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Activision: Demystifying an undervalued player

The gaming bargain of the year

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Abstract

The purpose of this thesis is to examine Activision Blizzard with the objective of making a Buy/Sell/Hold recommendation. Despite the recent turmoil surrounding the stock, following the revelation of sexual harassment within the firm, we believe the company is poised for an exciting future. Besides the strong fundamentals, the company is well positioned to gain from market trends, such as the rise of e-sports, rising demographics and increasing internet penetration rates in developing countries. This analysis concludes with a Buy recommendation for the stock, which, due to recent turbulence, we believe is significantly undervalued. As of December 31st, of 2022, we expect Activision Blizzard's stock price to be $76.40, resulting in a 31% total shareholder return.

Keywords: gaming, valuation, activision

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This report is part of the "Activision: Demystifying an undervalued player" report (annexed) and should be read has an integral part of it.

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Company Overview

Activision is an American videogame publisher established in 1979, currently trading on the Nasdaq. The company was built by former employees of Atari that left the company over disagreements regarding their compensation. In the 1980s the company temporarily branched out to develop software beyond the gaming scope to survive a recession, but ultimately filed for Chapter 11 in 1991. Since then, Activision refocused on gaming and grew to become one of the most successful videogame companies in the world.

M&A Strategy

Annex 1: Main Acquisitions timeline

Year	Acquisition
2000	Neversoft
2001	Treyarch
2003	Infinity Ward
2005	Grey Matter
2008	Vivendi
2016	King

Source: Activision public information

One of the key factors that made the company achieve massive growth was an aggressive buy-out strategy targeting mainly smaller studios with promising titles. The first steppingstone was the 1999 purchase of Neversoft, the developer of the Tony Hawk Pro Skater Franchise, which spawned a total of 20 games released over a 20+ year period, selling over 1.4 billion copies. The tipping point for the company happened in 2003 with the acquisition of Infinity Ward which owned Call of Duty, nowadays the company's biggest franchise.

In 2008 the company merged with Vivendi, the owner of Blizzard and proprietary of the most popular MMORPG (massively multiplayer online role-playing game) in the world, World of Warcraft. This merger cemented Activision as the 3rd largest developer at the time, placing itself above Electronic Arts (EA), its main rival. In 2016 Activision acquired King Games, the largest mobile videogame developer, for a whopping $5.9 billion. This move was extremely successful as the segment added over 300 million players to the company, provides more than $1 billion per year and allowed the company to penetrate the fast-growing mobile segment.

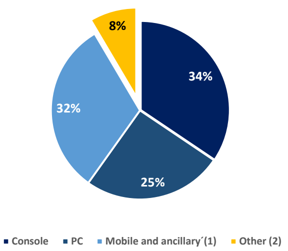
Annex 2: Logos

Source: Activision public information

Over the years the firm has acquired 22 companies, with the most recent acquisition occurring in November 2021, where Activision acquired Digital Legends, a mobile gaming studio in Barcelona that will help support the development of a new Activision mobile game. For the future, we expect M&A activity to slow down and to focus more on the organic growth of its franchises. Changes in market dynamics and consumer preferences are in part responsible for the change of heart. However, we also believe the company will not stop it completely and will make smaller acquisitions for its resources, or to get tenure in certain markets.

Business Overview

Annex 3: Revenue split by platform, 2020

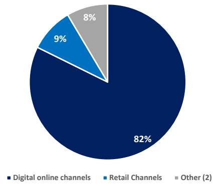


Source: Annual Report

What in the early 2000s was a console-focused company has now branched out to all gaming segments. Mobile is now a fundamental slice of the business as it collected 32% of revenues in 2020, with console being the largest platform with 34% and finally PC with 25%. A smaller but growing revenue source of the business comes from E-Sports Leagues (that composes the bulk of "other" revenue) which amounted to the remaining 8% of total revenues in 2020. We expect growth of this source of revenue to pick up in a post covid world.

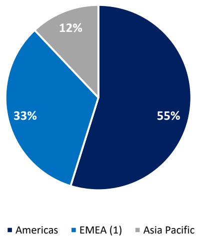
Over 82% of the games sold by the company were through Digital Channels like the PlayStation Store, App Store, and Xbox Game Store. Retail channels represented only 9% of total sales, aggravated by the pandemic's closing of physical stores, nevertheless, it exhibits a trend of drastic

Annex 4: Revenue split by channel, 2020



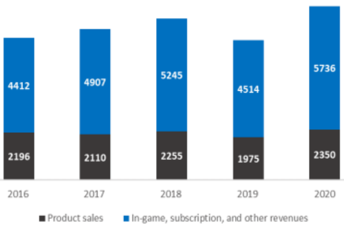
Source: Annual Report

Annex 5: Revenue split by region, 2020



Source: Annual Report

Annex 6: Sales Evolution per Type



Source: Annual Report

decline over the recent years. Market wide, physical PC sales only represent 2% of total sales and in the console segment the decrease is expected to steepen as some versions of the next generation consoles do not have disk support. This trend is not expected to have an impact on revenues as digital and physical games sell for the same price.

Across geographies, we see revenues are balanced. According to the annual report, the most significant market for Activision are the Americas (North America and Latin America), which represented more than 50% of total revenues consistently over the last 4 years, driven by the huge importance of the US market. The Asian market is expected to grow its relative size over the next years, as large economies like China and India develop and Activision continues to build up its position in these territories. Activision's partnerships with companies like Tencent and NetEase are key in this sense, allowing the company to build its position in the Chinese market.

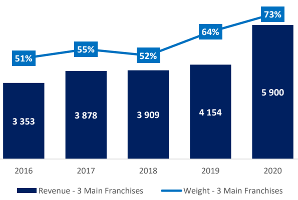
Activision reports its revenues in two streams: Product Sales and in-game, Subscriptions, and Other Revenues. The former consists of digital/physical sales of full-game products, while the latter involves revenues from microtransactions and downloadable content, subscription arrangements and licensing agreements, where e-sports are included.

Franchise Focus

Activision Blizzard can be separated into three segments: Activision, Blizzard, and King, all of which produce videogames. Historically, each segment always pulled most of its revenue from a small number of highly successful franchises: Call of Duty for Activision, World of Warcraft for Blizzard, and Candy Crush for King, which in 2020 represented roughly 73% of revenues combined, according to our estimations.

These franchises consist in a series of games that maintain the same elements and mechanics over time but that are progressively updated either by new instalments or in-game content. Strong franchises have the power to sustainably generate revenues over time because they are popular and have loyal fan bases. Betting on new projects, on the other hand, is riskier because there is no preceding fan base and no guarantee of commercial success. Moreover, the gaming community is becoming increasingly more invested in fewer games[1], which is leading to higher player investment in a selection of highly popular games.

Annex 7: Estimated revenue, 3 main franchises



Source: Own Estimates

However, by diversifying less, the company is incurring in franchise risk: by not diversifying its game offerings, the supposedly winning franchises might get saturated, lose fans, and erode profitability. Hence, the resources the company saves from developing other franchises serve the purpose of refreshing its golden eggs, either by offering Free to Play (FTP) instalments, setting up e-sports championship tournaments, or developing content over time to preserve and build up consumer engagement and loyalty.

This strategy has worked until now, as we are seeing revenue boosts Year on Year (YoY), putting Activision Blizzard in a prime competitive spot. Consumer engagement levels also have been growing, explained by increases in in-game monetization. However, it is necessary to take a deep dive into the segments to really assess how each individual franchise has been evolving.

Activision

Activision is the largest segment of Activision-Blizzard, responsible for 49% of total revenues in

[1] GWI. 2021. "*The gaming playbook". Accessed November 24. https://www.gwi.com/reports/the-gaming-playbook*

2020. Its revenues come mostly from the purchase of full-price AAA games (big-budget games) while making extra revenue from in-game purchases, generated by invested consumers. More recently, as part of its franchise refreshment efforts, the segment has been adopting an FTP business model for some of its games.

Besides Call of Duty (COD), its pool of franchise includes Spyro the Dragon, Crash Bandicoot, Tony Hawk, and Sekiro, which currently sell around 2-5 million lifetime units each (we estimate they represent 10% of Activision's total sales combined).

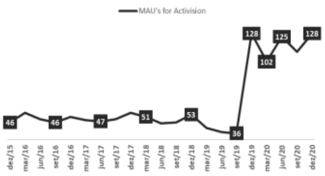
In contrast, COD Modern Warfare (released in 2020) achieved sales of 30 million units and even the less successful instalments of the franchise such as the 2016 Infinite Warfare edition sold around 13.6 million units. Moreover, these COD premium games pull in a lot of extra revenue from in-game purchases due to the humongous fanbase of the franchise. On annex 8 we show our estimated Call of Duty revenues per year.

Annex 8: COD Estimated Sales

Source: Own Estimates

The increase of the franchise's revenues was driven partly by the release of COD Mobile (2019) and COD Warzone (2020), a mobile and PC FTP videogame, respectively. The added users from COD mobile do not have the same value per user as users from premium games because the Average Revenue Per User (ARPU) for mobile is much lower, but they generate synergies for the premium instalments because of inter-game integration and increases in brand engagement. This strategy had a seemingly tremendous effect on the segment's margins. In fact, looking at the EBIT margin we saw a huge increase from 18% in 2016 (time where the Call of Duty franchise was at a low point) to 40% in 2020.

Annex 9: Activision MAU's evolution



Source: Annual Report

Annex 10: Revenue and EBIT margin for Activision

Source: Annual Report

Currently, COD takes bronze in the highest selling gaming franchises, leads the FPS (first person shooter) genre and its online community of is one of the biggest in the word with more than 100 million players.

Blizzard

Blizzard has historically maintained a great focus on the PC segment, with over 82% of revenues in 2020 coming from it[2]. This is not a surprise because the segment's biggest franchise, World of Warcraft (WoW), is a PC exclusive, and the remaining relevant franchises of the segment are also heavily played on PC.

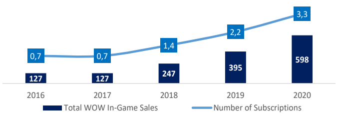
Unlike Activision, this segment is more diversified when it comes to the franchises. Blizzard also owns Hearthstone (a popular FTP online card game), Heroes of the Storm (a free to play competitive online game) and has plans to reinvigorate Diablo and Overwatch, two AAA games that were extremely successful in the past. Notwithstanding, this segment's performance has been shaky.

Once the most famous RPG game, WoW is currently under a lot of criticism for being overly complex and outdated as its graphics and mechanics are roughly the same since the release in 2004. It is dubbed as a dying franchise in the gaming community, with previously hardcore and loyal players leaving for fresher alternatives like Final Fantasy.

To battle the game's decreasing popularity, Blizzard has increased efforts to update the game. In 2018 it released the Battle of Azeroth expansion pack, followed by the release of WoW Classic in 2019, a reminiscent of the 2004 version of the game, and amid the pandemic of 2020, Shadowlands was launched. These sequential releases have been successful so far, with MAU's

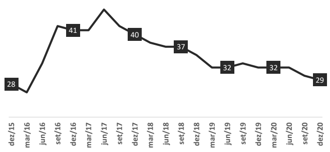
[2] Activision Blizzard's Annual Report

Annex 11: Estimated Sales for WoW



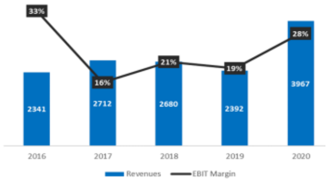
Source: Own Estimates

Annex 12: MAU evolution for Blizzard



Source: Annual Report

Annex 13: Revenue and EBIT Margin for Blizzard



Source: Annual Report

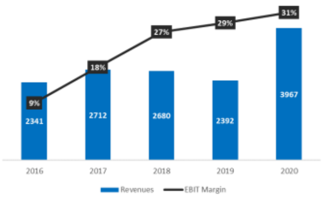
increasing from 0.7 million in 2017 to 3.3 million in 2020. These increases, in our view, come from the huge pool of old subscribers (in 2010 the game had 12 million MAU's) that reactivated their subscriptions for nostalgia purposes and fuelled by lockdowns. Hence, the game's inability to attract new users is likely to be a major pain in the future, even more so with the constant criticism and decreasing popularity amongst gamers.

The segment as a whole has been seeing a lot of turbulence in MAU's. From March 2016 to 2017, we saw a large increase from 28 million to 41 million, driven by the launch of Overwatch that had tremendous success among gamers. However, after this peak, MAU's started retracing back to 2016 levels, a time when user level was at a historically lows. This decrease is worrisome but not surprising considering that Overwatch lost its novelty effect, as the game was not able to sustain its huge popularity, the Diablo franchise was left on standby, and no major new content was released for other games.

Margins for the segment are equally as unstable. In 2017 the EBIT margin stood at 16%, representing a more than 17% decrease YoY. In the subsequent years, we have seen margin increases, standing in 2020 at 28%, representing a more than 9% increase YoY. The lack of any major launch since 2016 reflect on margins as there are lower COGS and less investment in OPEX, namely marketing and product development efforts.

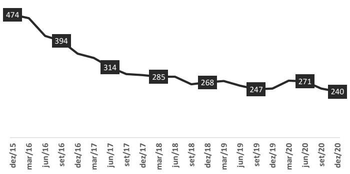
King

Annex 14: Revenue and EBIT margin for King



Source: Annual Report

Annex 15: MAU evolution for King



Source: Annual Report

King is completely focused on producing casual games for mobile. Unlike the previous segments, the target market for these games are the mobile owning masses, not the traditionally called "gamers". This reflects itself into a much larger market than PC and Console, but on the other hand in lower ARPU per player because these games are mostly free to be claimed from online stores, with their revenue source coming from advertisements and in-game purchases. Product substitutability is also high between products as it is harder to build a fan base in this segment.

Over the last 4 years, this segment has been very successful, with steady revenues of over 2 billion per year. MAU's have also been stable over the last 3 years, despite some erosion. The large decrease from 2016 to 2018 was due to the decline in players for Candy Crush, which peaked in popularity in 2015 with 273 million MAU's, a naturally not sustainable figure. The stability of the segment is nevertheless impressive as King has been able to remain one of the biggest-earning developers in the ultra-competitive mobile segment, with increases in revenue and margins improving steadily over the last years.

Institutional Ownership

Activision is traded on the NASDAQ, under the ticker ATVI. It currently has 784 million shares as of December 2021 trading on the market. Institutional Ownership has been growing over the last 4 years, with currently 87% being owned by Institutions. The biggest holder is the Vanguard Group (8.26%), followed by Black Rock (7.36%) and Capital Group Cos Inc (6.42%). Over 74% of its ownership is located in the United States, followed by the United Kingdom with 5.4% and Saudi Arabia with 4.44%[3].

When it comes to Insider Ownership, 6.41% of the shares are owned by employees and

[3] Information retrieved from Bloomberg

management of the firm. The biggest holder is the company's CEO, Bobby Kotick which possesses 0.51% of outstanding shares. This metric has not fluctuated much over the last years.

The company has paid dividends annually since 2010. The last dividend payment happened on the 15th of April 2021 and was $0.47 per share. There is no assurance the company will pay dividends in the future, but we believe it will, mostly because of its large cash generation ability. For 2022 we expect a Payout ratio of 17%, implying a dividend of $0.42 per share.

