this thesis the share price of \$182 is considerable similar.

Comparing the revenue forecast the analysts seem to be more optimistic. For FY2022E they expect EA to generate \$836 million more in revenue. For the consecutive FY it's \$766 million and FY2024E \$656 million.

Regarding free cash flow to the firm the differences for FY2022E, FY2023E and FY2024E are \$534 million, \$304 million, and \$247 million, respectively.

It can be noted that this thesis has a more conservative forecast regarding revenue and overall FCFE but nonetheless reaching a similar result using intrinsic valuation. Regarding multiple valuation, the overall result is lower.

Regarding investment thesis the analysts also addressing the pandemic and Gluu acquisition that will be driver of growth in the mobile segment. Additionally, they are as well addressing the higher margins caused by the digital transformation.

8 Conclusion

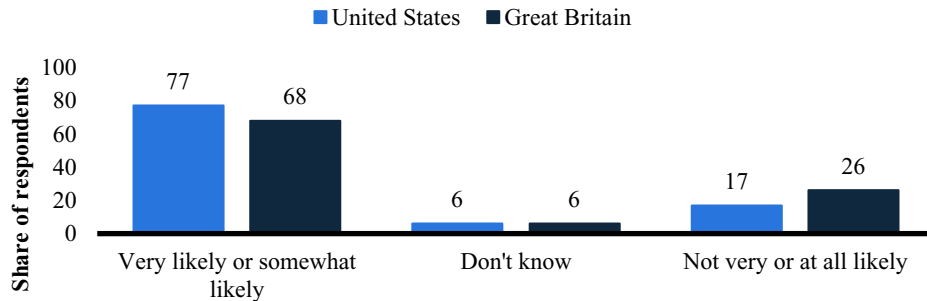
In conclusion the valuation of this thesis shows that there is not one right approach to value an asset nor that all approaches are leading to the same result. This thesis showed the differences that can emerge from intrinsic valuation and relative valuation. While intrinsic valuation is dependent on various assumptions that affect the forecast of the future cash flows and the discounting factor, relative valuation is heavily dependent on the peer group used as well as the selected multiples.

In the sensitivity analysis of the DCF it was shown that two factors can have significant impact on the share price. The WACC and the terminal growth rate. Assuming more conservative or more optimistic growth rates for the revenues also have a significant impact on the share price. The share price of the intrinsic valuation for the base case was \$182.42. While for the conservative case it was \$141.68. For the more optimistic case it has been \$214.84.

The relative valuation led us to a valuation where EA is currently trading at a premium of 6.7% which corresponds to a share price of \$123.

Overall, when considering the average of both valuation methods a **BUY** recommendation with a suggested fair share price of **\$152.77** is given for EA which is an upside potential of **16%**. It seems that EA is arguably underpriced by the market. But there are both, great potentials on the upside when EA is able to beat competitors and gain further share in the market but also great threats when missing a trend in the fast-changing video game industry or is not able to proceed its profits by the established brand such as FIFA.

9 Appendix



Appendix 1: Sustained increase in mobile gaming time post-COVID-19 according to mobile gamers in the United States and Great Britain as of April 2021, (source: YouGov 2021)

REVENUE BY SEGMENT in billion USD (US\$)	2017	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	CAGR '17-'26	CAGR '17-'21
Download Games	13.47	14.22	14.74	16.65	18.55	20.25	21.93	23.51	24.94	26.42	7.77%	8.33%
Gaming Networks	1.62	1.87	2.13	2.69	3.19	3.62	4.00	4.33	4.61	4.90	13.09%	18.51%
Mobile Games	58.41	66.75	75.37	93.86	109.90	124.90	139.30	152.10	163.10	174.60	12.94%	17.12%
Online Games	13.85	15.59	17.23	20.85	23.82	26.29	28.56	30.48	32.11	33.77	10.41%	14.52%
Physical Disc Games	15.99	15.23	13.95	14.40	13.64	13.03	12.74	12.60	12.61	12.70	-2.53%	-3.90%
Total	103.34	113.66	123.42	148.45	169.10	188.09	206.53	223.02	237.37	252.39	10.43%	13.10%

Appendix 2: Revenue by segment, source: Statista, 2021

Percentage of total	2017	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E
Download Games	13.0%	12.5%	11.9%	11.2%	11.0%	10.8%	10.6%	10.5%	10.5%	10.5%
Gaming Networks	1.6%	1.6%	1.7%	1.8%	1.9%	1.9%	1.9%	1.9%	1.9%	1.9%
Mobile Games	56.5%	58.7%	61.1%	63.2%	65.0%	66.4%	67.4%	68.2%	68.7%	69.2%
Online Games	13.4%	13.7%	14.0%	14.0%	14.1%	14.0%	13.8%	13.7%	13.5%	13.4%
Physical Disc Games	15.5%	13.4%	11.3%	9.7%	8.1%	6.9%	6.2%	5.6%	5.3%	5.0%

Appendix 3: Percentage share of total revenue, source: Statista, 2021

Growth YOY of revenue share	2017	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E
Download Games		-4.0%	-4.5%	-6.1%	-2.2%	-1.9%	-1.4%	-0.7%	-0.3%	-0.4%
Gaming Networks		5.2%	4.8%	4.8%	4.3%	1.9%	0.8%	0.2%	0.0%	-0.1%
Mobile Games		3.9%	4.0%	3.5%	2.8%	2.2%	1.6%	1.1%	0.8%	0.7%
Online Games		2.3%	1.8%	0.6%	0.3%	-0.8%	-1.1%	-1.2%	-1.0%	-1.1%
Physical Disc Games		-13.4%	-15.6%	-14.2%	-16.8%	-14.1%	-11.0%	-8.4%	-6.0%	-5.3%

Appendix 4: Growth of percentage share of total revenue (yoy) , source: Statista, 2021

