

ACTIVISION BLIZZARD – CONSOLIDATION MOVEMENTS IN A  
MATURING VIDEOGAME INDUSTRY AND VALUE CREATION

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## **Abstract**

The present thesis was done with the objective to assess if the merger between Activision and Vivendi Games created value to its shareholders and if the share price used in this transaction represented the real value of this operation.

This merger occurred in difficult economic times due to the financial crisis of 2007/2008 and in a period of consolidation and maturity in the videogame industry, allied to the rising costs of development and marketing that current videogames are experiencing.

The main conclusion was that this merger created value for the shareholders in 2008, mainly due to increased revenues, and is likely to create more value than both companies were initially expecting, according to the present value of the expected cash flows, that were calculated with a 5 year projection for the period 2009-2013.

JEL classification: G34

Keywords: Mergers and acquisitions; Consolidation; Videogame industry; Activision  
Blizzard

## **Resumo**

A presente tese foi elaborada com o objectivo de analisar a fusão entre a Activision e a Vivendi Games, e verificar se foi criado valor para os seus accionistas durante esta operação, através da análise do preço por acção em que esta transacção foi avaliada.

Esta fusão ocorreu num ambiente macroeconómico adverso, relacionado com a crise financeira de 2007/2008 que começou a afectar as economias a uma escala global, bem como num período de consolidação e maturidade que a indústria de videojogos atravessa neste momento, aliado ao aumento considerável de custos de desenvolvimento e marketing que se está a verificar neste sector.

A principal conclusão foi que esta fusão criou valor para os seus accionistas, em 2008, principalmente devido ao aumento dos proveitos, sendo provável que venha a criar mais valor do que ambas as empresas esperavam inicialmente, de acordo com o valor actual dos cash flows futuros estimados neste tese, com uma projecção a cinco anos para o período entre 2009 e 2013.

Classificação JEL : G34

Palavras-Chave: Fusões e aquisições; Consolidação; Industria de Videojogos; Activision  
Blizzard

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## **List of Abbreviations**

**API** – Application Programming Interface

**CD-ROM** – Compact Disc – Read Only Memory

**CPU** – Central Processing Unit

**DVD-ROM** – Digital Versatile Disc – Read Only Memory

**DVR** – Digital Video Recording

**EBITDA** – Earnings Before Interest, Taxes, Depreciation and Amortization

**EBIT** – Earnings Before Interest and Taxes

**FCFF** – Free Cash Flow for the Firm

**GPU** – Graphics Processing Unit

**HD-DVD** – High Definition Digital Versatile Disc

**IPO** – Initial Public Offering

**IPTV** – Internet Protocol Television

**LBO** – Leverage Buy-Out

**M&A** – Mergers and Acquisitions

**MMORPG** – Massive Multiplayer Online Role-Playing Game

**OCF** – Operating Cash Flow

**PC** – Personal Computer

**PDA** – Personal Digital Assistant

**R&D** – Research and Development

**ROM** – Read-only Memory

**UMD** - Universal Media Disc

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## **1. Introduction**

This thesis falls within the areas of finance that deal with mergers and acquisitions and it can be divided in two parts. In the first, it is presented a brief history of videogame industry and the value chain of it, as well as the usual development process of a videogame. It is also mentioned the growth this industry registered from early years to nowadays and respective growth drivers, while future trends of this industry are also mentioned.

It was done research on the background of both Activision and Vivendi Games and the motivations and objectives behind the merging operation between both entities, as well as conditions agreed upon by both companies to make this deal and impacts that this operation had and is likely to have in industry.

The second part relates to the financial analysis made to Activision and Vivendi Games before this merger and after it, comparing a hypothetical sum company with the real company that emerged from this operation. After analyzing the income statement of both companies it was seen that the merged company obtained a higher EBITDA, EBIT, net income and free cash flow for the firm (FCFF), than the hypothetical sum company.

Regarding profitability and liquidity ratios, the merged company also scored better in both items improving either profitability or financial stability when compared to the hypothetical sum company.

It were also analyzed the revenues by geographical areas and hardware systems before and after this merger and it was seen that complementary and non-overlapping synergies were created, as revenues came from more diversified geographical areas and more hardware platforms than each of both companies on a stand-alone basis could reach.

Projections for the period 2009-2013 were made and analyzed with the free cash flow for the firm (FCFF) approach, and it was seen that the resulting enterprise value was greater than the assumed value of the merger in 2008.

## **2. Literature Review**

### **2.1. Restructuring activities and reasons to do it**

Traditionally companies have two ways to grow, either through the use of internal resources or using resources not within the company. These external resources can be captured in expansion movements as merger, acquisitions, alliances and joint-ventures, restructuring movements like disposal and divisions, company control movements alike company repurchases with premium price, non-action agreements, anti-takeovers clauses, and changes in ownership structure of capital such as share exchange, share repurchases, privatization, initial public offerings, spin-offs, equity carve-outs and leveraged buy-outs.

Merger and acquisitions (M&A) have been throughout history related to economic and cultural factors within a time and space frames, hence it's relevant to differentiate both operations. While both are consolidation movements of two or more companies, they differ in shape, being a merger a combination of two or more companies to form a new entity, instead an acquisition is the purchase of a company by another, not giving way to a new company. Inside mergers, it's common to differentiate mergers from tender offers, while the first refer to negotiated deals between friendly parties who arrive at a mutually agreeable decision to combine their companies and meet technical and legal requirements, in tender offers the bidder directly contacts the shareholders of the target company in order to buy their shares at an offer price, being friendly if the board of directors of the target endorses the proposal otherwise it's an hostile offer.

In recent years there has been an increased pace of merger activity, due to a variety of factors such as technological change permitted by computers and related services, software, servers, and Internet, improvements in communication and transportation created a global economy that was powered by international free trade agreements, thus leading to increased competition that produced deregulation in major industries such as financial services, airlines and medical services, the need to improve operational efficiency through economies of scale (spread large fixed costs of an investment over a large number of units) and economies of scope (cost reductions from operations in related activities, as for example in computer



industry PC hardware, software with servers hardware and software), and combination of complementary activities such as a company strong in research merging with another strong in marketing.

Changes in industry landscape also foster M&A activities, has happened in the computer industry that shifted from vertically integrated firms to a horizontal chain of independent activities. Entrepreneurship is also a driver of M&A, because it responds to opportunities creating more dynamism in industrial activities thus changing industry outlook. Lastly favorable economic and financial environments to deal making, such as strong economic growth, political stability, government policy, rising stock prices, favorable exchange rates and relatively low interest rates, also favor M&A activities.

## **2.2. Types of merger**

From an economic standpoint mergers can be divided in three types based on whether they take place at the same economical level of a business activity such as exploration, production, wholesale or retail distribution, and if the merging companies are present in related or not business activities.

A horizontal merger involves two companies that operate and compete in the same business activity, to benefit from economies of scale for example. This merger type is regulated by governments to prevent possible negative effects on competition, as these movements decrease the number of firms in an industry, and can lead to covenants from industry members to create powerful and profitable monopolies. Vertical mergers occur between firms that operate and compete in different but complementary stages of an industry, existing many reasons to firms vertically integrate, such as technological economies, the need to reduce expenses in transportation and communication, to mitigate searching and bargaining costs, as well as decreasing production and inventory costs.

Conglomerate mergers are divided in pure and mixed. Pure conglomerate mergers normally occur between companies that compete in unrelated business activities, and can be divided in financial conglomerates, where the holding company seeks to improve its risk/return ratio by diversification in unrelated business that could be profitable and/or stable, establishing programs of financial planning and control of managerial performance thus improving the

efficiency of operations and resource allocation, but it doesn't interfere in business level decisions, as opposed to pure managerial conglomerates that possess all attributes of the financial conglomerate, but in this case the holding company provides managerial counsel and does interact on decisions, because general management functions such as planning, organizing, directing and controlling are transferable to all types of business firms, thus leading to an increased performance versus mere financial conglomerates.

Mixed conglomerates companies merge with the purpose of broadening their product lines of related business activities or expanding operations to non-overlapping geographic areas in order to increase market reach, as is the example of concentric companies that are very similar to managerial conglomerates, but instead of drawing general management functions from holding company, they draw specific management functions, because their activities are so much related that there is a carryover of those functions, such as finance, manufacturing, marketing, human resources, from one company to another.

### **2.3. Synergies**

Mergers occur because the agents that propel them expect to obtain synergies from them. These synergies can be created through many ways, such as efficiency improvements, where one company can extend its managerial capabilities to the other to improve its efficiency, capturing growth opportunities or a better usage of large fixed investments.

Operating synergies come from scale economies that result in a lower cost per unit if the total cost is spread over a large number of output units. Also combination and coordination of the good organizations parts and elimination of non-required ones, can create value, for example if company A is proficient in R&D but weak in marketing and company B is proficient in marketing but weak in R&D, synergies can be created through combination of R&D from A and marketing capabilities from B.

Another potential synergy obtained through mergers can come from managerial economies in specific management functions as production, research, marketing and finance, and also in generic management activities such as planning and control.

Diversification is another way to increase value and may be wanted by managers and other employees for preservation of organizational capital, because generally they have limited opportunities to diversify their labor income sources, since most of their knowledge is acquired while working for the firm. Typically employees are more productive in their current job than in other firms because of their specialized knowledge, thus they value stability in their job and greater opportunity to acquire more specialized knowledge that enables them to get higher rewards. This maintenance of organizational capital lowers labor costs, because information on employees is accumulated within the firm over time, so its transferability to another company involves high costs, as this information is used for efficient matching of employees and jobs. So when a firm is not diversified and teams are disintegrated the value of organization is lost, on the contrary when a firm is diversified, teams can be transferred from unprofitable business activities to growing and profitable ones.

Reputation capital is the relationship that a firm establishes with customers, suppliers and employees, and it is acquired over time through firm specific investments such as ethical behavior, R&D, fixed assets, personnel training and organization development, and when a company ceases to exist this reputational capital disappears with it, thus diversification can help to preserve it. Diversification can be achieved through mergers as well as internal growth, and since timing may be critical, in order to capture opportunities or resources when there aren't opportunities to grow internally or when internal development of those capabilities would take too long, mergers can provide diversification more quickly.

Financial synergies also increase value through the lower costs obtained from internal financing in comparison with external financing, for example a firm with large internal cash flows and small investment opportunities has funds available, and another with low internal cash flow generation and large growth opportunities has need for financing, so combining the two results in a lower cost of funds. Another issue is that the debt capacity of the combined firm can be greater than the sum of the two firms before their merger, thus providing tax savings on investment income and a lower cost of capital.

Strategic realignments create synergies through the acquisition of new management skills to increase the capabilities of a company in new growth areas or to overcome new competitive threats. Q-ratio is the ratio between market value of the firm's securities to the replacement cost of its assets, for example in 1970s stock prices were depressed, which decreased the market value of firms as a result of high inflation and when companies were replacing their

assets, the cost was higher than their recorded historical book values due to inflation, which made their Q-ratio decline. So when companies wanted to produce a new product and had to add capacity, instead of buying assets which would decrease their Q-ratio, they acquired companies that produced those products in a more cheaply way, and at same time improving the Q-ratio.

Regarding information, it can be a source of value, because shares from one firm often experience an upward move even if the offer turns out to be unsuccessful, this being due to two factors: first tender offers spread information that the target shares are undervalued and thus the offer prompts the market to reevaluate those shares, second the offer inspires the target firm management to implement a more efficient business and/or corporate strategy. Signaling is related to information, but a distinction may be made between the two as when a firm receives a tender offer, it signals the market that a bidder sees a greater value in that company than its prevailing market price, on the other hand in a share repurchase program, when management holds a significant proportion of the stock and does not tender stock at the premium included in the repurchase price it is signaling that the company's shares are undervalued.

Winner's curse is a concept that occurs when there are many bidders for an object of highly uncertain value, so a wide range of bids is likely to result, thus the highest bidder will bid and typically pay in excess of the expected value resulting in a loss of money to the acquirer or dominating part in the merger.

Agency problems arise when managers own only a fraction of the ownership shares of a company, thus this partial ownership may cause managers to work less vigorously than otherwise and /or consume more resources from the company, for example, luxurious offices, company cars, club memberships, and so on, since the majority owners bear most of the cost and risk. A management team can make value-decreasing mergers to increase company size, if their salary depends on firm's size, so it is common that when these agency problems have a high cost, associated with conflicts between managers and shareholders over the payout of cash flows, they may lead to takeover activity and thus mergers.

When a merger is done it can create tax savings, as they can be used to substitute capital gains for ordinary income, thus representing a form of redistribution from the government. Tax

benefits are substantial, and while not being the major reasons mergers occur, as with business and economic reasons, they reinforce the option for a merger.

A frequent objection raised to a merger is the potential increase of market share by one firm that may result in undue concentration in the industry, for example when there are four companies that have more than 70% of industry sales, these firms will recognize the impact of their actions and policies on one another, leading to a tacit collusion and resulting in prices and profits containing monopoly elements, redistributing value from costumers to companies. In LBO's, in which debt is increased by very high orders of magnitude, bondholders suffer a negative impact, resulting in losses, which represent a fraction of shareholder gain in a LBO situation, leading to another form of redistribution.

Lastly the redistribution from personnel to shareholders, assumes the form of workforce cuts or wage reduction programs.