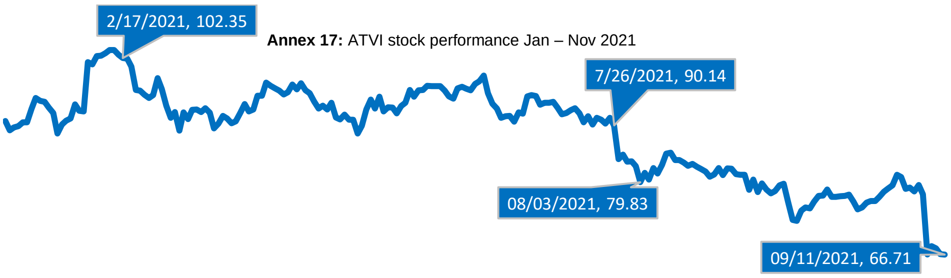
Stock Performance

Activision has been able to perform extraordinarily well over the long haul, having outperformed its peers and the S&P500 consistently, despite some shaky recent years.

Annex 16: Cumulative Returns 2000-2021

Source: Bloomberg

However, 2021 was an eventful year for the company. On February 2nd the company hit a stock price of $102.96 per share, an all-time high for the company, fuelled by market exuberance and the pandemic induced stellar sales performance. In July the stock price dropped from around $90 per share to shy of $80 a share, a value that was sustained until November, when the Q3 results became public, making the price drop once again to $66.8.



Annex 17: ATVI stock performance Jan – Nov 2021

Source: Bloomberg

Both drops can be traced back to a single event. In August a sexual misconduct scandal hit Blizzard, after several employees went public with sexual harassment and pay inequality accusations, causing the first drop. The company is currently in the middle of legal disputes regarding this matter and 20 employees[4], including Blizzard's president J. Allen Brack left the company. We believe the large cash reserves the company has safeguards the company from future legal fines. The other segments kept their operations as usual as the allegations were exclusive to Blizzard.

The second large drop is a natural consequence of the company's turmoil. On the Q3 press release, while earnings for the quarter surpassed analyst expectations, the outlook for the Q4 did not. The strain in the Blizzard segment forced the company to delay the release of two major launches, Overwatch 2 and Diablo IV, that were creating buzz in the videogame industry for a while.

In our view, the drop is exaggerated for the following reasons:

- Neither Overwatch nor Diablo IV had scheduled release dates announced, so the drop comes from inflated market expectations.
- There was once again no major change in fundamentals since August. The value of the franchises remains unchanged, and we do not expect the departure of 20 employees to change their prospects.

[4] Reuters. (2021, October 19). *"Activision Blizzard fires 20 employees following harassment claims".* Accessed November 30. *https://www.reuters.com/business/activision-blizzard-fires-20-employees-over-harassment-claims-ft-2021-10-19/*

- The company has been performing well in the last quarters, beating Wall Street consensus, and showing strength in troubling times.

Today, the value of Activision shares is $58.70. This represents a drop of over 54% in less than 5 months, still pricing the turmoil surrounding the company

Board of Directors

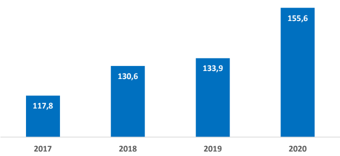
Activision Blizzard's board of directors is composed of ten people. Brian Kelly is the chairman of the board and has been assuming positions of leadership within the company since 1991. The presidency of Activision has been overseen by Rob Kostich for more than 16 years. Humam Shankini serves the presidency of King since 2019 and Blizzard is led by Mike Ybarra since August 2021, when former Blizzard President J. Allen Brack stepped down due to sexual misconduct allegations.

We expect the recent turmoil within the company to lead to further changes in Activision's board, namely, a change of the CEO, Bobby Kotick. Over 1000 employees have demanded for his resignation, after it was revealed that not only he knew about the toxic work environment, but also had an history of harassment and abusive behaviour. Furthermore, shareholders are also showing signs of no longer supporting the CEO due to mounting pressure from Public Figures, Industry peers and Activists Groups. We do not expect a potential CEO change to affect the long-term strategy of the company.

Market Forecast

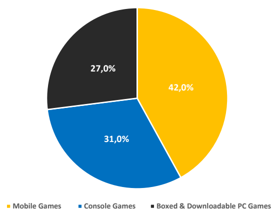
Market Overview

Annex 18: Global Video Game Market Size



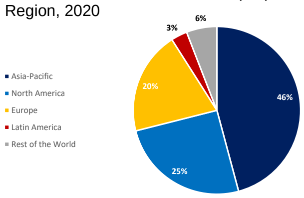
Source: Portal Euromonitor

Annex 19: Global Video Game Split per Segment, 2020



Source: Statista

Annex 20: Global Video Game Split per Region, 2020



Source: Statista

Activision is a major player in the Video Game Industry, which itself is a large sub-segment on the Digital Media Industry, where there are also included the video-on-demand, Publishing, and Digital Music industries. Videogames are by far the largest segment, constituting around 60% of the total market and expected to deliver strong growth in the upcoming years.

This high growth market already increased its size substantially pre-Covid, rising 14% from $118B in 2017 to $134B in 2019[5]. While it was already steered to achieve high growth in the next decade, the COVID-19 pandemic accelerated this trend, with every quarter of 2020 breaking its respective revenue record. As people were forced to stay at home and quarantine, the options they had to spend their free time were limited to at-home entertainment. As a result, the videogame industry had a stellar performance, growing by 22% in 2020 surpassing $155B.

Videogame revenues can be split into three segments. The largest segment is mobile, mostly due to the massive size of its user base with a weight of roughly 49% in 2020. Following that is console gaming, weighting 28%, and finally, PC gaming is worth the remaining 23%. This trend towards mobile gaming comes from the massive popularity of mobile gaming in developing countries, where internet penetration rates have been surging. One popular case study is India, where the online gaming market grew at a CAGR of 34.4% from 2016 to 2020, where more than 90% of online gamers play mobile games[6].

On the other hand, PC and console segments have a higher ARPU, and revenues come

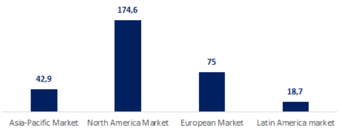
[5] Data retrieved from Portal Euromonitor, *https://www.portal.euromonitor.com*
[6] Statistics retrieved from: KPMG. 2020. *"A year off-script: Time for resilience". Accessed December 05. https://assets.kpmg/content/dam/kpmg/in/pdf/2020/09/year-off-script-kpmg-india-media-and-entertainment-2020.pdf*

predominantly from Developed regions with higher purchasing power. From 2017 to 2020 we estimate the CAGR of the mobile segment to be 11.41%. During this period, the console and PC games segments presented CAGR's of 4.50% and 3.00% respectively.

When we look at the gaming market through different regions, we can clearly see the distinct aspects that split the developing and developed world. To start off, the largest market in revenues is by far Asia Pacific, contributing for 46% of all game revenues for the year of 2020. These revenues are mostly driven by large markets such as India and China, who have whopping populations of 1.4 and 1.5 billion people, respectively.

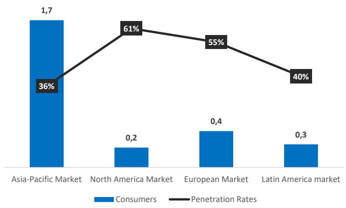
Key Drivers

Annex 21: ARPU per Region, 2020



Source: Own Estimates

Annex 22: number of consumers (billions) and Penetration Rates per Region, 2020



Source: Worldometer and Statista

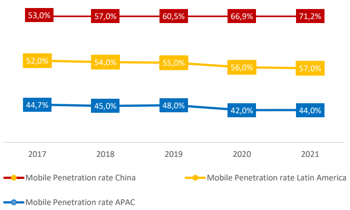
The global gaming market can fundamentally be split into two variables: the number of videogame users, and the ARPU which translates into how much revenue each user adds to the market.

It is important to note that different regions have different values for ARPU because of different consumption profiles. North America presents the highest average revenue per user (224$), followed by Europe (75$), Asia Pacific (43$), and Latin America (19$). This difference comes from the prevalence of PC and Console games in developed countries, with developing countries preferring cheap/free-to-play alternatives, mostly available on mobile games.

In our model, the number of consumers comes as the share of the total population that plays video games, given through the gaming penetration rate. To forecast the growth of this variable, we applied different methodologies since we believe the growth of the gaming penetration rate in developed and developing regions should be differentiated.

We are forecasting strong growth for videogames as a combination of multiple drivers, namely mobile internet penetration rates, demographic trends, and the growth of e-sports. Stalling growth in the short run we have IDFA (Identifier for advertisers).

Annex 23: Mobile Penetration Rates Emerging Markets



Source: Statista

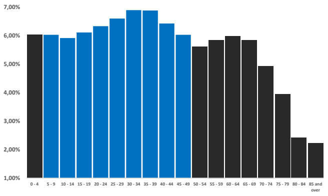
Mobile Internet Penetration: In developing regions we assume the gaming penetration rate grows in tandem with the growth of the mobile internet penetration rate. Historically these countries have not been a traditional target for video game companies, since a big chunk of the population in these countries does not have access to a computer, and consoles can be prohibitively expensive. But the rising internet penetration in these countries, coupled with increasing smartphone ownership, has allowed mobile to become a *bona fide* platform in the e-gaming community, opening the doors to an underpenetrated market with massive growth potential.

This is evidenced in the APAC and Latin American regions. According to Statista[7], from 2017 to 2020 the internet penetration rate in Asia rose from 45% to 55%, while the mobile penetration rate in Latin American market grew from 52% to 56% during that period. This evolution drove the gaming penetration rate, which increased from 29% to 36% and 37% to 40%, respectively during this period.

Demographics: For developed regions, we forecast the gaming penetration rate to grow as a function of demographics, coming from the average growth in potential gaming audience. As previously established, the current pandemic, and consequently, the lockdown accelerated changes in consumer trends, kicking out the outdated stigma that videogames only serve younger

[7] Statista. 2021 *"Internet penetration rate in Asia compared to the global penetration rate from 2009 to 2021". Accessed September 21. https://www.statista.com/statistics/265156/internet-penetration-rate-in-asia/*

Annex 24: Videogame Potential Audience in 2026



Source: Own estimates using OECD data

audiences and helping to embrace gaming as a leisure activity available to all age groups. This effect pushed 2020 videogame penetration rates to increase 4% and 5% YoY in North America and Europe.

As generations get older, the average videogame age will expand, growing from a potential gaming audience of 58% in 2018, to an estimated 63% in 2026[8]. This change occurs mainly from two effects: (i) gaming presents a sticky effect, and thus it is expected that this activity will perdure as a social activity even as people get older; (ii) in the past few years gaming has been able to penetrate older age segments, and this trend is expected to continue.[9]

Demographics will be the major factor in the growth of the videogames industry in developed regions, where the internet penetration rate has reached a natural ceiling.

IDFA: IDFA enables advertisers to get data on the responsiveness of users to ads and their online behaviours. This is very useful information because it allows advertisers to find high-value users based on their consumption patterns.

In early 2021 Apple announced it would offer the ability for customers to opt not to give that information to advertisers. IDFA is one of the most precise ways to track a mobile advertising campaign on iOS, but users are increasingly opting out of using it. This feature can severely impact the revenue model of mobile gaming, as its implementation disables the advertiser's ability to place targeted ads, leading to a distortion in the advertisement pyramid, with ads that were previously targeted at high-value users being directed to all the users.

This scale of events eventually leads to an overall decrease in the value of advertisement, a crucial driver for revenue in the mobile segment. According to a report[10], advertising revenue shows a heavy emphasis on Asian Countries, with 46% of all mobile gaming revenue in the APAC region coming from advertisement, with the rest coming from IAP (in-app purchases). In the Americas and EMEA, this share is 45% and 36%, respectively. For now, this feature has only been employed by Apple, only affecting iOS users, but Google has recently announced it would implement similar features by the beginning of 2022.

We expect that the total effect of the implementation of IDFA will have a stronger impact on the ARPU of Asian Pacific countries, due to the larger weight of advertisement on mobile gaming revenues. We believe the effect of the IDFA implementation to last until 2024. At that point our view is that videogame publishers will be able to reinvent their revenue models, through either pushing IAP, or finding alternative ways to profit from advertisement, thus overcoming the IDFA effect.

From 2017-2020, CAGR of mobile ARPU was 6.56%[11], driven not only by increases in ad advertisement but also in propensity to consume. In the future we expect further boosts in player investment, thus IDFA will only abate growth. From 2026 onwards we expect increases in player investment to slowdown, tending towards inflation.

---

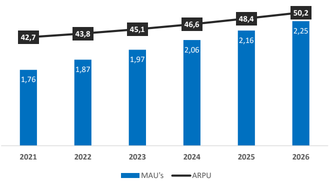
[8] Own estimates using demographic pyramid. Annex 24 showcases the percentage of total population in each age segment that plays videogames

[9] Between 2018 and 2020 the segments with higher growth rate of people who have played at least one gaming genre are in the 55-64s and grandparent's audience. Source: GWI. 2021. "*The gaming playbook". Accessed November 24. https://www.gwi.com/reports/the-gaming-playbook*

[10] Unity. 2020. "*Mobile Gaming Monetization Report". Accessed October 19. https://resources.unity.com/reports/the-2020-mobile-game-monetization-report*

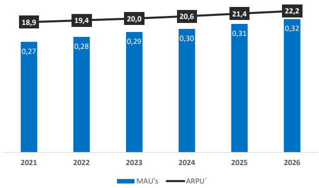
[11] Newzoo. 2021. "*Global Games Market Report". Accessed November 25. https://newzoo.com/products/reports/global-games-market-report/*

Annex 25: Asia Pacific Market Forecast



Source: Own estimates

Annex 26: Latin America Market Forecast



Source: Own estimates

Developing Regions Forecast

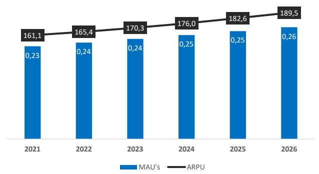
We expect the boom in Asia Pacific to be sustained in the following years, with a CAGR of 8.4% from 2021 to 2026. We anticipate growth in the region to slow down, as the internet penetration rate in the region reaches its natural ceiling and increases in ARPU tend to an inflation rate of 2%[12].

In 2023 the region will represent 50% of the global gaming market, standing at $88.7B.

Latin America will also grow at a high pace, showcasing a CAGR of 7.2% from 2021 to 2026. Growth will be driven by the same trends as Asia Pacific, but the current consumption profile of this market prevents the region from outgrowing its current 3% of the total market share. We expect the market to surpass $10B in 2032.

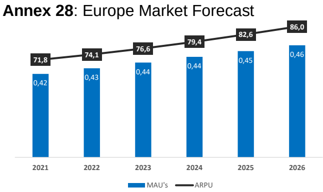
Developed Regions Forecast

Annex 27: North America Market Forecast



Source: Own estimates

Annex 28: Europe Market Forecast



Source: Own estimates

North America and Europe will remain major markets in the future, both growing at a CAGR of 5.6% from 2021 to 2026, driven by the aforementioned demographic trends and increases in ARPU.

While the growth of developing regions is mainly sustained by the growth of mobile gaming, developed regions will sustain high ARPUs from the high consumption of console and PC gaming. The importance of the North American and European markets is expected to slightly decrease to 22% and 18% in 2026. We expect these markets to surpass $50B and $40B in 2027, respectively.

E-Sports Forecast

E-sports are defined as competitive gaming at a professional level and in an organized format (a tournament or league) with a specific goal (i.e., winning a champion title or prize money) and a clear distinction between players and teams that are competing against each other. The industry has suffered a boom that has spilled into the gaming market, being one of the main drivers for the extraordinary year-on-year growth that some videogame franchises have experienced in the recent past. For the sake of comparison, in 2014 the League of Legends World Championship was viewed by more than 27 million people[13], while the NBA final series between the Miami Heat and San Antonio Spurs only averaged 15.5 million viewers. More recently, the winner of last year's Call of Duty league final amassed a total prize of $2M, which is more than the prize money for winning the Roland Garros Grand Slam ($1.9M). This growth in e-sports has led companies such as BMW, Marvel, and TikTok to enter into partnerships with e-sports organizations. E-sports enables brands to engage with younger audiences, and it comes as no surprise that sponsorships are the biggest source of revenue stream for e-sports competitions.