REVENUE GROWTH BY SEGMENT in percent	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E
Download Games	6%	4%	13%	11%	9%	8%	7%	6%	6%
Gaming Networks	16%	14%	26%	19%	13%	11%	8%	6%	6%
Mobile Games	14%	13%	25%	17%	14%	12%	9%	7%	7%
Online Games	13%	11%	21%	14%	10%	9%	7%	5%	5%
Physical Disc Games	-5%	-8%	3%	-5%	-4%	-2%	-1%	0%	1%
Total	10.0%	8.6%	20.3%	13.9%	11.2%	9.8%	8.0%	6.4%	6.3%

Appendix 5: Revenue growth by segment , source: Statista, 2021

REVENUE COMPARISON in million USD (US\$)	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
China	24,300.00	28,950.00	32,950.00	41,550.00	48,820.00	55,570.00	61,740.00	67,050.00	71,490.00	76,090.00
United States	19,530.00	21,030.00	23,070.00	27,310.00	30,370.00	33,600.00	36,790.00	39,790.00	42,480.00	45,250.00
Japan	12,980.00	14,020.00	15,300.00	17,670.00	19,660.00	21,700.00	24,310.00	26,530.00	28,600.00	30,780.00
United Kingdom	3,619.00	4,110.00	4,390.00	5,439.00	6,635.00	7,584.00	8,378.00	9,129.00	9,828.00	10,570.00
South Korea	3,286.00	3,858.00	4,213.00	5,159.00	6,283.00	7,109.00	7,859.00	8,513.00	9,067.00	9,614.00
India	1,556.00	1,900.00	2,505.00	3,688.00	4,464.00	5,210.00	5,845.00	6,331.00	6,676.00	7,016.00
Germany	1,583.00	1,848.00	1,960.00	2,426.00	2,885.00	3,199.00	3,450.00	3,664.00	3,839.00	4,016.00
France	1,566.00	1,800.00	1,911.00	2,388.00	2,874.00	3,251.00	3,588.00	3,896.00	4,164.00	4,438.00
Russia	1,725.00	1,708.00	1,803.00	2,018.00	2,300.00	2,444.00	2,572.00	2,680.00	2,768.00	2,858.00

Appendix 6: Revenue by country, source: Statista, 2021

Percentage of total Revenue	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
China	27%	29%	29%	30%	31%	31%	31%	31%	31%	31%
United States	22%	21%	21%	20%	19%	19%	19%	19%	19%	19%
Japan	15%	14%	14%	13%	12%	12%	12%	12%	13%	13%
United Kingdom	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
South Korea	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
India	2%	2%	2%	3%	3%	3%	3%	3%	3%	3%
Germany	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
France	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Russia	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%

Appendix 7: Revenue share in percent of total revenue, source: Statista, 2021 and own calculations

Growth YOY of revenue share	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
China	-	6%	2%	3%	2%	1%	0%	0%	0%	0%
United States	-	-4%	-1%	-3%	-4%	-2%	-1%	0%	0%	0%
Japan	-	-4%	-2%	-6%	-4%	-2%	1%	1%	1%	1%
United Kingdom	-	1%	-4%	1%	5%	2%	0%	0%	1%	1%
South Korea	-	4%	-2%	0%	5%	1%	0%	0%	0%	0%
India	-	8%	19%	20%	5%	4%	1%	0%	-1%	-1%
Germany	-	4%	-5%	1%	3%	-1%	-2%	-2%	-2%	-2%
France	-	2%	-4%	2%	4%	1%	0%	0%	0%	0%
Russia	-	-12%	-5%	-8%	-2%	-5%	-5%	-4%	-3%	-3%

Appendix 8: Percentage change yoy of revenue share by country, source: Statista, 2021 and own calculations

REVENUE GROWTH BY SEGMENT in percent (31.12 yoy)										
Segment	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	CAGR
Download Games	5.6%	3.7%	13.0%	11.4%	9.2%	8.3%	7.2%	6.1%	5.9%	7.8%
Gaming Networks	15.8%	13.8%	26.0%	18.8%	13.3%	10.6%	8.2%	6.4%	6.2%	13.1%
Mobile Games	14.3%	12.9%	24.5%	17.1%	13.6%	11.5%	9.2%	7.2%	7.1%	12.9%
Online Games	12.6%	10.5%	21.0%	14.2%	10.4%	8.6%	6.7%	5.3%	5.2%	10.4%
Physical Disc Games	-4.8%	-8.4%	3.2%	-5.3%	-4.5%	-2.2%	-1.1%	0.1%	0.7%	-2.5%
Total	10.0%	8.6%	20.3%	13.9%	11.2%	9.8%	8.0%	6.4%	6.3%	10.4%

Appendix 9: Revenue growth by segment in percent (31. Dec, yoy), source: Statista, 2021

REVENUE GROWTH BY SEGMENT in percent (31.03 yoy)											
Segment	2018	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	CAGR 17-'26	CAGR 17-'21
Download Games	5.6%	5.1%	6.0%	12.6%	10.8%	8.9%	8.0%	6.9%	6.0%	7.8%	8.3%
Gaming Networks	15.8%	13.8%	26.0%	18.8%	13.3%	10.6%	8.2%	6.4%	6.2%	13.1%	18.5%
Mobile Games	14.3%	12.9%	24.5%	17.1%	13.6%	11.5%	9.2%	7.2%	7.1%	12.9%	17.1%
Online Games	12.6%	10.5%	21.0%	14.2%	10.4%	8.6%	6.7%	5.3%	5.2%	10.4%	14.5%
Physical Disc Games	-4.8%	-8.4%	3.2%	-5.3%	-4.5%	-2.2%	-1.1%	0.1%	0.7%	-2.5%	-3.9%
Total	10.0%	8.6%	20.3%	13.9%	11.2%	9.8%	8.0%	6.4%	6.3%	10.4%	13.1%

Appendix 10: Revenue growth by segment in percent (31. March, yoy), source: own calculations