### **3. Videogame industry overview**

#### **3.1. History of videogames**

Videogames throughout its history were influenced by several industries, as scientific, computer science, arcade and consumer electronics and the first game dates back to 1947, when Thomas T. Goldsmith Jr. and Estle Ray Mann created an interactive electronic game that was a missile simulator inspired by radar displays from World War II, named cathode ray tube amusement, because it was played on a cathode ray tube (CRT) and used an analog circuit to control.

In 1951 Dietrich Prinz created the original chess playing software for the Manchester Ferranti computer, and in the same year Ferranti created the NIMROD computer that used a panel of lights for its display, and it was designed to exclusively play the game of NIM, being also the first digital computer designed to specifically play a game. One year later Alexander Douglas made OXO that was a version of tic-tac-toe for EDSAC computer at the University of Cambridge, the first computer game to use a digital graphical display and the first stored-program computer, using a rotary telephone for game control.

In 1958 William Higinbotham created Tennis for Two for the Brookhaven National Laboratory's annual visitor's day to entertain visitor's, being the display funded by the U.S Department of Energy because it was meant to promote atomic power, using an analog computer and a vector display system of an oscilloscope. One year later a collection of interactive graphical programs were created on the TX-0 computer at MIT, those being Mouse in the Maze and tic-tac-toe.

In 1961 still in MIT, students Martin Graetz, Steve Russell and Wayne Wiitanen created Spacewar! on a DEC PDP-1 mini-computer which used vector display system, and pitted two human players against each other, and its credited as the first influential computer game. By the year 1966, Ralph Baer continued the work he started in 1951 and created Corndog, the first game to be displayed on a standard television set, continuing its development that culminated with a prototype in 1968 that could run several different games.

Until 1970 videogames ran mainly on very powerful computers or mainframes only available in universities, laboratories or companies, such as PLATO system and DECUS a user group for computers made by DEC, but after that year game development started being done in arcade machines, home computers, home consoles, handhelds, besides university computers.

In 1971, Galaxy Game was installed at a student union of Stanford University, being based on Spacewar! being the first coin-operated video game or arcade being built, as only one unit existed using a DEC PDP-11 and vector display terminals. In the same year Nolan Bushnell, and Ted Dabney created a coin-operated arcade version of Spacewar! named Computer Space, being the game bought by Nutting Associates and manufactured 1.500 machines, although being unsuccessful, was a breakthrough, because it was the first arcade mass-produced and offered for commercial sale. Both men perceived that they could capture more revenues than by licensing games to other companies, so in 1972 they founded Atari, and released the first successful arcade video game, Pong, that sold around 20.000 arcade machines.

The arcade game industry entered its golden age in 1978, a period of great technical and design creativity to arcade games, with developers creating new game genres such as adventure, fighting, interactive movie, maze, platform, platform-adventure, racing, role-playing, rhythm, scrolling shooters, stealth, survival horror, vehicle simulation, while working within strict limits of available processor power and memory, thus making the emphasis more

in gameplay. Also in this era video arcades spread across North America, Europe and Japan, jumping from the student unions of 1971 to shopping malls, traditional storefronts, restaurants, convenience stores, bars, gas stations and liquor stores, for example.

Several companies produced games that were later recognized as icons in this industry, such as Sega's Sonic franchise, Namco's Pac-Man in 1980, Taito's Space Invaders that was released 1978 and Atari's Asteroids of 1979, and Paperboy of 1984. Other companies such as Nintendo with Donkey Kong in 1981 and Super Mario released in 1983 and Konami with Frogger in 1981, also played an important role at that time, and still play nowadays.

The excitement around arcade games cooled off as copies of popular games began to saturate arcade places, so its success grew from 1978 until 1985 as in this year new generations of home computers and home video game consoles, like Nintendo Entertainment System and Sega Master System provided a good video arcade experience at home. From 1985 onwards popularity of arcades decayed with the continuous release of more powerful and capable video game consoles as 16-bit era Super Nintendo Entertainment System and Sega Mega Drive launched in early 1990's, and the last hit to arcade industry was with the launch of 32-bit era Sony's PlayStation, Sega Saturn's in 1995 and Nintendo 64 in 1996, as all were capable of true 3D graphics.

Today videogame arcade industry still exists but without the strength of its golden years, still it was an important step in this industry overall as some of the games released at the time, have greater gameplay than many games released nowadays.

As said before videogames besides arcades, were developed also to home consoles and until 1985 those didn't have the capabilities arcade had. So the first generation of home consoles is dated from 1972 to 1983, being the first one developed by Ralph Baer, as he continued the work he started in 1951 and created Corndog in 1966, the first game to be displayed on a standard television set, continuing its development with a prototype launched in 1968 that could run several different games due to its cartridge system, and served as demonstration to potential licensees, being launched in 1972 in USA by Magnavox, naming it Magnavox odyssey. When Philips bought Magnavox, it launched the console on Europe in 1974, using the Odyssey brand, and over its life cycle sold 2 million units. Other famous first generation consoles included Atari Telegames Pong and Coleco's Telstar.

Over the same time span of first generation home consoles, first units of home computers began to appear on the market from companies such as Apple, Commodore and Tandy, and was only a matter of time for groups of software developers for this computers to form. The first games created to home computers were clones of mainframe classics and popular arcade games that were created from 1960's to 1980's, being distributed through not only books with the game's source code printed on it as well as magazines and newsletters, hence the owner of the computer had to type the code, but also through physical mailing of floppy disks, cassette tapes and ROM (read-only-memory) cartridges.

The year of 1976 marked the beginning of second generation home consoles or early 8-bit era which endured until 1991, and besides minor graphic improvements, the most relevant things was that until then games were hardcoded into microchips and no additional games could be added, but with this generation games were hardcoded into ROM chips inside a cartridge that could be plugged into console slots, being processed by general-purpose microprocessors and improving the libraries of games available to consumers.

The first console of this era to be launched was Fairchild Channel F in 1976, world's first CPU based console, and brought all the innovations referred previously. In 1977 Atari released its Video Computer System (VCS) also CPU based, later called Atari 2600, and with nine games released upon its launch and quickly became the most popular of early second generation home consoles, mainly in North America. One year later Magnavox released Odyssey 2 in North America, releasing the same game console in Europe, but backed up by Phillips, as it was named Phillips G7000, and although never became as popular as Atari 2600, still enjoyed a good amount of success.

Another famous console of this time was Intellivision produced by Mattel in 1980, and differed from its competitors by having 16 bit processors while other consoles had 8 bit, being considered the first serious threat to Atari's dominance, nevertheless the later still managed to be on top not only because it held exclusive rights to most of the popular arcade games from Atari and other companies, using this key segment to support their older and less powerful hardware, but also was the machine with a lower price tag, hence Atari 2600 sold around 30 million units and Intellivision sold 3 million units.

The year of 1982 saw four new consoles arrive to the market, Emerson Arcadia 2001, Vectrex possessing vector graphics and its own self-contained display, ColecoVision and Atari 5200



both were more powerful machines than its predecessors. As happened with Atari 2600, ColecoVision capitalized on the popularity of arcade games and made ports of Nintendo's Donkey Kong (that introduced Super Mario to gaming world) to its console. One year later Sega released its first home console Sega SG-1000.

This second generation of game console systems saw the first handheld game systems, as Microvision was launched in 1979, but with fragile LCD (Liquid crystal display) and few selection of games, was discontinued two years later. The most successful handheld of this time was Nintendo's Game & Watch dedicated game systems launched in 1980, as it helped to establish handheld gaming and lasted until 1991, and many of these games would be later re-released on next Nintendo handheld systems.

The years of 1983 and 1984 saw a crash of the videogame industry and an abrupt end of the second generation consoles, mainly due to market saturation as over a dozen consoles existed, over-hyped game releases mostly low-quality ones from new third-party-developers less prepared than Activision, associated to the loss of exclusive control of hardware manufacturers of games released to their platforms (see description of Activision in chapter IV for more details), which lead to overflow of shelf capacity in retail stores and consequent bankruptcy of several companies that produced games to home computers and videogame consoles, because they had to refund retailers.

The appearance of the first gaming computers during 1981 and 1982 also contributed to the crash of 1983, such as Atari 800, Commodore 64, Apple II, Sinclair ZX81 and ZX Spectrum, being this one most know in United Kingdom and latter in some western European countries, while the first four were more known in USA. Apple II over its 15 year run had the most software of 8-bit computers with nearly 20.000 programs.

These gaming computers took over from the console market in 1984 mainly because they offered equal gaming ability, were nearly as simple to start playing as consoles, had more memory available, better graphic and sound capabilities thus allowing more sophisticated games, could be used for tasks such as word processing and games were easier to copy since computers had floppy disks or cassette tapes instead of ROM modules and lastly in this era of gaming computers, it started online gaming.

At this point the second generation leader Atari 2600 approached saturation and not even its successor, Atari 5200 could reverse it while Magnavox and Coleco abandoned videogame

business and several smaller software development companies also closed but Activision managed to survive for years to come due to focusing development to personal-computers.

So this crash of 1983/1984 had two long-term results, being the first one the shift of dominance of home console market from United States to Japan, as when the video game market recovered in 1987 the leading console was Nintendo Entertainment System the main responsible for market recovery, with Atari battling with Sega for second position. The second result of the crash was the institution of measures to control third-party development of software, as hardware manufacturers implemented licensing restrictions and security lockout systems in third generation consoles and beyond, as they still exist as of 2009 on newer consoles.

Third generation consoles spawned in 1983 and ended in 1995, as this era still is considered 8-bit most of consoles of this time improved graphic and sound capabilities. In 1983 Nintendo released NES (Nintendo Entertainment system) in Japan and became very popular in that country and when it was launched in 1985 on United States it dominated that market, due to its restrictive licensing agreements with developers that ensured quality software and exclusive titles.

The main rival of NES was Sega's Master System released on Japan in 1985, USA in 1986 and Europe in 1987, and while it couldn't match NES in USA and Japan, was very successful in Europe, Brazil and Oceania mainly because it was the first to reach those markets. NES sold 60 million units over its life cycle, being discontinued in 1995 while Master System sold 13 million, being discontinued at the same time.

Atari tried to recapture its success of the previous generation with Atari 7800, but the crash of 1983 had turned the table of the market dominance to Japan. Handheld market was solidified with the launch of Nintendo GameBoy that was supported by many third party developers in 1989 thus dominating a previously scattered handheld market for 15 years and through that time sold 118 million units, being incrementally updated every few years.

Main competitors of Nintendo GameBoy were Sega Game Gear launched in 1990 that sold 11 million units, until being discontinued in 1997, and Atari Lynx released in 1989 was the first handheld console with a color Liquid Crystal Display and was notable for its forward-looking features, unlike Nintendo Game Boy that was monochromatic, but Lynx's low sales of 500.000 units weren't enough to attract quality third party developers, leading to its demise.

Also in this generation many of the most famous video game franchises of all time, were created such as Super Mario Bros, Final Fantasy, Legend of Zelda, Dragon Quest, Metroid, Metal Gear, all games exclusive to NES, while the most known game of Master System was Sonic the Hedgehog. Around 1985 arrived newer generations of gaming computers such as Atari ST, that succeeded Atari 800 and Commodore Amiga successor of Commodore 64, being both host of many technically excellent games, as these new gaming computers with a wide range of choices with different price tags and support from developers and publishers in Europe, alongside Sega Master System were the main reasons why NES wasn't as popular in Europe as it was in United States.

In 1987 began fourth generation of home consoles, commonly referred to as 16 bit era, it started with the launch of TurboGrafx-16 built by Hudson Soft and NEC, and was quite successful in Japan, partly due to titles available on then-new CD-ROM format available through a combination of TurboGrafx and CD-ROM system known as Turbo Duo released in 1992, and while in United States was well received it failed to maintain its sales momentum, leading to its discontinuation in that country in 1994, being its presence in Europe and Australia very residual. Still it sold 10 million units worldwide.

Sega Mega Drive was released in 1988 and with a well-crafted marketing campaign around their new mascot, Sonic the Hedgehog had a better reception than its predecessor in the North American market, trimming down Nintendo market share in there, although this one would still remain leader.

In Japan, Mega Drive like its predecessor proved unsuccessful, but maintained its market share on Europe and Brazil, which lead to sales of 29 million units worldwide. Several add-ons were launched, like Sega Mega-CD that was presented with a high price tag and a limited library of games, proved to be unsuccessful, and Sega 32X a peripheral that enabled Mega Drive to run games at 32-bit, and like Mega CD wasn't successful, but due to technical reasons as the device experienced problems with some Mega Drive and Mega Drive II (a second version of the 16-bit original) consoles, leading to lack of support of third-party developers that didn't saw 32X as a real 32-bit console and preferred to wait for true next generation consoles.

Nintendo launched Super Nintendo Entertainment System (SNES) in 1990, and while in early stages it struggled due to stiff competition from Mega Drive in North America, eventually

achieved the leading position, and in Japan continued to be as successful as it was with NES, while increasing its market share in Europe and Australia, SNES sold 50 million units worldwide.

SNES market position was defined by its increased video and sound capabilities over its competitors and combined with good games where gameplay was the focus like Super Mario, Zelda, Metroid, Final Fantasy and Metal Gear Franchises remained very popular well into next generation consoles, the 32 bit era.