Data from newzoo[14] shows that the e-sports market has grown consistently in the past few years, from $655M in 2017 to $950M in 2020, a 45% increase during this period. Last year's pandemic had a damaging effect on the market, causing industry revenues to drop 1.1%. This was due to the cancelation of in-person events, which obliterated ticket revenues and strongly impacted merchandise sales. The lockdown, however, had a positive effect on the live-streaming side of e-

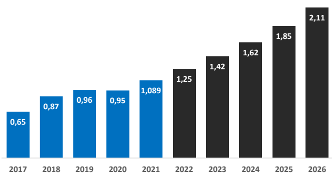
[12] We expect the future long-term inflation rate to be 2%, in line with Central Bank expectations

[13] PCGAMER. (2014, December 02). *"League of Legends 2014 World Championship draws 27 million viewers".* Accessed October 10. *https://www.pcgamer.com/league-of-legends-2014-world-championship-draws-27-million-viewers/*

[14] Newzoo. 2021. "*Global Esports & Live Streaming Market Report". Accessed November 16. https://newzoo.com/insights/trend-reports/newzoos-global-esports-live-streaming-market-report-2021-free-version/*

sports, leading to spiking viewership across all platforms (YoY increase of 10%).

Annex 29: E-Sports Market Forecast



Source: Own estimates

Overall, 2020 lead to a mixed effect in the e-sports market, but we believe that the pre-covid trend of the market is strong enough to overcome the poor year of 2020 and that the growth in live streaming brought by the pandemic is going to be a powerful catalyst for future. Therefore, we expect that in 2021 the e-sports market will rebound and reach a valuation of $1.1B, a 15% increase from 2020 and that in the following years this trend will be sustained by continuous growth. From 2027 onwards we forecast this growth to slow down, eventually reaching a steady state equal to the inflation rate of 2%.

It is important to note that while this segment is not huge size-wise, it is a key driver for competitive gaming franchises to remain relevant over the years.

This industry is likely to follow the same path as the sports industry, where a small number of extremely popular sports pull in most of the revenue. Currently, the most popular game titles in the world of e-sports are Counter-Strike Global Offensive, League of Legends, and Call of Duty, created by Valve, Riot Games, and Activision respectively.

We have no doubt that the recent phenomenon of e-sports has revived these franchises into the profitable titles they are today. We expect e-sports to have a leading role in the future of the videogames industry, coming as a key variable that creates engagement around the gaming market. The franchises that are able to remain relevant in the e-sports domain will benefit from growing user bases, high player engagement, and sustained revenues over time.

ACTIVISION BLIZZARD — COMPANY REPORT

ENTERTAINMENT — 17 DECEMBER 2021

STUDENT: DIOGO COSTA — 32359@novasbe.pt
STUDENT: VASCO LIMA — 31824@novasbe.pt

Activision: Demystifying an undervalued player

The gaming bargain of the year

- Despite a turbulent 2021, the company possesses strong fundamentals and important competitive advantages in an industry teeming with fierce competition. With a price target of $76.40, we issue a **Buy** recommendation for ATVI.
- The market has grown at a CAGR of 7.20% between 2017-2020, and is poised to grow even further, on the back of rising internet penetration rates, changes in the demographic pyramid and the e-sports boom.
- With a current trading multiple of 13.6x, the company is currently trading below the median of Activision's selected Tier 1 peer group. We believe this is falling short of the fair multiple and that the company's strong mobile presence, e-sports positioning and healthy franchises constitute solid long-term prospects.
- We believe Activision's competitive advantages come from key partnerships in China and its leading stakeholder position in the e-sports market. Future performance, however, depends on how the company handles the current harassment scandal.

Company description

Activision is an American videogame publisher established in 1979 and is currently trading on the Nasdaq. The company is composed by three segments: Activision, Blizzard and King, and its games are present on console, PC and mobile.

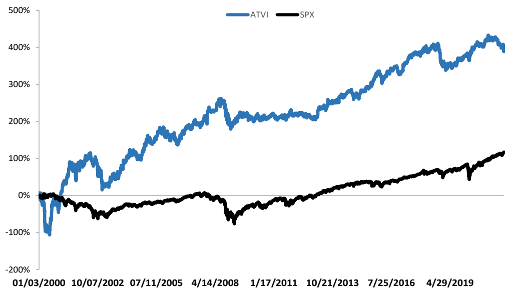
Amongst its most popular titles are Call of Duty, World of Warcraft, and Candy Crush. In 2020 the company reached its best results, presenting a $2B profit, provoked by the increase in players from the pandemic.

Recommendation:	**BUY**
Total Shareholder Return	*31%*
Price Target FY22:	**$76.40**
Dividend Yield	*0.72%*
Price (as of 4-Feb-22)	**$58.70**

Reuters: ATVI.OQ, Bloomberg: ATVI:US

52-week range ($)	56.40-104.53
Market Cap (€B)	45.643
Outstanding Shares (m)	784

Source: Bloomberg



Source: Bloomberg

(Values in $ millions)	2020	2021E	2022F
Net Revenues	8086	7647	7818
EBIT	2828	2493	2067
Comprehensive result	2194	1953	1600
Free cash flow	1938	1977	1051
ROIC	22%	26%	20%
Enterprise Value	65540	42073	51689

Sources: Activision Blizzard Annual Report, Bloomberg and Own Estimates

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Company Overview

Activision is an American videogame publisher established in 1979, currently trading on the Nasdaq. The company was built by former employees of Atari that left the company over disagreements regarding their compensation. In the 1980s the company temporarily branched out to develop software beyond the gaming scope to survive a recession, but ultimately filed for Chapter 11 in 1991. Since then, Activision refocused on gaming and grew to become one of the most successful videogame companies in the world.

M&A Strategy

ex 1: Main Acquisitions timeline

ar	Acquisition
00	Neversoft
01	Treyarch
03	Infinity Ward
05	Grey Matter
08	Vivendi
6	King

rce: Activision public information

nnex 2: Logos

rce: Activision public information

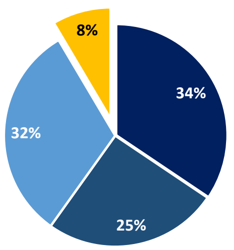
One of the key factors that made the company achieve massive growth was an aggressive buy-out strategy targeting mainly smaller studios with promising titles. The first steppingstone was the 1999 purchase of Neversoft, the developer of the Tony Hawk Pro Skater Franchise, which spawned a total of 20 games released over a 20+ year period, selling over 1.4 billion copies. The tipping point for the company happened in 2003 with the acquisition of Infinity Ward which owned Call of Duty, nowadays the company's biggest franchise.

In 2008 the company merged with Vivendi, the owner of Blizzard and proprietary of the most popular MMORPG (massively multiplayer online role-playing game) in the world, World of Warcraft. This merger cemented Activision as the 3rd largest developer at the time, placing itself above Electronic Arts (EA), its main rival. In 2016 Activision acquired King Games, the largest mobile videogame developer, for a whopping $5.9 billion. This move was extremely successful as the segment added over 300 million players to the company, provides more than $1 billion per year and allowed the company to penetrate the fast-growing mobile segment.

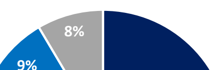
Over the years the firm has acquired 22 companies, with the most recent acquisition occurring in November 2021, where Activision acquired Digital Legends, a mobile gaming studio in Barcelona that will help support the development of a new Activision mobile game. For the future, we expect M&A activity to slow down and to focus more on the organic growth of its franchises. Changes in market dynamics and consumer preferences are in part responsible for the change of heart. However, we also believe the company will not stop it completely and will make smaller acquisitions for its resources, or to get tenure in certain markets.

Business Overview

x 3: Revenue split by platform, 2020



ource: Annual Report



What in the early 2000s was a console-focused company has now branched out to all gaming segments. Mobile is now a fundamental slice of the business as it collected 32% of revenues in 2020, with console being the largest platform with 34% and finally PC with 25%. A smaller but growing revenue source of the business comes from E-Sports Leagues (that composes the bulk of "other" revenue) which amounted to the remaining 8% of total revenues in 2020. We expect growth of this source of revenue to pick up in a post covid world.

Over 82% of the games sold by the company were through Digital Channels like the PlayStation Store, App Store, and Xbox Game Store. Retail channels represented only 9% of total sales, aggravated by the pandemic's closing of physical stores, nevertheless, it exhibits a trend of drastic decline over the recent years. Market wide, physical PC sales only represent 2% of total sales and in the console segment the decrease is expected to steepen as some versions of the next generation consoles do not have disk support. This trend is not expected to have an impact on revenues as digital and physical games sell for the same price.

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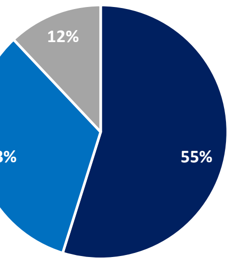
5: Revenue split by region, 2020

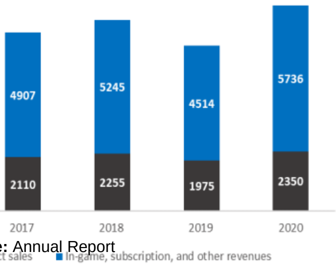


ource: Annual Report

mericas EMEA (1) Asia Pacific

Across geographies, we see revenues are balanced. According to the annual report, the most significant market for Activision are the Americas (North America and Latin America), which represented more than 50% of total revenues consistently over the last 4 years, driven by the huge importance of the US market. The Asian market is expected to grow its relative size over the next years, as large economies like China and India develop and Activision continues to build up its position in these territories. Activision's partnerships with companies like Tencent and NetEase are key in this sense, allowing the company to build its position in the Chinese market.

Sales Evolution per Type



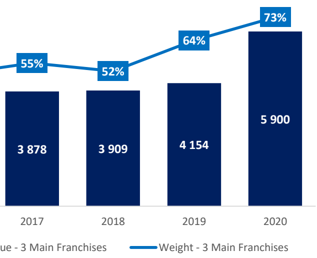
e: Annual Report

Activision reports its revenues in two streams: Product Sales and in-game, Subscriptions, and Other Revenues. The former consists of digital/physical sales of full-game products, while the latter involves revenues from microtransactions and downloadable content, subscription arrangements and licensing agreements, where e-sports are included.

Franchise Focus

Activision Blizzard can be separated into three segments: Activision, Blizzard, and King, all of which produce videogames. Historically, each segment always pulled most of its revenue from a small number of highly successful franchises: Call of Duty for Activision, World of Warcraft for Blizzard, and Candy Crush for King, which in 2020 represented roughly 73% of revenues combined, according to our estimations.

: Estimated revenue, 3 main franchises



ource: Own Estimates

These franchises consist in a series of games that maintain the same elements and mechanics over time but that are progressively updated either by new instalments or in-game content. Strong franchises have the power to sustainably generate revenues over time because they are popular and have loyal fan bases. Betting on new projects, on the other hand, is riskier because there is no preceding fan base and no guarantee of commercial success. Moreover, the gaming community is becoming increasingly more invested in fewer games[15], which is leading to higher player investment in a selection of highly popular games.

However, by diversifying less, the company is incurring in franchise risk: by not diversifying its game offerings, the supposedly winning franchises might get saturated, lose fans, and erode profitability. Hence, the resources the company saves from developing other franchises serve the purpose of refreshing its golden eggs, either by offering Free to Play (FTP) instalments, setting up e-sports championship tournaments, or developing content over time to preserve and build up consumer engagement and loyalty.

This strategy has worked until now, as we are seeing revenue boosts Year on Year (YoY), putting Activision Blizzard in a prime competitive spot. Consumer engagement levels also have been growing, explained by increases in in-game monetization. However, it is necessary to take a deep dive into the segments to really assess how each individual franchise has been evolving.

Activision

8: COD Estimated Sales

Activision is the largest segment of Activision-Blizzard, responsible for 49% of total revenues in

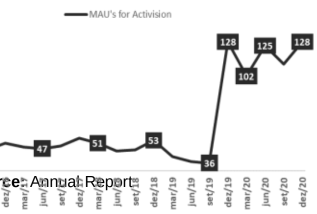
g playbook". Accessed November 24. https://www.gwi.com/reports/the-gaming-playbook

2020. Its revenues come mostly from the purchase of full-price AAA games (big-budget games) while making extra revenue from in-game purchases, generated by invested consumers. More recently, as part of its franchise refreshment efforts, the segment has been adopting an FTP business model for some of its games.

Besides Call of Duty (COD), its pool of franchise includes Spyro the Dragon, Crash Bandicoot, Tony Hawk, and Sekiro, which currently sell around 2-5 million lifetime units each (we estimate they represent 10% of Activision's total sales combined).

In contrast, COD Modern Warfare (released in 2020) achieved sales of 30 million units and even the less successful instalments of the franchise such as the 2016 Infinite Warfare edition sold around 13.6 million units. Moreover, these COD premium games pull in a lot of extra revenue from in-game purchases due to the humongous fanbase of the franchise. On annex 8 we show our estimated Call of Duty revenues per year.

Activision MAU's evolution



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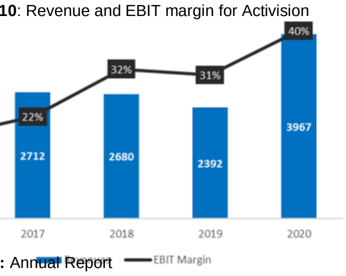
10: Revenue and EBIT margin for Activision



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The increase of the franchise's revenues was driven partly by the release of COD Mobile (2019) and COD Warzone (2020), a mobile and PC FTP videogame, respectively. The added users from COD mobile do not have the same value per user as users from premium games because the Average Revenue Per User (ARPU) for mobile is much lower, but they generate synergies for the premium instalments because of inter-game integration and increases in brand engagement. This strategy had a seemingly tremendous effect on the segment's margins. In fact, looking at the EBIT margin we saw a huge increase from 18% in 2016 (time where the Call of Duty franchise was at a low point) to 40% in 2020.

Currently, COD takes bronze in the highest selling gaming franchises, leads the FPS (first person shooter) genre and its online community of is one of the biggest in the word with more than 100 million players.

Blizzard

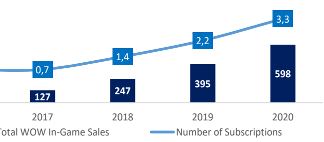
Blizzard has historically maintained a great focus on the PC segment, with over 82% of revenues in 2020 coming from it[16]. This is not a surprise because the segment's biggest franchise, World of Warcraft (WoW), is a PC exclusive, and the remaining relevant franchises of the segment are also heavily played on PC.

Unlike Activision, this segment is more diversified when it comes to the franchises. Blizzard also owns Hearthstone (a popular FTP online card game), Heroes of the Storm (a free to play competitive online game) and has plans to reinvigorate Diablo and Overwatch, two AAA games that were extremely successful in the past. Notwithstanding, this segment's performance has been shaky.

Once the most famous RPG game, WoW is currently under a lot of criticism for being overly complex and outdated as its graphics and mechanics are roughly the same since the release in 2004. It is dubbed as a dying franchise in the gaming community, with previously hardcore and loyal players leaving for fresher alternatives like Final Fantasy.