Model	FY2017	FY2018	FY2019	FY2020	FY2021	Q3 2022	Mean	STDev Weight
Live Services & Other	2,215	2,743	3,157	3,650	4,016	4,707		
Full Game	2,630	2,407	1,793	1,887	1,613	1,805		
Full Game Downloads	659	707	681	811	918	1,155		
Packaged Goods	1,971	1,700	1,112	1,076	695	650		
Total Revenues	4,845	5,150	4,950	5,537	5,629	6,512	3.98%	7%
% YoY Growth		6%	-4%	12%	2%	21%	<i>growth rate</i>	
Cost of Good Sold	1,283	1,277	1,322	1,369	1,494	1,759	26.04%	1%
% of Revenue	26%	25%	27%	25%	27%	27%	<i>% of Revenue</i>	
Gross Profit	3,562	3,873	3,628	4,168	4,135	4,753	74.15%	1%
% of Revenue	74%	75%	73%	75%	73%	73%	<i>% of Revenue</i>	
% YoY Growth		9%	-6%	15%	-1%	20%		
Selling/General/Admin. Expenses, Total	1,112	1,110	1,162	1,137	1,281	1,594	22.3%	1.4%
% of Revenue	23%	22%	23%	21%	23%	24%	<i>% of Revenue</i>	
% YoY Growth		0%	5%	-2%	13%	33%		
Research & Development	1,205	1,320	1,433	1,550	1,778	2,075	27.8%	2.9%
% of Revenue	25%	26%	29%	28%	32%	32%	<i>% of Revenue</i>	
% YoY Growth		10%	9%	8%	15%	22%		
Interest/Investment Income - Operating	-	-	-	9	-	-		
% of Revenue								
% YoY Growth								
Unusual Expense (Income)	15	-	14	5	-	-	0.23%	0.1%
% of Revenue	0%		0%	0%			<i>% of Revenue</i>	
% YoY Growth		-100%		-64%	-100%			
Total Operating Expense	3,621	3,716	3,954	4,083	4,583	5,573	76.39%	5%
% of Revenue	75%	72%	80%	74%	81%	86%	<i>% of Revenue</i>	
% YoY Growth		3%	6%	3%	12%	16%		
Total Costs	3,615	3,707	3,931	4,070	4,553	5,428	76.08%	5%
% of Revenue	75%	72%	79%	74%	81%	83%	<i>% of Revenue</i>	
% YoY Growth		3%	6%	4%	12%	14%		
EBITA	1,230	1,443	1,019	1,467	1,076	1,084	23.92%	5%
% of Revenue	25%	28%	21%	26%	19%	17%	<i>% of Revenue</i>	
% YoY Growth		17%	-29%	44%	-27%	1%		
Amortization of Intangibles	6	9	23	22	30	145	0.34%	1%
% of Revenue	0%	0%	0%	0%	1%	2%	<i>% of Revenue</i>	
% YoY Growth		50%	156%	-4%	36%	288%		
EBIT	1,224	1,434	996	1,445	1,046	939	23.58%	5%
% of Revenue	25%	28%	20%	26%	19%	14%	<i>% of Revenue</i>	
% YoY Growth		17%	-31%	45%	-28%	-8%		
Income Tax - Total	243	171	60	(1,531)	180	250	16.33%	54%
Effective Tax Rate	20%	12%	6%	-106%	17%	27%		

Appendix 11: Income statement items analysis, source: own calculations and annual report 2021

	FY2017	FY2018	FY2019	FY2020	FY2021	Q3 2022	Mean	STDev
(+) Depreciation & Amortization	172	136	145	150	181	154	3.01%	0.4%
% of Revenue	4%	3%	3%	3%	3%	2%	<i>% of Revenue</i>	
% YoY Growth		-21%	7%	3%	21%	-15%		
(-) Capital Expenditure	123	107	119	140	124	133	2.35%	0.2%
% of Revenue	3%	2%	2%	3%	2%	2%	<i>% of Revenue</i>	
% YoY Growth		-13%	11%	18%	-11%	7%		
(-) Changes in Net Working Capital	(143)	(67)	(101)	(127)	(624)	(171)	-3.93%	3.7%
% of Revenue	-3%	-1%	-2%	-2%	-11%	-3%	<i>% of Revenue</i>	
% YoY Growth		-53%	51%	26%	391%	-73%		
(+/-) Change in Deferred Taxes	100	204	(16)	(1,871)	(143)	(85)	0.8%	2.8%
% of Revenue	2%	4%	0%	-34%	-3%	-1%	<i>% of Revenue</i>	
% YoY Growth		104%	-108%	11594%	-92%	-41%		