Nintendo like Sega, launched add-ons for its SNES system and at a first instance had Sony as a partner to create a CD-ROM drive, but ultimately dropped down that partnership to team up with Philips and created CD-I, but very disappointing sales made both companies drop that product line in 1998, ending this console generation. As a curiosity Sony didn't stop its CD-ROM development and created its own stand-alone CD-based console, PlayStation, overseen by a former SNES engineer and later to be known as the father of PlayStation, Ken Kutaragi.

Neo Geo was released in 1990 by SNK, and basically was a home console version of a major arcade platform, with hits such as King of Fighters, Metal Slug, Fatal Fury and Samurai Showdown. Compared to its counterparts Neo Geo had much better graphics and sound, being billed as a 24-bit system but its price tag, made it only accessible to a niche market, thus not making it a real competitor to SNES, Mega Drive and TurboGrafx.

The 1990's were a time of innovation in video gaming, as it occurred the transition to full 3D graphics and several new game genres were developed like first-person shooters, real time strategy and massive multiplayer online games.

In this decade videogame industry matured into a mainstream form of entertainment, as publishers began to make consolidation movements, increased budgets, production teams and mad collaborations with music and movies industries. As computing power increased and cost of processors and other electronic components decreased, it made possible the rise of early 3D graphics, showcased in 1992's Wolfenstein 3D developed by Apogee and Id software, and in 1993's Doom released by Id software.

Popular games from this time include Dune II, launched in 1992 set the standard game mechanics for future real time strategy games such as Warcraft, Command & Conquer and StarCraft. Alone in the dark also launched in the same year planted seeds to the survivor

horror genre, establishing the formula that games like Resident Evil and Silent Hill would capitalize.

Adventure games also continued to evolve, with Sierra Entertainment King's Quest series and LucasArts Monkey Island, that brought graphical interaction to gamers while Myst created a new style of puzzle-based adventure games. Also around this era Maxis began publishing its line of Sim games, starting with SimCity, through the best-selling PC game in history, The Sims, launched in early 2000.

In 1996, 3dfx Interactive released the Voodoo chipset, the first affordable 3D accelerator card for PC's that allowed more detailed 3D graphics by handling graphical computation tasks instead of CPU, as first person-shooter games, most notably Quake were among the first to take advantage of this technology, thus making this genre the driving force behind 3D hardware development and performance measuring.

By the same year Id software game, Quake pioneered play over Internet making it a requirement in almost all first person shooter games like Unreal Tournament another landmark in multiplayer, as well as in real time strategy games like Microsoft Game Studios Age of Empires, Blizzard's Warcraft and Starcraft. The first massively multiplayer online role-playing games were launched around this time, namely Ultima Online and EverQuest that increased the number of simultaneous players in a game for more than 16, usually around 2000 or more per server. One of the few genres created in this era was the third person shooter, made popular by games like Grand Theft Auto III, Splinter Cell and Hitman.

In 1993 fifth generation home consoles started to be released, an era that marked the return of Atari to home consoles with Atari Jaguar, being marketed as the first 64-bit system, on a 32-bit era. This console proved to be a commercial failure, selling 250.000 units worldwide, and being discontinued in 1998, and leading Atari to leave the home console market for good. Reasons for this failure were a small and dubious quality library of games, a very complex game controller and a damaged reputation from the 1983 crash at the eyes of retailers and customers.

Also in 1993 3DO Interactive Multiplayer was released, being conceived by Electronic arts founder Trip Hawkins, and produced by Panasonic. Despite highly-promoted at launch, and many cutting-edge technologies, 3DO's high price failed to achieve a reasonable market share on a saturated console market, hence limiting third-party developers support and consequently

the number of games released, despite charging a lower royalty fee to developers when compared with Nintendo or Sega. Over its life span sold 2 million units and was discontinued in 1997.

In 1994 were released three consoles, Sega Saturn, Sony PlayStation and NEC's PC-FX, and this one had a short life span, with few sales, mainly due to be an underpowered system when compared to other consoles, that didn't impressed neither consumers or developers, being discontinued in 1998, and selling 100.000 units.

Sega Saturn was a continuation of the work done in previous generations, being a 32-bit machine with native CD-ROM support, and launched only one year after Sega 32X. But with the release of Saturn, Sega dropped game support to 32X, thus damaging its image, and was a decisive contribution to eventually dropping out of the console market. Saturn was moderately successful with sales of 9 million units worldwide, less than Master System and Mega Drive had achieved in their time, and in this generation stood in third place behind Nintendo 64 and PlayStation.

Sony PlayStation was the most successful console during this generation, mainly due to attention given by first and third party developers, and support of CD-ROM as media storage unit, unlike Nintendo 64 cartridges that were more expensive to produce and as games became more complex cartridges lacked store space, thus some developers turned to Nintendo competitors. Games like Gran Turismo, Ridge Racer, Tekken, Final Fantasy, Metal Gear Solid, Resident Evil, Tomb Raider, to name a few, helped PlayStation to become the first console to sell 100 million units worldwide. This generation ended in 2006 with the discontinuation of PlayStation.

Nintendo 64 was released in 1996, and it featured some of the best games ever made, such as Super Mario 64, The Legend of Zelda: Ocarina of Time and 007 GoldenEye, thus selling 33 million units worldwide. Besides the cartridge unsuccessful choice, Nintendo lost this generation to Sony due to its higher price tag, later entry into the market and by being positioned to appeal more to children instead of PlayStation that arrived earlier to the market and positioned its product as a lifestyle accessory for males from 18-35 years.

Finally this generation marked the adoption of CD-ROM as the standard media storage format, after some unsuccessful tries in the previous generation, besides Nintendo 64 that

used cartridges, as well as transition to fully 3D games, across Saturn, Nintendo 64 and PlayStation.

Sixth generation of home consoles, commonly referred to 128-bit era, started in 1998 with the launch of Sega's Dreamcast in Japan and one year later on North America and Europe, as a response to struggling sales of its predecessor, Sega Saturn. Being technologically innovative with improved visuals, materialized through many games, but especially Shenmue, released in 2000 and produced by Sega AM2, this game set the bar for video game graphics at that time and had a record budget of \$70 million.

Dreamcast was also a pioneer of online gaming on consoles, with a built-in modem, web browser and online community platforms, such as SegaNet and Dreamarena, being Phantasy Star Online, a game released in 2000 and developed by Sonic Team, the most popular game in this online platform, and the one that utilized most of its functionalities, like voice communication between players.

Although Dreamcast was innovative, and initially very successful, setting video game sales records due to a lineup of critically and commercial acclaimed games, such as Soul Calibur and the ones mentioned earlier, it was discontinued in 2002 on North America and Europe and in 2007 on Japan, being this time difference explained by games published on that territory that were in development when the console was canceled in other territories, but mainly due to a free software development kit that allowed players to create homebrew games, emulators and other programs.

The discontinuation was due to a variety of factors, such as damaged reputation of Sega by earlier failures and lack of support of Sega Saturn, Sega 32X and Sega CD which led some suspicions on gamers and developers, while the launch of PlayStation 2, GameCube and Xbox thrived up competition and shrank Sega's revenues, and with increasing costs of the mentioned failures, was forced out of home console market, being until today a third-party publisher and developer. Still this console managed to sell almost 11 million units worldwide, and its best-selling game was Sonic Adventure with 2.5 million units.

The second console of this sixth generation to enter the market was Sony's PlayStation 2, being launched in 2000, on North America, Europe and Japan. This console experienced huge success, due to the established PlayStation brand in the previous generation, thus creating an enormous customer base that wanted to buy the new console and consequently raised support

of third-party publishers and developers, while the built-in DVD player, backwards compatibility with PlayStation 1 games, internet connection and the possibility to use a hard disk drive and various accessories, such as Eye toy camera, also contributed to that success.

Lastly the maintenance of exclusive first and third-party titles launched in the previous generation, with new exclusive titles, such as God of War, Ico, Killzone, Devil May Cry and Grand Theft Auto (for a period of time), contributed to the record sales in home consoles of 140 million units worldwide, being the uncontested leader of this generation, as this number may increase since the console still is sold worldwide, and games are expected to be launched to that console in 2010.

Nintendo released a new console, GameCube on Japan and North America in 2001 and Europe in 2002, being discontinued in 2006. It was the first Nintendo console to use an optical disc, although its capacity was much smaller than those of its competitors, and to have online capabilities, but in a much smaller degree than of its competitors, with Nintendo putting more emphasis on the connection between GameCube and GameBoy.

So GameCube confirmed the declining power of Nintendo in home console market, has it sold less units than its predecessor, Nintendo 64 and besides the referred optical disc issue and limited online capabilities, other factors played an important role in its demise, such as a conflicting brand image, as Nintendo had an image of family-oriented back from the 90's, thus targeting this console to children, when the demographics of the average gamer were mainly on teenagers and young adults.

This situation led the support of third-party publishers to PlayStation 2 and Xbox with mature games that appealed to those console owners, instead of supporting GameCube, as this one was mainly supported by first and second party developers. Still it sold 22 million units worldwide.

After the demise of Sega, regarding home consoles, the software giant Microsoft entered the gaming arena, with Xbox, released in 2001 on North America and 2002 on Europe and Japan, being discontinued in 2006. In its essence this console was a personal computer, as it utilized a modified version of Windows 2000 and DirectX API, and its components such as CPU and GPU were similar to the ones used in PC's, facilitating porting of PC games such as Half-Life to Xbox, rather than PlayStation 2



Important games of this console, were the exclusive Halo and Halo 2, Dead or Alive, Splinter Cell, Project Gotham Racing, Forza Motorsport, Ninja Gaiden and Fable to name a few. Halo was considered the killer app (game that drives console sales), as it was considered the best first person shooter released to consoles, while Halo 2 was the killer app for the Xbox Live service, a major selling point of this console. While Sony and Nintendo followed decentralized models (servers for online functionality were supported by developers), Microsoft followed a centralized-subscription model, where it supported the servers.

The quality of this service proved invaluable to Microsoft, as it not only enabled players to play in multiplayer, but also to download content and save it on the built-in hard disk drive of Xbox, the first console to offer that. These feats led to mainstream recognition, achieving in 2009 the number of 20 million active subscribers.

Although these selling points proved to be interesting, and valued 24 million units sold worldwide, were only good enough to take second place in this generation, ahead of Nintendo, but well behind Sony's PlayStation 2, as this struggle would continue in the next generation.

Regarding handheld systems, Nintendo's GameBoy continued to be the market leader, with several updated models to refresh product life cycle, such as Gameboy Advance launched in 2001, Gameboy Advance SP in 2003 and Gameboy micro in 2005, with all models selling 81.50 million units worldwide.

Around this time, emerged the trend to release non-gaming products, with the capability to play games, such as Nokia N-Gage that was released in 2003 and discontinued 2 years later, as the platform nor was a good mobile device, nor a good gaming platform, failing to achieve the success it was expected. Still it managed to sell 3 million units worldwide.

Other industry trends that emerged around this time were cross-platform games, released on PC and various home consoles, from major publishers such as Activision, Electronic Arts and Ubisoft, as well as the rise of online gaming, with multiplayer components up to 32 or 64 players. The first massive multiplayer games were released, such as Ultima Online and Everquest, before the huge hit, World of Warcraft that was launched in 2004, taking this gaming genre to another level, since it passed from thousands of subscribers of previous games, to millions.

Casual games started to be released and began to appeal to wider audiences than core games, as they required less time to master, were less complex and could be played anywhere, anytime. Mobile devices and social networks, were and still are the platforms of choice, but the game that appealed to wider audiences, such as females was *The Sims*, created by Will Wright and published by Electronic Arts in PC and consoles, selling more than 100 million units, counting expansions and sequels. The casual games would see another boom, with the launch of Nintendo Wii and DS (Dual Screen).

Finally in this era some mergers occurred, as Square merged with Enix in 2003 and bought Taito after that event, Sega merged with arcade manufacturer, Sammy to form Sega Sammy Holdings in 2004, Namco merged with Bandai in 2006 to form Namco Bandai Holdings. Other acquisitions occurred, such as Microsoft buying developers, Bungie Software (*Halo* creator), Rareware (creator of *007 Goldeneye* for Nintendo 64), and Lionhead studios (*Fable*), home studio to one of the most recognizable game developers, Peter Molyneux, alongside ones of Will Wright, Shigeru Miyamoto and Hideo Kojima.

The seventh generation of home consoles began in 2005, when Microsoft launched Xbox 360 on North America, Europe and Japan, continuing to be released in other markets such as India and Brazil from that date. Several models have been launched with different hard disk capacities, as well as several accessories, such as memory cards, Wi-Fi controllers, and HD-DVD players, just to mention the most important.

As of 2009 Xbox 360 sold 39 million units worldwide, with an attach rate of 9 games per console being the highest of this generation and totaling around 351 million software sales since launch.

Standing in second place in this console generation, the main key points of this success are a rich library of games both in quality and quantity, with first and second party exclusives such as *Halo 3*, *Halo 3:ODST*, *Gears of War 1 and 2*, *Fable II*, *Mass effect 1 and 2*, *Forza Motorsport 3*, *Project Gotham Racing 4*, *Left 4 Dead*, and an improved support of third-party publishers when compared to the previous generation, not only due to the fact that Xbox 360 was the first console to enter the market and consequently have a temporary market share superior to later entrants, but also the need of publishers to trim down increasing production costs, lead some games traditionally exclusive to PlayStation, to be released to Xbox 360,

such as Grand Theft Auto 4, Tekken 6, Devil May Cry 4, Final Fantasy XIII, Ridge Racer 6 and Resident Evil 5 to name a few.