To battle the game's decreasing popularity, Blizzard has increased efforts to update the game. In 2018 it released the Battle of Azeroth expansion pack, followed by the release of WoW Classic in 2019, a reminiscent of the 2004 version of the game, and amid the pandemic of 2020, Shadowlands was launched. These sequential releases have been successful so far, with MAU's

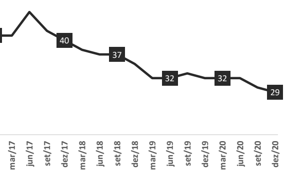
11: Estimated Sales for WoW



nual Report

increasing from 0.7 million in 2017 to 3.3 million in 2020. These increases, in our view, come from the huge pool of old subscribers (in 2010 the game had 12 million MAU's) that reactivated their subscriptions for nostalgia purposes and fuelled by lockdowns. Hence, the game's inability to attract new users is likely to be a major pain in the future, even more so with the constant criticism and decreasing popularity amongst gamers.

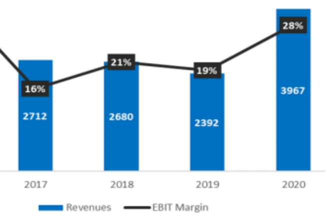
The segment as a whole has been seeing a lot of turbulence in MAU's. From March 2016 to 2017, we saw a large increase from 28 million to 41 million, driven by the launch of Overwatch that had tremendous success among gamers. However, after this peak, MAU's started retracing back to 2016 levels, a time when user level was at a historically lows. This decrease is worrisome but not surprising considering that Overwatch lost its novelty effect, as the game was not able to sustain its huge popularity, the Diablo franchise was left on standby, and no major new content was released for other games.



nnual Report

Margins for the segment are equally as unstable. In 2017 the EBIT margin stood at 16%, representing a more than 17% decrease YoY. In the subsequent years, we have seen margin increases, standing in 2020 at 28%, representing a more than 9% increase YoY. The lack of any major launch since 2016 reflect on margins as there are lower COGS and less investment in OPEX, namely marketing and product development efforts.

3: Revenue and EBIT Margin for Blizzard

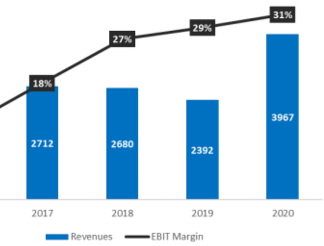


ce: Annual Report

King

King is completely focused on producing casual games for mobile. Unlike the previous segments, the target market for these games are the mobile owning masses, not the traditionally called "gamers". This reflects itself into a much larger market than PC and Console, but on the other hand in lower ARPU per player because these games are mostly free to be claimed from online stores, with their revenue source coming from advertisements and in-game purchases. Product substitutability is also high between products as it is harder to build a fan base in this segment.

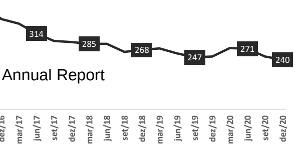
: Revenue and EBIT margin for King



Annual Report

Over the last 4 years, this segment has been very successful, with steady revenues of over 2 billion per year. MAU's have also been stable over the last 3 years, despite some erosion. The large decrease from 2016 to 2018 was due to the decline in players for Candy Crush, which peaked in popularity in 2015 with 273 million MAU's, a naturally not sustainable figure. The stability of the segment is nevertheless impressive as King has been able to remain one of the biggest-earning developers in the ultra-competitive mobile segment, with increases in revenue and margins improving steadily over the last years.

5: MAU evolution for King



Annual Report

Institutional Ownership

Activision is traded on the NASDAQ, under the ticker ATVI. It currently has 784 million shares as of December 2021 trading on the market. Institutional Ownership has been growing over the last 4 years, with currently 87% being owned by Institutions. The biggest holder is the Vanguard Group (8.26%), followed by Black Rock (7.36%) and Capital Group Cos Inc (6.42%). Over 74% of its ownership is located in the United States, followed by the United Kingdom with 5.4% and Saudi Arabia with 4.44%[17].

When it comes to Insider Ownership, 6.41% of the shares are owned by employees and

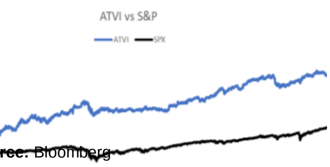
[17] Information retrieved from Bloomberg

management of the firm. The biggest holder is the company's CEO, Bobby Kotick which possesses 0.51% of outstanding shares. This metric has not fluctuated much over the last years.

The company has paid dividends annually since 2010. The last dividend payment happened on the 15th of April 2021 and was \$0.47 per share. There is no assurance the company will pay dividends in the future, but we believe it will, mostly because of its large cash generation ability. For 2022 we expect a Payout ratio of 17%, implying a dividend of \$0.42 per share.

Stock Performance

x 16: Cumulative Returns 2000-2021

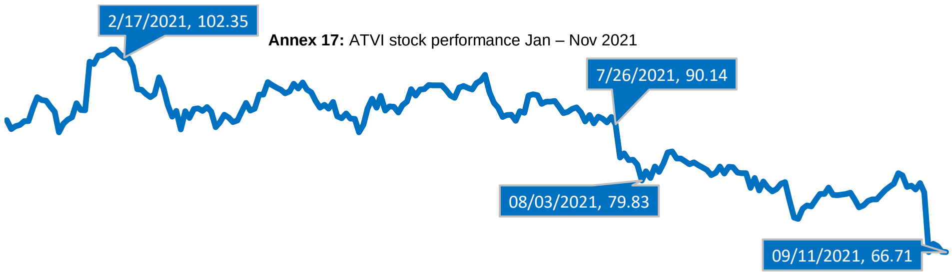


rce: Bloomberg

Activision has been able to perform extraordinarily well over the long haul, having outperformed its peers and the S&P500 consistently, despite some shaky recent years.

However, 2021 was an eventful year for the company. On February 2nd the company hit a stock price of \$102.96 per share, an all-time high for the company, fuelled by market exuberance and the pandemic induced stellar sales performance. In July the stock price dropped from around \$90 per share to shy of \$80 a share, a value that was sustained until November, when the Q3 results became public, making the price drop once again to \$66.8.

Annex 17: ATVI stock performance Jan – Nov 2021



Source: Bloomberg

Both drops can be traced back to a single event. In August a sexual misconduct scandal hit Blizzard, after several employees went public with sexual harassment and pay inequality accusations, causing the first drop. The company is currently in the middle of legal disputes regarding this matter and 20 employees[18], including Blizzard's president J. Allen Brack left the company. We believe the large cash reserves the company has safeguards the company from future legal fines. The other segments kept their operations as usual as the allegations were exclusive to Blizzard.

The second large drop is a natural consequence of the company's turmoil. On the Q3 press release, while earnings for the quarter surpassed analyst expectations, the outlook for the Q4 did not. The strain in the Blizzard segment forced the company to delay the release of two major launches, Overwatch 2 and Diablo IV, that were creating buzz in the videogame industry for a while.

In our view, the drop is exaggerated for the following reasons:

- Neither Overwatch nor Diablo IV had scheduled release dates announced, so the drop comes from inflated market expectations.
- There was once again no major change in fundamentals since August. The value of the franchises remains unchanged, and we do not expect the departure of 20 employees to change their prospects.

[18] Reuters. (2021, October 19). *"Activision Blizzard fires 20 employees following harassment claims".* Accessed November 30. *https://www.reuters.com/business/activision-blizzard-fires-20-employees-over-harassment-claims-ft-2021-10-19/*

- The company has been performing well in the last quarters, beating Wall Street consensus, and showing strength in troubling times.

Today, the value of Activision shares is $58.70. This represents a drop of over 54% in less than 5 months, still pricing the turmoil surrounding the company

Board of Directors

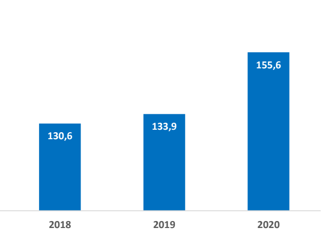
Activision Blizzard's board of directors is composed of ten people. Brian Kelly is the chairman of the board and has been assuming positions of leadership within the company since 1991. The presidency of Activision has been overseen by Rob Kostich for more than 16 years. Humam Shankini serves the presidency of King since 2019 and Blizzard is led by Mike Ybarra since August 2021, when former Blizzard President J. Allen Brack stepped down due to sexual misconduct allegations.

We expect the recent turmoil within the company to lead to further changes in Activision's board, namely, a change of the CEO, Bobby Kotick. Over 1000 employees have demanded for his resignation, after it was revealed that not only he knew about the toxic work environment, but also had an history of harassment and abusive behaviour. Furthermore, shareholders are also showing signs of no longer supporting the CEO due to mounting pressure from Public Figures, Industry peers and Activists Groups. We do not expect a potential CEO change to affect the long-term strategy of the company.

Market Forecast

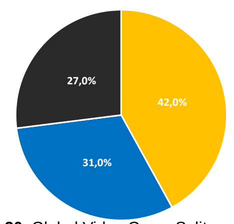
Market Overview

18: Global Video Game Market Size



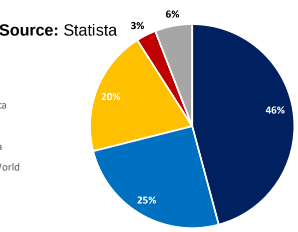
ce: Portal Euromonitor

9: Global Video Game Split per Segment, 2020



20: Global Video Game Split per Region, 2020

Source: Statista



rce: Own Estimates

Activision is a major player in the Video Game Industry, which itself is a large sub-segment on the Digital Media Industry, where there are also included the video-on-demand, Publishing, and Digital Music industries. Videogames are by far the largest segment, constituting around 60% of the total market and expected to deliver strong growth in the upcoming years.

This high growth market already increased its size substantially pre-Covid, rising 14% from $118B in 2017 to $134B in 2019[19]. While it was already steered to achieve high growth in the next decade, the COVID-19 pandemic accelerated this trend, with every quarter of 2020 breaking its respective revenue record. As people were forced to stay at home and quarantine, the options they had to spend their free time were limited to at-home entertainment. As a result, the videogame industry had a stellar performance, growing by 22% in 2020 surpassing $155B.

Videogame revenues can be split into three segments. The largest segment is mobile, mostly due to the massive size of its user base with a weight of roughly 49% in 2020. Following that is console gaming, weighting 28%, and finally, PC gaming is worth the remaining 23%. This trend towards mobile gaming comes from the massive popularity of mobile gaming in developing countries, where internet penetration rates have been surging. One popular case study is India, where the online gaming market grew at a CAGR of 34.4% from 2016 to 2020, where more than 90% of online gamers play mobile games[20].

On the other hand, PC and console segments have a higher ARPU, and revenues come

[19] Data retrieved from Portal Euromonitor, *https://www.portal.euromonitor.com*

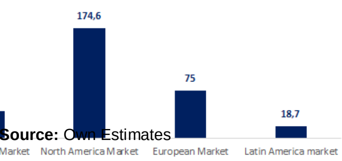
[20] Statistics retrieved from: KPMG. 2020. *"A year off-script: Time for resilience". Accessed December 05. https://assets.kpmg/content/dam/kpmg/in/pdf/2020/09/year-off-script-kpmg-india-media-and-entertainment-2020.pdf*

predominantly from Developed regions with higher purchasing power. From 2017 to 2020 we estimate the CAGR of the mobile segment to be 11.41%. During this period, the console and PC games segments presented CAGR's of 4.50% and 3.00% respectively.

When we look at the gaming market through different regions, we can clearly see the distinct aspects that split the developing and developed world. To start off, the largest market in revenues is by far Asia Pacific, contributing for 46% of all game revenues for the year of 2020. These revenues are mostly driven by large markets such as India and China, who have whopping populations of 1.4 and 1.5 billion people, respectively.

Key Drivers

21: ARPU per Region, 2020

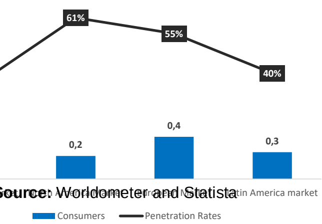


Source: Own Estimates

The global gaming market can fundamentally be split into two variables: the number of videogame users, and the ARPU which translates into how much revenue each user adds to the market.

It is important to note that different regions have different values for ARPU because of different consumption profiles. North America presents the highest average revenue per user (224$), followed by Europe (75$), Asia Pacific (43$), and Latin America (19$). This difference comes from the prevalence of PC and Console games in developed countries, with developing countries preferring cheap/free-to-play alternatives, mostly available on mobile games.

22: number of consumers (billions) and ation Rates per Region, 2020

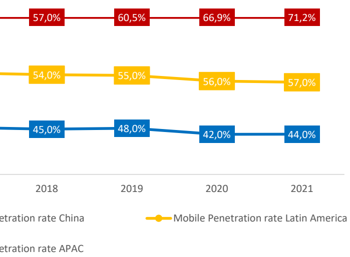


Source: Worldometer and Statista

In our model, the number of consumers comes as the share of the total population that plays video games, given through the gaming penetration rate. To forecast the growth of this variable, we applied different methodologies since we believe the growth of the gaming penetration rate in developed and developing regions should be differentiated.

We are forecasting strong growth for videogames as a combination of multiple drivers, namely mobile internet penetration rates, demographic trends, and the growth of e-sports. Stalling growth in the short run we have IDFA (Identifier for advertisers).

23: Mobile Penetration Rates Emerging ts

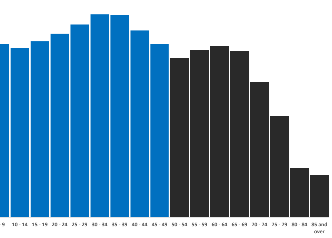


e: Statista

Mobile Internet Penetration: In developing regions we assume the gaming penetration rate grows in tandem with the growth of the mobile internet penetration rate. Historically these countries have not been a traditional target for video game companies, since a big chunk of the population in these countries does not have access to a computer, and consoles can be prohibitively expensive. But the rising internet penetration in these countries, coupled with increasing smartphone ownership, has allowed mobile to become a *bona fide* platform in the e-gaming community, opening the doors to an underpenetrated market with massive growth potential.

This is evidenced in the APAC and Latin American regions. According to Statista[21], from 2017 to 2020 the internet penetration rate in Asia rose from 45% to 55%, while the mobile penetration rate in Latin American market grew from 52% to 56% during that period. This evolution drove the gaming penetration rate, which increased from 29% to 36% and 37% to 40%, respectively during this period.

24: Videogame Potential Audience in 2026



ource: Own estimates using OECD data

Demographics: For developed regions, we forecast the gaming penetration rate to grow as a function of demographics, coming from the average growth in potential gaming audience. As previously established, the current pandemic, and consequently, the lockdown accelerated changes in consumer trends, kicking out the outdated stigma that videogames only serve younger

enetration rate in Asia compared to the global penetration rate from 2009 to 2021". Accessed September 21.
ıtistics/265156/internet-penetration-rate-in-asia/

audiences and helping to embrace gaming as a leisure activity available to all age groups. This effect pushed 2020 videogame penetration rates to increase 4% and 5% YoY in North America and Europe.

As generations get older, the average videogame age will expand, growing from a potential gaming audience of 58% in 2018, to an estimated 63% in 2026[22]. This change occurs mainly from two effects: (i) gaming presents a sticky effect, and thus it is expected that this activity will perdure as a social activity even as people get older; (ii) in the past few years gaming has been able to penetrate older age segments, and this trend is expected to continue.[23]

Demographics will be the major factor in the growth of the videogames industry in developed regions, where the internet penetration rate has reached a natural ceiling.