Appendix 12: FCF items analysis, source: own calculations and annual report 2021

Balance Sheet	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Q3 FY2022
Cash and Short Term Investments	1,849	1,680	2,365	3,021	3,834	4,532	5,331	5,445	5,735	6,366	3,016
Cash & Equivalents	1,293	1,292	1,782	2,068	2,493	2,565	4,258	4,708	3,768	5,260	2,670
Short Term Investments	556	388	583	953	1,341	1,967	1,073	737	1,967	1,106	346
Accounts Receivable - Trade, Net	366	312	327	362	233	359	385	623	461	521	965
Accounts Receivable - Trade, Gross	618	512	513	502	392	504	550	630	467	--	0
Provision for Doubtful Accounts	(252)	(200)	(186)	(140)	(159)	(145)	(165)	(7)	(6)	--	0
Total Receivables, Net	366	312	327	362	233	359	385	623	461	521	965
Total Inventory	59	42	56	36	33	--	--	--	--	--	--
Inventories - Finished Goods	59	41	55	35	32	--	--	--	--	--	--
Inventories - Raw Materials	0	1	1	1	1	--	--	--	--	--	--
Other Current Assets, Total	335	291	390	301	254	308	288	313	321	326	377
Deferred Income Tax - Current Asset	67	52	74	54	0	--	--	--	--	--	0
Other Current Assets	268	239	316	247	254	308	288	313	321	326	377
Total Current Assets	2,609	2,325	3,138	3,720	4,354	5,199	6,004	6,381	6,517	7,213	
Property/Plant/Equipment, Total - Gross	1,219	1,279	1,319	1,238	1,282	1,315	1,376	1,359	1,584	1,763	
Buildings - Gross	460	465	456	441	442	442	475	482	501	542	
Land/Improvements - Gross	64	64	63	62	61	61	66	66	65	66	
Machinery/Equipment - Gross	657	670	728	664	684	723	744	710	722	808	
Construction in Progress - Gross	38	8	5	7	15	7	7	21	20	12	
Other Property/Plant/Equipment - Gross	--	72	67	64	80	82	84	80	276	335	
Property/Plant/Equipment, Total - Net	568	548	510	459	439	434	453	448	642	733	522
Accumulated Depreciation, Total	(651)	(731)	(809)	(779)	(843)	(881)	(923)	(911)	(942)	(1,030)	
Goodwill, Net	1,718	1,721	1,723	1,713	1,710	1,707	1,883	1,892	1,885	2,868	5,389
Goodwill - Gross	--	2,089	2,091	2,081	2,078	2,075	2,251	2,260	2,253	3,236	
Accumulated Goodwill Amortization	--	(368)	(368)	(368)	(368)	(368)	(368)	(368)	(368)	(368)	
Intangibles, Net	369	253	177	111	57	8	71	87	53	309	1,052
Intangibles - Gross	834	833	833	833	608	608	682	725	725	1,015	
Accumulated Intangible Amortization	(465)	(580)	(656)	(722)	(551)	(600)	(611)	(638)	(672)	(706)	
Other Long Term Assets, Total	227	223	168	144	490	370	173	149	2,015	2,165	
Deferred Income Tax - Long Term Asset	42	53	28	13	387	286	84	35	1,903	2,045	2,130
Other Long Term Assets	185	170	140	131	103	84	89	114	112	120	479
Total Assets	5,491	5,070	5,716	6,147	7,050	7,718	8,584	8,957	11,112	13,288	13,408

Appendix 13: Balance sheet (Assets), source: Refinitiv Eikon

Liabilities (\$ Millions)											
Accounts Payable	215	136	119	68	89	87	48	113	68	96	86
Accrued Expenses	772	658	660	680	633	642	713	958	948	1,246	1,443
Notes Payable/Short Term Debt	0	0	0	0	0	0	0	0	0	0	0
Current Port. of LT Debt/Capital Leases	--	--	--	602	161	0	--	--	599	0	0
Other Current Liabilities, Total	1,133	1,123	1,611	1,397	1,535	1,686	1,730	1,194	1,049	1,622	2,101
Customer Advances	1,133	1,123	1,611	1,397	1,535	1,686	1,730	1,194	1,049	1,622	2,101
Total Current Liabilities	2,120	1,917	2,390	2,747	2,418	2,415	2,491	2,265	2,664	2,964	3,630
Total Long Term Debt	539	559	580	31	991	990	992	994	397	1,876	1,878
Long Term Debt	539	559	580	31	991	990	992	994	397	1,876	1,878
Total Debt	539	559	580	633	1,152	990	992	994	996	1,876	1,878
Deferred Income Tax	8	1	18	80	2	1	1	2	1	43	75
Deferred Income Tax - LT Liability	8	1	18	80	2	1	1	2	1	43	75
Other Liabilities, Total	366	326	306	253	243	252	505	365	589	565	730
Other Long Term Liabilities	366	326	306	253	243	252	505	365	589	565	730
Total Liabilities	3,033	2,803	3,294	3,111	3,654	3,658	3,989	3,626	3,651	5,448	6,313

Appendix 14: Balance sheet (Liabilities), source: Refinitiv Eikon

Cash Flow Statement	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	
Cash Flow-Operating Activities (\$ Millions)											
Net Income/Starting Line	76.0	98.0	8.0	875.0	1,156.0	967.0	1,043.0	1,019.0	3,039.0	837.0	
Depreciation/Depletion	216.0	264.0	227.0	220.0	197.0	172.0	136.0	145.0	150.0	181.0	
Depreciation	216.0	264.0	227.0	220.0	197.0	172.0	136.0	145.0	150.0	181.0	
Deferred Taxes	(96.0)	(7.0)	16.0	1.0	(403.0)	100.0	204.0	(16.0)	(1,871.0)	(143.0)	
Non-Cash Items	169.0	70.0	117.0	141.0	188.0	196.0	242.0	298.0	352.0	435.0	