Other key points of this success were the improved Xbox Live service that besides serving as a platform to multiplayer games, it's also a gateway to the Xbox 360 community with enabled social-networking features, such as Facebook, twitter and last.fm while also allowing users to play casual games like 1vs100.

Xbox Live also includes the possibility of buying movies and TV shows through the service, as well as videogames from Xbox, Xbox 360 and older consoles from other timeframes, all through digital distribution, while supporting new technologies as IPTV broadcasts, high-definition video and Digital Video Recording. Other initiative that's worth mentioning is XNA creators club and XNA game studio platform, that allows independent developers to create games to Xbox 360 and PC, to later be distributed through Xbox live with no royalties charged by Microsoft.

This success was somewhat offset by some technical problems that plagued the console in its early life cycle which led to a program launched by Microsoft to repair the affected consoles, and extend the warranty of the console.

Lastly, after the success that Nintendo Wii experienced with casual games and motion controlling, Microsoft intends to launch Project Natal in the fall of 2010, an accessory that will be sold separately and will be compatible with all Xbox 360 previously manufactured and its premise is that instead of using a controller to play a videogame, players will be able to use their body movements to do it, being this process done by a camera with body sensing technology.

The second seventh generation console to be launched was Sony PlayStation 3, being released on North America and Japan in 2006 and on Europe in 2007. At launch was the most expensive console of the three, retailing at \$599 while costing to Sony \$840 to produce each unit, which led to some operating losses of Sony Computer Entertainment Division in the beginning. With Xbox 360, PlayStation 3 set the technological standard of this generation, with high definition graphics, large hard disk storage units, integrated online capabilities and online platform for online gameplay and digital distribution sales.

As of 2009, PlayStation 3 has sold 32 million units worldwide, with an attach rate of 7 games per console and totaling 224 million software sales. Several models with different hard disk

capacities and enabled backwards compatibility have been launched, but the model that allowed PlayStation 3 to achieve higher sales numbers, was the PS3 slim, launched in 2009 and with a price tag of \$299, possible due to a reduction in manufacturing costs to \$240.

One of the distinguishing points of PlayStation is its Cell processor, developed together with Toshiba and IBM, it possesses seven logical units that give the platform plenty of computational power, even being used by laboratories and research entities through grid computing. Also its built-in Blu-ray disc player is a major selling point, especially after Toshiba dropped support of HD-DVD format, which enabled Blu-ray to be the only physical support of high-definition content, and PlayStation 3 offers this possibility through a price tag lower than normal Blu-ray players.

In terms of games, the late entry compared to Xbox 360, poor sales of PlayStation 3 in the beginning of its product cycle and greater difficulty developers sensed to make games to PlayStation 3 when compared to other consoles, led some previously mentioned third-party exclusives also to Xbox 360. Still it has in its portfolio, first and second-party games like Gran Turismo 5 and God of War III, expected to be released in 2010, Killzone 2 and Metal Gear Solid 4 as well as new intellectual properties such as Uncharted 1 and 2, Resistance 1 and 2, Little Big Planet.

Several accessories are available, such as Sixaxis a controller with movement detection, and PlayStation Eye, a camera that besides communication, serves to play casual games, similar to Eye Toy camera of PlayStation 2, being PlayStation 3 also ready to transfer files to and from PlayStation Portable and play games of this console on PlayStation 3.

The PlayStation Network is an online platform, made in response to Xbox Live that enables online gameplay with no fees required and social networking such as Facebook, twitter and PlayStation Home designed by Sony, being this one similar to Second life, since it allows players to interact with others through a virtual world. Other features of PlayStation Network are the possibility to buy games, movies, TV-shows and music videos through digital distribution, as well as accessing IPTV and Digital video recording.

In 2010 Sony expects to capitalize more on casual gaming and motion controllers, with an accessory codenamed PlayStation Arc, similar to the one Nintendo Wii has, while trying to take the videogame and movie industries one step further with stereoscopic 3D, which with

appropriate TV's and Blu-Ray players, like the one in PS3, can create a 3D experience at home.

Nintendo Wii was the last seventh generation console to enter the market, as it was launched in 2006 on North America, Europe and Japan. After losing market share with Nintendo 64 and GameCube, Nintendo changed its strategy, as instead of trying to compete with Sony and Microsoft for the same traditional core-gamer market of 18-35 males, Nintendo shifted to a blue ocean strategy focusing on casual gamers, like females and males outside the 18-35 target, like children and old people.

This strategy was put in motion with a console that was less powerful than its competitors and consequently cheaper to manufacture, which led to a lower price tag than its rivals, \$249, obtaining profit with each unit sold, and most important part of this strategy is the innovative way that people interact with the console, through the infra-red motion sensing controllers.

This led to staggering worldwide hardware sales of 67 million units and an attach rate of 7 software sales per console, totaling 469 million games sold, as this impressive numbers are possible due to mentioned factors, and also because of the software line-up, as first-party games such as Super Mario Galaxy, Mario Kart Wii, Metroid Prime 3, Zelda: Twilight Princess, Super Paper Mario and New Super Mario Bros. Wii ensure that core gamers have reasons to buy the console, as this games are well established franchises, but with new features possible due to the new motion controllers, Wii remote and Nunchuck. At the same time the first-party line up of casual games also with motion controlling technology, such as Wii Sports, Wii Fit, Wii Fit Plus and Wii music to name a few, ensure that the casual market has enough reasons to buy this console.

Also in this generation and mainly because of impressive sales numbers, third-party publishers that alienated Nintendo consoles in previous years, started to publish games that take advantage of unique characteristics of Wii trying to take a share of the casual market, although it has to be said that with few success that of similar products launched by Nintendo.

Other key factors include backwards compatibility with GameCube games, as well as connectivity with Nintendo Dual Screen handheld as it allows this console to be used as a controller for games played on Wii. The online platform that serves as base for online gameplay, and gives players the possibility not only to buy games for Wii, but also games of older consoles, from Nintendo and Sega for example. It doesn't however allow users to buy

movies, TV-shows or music videos, as opposite to its competitors, nor does it have the high-definition capabilities (it doesn't support DVD either) or IPTV/DVR readiness, being less technologically upfront than its competitors.

The handheld console market also saw new products as Nintendo released its new device, Nintendo Dual Screen (DS), available since 2004 on North America and Japan, and since 2005 on Europe. Unlike its predecessor, Nintendo DS was the first product to embody the new strategy of Nintendo, to appeal to both casual and core gamer market, using for that purpose two screens, being one of them a touch-screen while also having a built-in microphone that allows players to interact with games.

Some upgrades to DS have been released such as Nintendo DS lite, launched worldwide in 2006, was a smaller, slimmer and lighter version of original DS, with extended battery life and better screens. In 2008 Nintendo launched DSi on Japan, whilst it was launched on North America and Europe in 2009, being similar to DS lite in design, it adds two digital cameras that besides taking photographs, take an important role in gameplay, while the console has more powerful components, and an online DSi shop.

An enormous library of games launched to this console, from traditional Mario and Zelda games, to Brain Training and Nintendo Dogs, and previously mentioned advantages that attract both casual and core players made DS sell 125 million units worldwide as of 2009, with an attach rate of 4 games sold per console, totaling 500 million software sales.

Sony entered for the first time in handheld market with PlayStation Portable (PSP), launched on Japan in 2004, and on North America and Europe in 2005. It is a product more oriented to core gamers, being a more powerful system with more multimedia capabilities than Nintendo DS, but also with a higher price tag. Games available are those who traditionally appeal to that target, such as ports of famous PlayStation 2 games, such as God of War, Grand Theft Auto, Killzone, or Gran Turismo, while are also launched games with innovative capabilities, such as Patapon.

Several hardware revisions have been launched, with better screen, improved battery, leaner design and built in microphone, but the more radical one, was released in 2009, the PSP Go, which drops out the UMD unit, used to read content on PSP, and adopts a digital distribution only business model, which means that whoever wants to play a game in PSP Go has to buy the product online and doesn't own it in physical condition.

This console has experienced some success with 55 million units sold worldwide and an attach rate of 3 games per console, totaling 165 million software sales worldwide.

It's also important to mention the entrance of Apple in mobile gaming market in 2007, with iPhone and iPod touch. While the first is mainly a mobile device with smartphone capabilities (traditional mobile phone and PDA capabilities), it adopted a digital distribution only model, through their Appstore and more than 50% of content sold through this platform are games. iPhone has sold 40 million units worldwide, as of 2009.

One last mention to the PC as it continued to decline as a gaming platform, a trend that started in the sixth generation of consoles. As development costs increase, and as piracy continues to grow on PC platform leading to lower sales, many publishers and developers simply launch games to Xbox 360 and PlayStation 3 that are never released to PC or are released several months later. Still it is a platform with huge flexibility, and still sees great games come to it, but not in exclusive condition.

### **3.2. Industry value chain**

Video game industry value chain starts with capital required to start a project, and it comes from publishers that invest in development of new titles and seek return of that investment. As in the sixth generation of consoles budgets for game development ranged from \$3 to \$5 million, with few exceptions above that threshold, while in the current seventh generation, those values increased to \$10 to \$20 million, with high profile titles such as Grand Theft Auto 4 and Metal Gear Solid 4, counting with estimated budgets of \$100 and \$50 million respectively.

The next layer of value chain is product/human resources layer that encompasses video game developers that actually develop the product and are constituted by game designers, programmers, artists, producers, writers, sound technicians and game testers. In the previous generation, development teams were made of around 50 people, with current generation going beyond 100 people involved in development process, being one of the reasons of growing budgets.

If the developer is owned by the publisher, the latter finances the development process, but if they are separate organizations, besides financing the project, a publisher has to pay to developers royalties based on net sales revenue of the game, minus taxes, shipping, insurance and returns, ranging these royalties between 10% and 20%. This reason is why some publishers prefer to own developers to reduce this expense, or instead if they do not own them, make a deal to split development and marketing costs.

The production layer is responsible for production tools such as game development middleware, customizable game engines and management tools, as other examples are licensing and royalty fees to console manufacturers. If third party publishers want to launch a game in a console manufactured by Sony, Microsoft or Nintendo, they have to pay console royalties to these manufacturers that range generally from \$3 to \$10 per game sold, while also having to pass rigorous quality standards.

Licensing of intellectual property is made by paying for the right to use stories, characters or music for example, that a publisher wants to use in their products, but those intellectual properties weren't created by them. This occurs because with development costs rising, publishers need to sell more games to obtain profit, thus licensing brands that are already known to the target customers as a way to guarantee sales, although it has a downside mainly due to high royalties required by intellectual property owners, encouraging publishers to create their own properties.

Publishing/distribution layer creates the marketing of their products that starts in the development process of the game itself, by adjusting game content to the target customer, and lasting beyond the game actual shipment. Usually marketing actions take the form of advertising in TV, websites, online promotions and in retail stores as well as magazine ads. Marketing budgets can be the same amount as the development budget, or sometimes even double the budget of development process.

All of this marketing effort culminates when the game is on sale at “brick and mortar” retail stores and through increasingly popular online distribution, but before it reaches retail it usually goes through wholesalers that pay generally up to \$30 per unit to publishers, and after deductions of getting the products to wholesalers, joint marketing operations and other costs that go up to \$14 per unit, the publisher gets roughly \$16 of profit per unit sold. Other costs have to be taken in account such as development, marketing and royalties paid to console



manufacturers and developers, thus emphasizing the good relations publishers have to have with wholesalers and retailers in order to maximize profit.

The final two layers of this value chain are the hardware/software/virtual machine that provides the underlying platform in which the products are played, ranging from PC and consoles, mobile devices, virtual machines based on Java or Flash technology or even by software platforms such as Facebook. The last layer is the end users that utilize the product.

### **3.3. Game development process**

The process of game development has become more complex over the years, as in the 1980's games were mainly done by one person that programmed designed and created the art, but after 1990's and into 2000's development teams started to grow to 50 members and in current seventh generation consoles is common to see development teams with 100 people or more. In the sixth generation of consoles, development budgets ranged from \$3 to \$5 million, but with the current generation some games have budgets that easily are between \$10 and \$20 million, with some exceptions being even higher than that.

The development process starts with the pre-production where the idea for a game emerges, most of times from a game designer, and has to be given the green light by whom is financing the project, usually a publisher. If a developer and a publisher are separate entities, the idea must first get the approval of developer management which afterwards goes to show a demo of the product to publishers to start production, otherwise if developer and publisher are in the same entity the idea must pass the management layers of that company, until top management green lights the project.

At this time it is created a game design document that describes the game itself, as well as concept and major gameplay elements, while including material of the initial idea being in constant update while the game is under development. Before the final design is approved, a selected number of programmers and artists start to develop prototypes of the game, concept art and technical frameworks to show to stakeholders that have the decision to approve the project, as these sometimes want to see determined features incorporated to start production. Also the producer starts planning the production schedule, budget and tasks with the staff so the process can start without delays.