IDFA: IDFA enables advertisers to get data on the responsiveness of users to ads and their online behaviours. This is very useful information because it allows advertisers to find high-value users based on their consumption patterns.

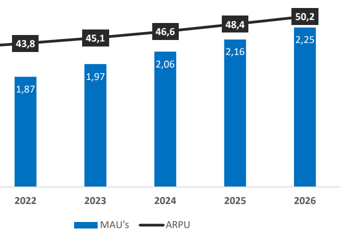
In early 2021 Apple announced it would offer the ability for customers to opt not to give that information to advertisers. IDFA is one of the most precise ways to track a mobile advertising campaign on iOS, but users are increasingly opting out of using it. This feature can severely impact the revenue model of mobile gaming, as its implementation disables the advertiser's ability to place targeted ads, leading to a distortion in the advertisement pyramid, with ads that were previously targeted at high-value users being directed to all the users.

This scale of events eventually leads to an overall decrease in the value of advertisement, a crucial driver for revenue in the mobile segment. According to a report[24], advertising revenue shows a heavy emphasis on Asian Countries, with 46% of all mobile gaming revenue in the APAC region coming from advertisement, with the rest coming from IAP (in-app purchases). In the Americas and EMEA, this share is 45% and 36%, respectively. For now, this feature has only been employed by Apple, only affecting iOS users, but Google has recently announced it would implement similar features by the beginning of 2022.

We expect that the total effect of the implementation of IDFA will have a stronger impact on the ARPU of Asian Pacific countries, due to the larger weight of advertisement on mobile gaming revenues. We believe the effect of the IDFA implementation to last until 2024. At that point our view is that videogame publishers will be able to reinvent their revenue models, through either pushing IAP, or finding alternative ways to profit from advertisement, thus overcoming the IDFA effect.

From 2017-2020, CAGR of mobile ARPU was 6.56%[25], driven not only by increases in ad advertisement but also in propensity to consume. In the future we expect further boosts in player investment, thus IDFA will only abate growth. From 2026 onwards we expect increases in player investment to slowdown, tending towards inflation.

25: Asia Pacific Market Forecast



…graphic pyramid. Annex 24 showcases the percentage of total population in each age segment that plays

…e segments with higher growth rate of people who have played at least one gaming genre are in the 55-64s … Source: GWI. 2021. "*The gaming playbook*". *Accessed November 24. https://www.gwi.com/reports/the-*

… *…ing Monetization Report". Accessed October 19. https://resources.unity.com/reports/the-2020-mobile-game-monetization-report*

[25] Newzoo. 2021. "*Global Games Market Report*". *Accessed November 25. https://newzoo.com/products/reports/global-games-market-report/*

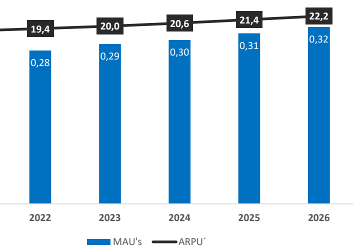
Developing Regions Forecast

We expect the boom in Asia Pacific to be sustained in the following years, with a CAGR of 8.4% from 2021 to 2026. We anticipate growth in the region to slow down, as the internet penetration rate in the region reaches its natural ceiling and increases in ARPU tend to an inflation rate of 2%[26].

In 2023 the region will represent 50% of the global gaming market, standing at $88.7B.

Latin America will also grow at a high pace, showcasing a CAGR of 7.2% from 2021 to 2026. Growth will be driven by the same trends as Asia Pacific, but the current consumption profile of this market prevents the region from outgrowing its current 3% of the total market share. We expect the market to surpass $10B in 2032.

nex 26: Latin America Market Forecast



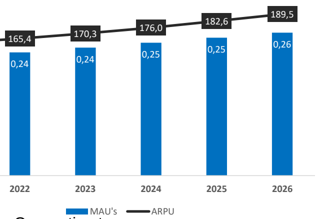
Own estimates

Developed Regions Forecast

North America and Europe will remain major markets in the future, both growing at a CAGR of 5.6% from 2021 to 2026, driven by the aforementioned demographic trends and increases in ARPU.

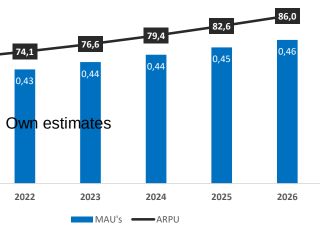
While the growth of developing regions is mainly sustained by the growth of mobile gaming, developed regions will sustain high ARPUs from the high consumption of console and PC gaming. The importance of the North American and European markets is expected to slightly decrease to 22% and 18% in 2026. We expect these markets to surpass $50B and $40B in 2027, respectively.

27: North America Market Forecast



e: Own estimates

28: Europe Market Forecast



Own estimates

E-Sports Forecast

E-sports are defined as competitive gaming at a professional level and in an organized format (a tournament or league) with a specific goal (i.e., winning a champion title or prize money) and a clear distinction between players and teams that are competing against each other. The industry has suffered a boom that has spilled into the gaming market, being one of the main drivers for the extraordinary year-on-year growth that some videogame franchises have experienced in the recent past. For the sake of comparison, in 2014 the League of Legends World Championship was viewed by more than 27 million people[27], while the NBA final series between the Miami Heat and San Antonio Spurs only averaged 15.5 million viewers. More recently, the winner of last year's Call of Duty league final amassed a total prize of $2M, which is more than the prize money for winning the Roland Garros Grand Slam ($1.9M). This growth in e-sports has led companies such as BMW, Marvel, and TikTok to enter into partnerships with e-sports organizations. E-sports enables brands to engage with younger audiences, and it comes as no surprise that sponsorships are the biggest source of revenue stream for e-sports competitions.

Data from newzoo[28] shows that the e-sports market has grown consistently in the past few years, from $655M in 2017 to $950M in 2020, a 45% increase during this period. Last year's pandemic had a damaging effect on the market, causing industry revenues to drop 1.1%. This was due to the cancelation of in-person events, which obliterated ticket revenues and strongly impacted merchandise sales. The lockdown, however, had a positive effect on the live-streaming side of e-sports, leading to spiking viewership across all platforms (YoY increase of 10%).

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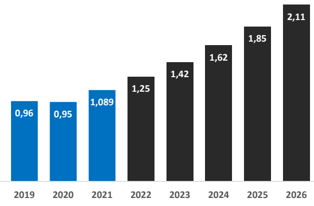
[26] We expect the future long-term inflation rate to be 2%, in line with Central Bank expectations

[27] PCGAMER. (2014, December 02). *"League of Legends 2014 World Championship draws 27 million viewers".* Accessed October 10. *https://www.pcgamer.com/league-of-legends-2014-world-championship-draws-27-million-viewers/*

[28] Newzoo. 2021. "*Global Esports & Live Streaming Market Report". Accessed November 16. https://newzoo.com/insights/trend-reports/newzoos-global-esports-live-streaming-market-report-2021-free-version/*

nex 29: E-Sports Market Forecast



urce: Own estimates

Overall, 2020 lead to a mixed effect in the e-sports market, but we believe that the pre-covid trend of the market is strong enough to overcome the poor year of 2020 and that the growth in live streaming brought by the pandemic is going to be a powerful catalyst for future. Therefore, we expect that in 2021 the e-sports market will rebound and reach a valuation of $1.1B, a 15% increase from 2020 and that in the following years this trend will be sustained by continuous growth. From 2027 onwards we forecast this growth to slow down, eventually reaching a steady state equal to the inflation rate of 2%.

It is important to note that while this segment is not huge size-wise, it is a key driver for competitive gaming franchises to remain relevant over the years.

This industry is likely to follow the same path as the sports industry, where a small number of extremely popular sports pull in most of the revenue. Currently, the most popular game titles in the world of e-sports are Counter-Strike Global Offensive, League of Legends, and Call of Duty, created by Valve, Riot Games, and Activision respectively.

We have no doubt that the recent phenomenon of e-sports has revived these franchises into the profitable titles they are today. We expect e-sports to have a leading role in the future of the videogames industry, coming as a key variable that creates engagement around the gaming market. The franchises that are able to remain relevant in the e-sports domain will benefit from growing user bases, high player engagement, and sustained revenues over time.

Company Valuation

Revenue Forecast

The underlying key assumption regarding this valuation is that Activision will keep its current business model of focusing on winning franchises by depleting most of its resources into renovating and developing them, to increase its user base and maintain player investment. The success of the company is therefore reliant on its ability to keep its gaming franchises relevant over the years.

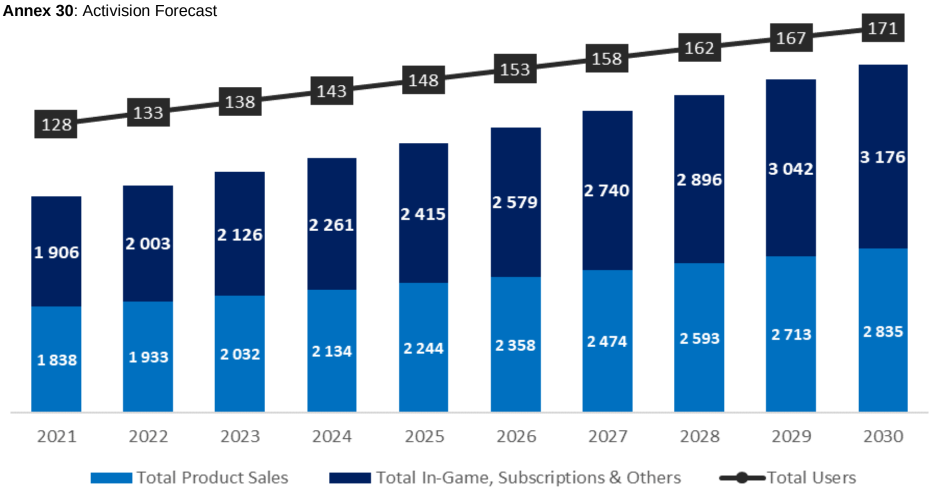
Activision

Activision is expected to maintain its focus on the development of the Call of Duty franchise. The company successfully reinvigorated the COD brand in the last 2 years, from an already established but saturated franchise into a leading stakeholder in the growing e-sports community, while fostering further growth from the fast-growing mobile market through Call of Duty Mobile. Our general view is that Call of Duty will sustain a dominant position in the market, over the years to come.

The year of 2021 has shown a bit of erosion in MAU's, but it is expected Q4 will deliver strong performance, on the back of the release of COD Vanguard and the expansion pack for Warzone dropping in December. Thus, for 2021 we expect an average of 128 million players, which according to our estimates, represents 95% of the whole segment. However, it is not expected that product sales of COD in 2021 are as successful as the last year’s installment and thus we are forecasting product sales of 1.8 billion for 2021, which represent a 9% decrease YoY. For the future, we do not expect major price policy changes in AAA games, and thus Call of Duty product sales are expected to grow at inflation from 2022 onwards.

Annex 30: Activision Forecast

Annex 30: Activision Forecast



Source: Own estimates

Furthermore, in-game purchases, subscriptions, and other revenues will continue to provide sales figures above product sales. Growth will follow the overall market trend, driven by the high exposure to E-Sports (COD league) and increasing consumer appetite. Together with the return of ARPU to pre-pandemic levels, the large exposure to the mobile segment (COD mobile) will halt ARPU growth in the next 2 years. In 2026, this revenue source will provide over $2.5B, representing 56% of total COD revenues.

There are currently no plans to develop other franchises in this segment. Thus, other game sales are forecasted to decrease until they become immaterial. There will be sporadic launches of other franchises, such as Tony Hawk and Crash Bandicoot, but they are not expected to be home runs. We expect a 50% drop in revenues for 2021 caused by a thinning user base and a churn rate over the forecast period of 10% per year. ARPU for product sales and in-game purchases will be stiff, growing at the inflation rate, as the sub-segment will not be exposed to the growing e-sports and mobile trends, and no efforts will be put into developing consumer engagement.

Blizzard

The recent turmoil is not expected to have a long-term impact on the segment, but major strategic changes are due in upcoming years.

Despite the success of the franchise, the outdated 15-year-old is completely saturated for the current user base and overly complex to attract new players. In due course, a steady player exodus from World of Warcraft will ultimately lead the franchise to lose relevance over time.

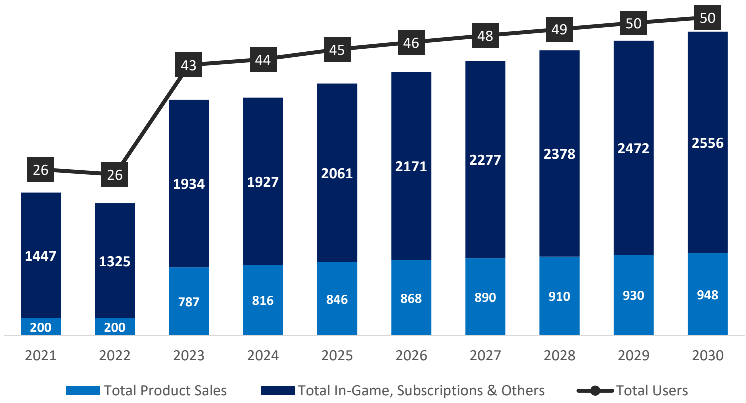
In 2021 the franchise will still deliver strong performance, generating around 810 million for the segment, with over 3 million players playing the game, driven by the stickiness of the pandemic fueled release of the new expansion Shadowlands and the nostalgia backed WoW classic. After that we expect 2024 MAU's to revert to 2016 and in the long run, we expect a 10% churn rate in the user base, as the company will redirect its efforts into developing other more promising, fresher franchises.

Subscription-based revenue is not expected to change, providing high ARPU (as users pay a $15 monthly fee to have access to the game). A potential release of a mobile installment for the franchise is not expected to revert the future of World of Warcraft.

Instead, the future of Blizzard will lie on the Diablo and Overwatch franchises. Due to the delays in the aftermath of the recent company turmoil, we expect no releases until 2023 and thus MAU's to drop to 22 million in 2021 and stabilize in 2022 mitigated by the launch of Diablo Resurrected and a Diablo mobile installment.

From 2023 onwards, the launch of Diablo IV and Overwatch II (two already proven and extremely successful games) will revive the past success of the franchises. Therefore, we forecast 46 million monthly average users for the year 2023, (resembling 2016 MAU's). As Diablo and Overwatch are triple AAA games, (that require a full game purchase), current ARPU will also be pushed to 2016 levels.

Annex 31: Blizzard Forecast



Source: Own estimates

For the future, Overwatch will be in a prime position to absorb growth from the e-sports market and Diablo will build up its presence on the mobile segment. However, we consider these franchises to not be as solid as COD, and as the novelty effect of both games fade, competition will steal some market share over time. Therefore, after 2026 we expect the user base to grow at 75% of the market.

King

Candy crush was an early riser on the mobile gaming world and has massively capitalized from a first move advantage. It has built a large and loyal customer base, that enjoys playing the game due to its simplicity and free nature.

The tremendous success the franchise had in its early days led to unsustainably high levels of MAU's. In recent years there has been a correction in the user base, which we expect to stabilize in the future.