Unusual Items	(1.0)	(94.0)	(33.0)	(3.0)	10.0	0.0	0.0	14.0	5.0	0.0
Other Non-Cash Items	170.0	164.0	150.0	144.0	178.0	196.0	242.0	284.0	347.0	435.0
Changes in Working Capital	(88.0)	(101.0)	344.0	(170.0)	327.0	143.0	67.0	101.0	127.0	624.0
Accounts Receivable	(14.0)	56.0	(12.0)	(54.0)	127.0	(136.0)	(25.0)	(88.0)	164.0	(41.0)
Inventories	21.0	16.0	(13.0)	19.0	--	--	--	--	--	--
Other Assets	(101.0)	15.0	(56.0)	87.0	22.0	3.0	10.0	(24.0)	35.0	(70.0)
Accounts Payable	(50.0)	(78.0)	(18.0)	(46.0)	13.0	5.0	(44.0)	59.0	(36.0)	18.0
Accrued Expenses	13.0	(106.0)	(3.0)	31.0	(10.0)	190.0	43.0	3.0	119.0	136.0
Other Liabilities	43.0	(4.0)	446.0	(207.0)	175.0	81.0	83.0	151.0	(155.0)	581.0
Cash from Operating Activities	277.0	324.0	712.0	1,067.0	1,465.0	1,578.0	1,692.0	1,547.0	1,797.0	1,934.0
Cash Flow-Investing Activities (\$ Millions)										
Capital Expenditures	(172.0)	(106.0)	(97.0)	(95.0)	(93.0)	(123.0)	(107.0)	(119.0)	(140.0)	(124.0)
Purchase of Fixed Assets	(172.0)	(106.0)	(97.0)	(95.0)	(93.0)	(123.0)	(107.0)	(119.0)	(140.0)	(124.0)
Other Investing Cash Flow Items, Total	(517.0)	138.0	(204.0)	(375.0)	(391.0)	(636.0)	729.0	288.0	(1,217.0)	(381.0)
Acquisition of Business	(676.0)	(10.0)	(5.0)	0.0	0.0	0.0	(150.0)	(58.0)	0.0	(1,239.0)
Sale of Fixed Assets	26.0	0.0	0.0	--	--	--	--	--	--	--
Sale/Maturity of Investment	526.0	531.0	401.0	727.0	941.0	1,281.0	3,166.0	1,688.0	2,142.0	3,686.0
Purchase of Investments	(468.0)	(414.0)	(600.0)	(1,102.0)	(1,332.0)	(1,917.0)	(2,287.0)	(1,342.0)	(3,359.0)	(2,828.0)
Other Investing Cash Flow	75.0	31.0	0.0	0.0	--	--	--	--	--	--
Cash from Investing Activities	(689.0)	32.0	(301.0)	(470.0)	(484.0)	(759.0)	622.0	169.0	(1,357.0)	(505.0)
Cash Flow-Financing Activities (\$ Millions)										
Financing Cash Flow Items	(128.0)	(30.0)	12.0	22.0	(156.0)	(130.0)	(120.0)	(122.0)	(213.0)	(152.0)
Other Financing Cash Flow	(128.0)	(30.0)	12.0	22.0	(156.0)	(130.0)	(120.0)	(122.0)	(213.0)	(152.0)
Total Cash Dividends Paid	--	--	--	--	--	--	--	--	--	(98.0)
Cash Dividends Paid - Common	--	--	--	--	--	--	--	--	--	(98.0)
Issuance (Retirement) of Stock, Net	(349.0)	(315.0)	77.0	(277.0)	(911.0)	(436.0)	(523.0)	(1,131.0)	(1,145.0)	(643.0)
Sale/Issuance of Common	57.0	34.0	77.0	60.0	107.0	72.0	78.0	61.0	62.0	86.0
Repurchase/Retirement of Common	(471.0)	(349.0)	0.0	(337.0)	(1,018.0)	(508.0)	(601.0)	(1,192.0)	(1,207.0)	(729.0)
Common Stock, Net	(414.0)	(315.0)	77.0	(277.0)	(911.0)	(436.0)	(523.0)	(1,131.0)	(1,145.0)	(643.0)
Warrants Converted	65.0	0.0	0.0	--	--	--	--	--	--	--
Issuance (Retirement) of Debt, Net	617.0	0.0	0.0	--	519.0	(163.0)	0.0	0.0	--	878.0
Long Term Debt Issued	617.0	0.0	0.0	--	989.0	0.0	0.0	--	--	1,478.0
Long Term Debt Reduction	--	--	--	--	(470.0)	(163.0)	0.0	0.0	--	(600.0)
Long Term Debt, Net	617.0	0.0	0.0	--	519.0	(163.0)	0.0	0.0	--	878.0
Cash from Financing Activities	140.0	(345.0)	89.0	(255.0)	(548.0)	(729.0)	(643.0)	(1,253.0)	(1,358.0)	(15.0)
Foreign Exchange Effects	(14.0)	(12.0)	(10.0)	(56.0)	(8.0)	(18.0)	22.0	(13.0)	(22.0)	78.0
Net Change in Cash	(286.0)	(1.0)	490.0	286.0	425.0	72.0	1,693.0	450.0	(940.0)	1,492.0
Net Cash - Beginning Balance	1,579.0	1,293.0	1,292.0	1,782.0	2,068.0	2,493.0	2,565.0	4,258.0	4,708.0	3,768.0
Net Cash - Ending Balance	1,293.0	1,292.0	1,782.0	2,068.0	2,493.0	2,565.0	4,258.0	4,708.0	3,768.0	5,260.0
Cash Interest Paid	--	5.0	6.0	6.0	4.0	43.0	42.0	42.0	42.0	40.0
Cash Taxes Paid	(4.0)	26.0	29.0	2.0	35.0	51.0	57.0	100.0	170.0	340.0
Net Changes in Working Capital	(88.0)	(101.0)	344.0	(170.0)	327.0	143.0	67.0	101.0	127.0	624.0
Free Cash Flow	105.0	218.0	615.0	972.0	1,372.0	1,455.0	1,585.0	1,428.0	1,657.0	1,810.0