Production starts when all of the project staff is working on it, as programmers create the source code of the game, artists develop visual assets such as 3D models and game designers refine gameplay mechanics to start creating levels, based on the work made by programmers and artists. Also sound engineers create sound effects and music while writers create the story in which the player is going to interact.

Around this time a new hardware platform may be added to the development process and new marketing targets may be added. These situations could modify the early vision of the game designer as it involves modifying the design document and demands new work from artists and programmers for example.

As production starts to gain momentum the first levels of the game are remade, due to newer features included or changes in technical framework used that allow a quicker and better development onwards. When the first level is done and stability is reached, next levels require less time to be made as they are not systematically remade.

When a game is playable testers start their work and try to find bugs and as production advances to its final stages, testers devote more time to it as there are new features introduced with a faster pace, that are added to other features previously made. Testing a game after its release is vital nowadays as they become more complex and exposed to flaws and a final product with problems, cuts down its probability of success.

After the game is done and is shipped, bugs could be found by customers, leading to several patches being launched to improve the product. Traditionally PC games are more exposed to bugs than consoles, because the later have a finite number of components as opposed to the former that can assume a wider range of configurations.

During the development process several milestones are created by the financing entity, usually a publisher, using this as a way to protect its investment, avoiding uncontrolled expenses and pressuring developers to meet the established release date. Often when these milestones are reached, they unlock funds to developers to continue their work.

The duration of product development ranges from one year to three years in most cases, but of course there are exceptions. A casual game with a 2D graphic engine and gameplay based on puzzle games can take from six months to a year to develop, as opposed to a game focused on core-gamer market, such as a first person shooter with top of the line 3D graphics engine and

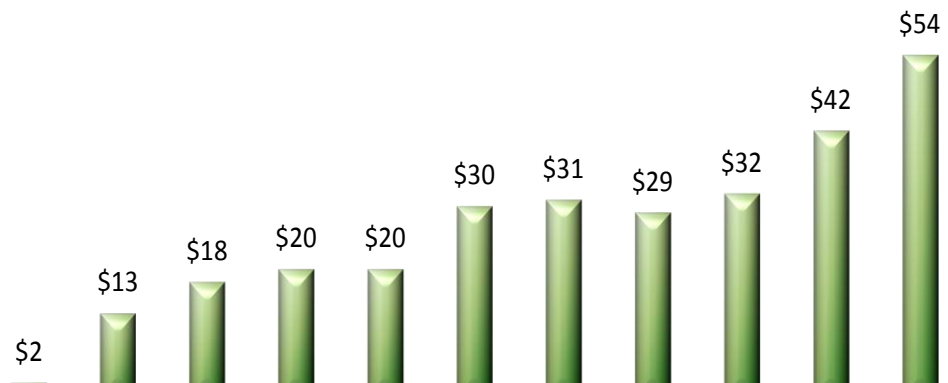
multiplayer capabilities that could take two or three years to develop, with the later possessing a bigger budget than the former.

This development time can be somewhat mitigated as teams that are working on the product utilize licensed game engines, middleware and tools created by other companies as a way to reduce both costs and development time, making the difference of the product not so much on technological side, but more on gameplay and art design for example.

### 3.4. Industry growth

Looking at the graphic below, it can be seen that this industry experienced a huge growth in almost 30 years, with retail sales achieving in 1982, \$2 billion and in 2008, retail sales, online revenues and digital distribution totaled \$54 billion.

**Graphic 1:** Worldwide videogame industry sales in billions of USD

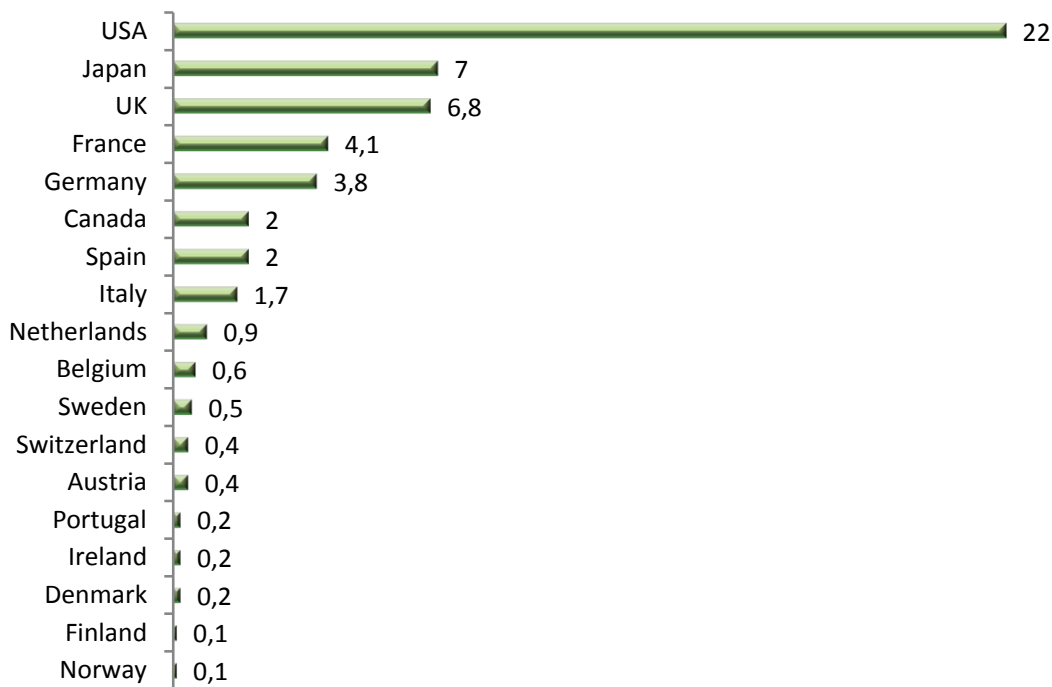


Source : Vgsales

Geographically United States of America is the biggest market worldwide, as the revenues of 2008 totaled 22 billion USD, when in 2007 they were 18 billion USD and in 2005 11 billion USD. Japan the second most important market contributed to worldwide sales with 7 billion USD in 2008, but this number has been in downwards trajectory, as in 2004 it was 8 billion USD and in 2001 13.25 billion USD.

The European market accounted in 2008 with 22 billion USD, more than the 18 billion USD generated in 2007. The biggest contributors to European sales figure of 2008 were United Kingdom with 6.8 billion USD, France with 4.1 billion USD, Germany with 3.8 billion USD, Spain with 2 billion USD and Italy with 1.7 billion USD. As a curiosity, Portugal's revenues totaled 245 million USD in the same year.

**Graphic 2:** Geographical sales distribution in 2008, in billions of USD



Source: Vgsales

In 2009 an industry decline is expected due to the worldwide economic recession, caused by the financial crisis that impacted not only the core-gamer market but mainly the casual-game business. However, it is still expected that in 2012, a year in which next generation consoles should begin to be launched, the videogame industry could reach 68 billion USD in revenues.

Lastly in 2007 the videogame industry surpassed the music and movie industry, as videogames generated 42 billion USD, while music generated 40 billion USD and movies 27 billion USD.

### **3.5. Growth drivers**

The growth of video game industry in the past years as well as the projected future growth is explained by numerous factors, such as the growth of broadband as the adoption of high-speed internet increased the accessibility of online gaming, from massive multiplayer online games to social networking/casual games.

The cheapness of computing power was and still is another positive factor in industry growth as the price of electronic components such as CPU and GPU dropped while at same time its computing power increased, lifting some constraints that game developers experienced being now enough to meet any requirements that they could have.

The adoption of more advanced wireless networks and the evolution of mobile devices with increased multimedia capabilities also contributed to recent growth, as games began to be released to these platforms, thus increasing the total video game market.

Other growth factor was and still is, a maturing consumer base as the average gamer age nowadays is 29 years, contrasting with the same value 10 years ago when games were almost exclusively played by children and teenagers. This shifting in demographics not only increased the consumer base, as it went towards more audiences, from children to elderly and females but also these new targets being older, have more available income to spend in videogames.

Consolidation in this industry between developers and publishers and publishers with other publishers also lead to growing opportunities, as publishers when buying developers gain development expertise, proprietary technology, intellectual property and a competitive advantage from these acquisitions as they prevent other publishers from accessing to the technology and content that the best developers offer and as publishers became publicly traded companies, it is even more relevant as they look for more profit sources.

On developer side, typically not-publicly traded companies, being bought by publishers gives them the necessary liquidity and resources to keep with the technology change, manage growth and access to marketing expertise of publishers to improve their products success probability.

These consolidation movements through mergers and acquisitions are also a response to the increasing development costs of videogames, with teams growing bigger and costs rising, publishers try to allocate their resources more effectively.

Lastly future trends that could drive industry growth even further, include the digital distribution, which involves the purchase of games through internet at sometimes lower prices than in retail stores, but the buyer possesses only a license to play the game as it doesn't own it in tangible form. This method has become increasingly popular in seventh generation consoles due to, among other things, the adoption of high-speed internet connections.

Digital distribution also helps prevent piracy, as some games require online connection to be played, thus ensuring every participant in the industry value chain is rewarded by their work. Also the new trend of micro-transactions through DLC's (downloadable content), are extra revenue sources, as publishers nowadays release additions to their games after they are released, for small fees that range from \$1.99 to \$14.99 and could be new maps, characters, items, and new ways to customize gameplay, to name a few examples. The downside is that, transactions through this method are not tracked by the firms that monitor industry sales, such as NPD group, Gfk, Charttrack and Enterbrain.

Also the more advanced form of digital distribution is yet to come, as the new paradigm of computer science, cloud computing may reshape the value chain of current industry. With cloud computing, instead of games being processed in our hardware systems at home, they are processed in "server farms" through a client hardware system that doesn't execute any processing, sending instead the information to those servers being processed there and then sent back to our home. This means that for a reasonable experience, very high-speed internet has to be adopted.

In United States of America, a company named OnLive intends to launch a service of this type, being as of 2009 already testing the service, and when it is launched its business model will be subscription based.

As for in-game advertising, it's an interesting trend as it allows advertising to be placed in games, accordingly to their target customers. This trend gave birth to projects such as

Battlefield heroes from Electronic Arts that is free to play, as the game doesn't have to be bought nor requires subscription because it's fully financed by micro-transactions, and in-game advertising.

In-game advertising could be a new source of revenue to publishers with estimates pointing to \$1 and \$2 of profit per unit/user, and a new place for advertisers. In 2004 in-game advertising accounted for \$34 million, whilst in 2005 it rose to \$56 million, and by the end of 2010 it's expected to be a \$730 million market

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This later trend can be linked to another trend in casual gaming, social network games. As these are increasingly popular, being played through social networks such as Facebook which counts with 400 million users as of 2009, in-game advertising could be a revenue source for independent developers.

#### **4. Background of both companies**

Activision was founded in 1979 by Jim Levy, a former music industry executive, and by Atari programmers David Crane, Larry Kaplan, Alan Miller and Bob Whitehead, being the first independent video game developer and publisher, unlike other developers and publishers that created games for their own videogame system, for example Atari published games for their Atari 2600 system. At this time Activision made a breakthrough decision to give credit to game creators and rewarding them financially based on game's sales instead of a fixed wage, and so helped to draw talent programmers that could make Activision grow.

In 1982 with the decline of videogame consoles market, Activision started to produce games for home computers and acquiring smaller publishers, making a successful IPO in 1983, but with the continued decline of market conditions Activision's stock went downward, being this market deterioration justified by new companies that entered but declared bankruptcy only a year after forming, mainly because of dubious quality products.

In this period several people left Activision, namely Alan Miller and Bob Whitehead that formed Accolade, Larry Kaplan returned to a Vice President position at Atari, Larry Probst who would go on to become CEO of Electronic Arts, Greg Fishback, Jim Scoroposki and Rob Holmes that founded Acclaim.

In 1986 Activision merged with Infocom, a text adventure company that was suffering financial difficulties, besides having released some titles with success, but as the transition from text adventures to graphic adventures never wasn't successful, financial problems were aggravated which lead to the closure of Infocom in 1989.

By the year 1988, after the departure of the last co-founders, Jim Levy and David Crane, Activision diversified it's offer, getting involved in other types of software such as business applications and as result changed its corporate name to Mediagenic in order to have a name that would globally represent all range of activities, but despite this change it continued to publish videogames with the Activision and Infocom brands, on various system platforms like



NES (Nintendo Entertainment System), Sega Master System, Atari 7800 and ST, Commodore 64 and Amiga.

After this period and following a multi-million dollar patent infringement suit, a financially weakened Activision (Mediagenic at time), was bought by an investor group called BHK corporation lead by Robert Kotick, replacing Bruce Davis as CEO, reorganizing the company and in 1992 Mediagenic name was officially dropped as once again the company was named Activision, continuing to develop and publish videogames for PC and home consoles, resuming strategic acquisitions and focusing once and for all on its original core business: videogames.

Vivendi Games is part of a French international media conglomerate Vivendi, which has business interests in music, television, films, telecommunications and internet, such as Universal Music Group, SFR, Maroc Telecom Group, Canal + Group and NBC Universal, while also serving as a holding company for Sierra Entertainment and Blizzard Entertainment.

Vivendi Games history starts in 1996 when CUC (Comp-U-Card) International, a large mail order and subscription company acquired Sierra Entertainment, one of the leading developer and publisher of video games at that time by a price approximately 90% higher than what Sierra was trading in the stock market.