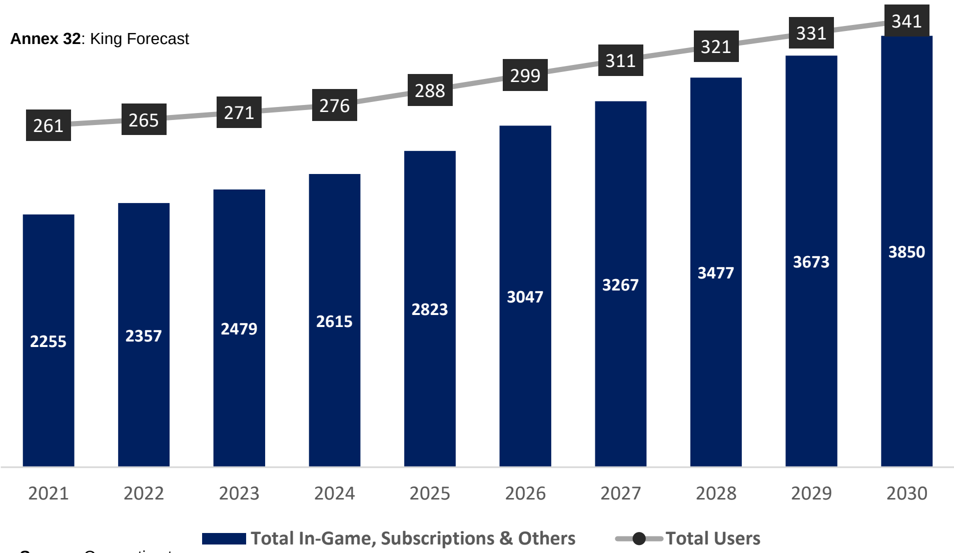
However, as the mobile market possesses extreme competition from both small and big players, low player retention, and high substitutability, it will be difficult to replicate the humongous success of the early day and thus slower growth is expected. User growth for Candy Crush is forecasted to be 50% of market growth.

As the other games from King are very similar in nature to Candy Crush, but with lower retention rates and less brand relevance, we are assuming their user growth to be even lower, standing at 25% of market growth.

The segment will be the most exposed to the short-run impact of the new IDFA rules, leading to fluctuations in ARPU. We expect a recovery in the following years as advertisers adapt to the new legislation. We also do not expect much development in player expenditure for casual games and thus we are forecasting ARPU to increase at inflation.

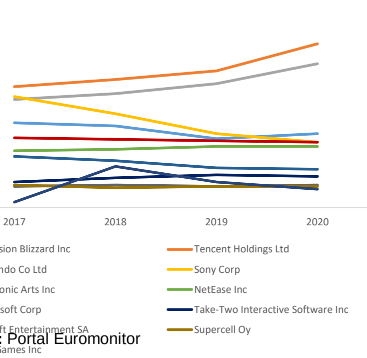
Overall, we expect the segment to perform well in the future and to be a solid revenue source for Activision Blizzard.

Annex 32: King Forecast



Source: Own estimates

33: Historical Market Share Top 11



: Portal Euromonitor

Market Share Projection

The gaming industry is deeply fragmented, with the top 10 companies holding 45% of the market. Euromonitor data[29] shows that the biggest player over the last 4 years has been Tencent, whose market share increased steadily from 8.5% in 2017 to 11.5% in 2020. The Chinese conglomerate that created WeChat is specialized in mobile games and controls a huge slice of the Chinese market, along with NetEase who currently owns 4.3% of the total gaming market.

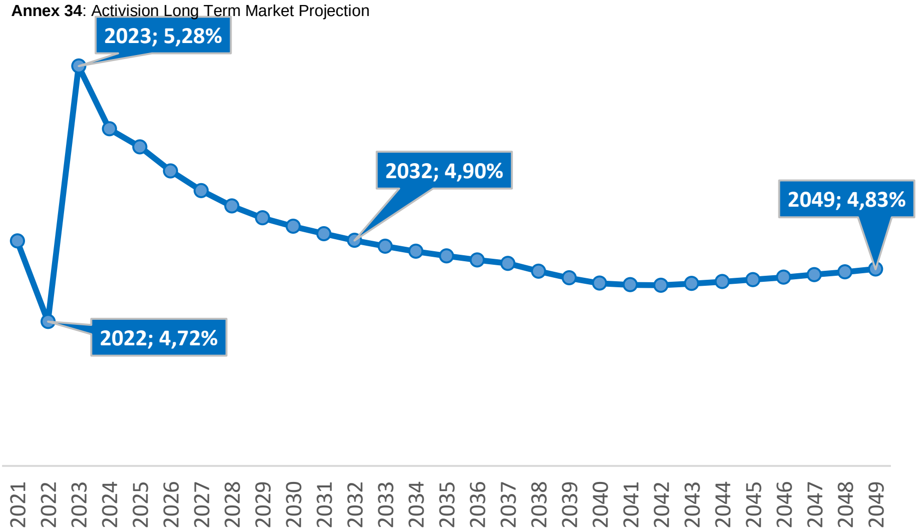
Nintendo, Sony, and Microsoft also have solid market shares of 10.1%, 4.6%, and 2.7%. Besides developing their own games, these companies provide the hardware for console games and own the main digital distribution channels for video games.

Out of the traditional game studios, Activision Blizzard is the biggest one. According to our calculations, the company dominates around 5.2% of the market, followed by Electronic Arts with 4.6% and Take-Two with 2.2%.

By comparing Activision's revenue forecast with the beforehand estimated market projections, it is possible to estimate the long-term market share of the company. Over the last 4 years, Activision was able to sustain stable market shares, with 2017 being the best year, standing at 6.0%. A slight decrease in market share from 5.2% in 2020 to 4.71% in 2022 is expected due to the lower release activity. In 2023, we forecast a peak market share at 5.15% of the total market size. Over the long term, we expect it to decrease slightly and stabilize at 4.83% of the total market.

[29] Company shares for the videogame market, retrieved from *https://www.portal.euromonitor.com*

Annex 34: Activision Long Term Market Projection

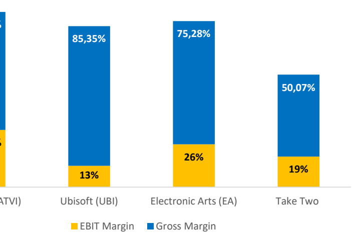


Source: Own estimates

Cost Structure & Margins

Activision presents a very lean cost structure, with a recent track record of sustained increases in efficiency. In the past 5 years, the company has been able to decrease the share of its costs as % of total sales, leading to better Gross and EBIT margins standing at 72% and 35% respectively as of 2020. The Gross Margin is in line with the industry, with similar values to EA (in our opinion the closest comparable) that stood at 75% in 2020. We believe Take Two has a lower gross margin (50%) because the games they launch are more expensive to produce, due to their polished and complex nature. Ubisoft has seemingly higher gross margins because they allocate amortization-related costs into product development.

nex 35: EBIT and Gross Margin for peers, 2020

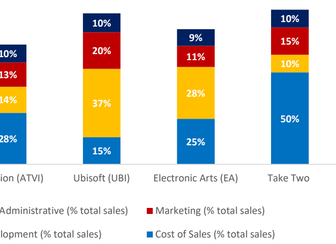


rce: Annual Reports

Analyzing the EBIT margin, a more reliable measure of efficiency, Activision outperformed the industry in the last 3 years, with EA being the closest comparable once again. Both TT2 and UBI have much lower EBIT margins.

However, we do not expect these high margins to be sustained in the future, because in our view the cost needs of the future developing franchises will eat up the margins.

ex 36: Costs in % of revenues for peers, 2020



rce: Annual Reports

Product Costs have been decreasing over time, standing currently at 30% of product revenues in 2020. These costs refer to manufacturing costs which include personnel costs, warehousing, royalties paid to distributors, and other product costs. We believe that the bulk of these costs correspond to royalties paid to online distribution platforms such as the PlayStation Store and Google Play. Physical sales have been decreasing over time and are expected to do so in the future, reducing warehousing and physical distribution-related costs. As we do not expect relevant increases in royalties' fees of online distribution platforms, we forecast this caption a constant 30% of product costs over the forecasting period.

ource: Annual Reports

Game Operations and Distribution costs include customer service, internet bandwidth, and server costs, and e-sports related costs. As the company increases the size of its e-sports activities and its user base, we expect them to increase over time. We lack a peer comparison in this caption but nevertheless, we are forecasting it to increase, reaching 25% of all in-game-based revenue in 2023 and to stabilize it for the upcoming years.

Software Development costs and amortization tends to fluctuate a lot over the years. These costs are capitalized on the BS and expended based on a ratio of current to total projected revenues. As such, when release activity is high, these costs increase as most of the revenues of a single game are concentrated in the first year. Therefore, according to our estimate of how the release schedule will be in the future, they will remain at 2020 levels until 2023 and then pick up to 2016 and 2018 levels[30] from 2023 to 2025. We averaged them out for the following years to account for cyclicality in the release period.

Overall, we expect decreases in the gross margin. Activision has been increasing this margin over the years, which can be explained as a lower investment due to a less variety of franchises being developed. As efforts into developing and renovating franchises pick up from 2023 onwards, we expect margins to reflect that. In 2021 we will see a record high gross margin of 73%, and subsequent years until it stabilizes in 2026 sitting around 67%.

Product Development reflects costs related to developing the franchises (creative teams, technical and production-related costs). These values are expected to pick up in the next years due to increased efforts into developing the company's franchises to stay competitive. Compared to companies like EA and Ubisoft we see that Activision has lower product development costs, which is partially explained by potential efficiencies, but we believe these are too low to sustain continuous efforts in maintaining franchises relevant. We are forecasting it to grow over time, sitting stabilizing around 20% over the forecast period.

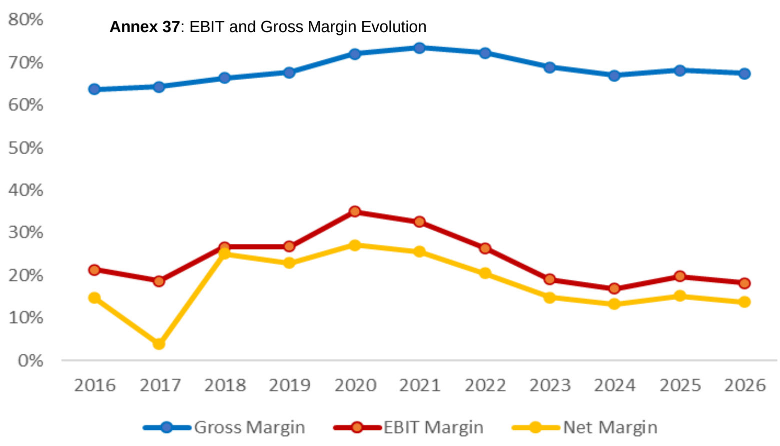
Sales and Marketing efforts are expected to pick up from 2023 onwards, due to the release of Overwatch 2 and Diablo IV, and to represent 20% of revenues over the future period.

General and Administrative costs are expected to remain at past levels as no major shocks are expected for this caption.

The EBIT margin for Activision will decrease from 35% in 2020 to 33% in 2021, still higher than its peers, and to decrease to 2017 levels in 2023. Afterward, it will stabilize at 18% over the remaining forecast period.

We must again recall that Activision was a clear winner from the pandemic and the year of 2020 was an anomaly for both the company and the industry overall. But throughout the years the company has shown a clear trend of improving its cost efficiency as they do not require major cost expenditure as companies like Take Two, despite having hugely popular franchises. all, we believe Activision's cost structure is an advantage in its pursuit of market dominance, but it is expected to close the gap to its peers if it wants to remain competitive.

Annex 37: EBIT and Gross Margin Evolution



Source: Own Estimates

Fixed Capital Needs

[30] During these years the release activity of the company was high

The standout aspect of Net Working Capital is consistently having negative requirements over time. This is due to the Deferred Revenue Caption, which overpowers all short-term cash necessities. As stated before, a big slice of Activision sales refers to subscriptions and virtual content, which can be pre-paid and refers to future time periods (e.g., prepayment of the new COD released in the future, or a yearly subscription for World of Warcraft). These revenues are not registered immediately and are instead recorded as a liability. This allows the company to finance its daily operations through early payments from its clients, which ultimately has a positive effect on the cash conversion cycle of the business. We expect these pre-paid revenues to be common in the industry and as such for the foreseeable future we forecasted them as a simple 3-year average.

When it comes to the other NWC captions: we established operating cash as 2% of Activision's total cash reserves for the forecasting period. Inventories are an increasingly more redundant part of the business because digital sales are gradually becoming the focus of the company. No major changes are expected in the accounts receivables or payables as no major shocks are expected in the payment and receiving periods.

Activision's huge cash reserves and deferred revenues allow for little to non-existent executional risk, a common link across all industry as we can see in the graph to the left.

On the non-current side, software development was calculated as a % of revenues for conservativeness. Historically, this caption has been stable over time in the 6-7% range, and we expect it to remain so.

It is important to note that Goodwill was separated from the core components. This is for simplicity purposes as we do not want to make major assumptions regarding the inorganic growth of the company. We forecasted constant Goodwill over time because it is both in the nature of the business and the company to acquire studios for their technology and potential franchises. Notwithstanding, the value of the company rises from the ability to develop its internal franchises.

The last noteworthy caption is Intangible assets, which has decreased over time due to the amortization of its internally developed franchises, namely in the King acquisition. We forecasted it to go hand-in-hand with revenues, as higher revenues reflect more valuable franchises.

Return on invested capital

To evaluate the value creation of the business and its acquisitions, we calculated the core return on invested capital (ROIC) with the goodwill included. The rationale behind this is to assess whether acquisitions, such as King in 2016, created value for the company. Using this methodology, between 2017 and 2020 ROIC ranged from 9% to 23%, demonstrating that the acquisitions created value.

When we exclude goodwill from the ROIC calculation, the variable becomes much more unstable, ranging from -195% to -1394% in the same period. This is a consequence of the low levels of invested capital as the company possesses negative net working capital needs and most of its non-current assets correspond to intangibles, which are already amortized. Given the magnitude of this variable, we can conclude that Activision creates value organically.

In our model, the return on new invested capital (RONIC) shows a very sizable dimension meaning that the company will create value in the long run. We expect RONIC in the steady state period to be 183%.

38: Unlevered cost of capital estimation

	Min	Q1	Median	Q3	Max	Average
	0,32	0,45	**0,64**	0,80	0,92	0,63
	3,30%	4,06%	5,12%	6,04%	6,74%	5,08%

ource: Own Estimates

Discount rate

Cost of assets

The cost of assets is estimated using linear regressions where Activision, Electronic Arts, Ubisoft, and Take-Two are used as regressors and the MSCI World Index as the regressand. The estimation was performed using three-year weekly data, yielding a median unlevered beta of 0.64. To account for the added uncertainty surrounding the company, we used the 3rd quartile unlevered beta of 0.80. Using a market premium of 5.70%[31] and the 10-year US treasury bill as a proxy for the risk-free rate, 1.49%, we obtain an unlevered cost of capital of 6.04%.[32]

Cost of Debt

To estimate the cost of debt, we used the Yield to Maturity (YTM) of an Activision corporate bond maturing in 2050[33]. The yield to maturity is only a proxy for expected return because the yield is a promised rate of return on the debt of a company. However, as stated in Koller, Goedhart, and Wessells (2020)[31], for companies with investment-grade debt (above BBB), such as Activision (BAA1), the probability of default, and thus, the expected loss of the bond, are so low that the yield to maturity comes as a suitable for proxy for estimating the cost of debt of a company. Using this approach, we estimate a cost of debt of 3.23%, which implies a beta debt of 0.31.

39: Historical Capital Structure

ars, as of 31st December)

	2018	2019	2020	2021
	$ 46.80	$ 59.19	$ 90.96	$ 58.70
	778	771	771	784
	$ 36,410.40	$ 45,631.64	$ 70,130.16	$ 46,020.80
	-1,092	-2,716	-4,590	-6,824
	$ 35,318.90	$ 42,915.42	$ 65,540	$ 39,196.37
	103.09%	106.33%	107.00%	117.41%
	-3.09%	-6.33%	-7.00%	-17.41%

ource: Annual Report

Capital Structure and WACC

For 2021 we expect Activision will have a debt-to-equity ratio of -17.41%, which is used as the target capital structure for the forecast period. Thus, we believe that using the weighted average cost of capital is more than a reasonable proxy for the company's cost of capital. However, an important caveat is that our model does not consider potential M&A activity, which might affect the capital structure through temporary decreases in excess cash.