Appendix 15: Cash Flow Statement, source: Refinitiv Eikon

Income Statement	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Revenue	4,143.0	3,797.0	3,575.0	4,515.0	4,396.0	4,845.0	5,150.0	4,950.0	5,537.0	5,629.0
Net Sales	4,143.0	3,797.0	3,575.0	4,515.0	4,396.0	4,845.0	5,150.0	4,950.0	5,537.0	5,629.0
Total Revenue	4,143.0	3,797.0	3,575.0	4,515.0	4,396.0	4,845.0	5,150.0	4,950.0	5,537.0	5,629.0
Cost of Revenue, Total	1,598.0	1,388.0	1,347.0	1,429.0	1,354.0	1,283.0	1,277.0	1,322.0	1,369.0	1,494.0
Cost of Revenue	1,598.0	1,388.0	1,347.0	1,429.0	1,354.0	1,283.0	1,277.0	1,322.0	1,369.0	1,494.0
Gross Profit	2,545.0	2,409.0	2,228.0	3,086.0	3,042.0	3,562.0	3,873.0	3,628.0	4,168.0	4,135.0
Selling/General/Admin. Expenses, Total	1,260.0	1,142.0	1,090.0	1,033.0	1,028.0	1,112.0	1,110.0	1,162.0	1,137.0	1,281.0
<i>Selling/General/Administrative Expense</i>	<i>1,195.0</i>	<i>1,074.0</i>	<i>1,032.0</i>	<i>973.0</i>	<i>955.0</i>	<i>1,028.0</i>	<i>1,017.0</i>	<i>1,066.0</i>	<i>1,023.0</i>	<i>1,136.0</i>
<i>Labor & Related Expense</i>	<i>65.0</i>	<i>68.0</i>	<i>58.0</i>	<i>60.0</i>	<i>73.0</i>	<i>84.0</i>	<i>93.0</i>	<i>96.0</i>	<i>114.0</i>	<i>145.0</i>
Research & Development	1,180.0	1,153.0	1,125.0	1,094.0	1,109.0	1,205.0	1,320.0	1,433.0	1,550.0	1,778.0
Depreciation/Amortization	43.0	30.0	16.0	14.0	7.0	6.0	9.0	23.0	22.0	30.0
<i>Amortization of Intangibles</i>	<i>43.0</i>	<i>30.0</i>	<i>16.0</i>	<i>14.0</i>	<i>7.0</i>	<i>6.0</i>	<i>9.0</i>	<i>23.0</i>	<i>22.0</i>	<i>30.0</i>
Interest/Investment Income - Operating	--	--	--	--	--	--	--	--	9.0	--
<i>Investment Income - Operating</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>9.0</i>	<i>--</i>
Interest Exp.(Inc.),Net-Operating, Total	--	--	--	--	--	--	--	--	9.0	--
Unusual Expense (Income)	27.0	(37.0)	(36.0)	(3.0)	0.0	15.0	--	14.0	5.0	0.0
<i>Restructuring Charge</i>	<i>16.0</i>	<i>27.0</i>	<i>(1.0)</i>	<i>0.0</i>	<i>0.0</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
<i>Impairment-Assets Held for Use</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>15.0</i>	<i>--</i>	<i>--</i>	<i>--</i>	<i>--</i>
<i>Other Unusual Expense (Income)</i>	<i>11.0</i>	<i>(64.0)</i>	<i>(35.0)</i>	<i>(3.0)</i>	<i>0.0</i>	<i>0.0</i>	<i>--</i>	<i>14.0</i>	<i>5.0</i>	<i>0.0</i>
Total Operating Expense	4,108.0	3,676.0	3,542.0	3,567.0	3,498.0	3,621.0	3,716.0	3,954.0	4,092.0	4,583.0
Operating Income	35.0	121.0	33.0	948.0	898.0	1,224.0	1,434.0	996.0	1,445.0	1,046.0
Interest Expense, Net Non-Operating	(20.0)	(29.0)	(30.0)	(31.0)	(28.0)	(47.0)	(44.0)	(45.0)	(44.0)	(45.0)
Interest Expense - Non-Operating	(20.0)	(29.0)	(30.0)	(31.0)	(28.0)	(47.0)	(44.0)	(45.0)	(44.0)	(45.0)
Interest/Invest Income - Non-Operating	1.0	45.0	4.0	7.0	16.0	31.0	52.0	129.0	107.0	14.0
Interest Income - Non-Operating	9.0	6.0	5.0	10.0	15.0	25.0	50.0	88.0	100.0	24.0
Investment Income - Non-Operating	(8.0)	39.0	(1.0)	(3.0)	1.0	6.0	2.0	41.0	7.0	(10.0)
Interest Inc.(Exp.),Net-Non-Op., Total	(19.0)	16.0	(26.0)	(24.0)	(12.0)	(16.0)	8.0	84.0	63.0	(31.0)
Other, Net	2.0	2.0	0.0	1.0	(9.0)	2.0	7.0	(1.0)	0.0	2.0
Other Non-Operating Income (Expense)	2.0	2.0	0.0	1.0	(9.0)	2.0	7.0	(1.0)	0.0	2.0
Net Income Before Taxes	18.0	139.0	7.0	925.0	877.0	1,210.0	1,449.0	1,079.0	1,508.0	1,017.0
Provision for Income Taxes	(58.0)	41.0	(1.0)	50.0	(279.0)	243.0	171.0	60.0	(1,531.0)	180.0
Net Income After Taxes	76.0	98.0	8.0	875.0	1,156.0	967.0	1,278.0	1,019.0	3,039.0	837.0
Net Income Before Extra. Items	76.0	98.0	8.0	875.0	1,156.0	967.0	1,278.0	1,019.0	3,039.0	837.0
Extraordinary Item	--	--	--	--	--	--	(235.0)	--	--	--
Total Extraordinary Items	--	--	--	--	--	--	(235.0)	--	--	--
Net Income	76.0	98.0	8.0	875.0	1,156.0	967.0	1,043.0	1,019.0	3,039.0	837.0
Income Available to Com Excl ExtraOrd	76.0	98.0	8.0	875.0	1,156.0	967.0	1,278.0	1,019.0	3,039.0	837.0
Income Available to Com Incl ExtraOrd	76.0	98.0	8.0	875.0	1,156.0	967.0	1,043.0	1,019.0	3,039.0	837.0
Basic Weighted Average Shares	331.0	310.0	308.0	311.0	310.0	303.0	308.0	303.0	293.0	289.0