In the same year, CUC approached Davidson & Associates, also a public company that was a leading publisher and distributor of educational software, with an offer. While this company was mainly a publisher, it owned a major in-house developer, Blizzard Entertainment, which was acquired by Davidson & Associates in 1994.

After acquiring both companies, CUC joined these new divisions thus creating in 1996, CUC Software, serving as a holding company which would consolidate the finance, distribution, manufacturing, accounting, sales, R&D and overall management of CUC's software companies.

In 1997, CUC acquired Knowledge Adventure and Gryphon Software, developers of educational software, incorporating Gryphon Software and Davidson & Associates into Knowledge Adventure, transforming Blizzard Entertainment into a separate division of CUC Software.

Later in the same year CUC merged with a hotel, real-estate, and car-rental franchiser HFS corporation to form Cendant, but it was a short-lived merger because in 1998 it was discovered that CUC had engaged in accounting fraud for many years before the merger, which led Cendant to sell its consumer software operations, which included Sierra Entertainment and Blizzard Entertainment to a French publisher, Havas in 1998, being later in that year purchased by Vivendi.

After the merger of Vivendi and Universal in the year 2000, the interactive entertainment division of Vivendi becomes Vivendi Universal Interactive Publishing, changing to Vivendi Universal Games in 2002. In 2006, occurs a third name change, to Vivendi Games.

## **5. Objectives of the merger**

The main reasons behind this merger are financial, strategic and marketing ones, deepening the first in later chapters. This operation is a horizontal merger because both companies are in the same business and compete in the same industry stage, as Activision business involves development, marketing, and sale of products, directly, by license, or through affiliate label program with other third-party publishers and Vivendi Games through Blizzard Entertainment involves development, marketing, sales and support of their products while also develops, hosts and supports its online subscription-based games in the MMORPG category.

One of the most difficult decisions in a merger is to find an appropriate name to the new company and in this case both companies agreed to call it Activision Blizzard, being recognized by this name in the stock market as the name Blizzard gives it some additional recognition justified by the latest results of this company alone, thus not mentioning Vivendi Games in the new company although its parent company, Vivendi Holdings owns 55% of Activision Blizzard as of 31 December 2009.

For the general public this name is not going to be a consumer facing brand for any titles launched by both companies after this merger, as Activision and Blizzard games will only get their respective label thus making Activision Blizzard an umbrella organization over Activision and Vivendi Games that incorporates Blizzard Entertainment, providing corporate shared services such as finance, human resources, IT, legal, accounting, facilities and sales as a way to share specific management functions to capture cost synergies and create value.

Activision and Vivendi Games portfolio is complementary to one another because while Activision has a widespread presence in almost all gaming systems, from videogame consoles like Microsoft's Xbox 360, Sony PlayStation 3, PlayStation 2 and Nintendo Wii, to handhelds such as Nintendo Dual Screen, Sony PlayStation Portable and Apple's iPhone and PC, it covers diverse game categories including action/adventure, action sports, racing, role-playing, simulation, first-person action, music, and strategy, while its target customer base ranges from casual players to game enthusiasts and children to adults.

On the other side Vivendi Games publishes games developed by Blizzard, mainly a PC video game developer of real time strategy and role playing games, with a customer base mainly of game enthusiasts and teenagers/adults. Recently it launched its very successful World of Warcraft game and subsequent expansions being the most successful online game, that is based on a subscription business model.

Activision has established itself has a known brand in United States of America, being the n°1 publisher in that country on PC, home consoles and handheld consoles, in 2007 and 2008, while it's also known in Europe, but somewhat unpopular in the Asian markets, as it will be analyzed in financial section.

Blizzard is a very popular brand in United States of America, Europe and Asia, as in this continent their games, such as StarCraft are utilized in electronic sports competitions. The expansion of World of Warcraft to Russia, South Korea and China for example, experienced huge amounts of success.

So on one hand, Activision can get help from Blizzard to push their franchises like Guitar Hero and Call of Duty into Asian markets, enter into the online subscription business model with the most successful game launched to date and get Blizzard expertise if it wants to release a videogame on that segment, under their own label. On the other side Blizzard may learn new ways to explore additional monetization methods for its subscription based model, such as in-game advertising and downloadable content and gain expertise in launching packed products (non-subscription requiring), improving for example the advertising of forthcoming titles StarCraft 2 and Diablo 3, sequels of multi-million dollar franchises.

## **6. Conditions of the merger**

The merger of both Activision and Vivendi Games, a subsidiary of Vivendi Holdings that includes Blizzard Entertainment and Sierra Entertainment was announced in December 2 of 2007, being concluded in July 9 of 2008 with the creation of Activision Blizzard.

This business combination is a particular merger case because in a legal point of view Vivendi Games became a wholly-owned subsidiary of Activision, as its assets and liabilities were pooled into Activision to form Activision Blizzard, thus making Activision the surviving entity but in a financial/accounting perspective, Vivendi Holdings owns 55% on a fully diluted basis of the newly formed company, as of 31 December 2009.

On July of 2008 the Board of directors of Activision Blizzard approved a stock split of a 2:1 ratio, to be executed in September of the same year as a form of stock dividend, as until 2009 Activision hadn't paid any dividends to its shareholders, instead rewarding them through capital gains. On November of the same year a stock repurchase program was announced by the same Board in which Activision Blizzard may buy up to 1,000 million USD of its common stock in the market, as a way to once again reward the shareholders by diminishing the number of shares in the market, making them more valuable.

The operation itself involved the purchase of 126 million newly issued shares of Activision's common stock by Vivendi Holdings at a price of 13.75 USD per share (after stock split) making a total of 1,732 million USD, and converting 590 million shares of Vivendi Holdings into newly issued shares of Activision common stock at 13.75 USD price per share, also after stock split and totaling 8,112 million USD.

So the 55% that Vivendi Holdings owned in Activision Blizzard at the time of the merger were evaluated at the 8,112 million USD plus 1,732 million USD paid by Vivendi Holdings by additional shares, obtaining a total value of 9,844 million USD. The remaining 45% correspond to 585 million shares valued at \$13.75 each, which values this portion in 8,044 million USD, hence the total operation being valued at 17.888 million USD.

As of 2009, 55% of Activision Blizzard remains in Vivendi Holdings property whilst 10% are in possession of Activision Blizzard, obtained through the already discussed stock repurchase, with the remaining 35% being in free-float.

## **7. Impacts of this merger in industry**

Until this operation took place, Electronic Arts was the biggest publisher of videogames for any system without question, but after the creation of Activision Blizzard, both have the same weight in the industry.

In terms of intellectual proprieties, despite the later having a lot of great proprieties, for example Call of Duty, Guitar Hero, World of Warcraft, StarCraft and Diablo, Electronic Arts really is in a class of its own with ability to launch numerous titles on a year basis, mainly sequels of established franchises like its sports licensed games, FIFA, NFL, NBA and other licenses such as Need for Speed and The Sims, the most successful PC franchise launched of all time, with more than 100 million units sold.

Electronic Arts mixes its portfolio with new intellectual proprieties, as 2008's launched Spore, Dead Space and Mirror's Edge, expanding its business model beyond the packed products sold by retailers, like subscription based games with the launch of Warhammer online in 2008, as a way to try to capture market share of the expanding MMORPG segment, but this venture experienced moderate success as the number of subscribers reached one million and started to decay. In 2009 it launched Battlefield Heroes, a game that can be played for free as it is supported by in-game advertising and micropayments.

In January of 2008, Electronic Arts acquired BioWare and Pandemic Studios from Elevation Partners by an amount around 810 million USD, having also tried to buy Take-Two interactive in February 15 of same year offering 2,000 million USD by the company to their Board, thus evaluating its shares at 26 USD, 64% more than the company's closing stock price prior to this offer. After Take-Two board members rejected this proposal, Electronic Arts made a public offer to their shareholders, only to be refused as well.

Both of these movements by Electronic Arts, were a response to the merger of Activision and Vivendi Games although buying other companies from the same industry is a common situation for Electronic Arts, because in 2004 it bought around 20% of rival publisher and developer Ubisoft, third largest as of 2004 and owner of successful franchises such as Prince of Persia, Far Cry, Splinter Cell, Rainbow Six and Assassin's Creed, costing to Electronic Arts between 85 and 100 million USD being this operation considered hostile by Ubisoft board.

Other impacts of this merger in the industry were the closure of Vivendi Games and Sierra Entertainment in 2008, as these companies ceased to exist, their assets being incorporated in Activision Blizzard thus making Blizzard Entertainment the only surviving entity of Vivendi Games in the newly formed company while development studios that have been bought by Vivendi Games, namely Massive Entertainment that created Ground Control and World in Conflict franchises, Swordfish studios and Wanako Studios were sold respectively to Ubisoft, Codemasters and Artificial Mind and Movement, all in 2008.

Also several projects have been canceled to reduce some redundancy situations in Activision Blizzard portfolio and to focus resources on a quality over quantity mindset, such as Wet that was published by Bethesda Softworks and World in Conflict: Soviet Assault that was published by Ubisoft.

In 2009 Shaba games was closed and in 2010 both RedOctane and Luxoflux that were bought in 2006 and 2002 respectively were closed, being these last two companies the creators of Guitar Hero franchise, now property of Activision Blizzard. Other companies owned by Activision Blizzard were hit by layoffs, such as Neversoft and Radical Entertainment but still exist, alongside other important development teams owned by Activision Blizzard, such as Infinity Ward, acquired in 2003 and responsible for the Call of Duty franchise, Bizzare Creations, acquired in 2007 and responsible for Project Gotham Racing franchise, Raven Software acquired in 1997, Treyarch acquired in 2001 and a newly formed studio, Sledgehammer games, created in 2009 by Activision Blizzard.

So the industry landscape revolves around two giants, Activision Blizzard and Electronic Arts that constantly are looking for new intellectual proprieties of third party companies such as movie licenses, studios for sale and merger opportunities, being possible that both companies often get tied up in bidding wars.

To smaller developers it is going to be more difficult to get their games published as these consolidation movements decrease the number of independent publishers willing to support those games, as both Activision Blizzard and Electronic Arts are looking for intellectual properties that sell at least 2 million units every year, and not an occasional once in a lifetime franchise.

On a lower degree, there are publisher/developers as Ubisoft, THQ (Toy Head-Quarters), Take-Two, Midway, Konami, Capcom, Sega, Square-Enix / Eidos, with less strength than those cited, that are going to try to, besides launching games with similar characteristics of a regular year multi-million dollar franchise, explore new ideas, market niches or systems that are not well explored by both giants, such as Nintendo DS as in this platform a game that sells 500,000 units is very profitable due to low production and development costs, unlike a AAA game to Sony PlayStation 3 or Microsoft Xbox 360 that can easily surpass 10 million USD in development and marketing budget.



## **8. Financial Analysis**

### **8.1. Assumptions and facts**

The analysis of this operation on a financial perspective implied assumptions when financial information was gathered from both companies and then analyzed. Because Activision had its fiscal years from March to March and Vivendi had a December on December basis, all revenues, operating expenses, investment income, and working capital values were calculated using values of quarterly reports of Activision's 2007 fiscal, hence being on the same basis period of Vivendi.

Depreciation, amortization and capital expenditures were calculated by the March on March annual report of 2008, that contained nine months of 2007 and three months of 2008, through division of respective value by four and multiplied by three, and adding one quarter of the value of the fiscal year of 2007 that contained one quarter of the same year, and three quarters of 2006.

All values of Vivendi Games 2007 were obtained from Activision Blizzard's report of 2008, mainly due to data contained in Vivendi holdings report of 2008 that wasn't displayed in the same format as Activision's. This situation is due to this merger being treated as a reverse acquisition, as legally Activision was the acquirer of Vivendi Games thus incorporating it on their report by the purchase method of accounting.

Revenues of Activision Blizzard 2008 weren't comparable with Activision and Vivendi Games of 2007, due to the fact that it contained operations of Vivendi from January to December but operations of Activision were only accounted after July, so for the sake of coherence those values were included in the financial analysis, even if they haven't been used in the accounts shown on reports that serve as an informational base to shareholder's and stakeholders.

The tax rate assumed was 35% of EBIT for all calculations and amortization/depreciation besides tangible depreciations, includes write-offs of software development and intellectual property licenses.

As of 2009, Activision Blizzard was not expected to pay dividends nor launch another stock repurchase program as the last one ended in 2009. Also Activision Blizzard doesn't have any debt, having in the end of 2008 \$3,000 million in cash and equivalents thus reinvesting those resources in their activities, without need of debt. This enables the analysis to skip free cash flow for the equity, since there is no debt it would be the same value of free cash flow for the firm.

## 8.2. Activision 2007 and Vivendi Games 2007

From the table 1 located below and comparing both companies it can be seen that Activision obtained total net revenues of 2,608 million USD, more than the 1,349 million USD presented by Vivendi Games in the same period. The sources of these revenues are different in both companies, as Activision had 84% of their revenues coming from product sales, as opposed to Vivendi Games, whose revenues came mainly from subscription and licensing of World of Warcraft, totaling 66% of total revenues.