Using the previously mentioned inputs, the average weighted cost of capital for Activision will be 6.15%.

Terminal value

nnex 40: Terminal Value

TV Calculation	
V_2049	84,257.78 $
(2049)	2.4%
RONIC	184%
VACC	6.2%
V_2020	16,633 $

ource: Own Estimates

Our model determines 2049 to be the terminal year. By that time, the company will grow at a steady-state growth rate of 2.4%, which implies an Investment Rate (IR) of 1.3% and a return on new invested capital (RONIC) of 184%. Note that 2.4% is a fair estimation for the terminal value growth rate as it stands very close to the world trend real GDP growth rate (2%)[34] and our estimation for the long-term videogame market growth rate (2.3%).

Discounted Cash Flow

To determine Activision's equity value for the year of 2021, we deduct to the enterprise value of $61.8B the value of the net debt, -$6.7B, reaching an equity value of $68.5B. As stated in the table to the left, the value per share of Activision as of 31st of December of 2022 is $77.08, assuming the current number of outstanding shares, 784 million.

[31] Retrieved from Koller, Goedhart and David Wessels. 2020. *Valuation: Measuring and Managing the Value of Companies.* McKinsey & Co.
[32] Both the stock prices for Activision, Electronic Arts, Take Two and Ubisoft, and the risk-free rate were retrieved from Bloomberg
[33] Retrieved from the Financial Industry Regulatory Authority (FINRA), http://finra-markets.morningstar.com/BondCenter/Results.jsp
[34] OECD. 2018. "*The long view: Scenarios for the World Economy to 2060". Accessed December 08. https://espas.secure.europarl.europa.eu/orbis/sites/default/files/generated/document/en/b4f4e03e-en.pdf*

Sensitivity analysis

nnex 41: WACC sensitivity analysis to Ru and Rd

		Ru			
3.30%	4.07%	5.08%	5.12%	**6.04%**	6.77%
3.41%	4.18%	5.19%	5.23%	6.14%	6.88%
3.44%	4.20%	5.22%	5.25%	6.17%	6.90%
3.46%	4.22%	5.24%	5.28%	**6.19%**	6.93%
3.48%	4.25%	5.27%	5.30%	6.22%	6.95%
3.51%	4.27%	5.29%	5.32%	6.24%	6.98%
3.53%	4.30%	5.32%	5.35%	6.27%	7.00%

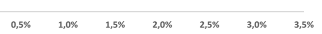
42: Price sensitivity analysis WACC and g

			WACC			
.34%	4.69%	5.19%	**6.19%**	6.69%	6.89%	6.93%
.1 $	93.7 $	84.1 $	70.7 $	65.8 $	64.1 $	63.9 $
.4 $	98.6 $	87.4 $	72.3 $	67.0 $	65.2 $	64.9 $
.1 $	105.4 $	91.7 $	74.3 $	68.4 $	66.4 $	66.1 $
.4 $	113.4 $	96.6 $	76.4 $	69.9 $	67.7 $	67.3 $
.6 $	115.8 $	98.0 $	77.0 $	70.3 $	68.0 $	67.7 $
.7 $	123.6 $	102.4 $	78.7 $	71.4 $	69.0 $	68.6 $
.6 $	130.8 $	106.3 $	80.2 $	72.4 $	69.8 $	69.4 $

Source: Own Estimates

44: Price sensitivity analysis to Rd and D/V / Price sensitivity analysis to changes in g

			D/V		
-37.41%	-27.41%	**-17.41%**	-7.41%	2.59%	12.59%
75.29 $	76.19 $	77.13 $	78.09 $	79.09 $	80.12 $
74.56 $	75.64 $	76.76 $	77.93 $	79.15 $	80.42 $
73.84 $	75.09 $	**76.40 $**	77.77 $	79.21 $	80.72 $
73.15 $	74.55 $	76.04 $	77.61 $	79.27 $	81.03 $
72.47 $	74.03 $	75.68 $	77.45 $	79.33 $	81.34 $
71.81 $	73.51 $	75.33 $	77.29 $	79.39 $	81.65 $



urce: Own Estimates

One of the most important caveats to the DCF model is the sensitivity to its inputs, namely to the weighted average cost of capital (WACC) and long-term growth rate (g).

To define a reasonable interval for the WACC, we analyzed its sensitivity to changes in the company's unlevered cost of capital (Ru) and cost of debt (Rd), obtaining a range from 3.41% to 7.00%. For the Ru, the range used reflects our estimated distribution of the unlevered beta for Activision and its peers. Changes in Rd reflect possible changes on the YTM of the company's corporate bonds.

While it is unlikely the WACC will reach these extreme values, this analysis is useful stress test extreme events on the stock price.

For the long-term growth rate, we established a range from 1% to 3%. This interval reflects scenarios where the company reaches feeble growth, below the inflation rate, and a scenario where it continuously grows at a relatively fast pace. This assessment provides more evidence that Activision is currently underpriced, as even in the unlikely event in which the WACC is 6.93% and the g is 1%, the stock price is still above the one observed on the 13th of December 2021, \$58.70 vs \$63.90. Moreover, for our Buy recommendation to downgrade to "Hold"[35] it would require the WACC to increase by 11% (to 6.89%), assuming the current g of 1%.

Another useful insight is to assess the sensitivity of the stock price to changes in the capital structure (Debt-to-value) and cost of debt (Rd). As we can see, both the valuation of the company and our Buy recommendation are insensitive to changes in any of these two inputs.

Finally, we measure the impact of changes in the long-term growth rate. Once again, the Buy recommendation stands even if the long-term cash flows of the company stagnate, which implies a stock price of \$68.27.

Scenario analysis

Activision's business model is heavily reliant on its ability to capture and retain users for each of its franchises. This poses significant risk for the company, as saturated franchises will lose MAU's overtime, and thriving franchises can grow more than the market, stealing players from other games. To perform a deep dive on the franchise risk of the business, we establish different scenarios, designed to stress test the company's long-term ability to grow its user base.

Firstly, we start by testing two opposing scenarios: the end-of-the-world and best-case scenario.

Annex 45 and 46: Assumptions for Sensitivity analysis using End of the World Scenario and Best-Case Scenario

[35] A Hold recommendation occurs when the total expected return of the stock is between 0-10% over a 12-month period. This scenario is highlighted in grey in annex 42

Franchise	End of the World Scenario
CALL of DUTY	Franchise gets saturated as it struggles to renew its content and does not thrive in the e-Sports segment. MAU's decrease at 50% market rate.
ACTIVISION	The lack of investment for other games of the segment makes the Churn rate higher than expected at 50% per year
WORLD of WARCRAFT	World of Warcraft saturation is higher than expected with decreases in MAU's at 25% per year.
DIABLO / OVERWATCH 2	Other Blizzard franchises do not succeed to create long-term sucess, ending up losing users,which leave for more promissing titles. MAU's in 2023 stand at 20 million, grow at 50% market rate until 2025 and after decrease at 100% marker rate.
Candy Crush	High product substitutability of the mobile segment and franchise saturation decrease the user base. MAU's decrease at 100% market rate
King	Other King Games do not capture adittional market share. MAU's are stiff over the forecast period.

Source: Own Estimates

Franchise	Best Case Scenario
CALL of DUTY	COD achieves a prime spot in the E-Sports competition. Allied to high ability into renovating the franchise allow for sustained and strong growth. Franchise grows above market rate, stealing market share from other players.
ACTIVISION	The company is able to remain its MAU's constant through sporadic game launches (mainly remasters and remakes of old games)
WORLD of WARCRAFT	Annual expansions and content releases keep the franchise by stabilziing its MAU's
DIABLO / OVERWATCH 2	The Blizzard segment thrives as its other franchises grow at the market rate
Candy Crush	Candy Crush's brand strength is underestiamted as it keeps its position on the mobile charts and growing at the market
King	Other King Games are more successful in the market than expected and grow at 50% market rate

The end-of-the-world scenario reflects a stock price of $45.64, which implies a Sell Recommendation. This scenario is only feasible if Bobby Kotick remains CEO, causing further angst among employees and leading to a mass exodus of high-value workers which will compromise the franchises. On the consumer side, the destruction of company reputation will drastically reduce demand for Activision's games, further contributing to the decrease. On the opposite end of the spectrum, the best-case scenario reflects a stock price of $96.13.

Our analysis proceeds with three other different scenarios, that serve to evaluate the individual downside potential of each of the three segments. In each of these scenarios, we maintain the assumptions of the base case except for the target segment. For example, in the Activision case, the end-of-the-world assumptions only apply to this segment. The results validate the upside potential of the stock. The largest impact on the stock is in the Activision case, where the price falls to $64.59, an 15.46% decrease. The King case follows, with a 13.01% decrease to $66.91. Finally, the Blizzard case implies a drop of 11.81% in the stock price, standing at $67.38. The Buy recommendation stands for all three scenarios.

Relative Valuation

A relative valuation, composed of three tiers, was conducted to assess the accuracy of our model. The first tier has the closest comparables: videogame developers that produce both mobile and PC/console games. In the second tier, we have videogame developers that focus exclusively on PC/console. Finally, the third tier focuses on sole mobile videogame developers. Only companies that distribute their games globally and with a minimum EBIT of $100M were considered.

The EBIT multiple that Activision is currently trading is below the median of Tier 1, Tier 1+2, and Tier 1+2+3.

Looking at tier 1, which only includes 3 companies, we have a median and average multiple of 22.9x and 23.8x, implying a stock price of $84.59 and $86.92 respectively. Furthermore, the

7: Tier 1 Multiples

Implied Multiple	Implied EV	Stock Price
14,5x	29 923,2	62,32 $
18,7x	38 651,8	73,46 $
22,9x	47 380,4	84,59 $
28,5x	58 852,1	99,22 $
34,0x	70 323,8	113,85 $
23,8x	49 209,2	86,92 $

rce: Thomson Reuters

Tier 1+2 Multiples

Implied Multiple	Implied EV	Stock Price
11,8x	24 492,1	55,40 $
14,0x	28 922,8	61,05 $
18,7x	38 651,8	73,46 $
23,9x	49 345,6	87,10 $
34,0x	70 323,8	113,85 $
19,9x	41 117,9	76,60 $

e: Thomson Reuters

minimum and maximum multiples reflect an interval between $62.32 and $113.85.

49: Tier 1+2+3 Multiples

Implied Multiple	Implied EV	Stock Price
5,0x	10 403,8	37,43 $
13,1x	27 034,8	58,64 $
16,6x	34 259,1	67,85 $
24,9x	51 520,4	89,87 $
45,9x	94 825,1	145,11 $
20,5x	42 435,1	78,28 $

Tier 2 companies trade at a lower multiple because of the reduced exposition to the mobile segment. Considering both tiers, we get a median and average EBITDA multiple of 18.7x and 19.9x and a stock price between $73.46 and $76.60, respectively.

By adding Tier 3, we observe further decrease in trading multiples. All three tiers provide a median and average multiple of 16.6x and 20.5x that translate into a stock price of $67.85 and $76.28 respectively.

We believe the currently traded multiple (13.6x[36]) is falling short of the fair multiple. We understand we must consider a reduction in the fair multiple, in light of reduced activity of the next 24-month pipeline and potential challenges with culture & management of the company. However, the company's strong mobile presence, E-sports positioning and strong and healthy franchises constitute solid long-term prospects for the company.

Thus, our belief is that the fair multiple the company should be traded above the Tier 1+2 median, which reflects a stock price between $73.46 and $113.85.

Final Considerations

Both the DCF and Relative valuations indicate a strong Buy recommendation for the stock. We have a general positive view on the company, despite all the short-term uncertainty surrounding it at the moment.

Our valuation considers a variety of factors affecting the future of the industry and the company overall. To forecast the behavior of these variables we always took a conservative approach. We highlight the following factors as determinants of potential upside risk for the company.

We are not forecasting new Intellectual Property (IP)

Historically the company created value through M&A activity, as its biggest franchises always spawned from acquisitions: the 2003 acquisition of Infinity Ward that owned Call of Duty or the 2016 acquisition of Candy Crush through King are good examples. Even though it is currently more focused in developing its internal products, Activision has the necessary cash reserves to quickly tackle a promising acquisition, if the opportunity arises. The launch of these new IPs could present further upside risk.

Key Partnerships in China

Launching a game in China is a highly lengthy and complex process that can only be performed by a Chinese publisher, meaning that a foreign company cannot independently launch a game in this market by itself. This makes the Chinese market very hard to penetrate since you need to establish local partnerships to do so. Moreover, the mobile gaming market is even harder to penetrate, as there is no google play store in China. Instead, the android market is scattered around hundreds of different app stores, corroborating the argument that a strong local partnership is key to have success in the region. Activision currently possesses a competitive advantage in this regard, since it partners with both Tencent and Netease, China's biggest gaming publishers, to produce its videogames in China. Tencent helped produce COD mobile and was responsible for releasing the games in South Korea and China, while NetEase was responsible

[36] EV/EBIT multiple, retrieved from Bloomberg on December 12

for bringing World of Warcraft to China and is currently working with Blizzard on the release of Diablo’s franchise mobile game *Diablo Immortal.* In April of this year, Activision Blizzard announced a strategic partnership with Chinese live streaming platform Bilibili, which will have the rights for production and broadcasting rights to the Overwatch League in China.

Activision is a leading player in a market teeming with barriers to entry, thus possessing an important competitive advantage over its peers. We believe this fact is not being correctly priced by the capital markets and is incorporated in our Buy recommendation.

CEO change

A major risk for the short-term future of the company are the current challenges to solve cultural issues, responsible for the large price discount of the past months. The company is yet to put this chapter behind and Bobby Kotick remaining as CEO may along uncertainty and impede necessary growth in morale and productivity.

Thus, in our view, a potential and likely future change in CEO would reflect positively in the stock as it might be the necessary market signal that the company has closed this unfortunate chapter.

Margins may not decrease

We are forecasting decrease in margins from 2023 onwards due to increase competition, higher product breadth and increased efforts in renovating the franchises to prevent saturation and stalling. There’s further upside risk potential if margins decrease less than we expect.

Conclusion

Activision Blizzard is a powerhouse of the gaming industry. Its massively popular and historically successful franchises are deeply present in all major markets and exposed to the drivers that will propel the industry forward.

The recent turmoil in the company has had a huge effect on how the market values the company, but we strongly believe the fundamental value of the franchises remains unchanged, and sooner or later the market will reflect it, after the tides turn.

Sensitivity and scenario analysis supports this argument. Only in the unlikely "end-of-the-world" type of scenario, where there are spill over effects from Blizzard to the whole firm, leading to a destruction of the growth prospects of their major franchises, changes our view into a Sell recommendation. All in all, the major risks exposed during this report are not sufficient to rock the strong intrinsic value of the company. As of the 17th of December 2021, our final recommendation is **Buy** Activision’s stock, which we forecast to be valued at $76.40 per share as of the 31st of December 2022.