Basic EPS Excluding Extraordinary Items	0.23	0.32	0.03	2.81	3.73	3.19	4.15	3.36	10.37	2.90
Basic EPS Including Extraordinary Items	0.23	0.32	0.03	2.81	3.73	3.19	3.39	3.36	10.37	2.90
Dilution Adjustment	--	--	0.0	--	0.0	0.0	0.0	--	--	--
Diluted Net Income	76.0	98.0	8.0	875.0	1,156.0	967.0	1,043.0	1,019.0	3,039.0	837.0
Diluted Weighted Average Shares	336.0	313.0	316.0	325.0	330.0	314.0	312.0	306.0	295.0	292.0
Diluted EPS Excluding ExtraOrd Items	0.23	0.31	0.03	2.69	3.50	3.08	4.10	3.33	10.30	2.87
Diluted EPS Including ExtraOrd Items	0.23	0.31	0.03	2.69	3.50	3.08	3.34	3.33	10.30	2.87
Supplemental (\$ Millions)										
DPS - Common Stock Primary Issue	0.00	0.00	0.00	0.00	0.00	--	--	--	--	--
Gross Dividends - Common Stock	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.0
Total Special Items	27.0	(37.0)	(36.0)	(3.0)	0.0	15.0	--	14.0	5.0	0.0
Normalized Income Before Taxes	45.0	102.0	(29.0)	922.0	877.0	1,225.0	1,449.0	1,093.0	1,513.0	1,017.0
Effect of Special Items on Income Taxes	9.5	(10.9)	(12.6)	(0.2)	0.0	3.0	--	0.8	1.8	0.0
Inc Tax Ex Impact of Sp Items	(48.6)	30.1	(13.6)	49.8	(279.0)	246.0	171.0	60.8	(1,529.3)	180.0
Normalized Income After Taxes	93.6	71.9	(15.4)	872.2	1,156.0	979.0	1,278.0	1,032.2	3,042.3	837.0
Normalized Inc. Avail to Com.	93.6	71.9	(15.4)	872.2	1,156.0	979.0	1,278.0	1,032.2	3,042.3	837.0
Basic Normalized EPS	0.28	0.23	(0.05)	2.80	3.73	3.23	4.15	3.41	10.38	2.90
Diluted Normalized EPS	0.28	0.23	(0.05)	2.68	3.50	3.12	4.10	3.37	10.31	2.87
Amort of Intangibles, Supplemental	95.0	123.0	76.0	66.0	54.0	49.0	11.0	24.0	34.0	34.0
Depreciation, Supplemental	121.0	141.0	126.0	154.0	143.0	123.0	125.0	124.0	120.0	147.0
Interest Expense, Supplemental	20.0	29.0	30.0	31.0	28.0	47.0	44.0	45.0	44.0	45.0
Rental Expense, Supplemental	139.0	155.0	--	97.0	89.0	91.0	92.0	100.0	121.0	87.0
Stock-Based Compensation, Supplemental	170.0	164.0	150.0	144.0	178.0	196.0	242.0	284.0	347.0	336.0
Variable Operating Lease Expenses	--	--	--	--	--	--	--	--	--	21.0
Short-Term Lease Cost	--	--	--	--	--	--	--	--	--	2.0
Lease Expense -Total	--	--	--	--	--	--	--	--	--	110.0
Advertising Expense, Supplemental	321.0	240.0	217.0	228.0	240.0	281.0	261.0	271.0	195.0	222.0
Income Taxes - Non-Recurring Tax Change	--	--	--	--	--	--	235.0	--	--	--
Research & Development Exp, Supplemental	1,180.0	1,153.0	1,125.0	1,094.0	1,109.0	1,205.0	1,320.0	1,433.0	1,550.0	1,778.0
Audit Fees	4.6	4.8	4.7	4.8	4.6	4.6	5.0	4.5	--	5.1
Audit-Related Fees	0.4	0.2	0.0	--	0.3	0.1	0.3	0.1	--	0.0
Tax Fees	1.1	0.4	0.5	0.4	0.5	0.4	0.3	0.4	--	0.0
Normalized EBIT	62.0	84.0	(3.0)	945.0	898.0	1,239.0	1,434.0	1,010.0	1,459.0	1,046.0
Normalized EBITDA	278.0	348.0	199.0	1,165.0	1,095.0	1,411.0	1,570.0	1,158.0	1,613.0	1,227.0

Tax & Pension Items (\$ Millions)										
Current Tax - Total	28.0	39.0	7.0	31.0	110.0	140.0	11.0	76.0	345.0	322.0
Current Tax - Domestic	36.0	0.0	(2.0)	10.0	69.0	86.0	(54.0)	29.0	258.0	251.0
Current Tax - Foreign	(11.0)	39.0	8.0	21.0	36.0	51.0	61.0	42.0	48.0	47.0
Current Tax - Local	3.0	0.0	1.0	0.0	5.0	3.0	4.0	5.0	39.0	24.0
Deferred Tax - Total	(86.0)	2.0	(8.0)	19.0	(389.0)	103.0	160.0	(16.0)	(1,876.0)	(142.0)
Deferred Tax - Domestic	(89.0)	5.0	(9.0)	17.0	(376.0)	96.0	154.0	(18.0)	(14.0)	(26.0)
Deferred Tax - Foreign	5.0	(4.0)	3.0	2.0	1.0	(2.0)	(3.0)	2.0	(1,860.0)	(114.0)
Deferred Tax - Local	(2.0)	1.0	(2.0)	0.0	(14.0)	9.0	9.0	0.0	(2.0)	(2.0)
Income Tax - Total	(58.0)	41.0	(1.0)	50.0	(279.0)	243.0	171.0	60.0	(1,531.0)	180.0
Total Pension Expense	13.0	19.0	16.0	27.0	27.0	28.0	31.0	43.0	29.0	40.0
Defined Contribution Expense - Domestic	13.0	19.0	16.0	27.0	27.0	28.0	31.0	43.0	29.0	40.0

Appendix 16: Income Statement, source: Refinitiv Eikon

Sqaured Distance to EA

Company Name	ROIC	ROIC 5 Year Avg	D/E	EBITDA Margin	EBITDA Margin 5 YR Avg	Revenue 5 YR Hist Growth
Activision Blizzard Inc	0.09	0.03	0.03	0.20	0.13	6.09
Take-Two Interactive Software Inc	0.05	0.05	0.17	0.08	0.03	6.24
Ubisoft Entertainment SA	0.21	0.11	1.03	0.20	0.14	7.09
Microsoft Corp	0.11	0.17	0.26	0.29	0.20	3.75
Tencent Holdings Ltd	0.09	0.07	0.16	0.11	0.12	24.94
NetEase Inc	0.89	0.02	0.02	0.02	0.04	6.13
Nintendo Co Ltd	0.06	0.11	0.24	0.15	0.02	18.85
Nexon Co Ltd	0.07	0.05	0.22	0.13	0.13	3.85
Zynga Inc	0.16	0.17	0.19	0.08	0.28	56.84
Microsoft Corp	0.11	0.17	0.26	0.29	0.20	3.75
Min	0.05	0.02	0.02	0.02	0.02	3.75
Max	0.89	0.17	1.03	0.29	0.28	56.84
Average	0.18	0.09	0.26	0.15	0.13	13.75
Median	0.10	0.09	0.21	0.14	0.13	6.18