**Table 1:** Revenues and operating expenses of Activision and Vivendi Games, in millions USD

	<b>Activision 2007</b>	<b>% of revenues</b>	<b>Vivendi Games 2007</b>	<b>% of revenues</b>
<b>Net revenues</b>				
Product Sales	2,201	84%	457	34%
Subscription, Licensing and Distribution	407	16%	892	66%
<b>Total revenues</b>	<b>2,608</b>	<b>100%</b>	<b>1,349</b>	<b>100%</b>
<b>Operating expenses</b>				
Cost of sales - product costs	1,147	44%	171	13%
Cost of sales - software royalties and amortization	268	10%	52	4%
Cost of sales - intellectual property licenses	95	4%	9	1%
Cost of sales – MMORPG	0	0%	204	15%
Product development	236	9%	397	29%
Sales and marketing	281	11%	172	13%
General and administrative	185	7%	166	12%
Restructuring costs	0	0%	0	0%
<b>Total operating expenses</b>	<b>2,212</b>	<b>85%</b>	<b>1,171</b>	<b>87%</b>

Subscription business model offers more predictability on future cash flows when compared to typical revenues from boxed products, as subscription fees are paid before the consumer has access to the service, requiring renewal every month to continue playing. So as a brief conclusion regarding revenues is that this merger benefited both companies as they gained strengths on business areas they didn't clearly excel.

Regarding operating expenses, Activision totaled 2,212 million USD, consuming 85% of revenues while Vivendi Games cost structure accounted for 1,171 million USD with a similar weight of Activision's, representing 87% of revenues. On Activision's side the main cost sources were product costs, followed by sales/marketing and software royalties, as these weighted respectively, 44%, 11% and 10% of revenues.

Vivendi Games had a more evenly distributed cost structure, as product development consumed 29% of revenues, followed by MMORPG costs, product, sales/marketing and general/administrative, ranging from 15% to 12%.

In table 2 it can be seen that Activision's EBITDA was 396 million USD, achieving an operating income of 15%, being higher than the EBITDA of 178 million USD obtained by Vivendi Games. Still the operating income of the later is 13%, being almost as efficient as Activision, regarding costs.

**Table 2:** EBITDA, EBIT, net income, OCF and FCFF of Activision and Vivendi Games, in millions USD

	Activision 2007	% of revenues	Vivendi Games 2007	% of revenues
<b>EBITDA (operating income)</b>	<b>396</b>	15%	<b>178</b>	13%
Investment income	47		-4	
Depreciation and amortization	213		117	
<b>EBIT</b>	<b>230</b>	9%	<b>57</b>	4%
Taxes 35%	81		20	
<b>EBIT*(1-t) (net income)</b>	<b>150</b>	6%	<b>37</b>	3%
<b>Operational cash flow</b>	<b>363</b>	14%	<b>154</b>	11%
Capital expenditures	26		68	
Working capital	192		84	
<b>Free cash flow for the firm (FCFF)</b>	<b>145</b>	<b>6%</b>	<b>2</b>	<b>0,2%</b>

As for net income, Activision accounted 150 million USD after applying a 35% tax rate to EBIT, being higher than Vivendi Games 37 million USD of net income. After adding depreciation and amortization to net income, Activision’s OCF was 363 million USD amounting 14% of revenues, while Vivendi Games achieved a minor OCF of 154 million USD or 11% of revenues.

Here has to be said that in this case the financial benefit of depreciation and amortization reduced tax paid in a way that almost made possible the parity between EBITDA and OCF.

Finally the FCFF reached by both companies after deducting to OCF their respective capital expenditures and working capital, was 145 million USD in the case of Activision, more than the 2 million USD obtained by Vivendi Games.

After analyzing the revenues of both companies, it’s important to see a decomposition of those numbers by geographic areas and hardware systems.

Starting by the geographic revenues, in table 3 it can be seen that Activision clearly had a stronger presence in North America, as 58% of total revenues came from that market, totaling 1,512 million USD. On the other side, Vivendi Games had 46% of their revenues originating from North America, and if it’s near the values of Activision in relative terms, on an absolute level those 46% amounted to 620 million USD.

**Table 3:** Revenues of Activision and Vivendi Games by geographic areas, in millions USD

	<b>Activision 2007</b>	<b>% of revenues</b>	<b>Vivendi Games 2007</b>	<b>% of revenues</b>
<b>Geographic net revenues</b>				
North America	1,512	58%	620	46%
Europe	1,019	39%	555	41%
Asia pacific	76	3%	164	12%
<b>Total net revenues</b>	<b>2,607</b>	<b>100%</b>	<b>1,339</b>	<b>100%</b>

The second most important market to both companies was Europe, as they obtained roundly 40% of their revenues from there, but Activision’s sales were almost the double of Vivendi Games. Lastly the Asia pacific area had a residual presence on Activision’s portfolio, with 3% of sales while Vivendi Games surpassed this mark, as 12% of their revenues came from there.

From a hardware systems perspective, it can be seen that home consoles were the major contributors to Activision’s revenues, representing 71% of total revenues or 1,838 million USD. In this category, it highlights the fact that Sony PlayStation 2 and Microsoft Xbox 360 were the primary responsible for that weight, as respectively their contributions were 27% and 26%. The MMORPG segment in Activision was inexistent at time and the PC contribution was a residual 5%.

**Table 4:** Revenues of Activision and Vivendi Games by hardware systems, in millions USD

	Activision 2007	% of revenues	Vivendi Games 2007	% of revenues
<b>Platform net revenues</b>				
MMORPG	0	0%	1,024	76%
PC	126	5%	94	7%
<b>Consoles :</b>				
Sony PlayStation 3	244	9%	22	2%
Sony PlayStation 2	707	27%	71	5%
Microsoft Xbox 360	665	26%	35	3%
Nintendo Wii	214	8%	25	2%
Microsoft Xbox	4	0%	3	0%
Nintendo GameCube	4	0%	0	0%
<b>Total Console</b>	<b>1,838</b>	<b>71%</b>	<b>156</b>	<b>12%</b>
Handheld	230	9%	65	5%
<b>Total publishing net revenue</b>	<b>2,194</b>	<b>84%</b>	<b>1,339</b>	<b>100%</b>
Distribution	407	16%	0	0%
<b>Total net revenues</b>	<b>2,601</b>	<b>100%</b>	<b>1,339</b>	<b>100%</b>

For Vivendi Games, it’s a different story, as the MMORPG segment was the propeller for this company, accounting for 76% of revenues, or 1,024 million USD, contrasting not only here

with the values obtained by Activision, but also in the home consoles segment, as it only represent 12% of sales.

Lastly a word for handheld consoles that have a residual presence in both companies portfolio, however Activision’s side here registers 230 million USD, with a weight of 9% in their revenues, superior to the values of 65 million USD and 5% of revenues, obtained by Vivendi Games. The distribution business was inexistent in Vivendi Games, but in Activision was a revenue source, with 407 million USD.

Before looking at some ratios it’s meaningful to refer some basic items presented in table 5. Activision had more total assets, evaluated at 2,613 million USD, 1,835 million of those were current while Vivendi Games had its assets evaluated at 879 million USD, with 398 million current.

**Table 5:** General items of Activision and Vivendi Games, in millions USD

	Activision 2007	Vivendi Games 2007
Total assets	2,613	879
Current assets	1,835	398
Shareholders equity (book value)	1,866	240
Total liabilities	628	639
Current liabilities	502	528
Weighted average number of shares outstanding (in millions)	316	591
EBITDA	396	178
Net income	150	37
Operational Cash Flow	363	154
Cash and equivalents	1,143	62
Short term investments	179	3
Accounts receivable	190	112
Accounts payable	131	49
Inventory	133	21

In terms of shareholders equity Activision had a book value of 1,866 million USD, as opposed to the small value presented by Vivendi Games of 240 million USD, having to use the book value of this item in both companies because Vivendi Games was part of Vivendi

Holdings, and being this one a listed company, its market value reflects all operations where the holding has business interests, so as a purpose of consistency it was chosen to use the book value of both Activision and Vivendi Games, obtained in respective annual reports.

As for number of shares, Vivendi Games had 591 million, whereas Activision had 316 million.

Regarding cash and equivalents, Activision accounted 1,143 million USD available whilst Vivendi Games registered 62 million USD. In short term investments Activision had 179 million USD invested while 3 million USD were applied by Vivendi Games in short term, being the respective income reflected in the investment income item of income statement.

In accounts receivable Activision had 190 million USD, more than the 112 million USD registered by Vivendi Games while in accounts payable the former accounted 131 million USD and the last, 49 million USD. Regarding inventory, Activision had in stock 133 million USD, while Vivendi Games had 21 million USD.

One of the most important measures of profitability is the earnings per share (EPS), as it calculates the portion of net income available per outstanding share of common stock.

Activision presented an EPS of 0.47 USD, while Vivendi Games stood by 0.10 USD per share, being the higher EPS of Activision not only explained by a higher net income, but also a lower number of weighted average number of shares outstanding.

The price-to-earnings (P/E) gives a ratio between the share price and EPS or in other words, how much an investor is willing to pay for 1 USD of earnings.

Activision's stock were valued at 14.85 USD on 31 December of 2007, thus when calculating the ratio gave a result of 31 USD per 1 USD of earnings. Vivendi Games being part of Vivendi Holdings wasn't a listed company although Vivendi Holdings is, so as a matter of consistency it wasn't correct to use the P/E ratio of it because it would reflect all operations that Vivendi Holdings was into, so as both Activision and Vivendi Games were specialized companies in interactive entertainment industry, the P/E ratio of the later is the same as the former.

As for cash earnings per share (cash EPS) is a good measure of a company financial strength and sustainability of its business model, as it measures the operational cash flow generated

per share. When compared with EPS, cash EPS is more reliable since it's more difficult to manipulate, thus representing a truer picture of a company's financial health.

With that being said, Activision had cash EPS of 1.15 USD, more than the value of 0.29 USD obtained by Vivendi Games, as this difference is explained by a lower operational cash flow of Vivendi Games and higher number of shares, when compared to Activision.

Regarding return on assets (ROA), it measures how efficient a company is when allocating its assets to generate earnings. In this item, both Activision and Vivendi Games obtained 6% of ROA which means that for every 100 USD of assets, 6 USD of net income were generated, thus being both equally efficient when applying their total assets.

**Table 6:** Profitability ratios of Activision and Vivendi Games

	Activision 2007	Vivendi Games 2007
<b>Profitability/valuation ratios</b>		
P/E ratio	31	31
Earnings per share	0,47	0,06
Cash earnings per share	1,15	0,26
Return on assets	6%	4%
Return on equity	8%	15%
Return on sales	15%	13%
Profit margin	6%	3%

As for return on equity (ROE), it monitors the amount of net income generated with shareholders equity. Activision managed to obtain a ROE of 8% which means for every 100 USD of shareholders equity, 8 USD of net income were generated being this value higher than ROA due to the fact that shareholders' equity was smaller than total assets.

Vivendi Games presented a ROE of 24%, making it more efficient than Activision regarding the use of equity to generate earnings, being this explained by a lower equity of Vivendi Games when compared with Activision.



With return on sales (ROS) it's possible to measure the operational efficiency of a company. In this case, both Activision and Vivendi Games presented the same ROS of 15% which means that for every 100 USD of revenues, 15 USD of operating income were generated.

Profit margin measures the portion of revenues that made into net income. With that being said Activision had a profit margin of 6%, thus converting 100 USD of revenues in 6 USD of net income, being higher than the profit margin of 4% obtained by Vivendi Games. This situation is explained by a proportionally lower net income of Vivendi Games related to its revenues, when compared to Activision proportion of net income and revenues.

Besides analyzing profitability ratios it's also important to run a few liquidity ratios, such as the current ratio, that measures the capability of an enterprise to pay back its short-term liabilities with its short-term assets.

Activision's current ratio was 3.66 which meant that they could pay more than three times the amount of current liabilities they had, with the amount of current assets in their possession. Vivendi Games scored much less than Activision, as a ratio of 0.75 meant that their current assets could only cover up 75% of their current liabilities and at some point in future Vivendi Games could be unable to meet their obligations.

Acid-test ratio is useful to see if a company has enough current assets, such as cash, short term investments and accounts receivable to cover its current liabilities. This test differs from current ratio, as it excludes inventories due to the fact that these are not always easily converted in cash, thus can make a company look better than it is in reality.

Activision had a ratio of 3.01, so its current assets, excluding inventories, covered three times the value of current liabilities, thus not being dependable of inventories to meet its short-term liabilities, scoring a better ratio than Vivendi Games, as 0.34 means that could only cover up to 34% of current liabilities, which is a sign of some financial problems and reveals some dependency on inventories to meet 75% of its short-term obligations, as was shown in current ratio.

**Table 7:** Liquidity ratios of Activision and Vivendi Games

	Activision 2007	Vivendi Games 2007
<b>Liquidity ratios</b>		
Current ratio	3,66	0,75
Acid-test ratio	3,01	0,34
Operating cash flow ratio	0,72	0,29
Solvency ratio	58%	24%
Asset turnover	1,00	1,53
Inventory turnover	20	64

The OCF ratio measures how much of the current liabilities of a company are covered by the cash flow generated in their operations. Activision presented a ratio of 0.72, covering 72% of current liabilities with OCF, scoring better than Vivendi Games ratio of 0.33, highlighting some financial fragility of this company as said before.

Solvency ratio is useful to perceive the portion of total liabilities (short and long-term) of a company that could be paid with its operational cash flow. Activision's ratio of 58% of total liabilities covered by OCF is a good mark and better than Vivendi Games ratio of 27%, which is closer to the minimum acceptable for this ratio of 20%.