Appendix

Forecasted Balance Sheet

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Core															
Operating Cash	132	140	150	130	162	153	156	187	195	208	220	233	245	257	267
as % revenues	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Accounts Receivable	732	918	1035	848	1052	1018	1047	1238	1295	1385	1468	1546	1629	1708	1778
Collection Period	40	40	48	50	48	49	49	48	48	49	49	48	49	49	49
Inventories	49	46	43	32	0	0	0	0	0	0	0	0	0	0	0
Holding Period	17	16	14	13	0	0	0	0	0	0	0	0	0	0	0
Software Development	466	453	329	376	512	535	625	842	975	935	1029	1100	1135	1199	1250
as % revenues	7%	6%	4%	6%	6%	7%	8%	9%	10%	9%	9%	9%	9%	9%	9%
Other Operating Assets	392	421	389	231	350	333	319	398	413	435	466	491	516	541	563
% sales	6%	6%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
Operating Current Assets	**1771**	**1978**	**1946**	**1617**	**2076**	**2040**	**2148**	**2666**	**2878**	**2963**	**3183**	**3370**	**3524**	**3705**	**3858**
Accounts Payable	-222	-323	-253	-292	-295	-250	-284	-373	-412	-427	-460	-489	-510	-535	-557
Payable Period	-34	-47	-37	-51	-48	-45	-48	-47	-47	-47	-47	-47	-47	-47	-47
Accrued Payroll Costs	-393	-441	-402	-395	-406	-420	-433	-500	-532	-566	-597	-634	-666	-697	-726
% revenues	-6%	-6%	-5%	-6%	-5%	-5%	-6%	-5%	-5%	-5%	-5%	-5%	-5%	-5%	-5%
Income Tax Payable	0	-162	-203	-436	-100	-272	-300	-269	-334	-351	-356	-389	-406	-423	-443
% revenues	0%	-2%	-3%	-7%	-1%	-4%	-4%	-3%	-3%	-3%	-3%	-3%	-3%	-3%	-3%
Deferred Revenues	-1628	-1929	-1493	-1375	-1689	-1580	-1635	-1948	-2029	-2166	-2295	-2425	-2552	-2671	-2783
Number of days	-90	-100	-73	-77	-76	-75	-76	-76	-76	-76	-76	-76	-76	-76	-76
Other Operating Liabilities	-413	-808	-291	-354	-544	-409	-457	-559	-558	-608	-645	-677	-715	-748	-778
% sales	-6%	-12%	-4%	-5%	-7%	-5%	-6%	-6%	-6%	-6%	-6%	-6%	-6%	-6%	-6%
Operating Current Liabilities	**-2656**	**-3663**	**-2642**	**-2852**	**-3034**	**-2931**	**-3109**	**-3650**	**-3865**	**-4117**	**-4352**	**-4613**	**-4849**	**-5074**	**-5288**
Net Working Capital Requirements	**-885**	**-1685**	**-696**	**-1235**	**-958**	**-891**	**-960**	**-984**	**-987**	**-1154**	**-1169**	**-1243**	**-1325**	**-1369**	**-1431**
Net PP&E	258	294	282	253	209	245	233	226	236	236	238	241	243	245	248
# of employees	9600	9800	9900	9200	9500	9412	9263	9286	9379	9473	9568	9663	9760	9857	9956
growth rate of employees		2.08%	1.02%	-7.07%	3.26%	-0.93%	-1.58%	0.25%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
PP&E per employee	0.0269	0.0300	0.0285	0.0275	0.0220	0.026	0.025	0.024	0.025	0.025	0.025	0.025	0.025	0.025	0.025
Deferred Income Taxes	238	245	136	119	274	179	197	258	248	271	290	302	320	335	348
as % revenues	4%	3%	2%	2%	3%	2%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Intangible Assets	1858	1106	735	531	451	601	1232	2631	1682	2117	2415	2311	2538	2671	2734
as % revenues (for now) -> see note	28%	16%	10%	8%	6%	8%	16%	28%	17%	20%	22%	20%	21%	21%	20%
ROU Assets	279	296	313	232	243	243	243	243	243	243	243	243	243	243	243
as % revenues	4%	4%	4%	4%	3%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Other Operating Assets, net of op. Liab	-345	-692	-665	-358	-379	-486	-432	-517	-566	-583	-622	-662	-692	-726	-757
as % revenues	-5%	-10%	-9%	-6%	-5%	-6%	-6%	-6%	-6%	-6%	-6%	-6%	-6%	-6%	-6%
Core Invested Capital	1403	-436	105	-458	-160	-110	514	1857	857	1129	1395	1192	1327	1400	1386
Non-Core															
Non-Core Invested Capital															
Goodwill	9768	9763	9762	9764	9765	9765	9765	9765	9765	9765	9765	9765	9765	9765	9765
US treasuries & Gov agency securities	0	55	150	65	164	164	164	164	164	164	164	164	164	164	164
Equity Investment	0	0	0	49	52	52	52	52	52	52	52	52	52	52	52
Other Deferred Tax Assets	1	193	251	669	627	627	627	627	627	627	627	627	627	627	627
Invested Capital Non-Core Business	9769	10011	10163	10547	10608	10608	10608	10608	10608	10608	10608	10608	10608	10608	10608
Total Invested Capital	11172	9575	10268	10089	10448	10498	11122	12465	11465	11737	12003	11800	11935	12008	11994
Financial															
Long Term Debt	4887	4390	2671	2675	3605	3534	4165	4316	5591	6405	7196	8252	9211	10252	11367
Excess Cash	-3113	-4573	-4075	-5664	-8485	-10601	-12495	-12949	-16772	-19214	-21587	-24755	-27634	-30755	-34100
% of net debt	-175%	2503%	290%	189%	174%	150%	150%	150%	150%	150%	150%	150%	150%	150%	150%
Net Debt	**1774**	**-183**	**-1404**	**-2989**	**-4880**	**-7067**	**-8330**	**-8633**	**-11182**	**-12809**	**-14391**	**-16503**	**-18423**	**-20503**	**-22733**
Lease Liabilities	279	296	313	273	290	243	243	243	243	243	243	243	243	243	243
% of ROU assets	100%	100%	100%	118%	119%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Total Debt and Debt Equivalents	2053	113	-1092	-2716	-4590	-6824	-8087	-8390	-10939	-12566	-14148	-16260	-18180	-20260	-22490
Equity	9119	9462	11359	12805	15038	17323	19208	20855	22403	24303	26151	28061	30114	32268	34484
Transactions with Shareholders		79.00	15.00	-39.00	39.00	332	286	260	255	325	329	354	396	432	462
Payout Ratio		29.92%	0.80%	-2.63%	1.78%	17%	18%	19%	20%	21%	22%	23%	24%	25%	26%
Total Sources of Funds	**11172**	**9575**	**10268**	**10089**	**10448**	**10498**	**11122**	**12465**	**11465**	**11737**	**12003**	**11800**	**11935**	**12008**	**11994**
	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

Forecasted Income Statement

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Core Business															
Product sales	2,196	2,110	2,255	1,975	2,350	2,038	2,133	2,819	2,950	3,090	3,226	3,364	3,503	3,643	3,783
In-game, subscription, and other revenues	4,412	4,907	5,245	4,514	5,736	5,609	5,685	6,538	6,804	7,299	7,797	8,284	8,750	9,186	9,581
Net revenues	6,608	7,017	7,500	6,489	8,086	7,647	7,818	9,357	9,754	10,389	11,023	11,648	12,253	12,829	13,364
Product costs	-741	-733	-719	-656	-705	-611	-640	-846	-885	-927	-968	-1,009	-1,051	-1,093	-1,135
as % product sales	-34%	-35%	-32%	-33%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	-30%	-30%
Software royalties, amortization, and intellectua	-331	-300	-371	-240	-269	-150	-175	-294	-340	-294	-332	-367	-374	-390	-409
as % software development & intangibles	-14%	-19%	-35%	-26%	-28%	-28%	-28%	-35%	-35%	-31%	-32%	-33%	-33%	-32%	-33%
Total Cost of Sales - Product	**-1,072**	**-1,033**	**-1,090**	**-896**	**-974**	**-761**	**-815**	**-1,139**	**-1,225**	**-1,221**	**-1,300**	**-1,376**	**-1,425**	**-1,482**	**-1,544**
Game operations and distribution costs	-851	-984	-1,028	-965	-1,131	-1178	-1251	-1504	-1633	-1825	-1949	-2071	-2188	-2297	-2395
as % in game subscriptions	-19%	-20%	-20%	-21%	-20%	-21%	-22%	-23%	-24%	-25%	-25%	-25%	-25%	-25%	-25%
Software royalties, amortization, and intellectua	-471	-484	-399	-233	-155	-86	-101	-261	-366	-264	-332	-359	-352	-383	-399
as % software development & intangibles	-20%	-31%	-38%	-26%	-16%	-16%	-16%	-31%	-38%	-28%	-32%	-33%	-31%	-32%	-32%
Total Cost of Sales - In-game, subs and other re	**-1,322**	**-1,468**	**-1,427**	**-1,198**	**-1,286**	**-1,264**	**-1,351**	**-1,765**	**-1,999**	**-2,089**	**-2,281**	**-2,430**	**-2,540**	**-2,680**	**-2,794**
Product development	-958	-1,069	-1,101	-998	-1,150	-1223	-1329	-1871	-1951	-2078	-2205	-2330	-2451	-2566	-2673
as % net revenues	-14%	-15%	-15%	-15%	-14%	-16%	-17%	-20%	-20%	-20%	-20%	-20%	-20%	-20%	-20%
Sales and marketing	-1,210	-1,378	-1,062	-926	-1,064	-1,091	-1,432	-1,838	-1,915	-1,866	-2,082	-2,217	-2,313	-2,398	-2,522
as % net revenues	-18%	-20%	-14%	-14%	-13%	-14%	-18%	-20%	-20%	-18%	-19%	-19%	-19%	-19%	-19%
General and administrative	-634	-760	-822	-732	-784	-814	-824	-963	-1,023	-1,085	-1,147	-1,217	-1,278	-1,338	-1,395
as % net revenues	-10%	-11%	-11%	-11%	-10%	-11%	-11%	-10%	-10%	-10%	-10%	-10%	-10%	-10%	-10%
Operating Income	1,412	1,309	1,998	1,739	2,828	2,493	2,067	1,780	1,640	2,051	2,008	2,078	2,246	2,365	2,436
Statutory taxes	-494	-458	-419	-365	-593	-698	-579	-499	-459	-574	-562	-582	-629	-662	-682
Core Operating Result	918	851	1,579	1,374	2,235	1,795	1,488	1,282	1,181	1,477	1,446	1,496	1,617	1,703	1,754
	TRUE	TRUE	TRUE	TRUE	TRUE										
Non Core Business															
Restructuring and related costs	0	0	-10	-132	-94	0	0	0	0	0	0	0	0	0	0
Unrealized gains on equity investments	0	0	0	38	3	0	0	0	0	0	0	0	0	0	0
Interest Income	10	24	65	79	21	0	0	0	0	0	0	0	0	0	0
Other income and expenses	-7	-8	4	-1	-12	-3	-5	-7	-5	-6	-6	-6	-6	-6	-6
Statutory Taxes	-1	-6	-12	3	17	-1	-1	-2	-1	-2	-2	-2	-2	-2	-2
Unrealized gains (losses) on FWD hedges, net of	33	-44	38	-15	-36	0	0	0	0	0	0	0	0	0	0
Tax Adjustments	247	-475	365	213	130	236	193	186	205	195	195	198	196	197	197
Non Core Result after tax	**282**	**-509**	**450**	**185**	**29**	232	186	178	199	187	188	191	189	189	190
Foreign currency translation adjustments, net o	-29	36	-9	5	35	0	0	0	0	0	0	0	0	0	0
Unrealized gains (losses) on investments, net of	0	-1	5	-8	-2	0	0	0	0	0	0	0	0	0	0
Non Core Operating Result	253	-474	446	182	62	232	186	178	199	187	188	191	189	189	190
	TRUE	TRUE	TRUE	TRUE	TRUE										
Financing															
Interest expense from debt and amortization of	-217	-162	-140	-90	-99	-103	-103	-101	-120	-124	-160	-184	-207	-237	-264
interest rate on debt	4%	4%	5%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Loss on extinguishment of debt	-92	-12	-40	0	-31	0	0	0	0	0	0	0	0	0	0
Statutory taxes (tax shield)	108	61	38	19	27	29	29	28	33	35	45	51	58	66	74
Net Financial Result	-201	-113	-142	-71	-103	-74	-74	-73	-86	-89	-116	-132	-149	-171	-190
	TRUE	TRUE	TRUE	TRUE	TRUE										
Comprehensive Result	**970**	**264**	**1882**	**1485**	**2194**	**1953**	**1600**	**1387**	**1294**	**1575**	**1518**	**1555**	**1657**	**1721**	**1753**

FCF Map

	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
NOPAT		851	1579	1374	2235	1,795	1,488	1,282	1,181	1,477	1,446	1,496	1,617	1,703	1,754
Gross Cash Flow		**851**	**1579**	**1374**	**2235**	**1795**	**1488**	**1282**	**1181**	**1477**	**1446**	**1496**	**1617**	**1703**	**1754**
Change in NWC needs		-800	989	-539	277	67	-69	-24	-3	-167	-15	-74	-82	-44	-62
Change in PP&E		36	-12	-29	-44	36	-12	-7	10	0	2	4	2	2	3
Change in deferred income taxes		7	-109	-17	155	-95	18	60	-10	23	20	12	18	15	13
Change in Intangible assets		-752	-371	-204	-80	150	632	1399	-949	435	299	-104	226	134	63
Change in ROU assets		17	17	-81	11	0	0	0	0	0	0	0	0	0	0
Change in Other Operating Assets, net of liab		-347	27	307	-21	-107	55	-85	-49	-18	-39	-40	-30	-34	-31
Change in Core IC		**-1839**	**540**	**-563**	**298**	**51**	**623**	**1344**	**-1001**	**272**	**266**	**-202**	**134**	**73**	**-14**
Operating Cash Flows		**2690**	**1038**	**1936**	**1937**	**1745**	**865**	**-62**	**2182**	**1204**	**1180**	**1699**	**1483**	**1629**	**1768**
Non Core Result		-474	446	182	62	232	186	178	199	187	188	191	189	189	190
Change in NC IC		242	152	384	61	0	0	0	0	0	0	0	0	0	0
Total Non Core Cash Flow		**-716**	**294**	**-202**	**1**	**232**	**186**	**178**	**199**	**187**	**188**	**191**	**189**	**189**	**190**
Free Cash Flow available to investors		**1974**	**1332**	**1735**	**1938**	**1977**	**1051**	**116**	**2380**	**1392**	**1368**	**1890**	**1672**	**1819**	**1958**
Financial Result		**-113**	**-142**	**-71**	**-103**	**-74**	**-74**	**-73**	**-86**	**-89**	**-116**	**-132**	**-149**	**-171**	**-190**
Change in Excess Cash		-1460	498	-1589	-2821	-2116	-1894	-454	-3823	-2442	-2373	-3168	-2879	-3121	-3345
Change in Long Term Debt		-497	-1719	4	930	-71	631	151	1274	814	791	1056	960	1040	1115
Change in Net Debt		**-1957**	**-1221**	**-1585**	**-1891**	**-2187**	**-1262**	**-303**	**-2549**	**-1628**	**-1582**	**-2112**	**-1920**	**-2081**	**-2230**
Change in Lease Liabilities		17	17	-40	17	-47	0	0	0	0	0	0	0	0	0
Change in equity		79	15	-39	39	331.96	285.63	259.87	254.58	325.44	329.40	354.31	396.43	432.38	462.44
Free Cash Flows from Investors (FFCF's)		**-1974**	**-1332**	**-1735**	**-1938**	**-1977**	**-1051**	**-116**	**-2380**	**-1392**	**-1368**	**-1890**	**-1672**	**-1819**	**-1958**
		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE

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Report Recommendations

Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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