Appendix 17: Peer group fit evaluation, source: own calculations

[if count > average -> Y]	Company Name	ROIC	ROIC 5 Year Avg	D/E	EBITDA Margin	EBITDA Margin 5 YR Avg	Revenue 5 YR Hist Growth	Count
YES	Activision Blizzard Inc	1	1	1	0	0	1	4
YES	Take-Two Interactive Software Inc	1	1	1	1	1	0	5
NO	Ubisoft Entertainment SA	0	0	0	0	0	0	0
NO	Microsoft Corp	0	0	0	0	0	1	1
YES	Tencent Holdings Ltd	1	1	1	1	1	0	5
YES	NetEase Inc	0	1	1	1	1	1	5
NO	Nintendo Co Ltd	1	0	0	0	0	1	2
YES	Nexon Co Ltd	1	1	0	1	1	1	5
NO	Zynga Inc	0	0	1	1	0	0	2
NO	Microsoft Corp	0	0	0	0	0	1	1
								Avg 3

Appendix 18: Peer group fit evaluation, source: own calculations

Multiple Calculations

Company	EBITDA	EBIT	EPS	Historic Enterprise Value	Company Market Capitalization	Total Common Shares Outstanding
Electronic Arts Inc	1,227	1,046	2.87	34,226	37,302	287
Activision Blizzard Inc	3,793	3,336	3.44	44,885	51,819	779
Take-Two Interactive Software Inc	901	668	5.09	17,618	20,496	115
Tencent Holdings Ltd	28,532	19,453	3.65	566,887	546,457	9,608
NetEase Inc	3,100	2,585	0.79	55,180	68,292	3,274
Nexon Co Ltd	893	819	1	14,018	17,366	891

Multiples	TTM			2Y forward		
	P/E	EV/EBITDA	EV/EBIT	P/E	EV/EBITDA	EV/EBIT
Electronic Arts Inc	45.3x	27.9x	32.7x	25.4x	19.6x	17.4x
Activision Blizzard Inc	19.3x	11.8x	13.5x	21.9x	13.5x	14.8x
Take-Two Interactive Software Inc	35.0x	19.6x	26.4x	36.1x	23.1x	25.4x
Tencent Holdings Ltd	15.6x	19.9x	29.1x	28.4x	20.3x	21.2x
NetEase Inc	26.5x	17.8x	21.4x	4.6x	16.5x	18.3x
Nexon	17.7x	15.7x	17.1x	17.9x	15.6x	14.3x
Average	22.8x	17.0x	21.5x	21.8x	17.8x	18.8x
Median	19.3x	17.8x	21.4x	21.9x	16.5x	18.3x

Share Price	TTM			2Y forward		
	P/E	EV/EBITDA	EV/EBIT	P/E	EV/EBITDA	EV/EBIT
x Average	\$ 65.41	\$ 75.56	\$ 81.39	\$ 113.19	\$ 124.61	\$ 131.56
x Median	\$ 78.56	\$ 79.18	\$ 80.90	\$ 113.68	\$ 115.72	\$ 128.02

Appendix 19: Multiple calculations, source: own calculations

Income Statement	2017	2018	2019	2020	2021	Q3 FY2022	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E
Total Revenues	4,845	5,150	4,950	5,537	5,629	6,512	6,698	7,269	7,784	8,260	8,725	9,169	9,585	9,965	10,305	10,598
Cost of Good Sold	1,283	1,277	1,322	1,369	1,494	1,759	1,744	1,862	1,979	2,093	2,211	2,328	2,434	2,530	2,617	2,691
Gross Profit	3,562	3,873	3,628	4,168	4,135	4,753	4,953	5,407	5,805	6,168	6,514	6,841	7,151	7,435	7,689	7,907
Selling/General/Admin. Expenses, Tot	1,112	1,110	1,162	1,137	1,281	1,594	1,491	1,618	1,732	1,838	1,942	2,041	2,133	2,218	2,293	2,359
Research & Development	1,205	1,320	1,433	1,550	1,778	2,075	1,862	2,021	2,164	2,297	2,426	2,550	2,665	2,771	2,865	2,947
Interest/Investment Income - Operatin	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
Unusual Expense (Income)	15	0	14	5	0	0	0	0	0	0	0	0	0	0	0	0
Amortization of Intangibles	6	9	23	22	30	145	145	23	25	26	28	30	31	32	34	35
EBIT	1,224	1,434	996	1,445	1,046	939	1,578	1,744	1,882	2,004	2,117	2,220	2,320	2,413	2,495	2,566
Interest	14	-15	-83	-63	29	63	35	37	40	43	45	47	49	51	53	55
Income Tax - Total	243	171	60	-1,531	180	250	420	285	307	327	346	362	401	439	477	515
Net income	967	1,278	1,019	3,039	837	626	1,123	1,422	1,535	1,635	1,726	1,810	1,870	1,922	1,964	1,996

EBITDA	1,396	1,570	1,141	1,595	1,227	1,093	1,732	1,945	2,101	2,239	2,365	2,482	2,596	2,701	2,795	2,876
Shares Outstanding	308	306	298	288	286	283	278	274	269	265	260	256	251	247	243	239
EPS	3.14	4.18	3.42	10.55	2.93	2.21	4.04	5.20	5.70	6.18	6.64	7.08	7.44	7.77	8.08	8.35

Appendix 20: EPS calculations, source: own calculations

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