Regarding asset turnover, it measures a company's efficiency on using assets to generate revenues. Activision ratio of 1.00 meant that 1 USD of assets generated 1 USD of revenues, being worse than Vivendi Games ratio of 1.57, thus making this company more efficient than Activision.

Inventory turnover (Revenues/Inventories) shows how many times the inventory has to be sold and replaced to achieve a certain level of revenues and while Activision had a ratio of 20, Vivendi Games had a ratio of 66, as this can be explained by a higher level of inventories of Activision (133), thus increasing its warehousing costs while Vivendi Games had a lower level of inventories (21), hence having to sell and replace more times than Activision to achieve its revenue level.

### **8.3. Activision plus Vivendi Games 2007 and Activision Blizzard 2008**

When analyzing whether this merger created or not value to both companies it was needed to establish a comparison between Activision Blizzard of 2008 and a sum company of Activision and Vivendi Games of 2007, with the purpose of determining synergies.

In table 8, it can be seen that Activision Blizzard obtained total revenues of 5,049 million USD, more than the 3,957 million USD achieved by the company sum of Activision and Vivendi Games. This situation led to synergies in revenues that amounted to 1,092 million USD and because both companies had similar revenue distribution of approximately 70% from boxed product sales and 30% of subscription, licensing and distribution, synergies followed the same pattern.

These revenue increases were explained by the continued growth of the videogame industry, despite a difficult macroeconomic and retail environment as well as major product releases such as Call of Duty World at War, Guitar Hero World Tour , the second expansion to World of Warcraft, Wrath of the Lich King, that led to an increased sales of World of Warcraft and expansion, Burning Crusade boxed product sales, thus increasing subscription revenues counting as of 2009 with 11.5 million subscribers. Additional value added services also increased revenues from subscriptions. Catalog game sales of products released in 2007 such as Call of Duty Modern Warfare and Guitar Hero III Legends of Rock also contributed to this increase.

**Table 8:** Revenues and operating expenses of Activision/Vivendi Games, Activision Blizzard and Synergies, in millions USD

	<b>Activision + Vivendi Games 2007</b>	% of revenue	<b>Activision Blizzard 2008</b>	% of revenue	<b>Synergies</b>
<b>Net revenues</b>					
Product sales	2,658	67%	3,499	69%	841
Subscription, Licensing and Distribution	1,299	33%	1,550	31%	251
<b>Total revenues</b>	<b>3,957</b>	100%	<b>5,049</b>	100%	<b>1,092</b>
<b>Operating expenses</b>					
Cost of sales - product costs	1,318	33%	1,297	26%	-21
Cost of sales - software royalties and amortization	320	8%	298	6%	-22
Cost of sales - intellectual property licenses	104	3%	245	5%	141
Cost of sales - MMORPG	204	5%	216	4%	12
Product development	633	16%	592	12%	-41
Sales and marketing	453	11%	464	9%	11
General and administrative	351	9%	271	5%	-80
Restructuring costs	0	0%	93	2%	93
<b>Total operating expenses</b>	<b>3,383</b>	85%	<b>3,476</b>	69%	<b>93</b>

Regarding operating expenses, Activision Blizzard totaled 3,476 million USD amounting to 69% of revenues, more than the total costs of Activision and Vivendi Games in 2007 that totaled 3,383 million USD, being both similar in absolute terms, but with the cost structure of the later representing 85% of revenues.

The three main item costs were, in both Activision/Vivendi Games 2007 and Activision Blizzard 2008, product costs, followed by product development and sales/marketing, all with similar values and weight in revenues, in each companies.

Regarding cost synergies it can be seen a reduction of 21 million USD on product costs and synergies here weren't bigger due to an increase in oil price, which led to an increased cost of raw materials and logistic of not only Guitar Hero World Tour bundles that included guitar, drum kit, microphone and software, but also logistic cost of other boxed products.

Software royalties and amortization were cut down by 22 million USD, mainly due to the cancelation of future projects that were being developed not only by Activision or Vivendi Games but also in independent developers, while intellectual property licenses increased in 141 million USD because of higher license fees with videogames of *The Bourne Conspiracy* and *James Bond Quantum of Solace*, for example.

As for MMORPG costs, registered an increase of 12 million USD due to the fact that the user base utilizing the service provided by subscription business increased, as was said in revenue synergies, while product development costs were reduced in 41 million USD due to cancelation of future projects.

Sales and marketing costs have increased in 11 million USD, explained by an increased number of products published by Activision Blizzard when compared with the number of products released by Activision and Vivendi Games in the previous year, while general and administrative costs were reduced by 80 million USD, mainly attributable to some layoffs as well as reduction in salaries and benefits, that resulted from organizational restructuring.

Because of the merger, Activision Blizzard incurred in 93 million USD of organizational restructuring and other restructuring expenses, such as disposal of assets, ceased use of offices and exiting of non-core operations.

As a conclusion it can be said that in total costs there were no synergies, in fact they increased in 93 million USD. Still there were items like product costs, software royalties, product development and general/administrative that were reduced after this merger. Another important issue is that the increased value of costs is the same amount that of restructuring costs, that only exist due to the making of this merger. In the future it is not expected that Activision Blizzard incurs with more costs of this nature.

However this increase in costs was largely surpassed by the higher revenue level obtained by Activision Blizzard, as seen above.

In table 9 is shown that the EBITDA of Activision Blizzard, was 1,573 million USD, achieving an operating income margin of 31%, being higher than Activision/Vivendi Games EBITDA, as this amounted to 574 million USD, with the latter being less efficient than the former, because its operating income margin stood by 15% of revenues. This situation led to synergies in EBITDA that totaled 999 million USD

Regarding net income Activision Blizzard registered 688 million USD after applying taxes, more than the net income of 187 million USD achieved by Activision/Vivendi Games. Here synergies amounted to 501 million USD in favor of Activision Blizzard.

**Table 9:** EBITDA, EBIT, net income, OCF and FCFF of Activision plus Vivendi Games, Activision Blizzard and Synergies, in millions USD

	<b>Activision + Vivendi Games 2007</b>	<b>% of revenue</b>	<b>Activision Blizzard 2008</b>	<b>% of revenue</b>	<b>Synergies</b>
<b>EBITDA (operating income)</b>	<b>574</b>	15%	<b>1,573</b>	31%	<b>999</b>
Investment income	43		46		3
Depreciation and amortization	330		561		231
<b>EBIT</b>	<b>287</b>	7%	<b>1,058</b>	21%	<b>771</b>
Taxes 35%	100		370		270
<b>EBIT*(1-t) (net income)</b>	<b>187</b>	5%	<b>688</b>	14%	<b>501</b>
<b>Operational cash flow</b>	<b>517</b>	13%	<b>1,249</b>	25%	<b>732</b>
Capital expenditures	94		46		-48
Working capital	276		917		641
<b>Free cash flow for the firm (FCFF)</b>	<b>147</b>	<b>4%</b>	<b>286</b>	<b>6%</b>	<b>139</b>

After adding depreciation and amortization, to each company's net income, the result OCF is of the same magnitude as in previous items, as Activision Blizzard obtained 1,249 million USD or 25% of revenues, more than the 517 million USD generated by Vivendi Games that represented only 13% of revenues. Synergies in this item were evaluated in 732 million USD.

Lastly, after deducting capital expenditures and working capital to OCF, Activision Blizzard achieved a FCFF of 286 million USD, obtaining a synergy of 139 million USD.

In table 10, are presented revenues by geographic regions of both companies. North America was the biggest market for both, as it weighted almost the same 50% in their respective total sales. Still Activision Blizzard achieved revenues of 2,516 million USD, being higher than the 2,132 million USD presented by Activision/Vivendi Games.

**Table 10:** Revenues of Activision plus Vivendi Games and Activision Blizzard, by geographic areas, in millions USD

	<b>Activision + Vivendi Games 2007</b>	<b>% of revenue</b>	<b>Activision Blizzard 2008</b>	<b>% of revenue</b>
<b>Geographic net revenues</b>				
North America	2,132	54%	2,516	50%
Europe	1,574	40%	2,164	43%
Asia pacific	240	6%	352	7%
<b>Total net revenues</b>	<b>3,946</b>	<b>100%</b>	<b>5,032</b>	<b>100%</b>

The European region had the same situation as above, with the difference that this market weighted around 40% to both companies. Revenues of Activision Blizzard were higher, in around 600 million USD more than those presented by Activision/Vivendi.

Lastly the Asia Pacific region was the minor contributor, as it represented only around 7% of both companies' revenues, with Activision Blizzard registering 352 million USD, more than the 240 million presented by Activision/Vivendi.

Regarding hardware, consoles were the major contributors to both companies, but with Activision Blizzard accounting 2,164 million USD or 43% of revenues, more than the 1,994 million USD registered by Activision/Vivendi. Still this segment represented 51% of Activision/Vivendi revenues.

Also inside this segment, the two platforms that contributed most to Activision/Vivendi performance were Sony PlayStation 2 and Microsoft Xbox 360, while for Activision Blizzard were Nintendo Wii and Microsoft Xbox 360.

**Table 11:** Revenues of Activision/Vivendi Games and Activision Blizzard, by hardware platforms, in millions USD

	Activision + Vivendi Games 2007	% of revenue	Activision Blizzard 2008	% of revenue
<b>Platform net revenues</b>				
MMORPG	1,024	26%	1,912	38%
PC	220	6%	151	3%
<b>Consoles :</b>				
Sony PlayStation 3	266	7%	403	8%
Sony PlayStation 2	778	20%	453	9%
Microsoft Xbox 360	700	18%	604	12%
Nintendo Wii	239	6%	704	14%
Microsoft Xbox	7	0%	0	0%
Nintendo GameCube	4	0%	0	0%
<b>Total Console</b>	<b>1,994</b>	<b>51%</b>	<b>2,164</b>	<b>43%</b>
Handheld	295	7%	403	8%
<b>Total publishing net revenue</b>	<b>3,533</b>	<b>90%</b>	<b>4,629</b>	<b>92%</b>
Distribution	407	10%	410	8%
<b>Total net revenues</b>	<b>3,940</b>	<b>100%</b>	<b>5,039</b>	<b>100%</b>

MMORPG item was the next revenue source, after all home consoles, generating to Activision Blizzard 1,912 million USD, almost 900 million USD more than Activision/Vivendi.

In distribution and handheld segments Activision Blizzard took the lead when compared with the company sum, while in the PC segment Activision/Vivendi managed to obtain more revenues than the merged company.

Passing now to some ratio analysis and general items analysis of table 12, Activision/Vivendi Games had 3,492 million USD of total assets being 2,233 million USD of those current, while Activision Blizzard registered 14,701 million USD of assets being relevant to say that not



only 5,495 million USD of those are current, but 7,227 million USD were accounted as goodwill that resulted from the business combination.

In shareholders' equity Activision/Vivendi Games accounted, 2,106 million USD whilst Activision Blizzard had 11,527 million USD, largely due to additional paid-in capital.

**Table 12:** General items of Activision/Vivendi Games and Activision Blizzard, in millions USD, except number of shares

	Activision + Vivendi Games 2007	Activision Blizzard 2008
Total assets	3,492	14,701
Current assets	2,233	5,495
Shareholders equity (book value)	2,106	11,527
Total liabilities	1,267	3,174
Current liabilities	1,030	2,320
Weighted average number of shares outstanding (in millions)	907	946
EBITDA	574	1,573
Net income	187	688
Operational Cash Flow	517	1,249
Cash and equivalents	1,205	2,958
Short term investments	182	44
Accounts receivable	302	1,210
Accounts payable	180	555
Inventory	154	262

Total liabilities amounted to 1,267 million USD for Activision/Vivendi Games, with 1,030 million USD of those current, while Activision Blizzard registered 3,174 million USD of total liabilities, with 2,320 million USD current.

The weighted average number of shares outstanding was almost the same, as in 2007 stood at 907 million, while in 2008 were counted 946 million. Here it's important to say that in 2008 these numbers were obtained at 31 December after Activision Blizzard done a stock split, with a 2:1 ratio in July of the same year.

Cash and equivalents of Activision/Vivendi Games totaled 1,205 million USD, less than Activision Blizzard's 2,958 million USD that incorporated around 1,200 million USD of Activision Inc. and 1,700 million USD that was paid by Vivendi in exchange of shares of Activision Inc.

As for short term investments Activision Vivendi Games had 182 million USD invested, whilst Activision Blizzard only had 44 million USD. Regarding accounts receivable, payable and inventories, Activision Blizzard registered higher values than Activision/Vivendi, as can be seen in table 12.

In profitability ratios, the earnings per share (EPS) of Activision Blizzard was 0.73 USD, being more than three times the EPS of Activision/Vivendi, as this company had an EPS of 0.21 USD. This difference is explained by the higher net income of Activision Blizzard, as the number of shares was roughly the same, leading to a conclusion that this merger benefited shareholders with a higher EPS.

The price-to-earnings (P/E) ratio of Activision Blizzard was 12, with stocks valued at 8.64 USD as of 31 December of 2008, while Activision Vivendi inherited a P/E ratio of 31 of Activision Inc., making Activision Blizzard earnings less expensive to current and future shareholders.

Regarding cash earnings per share (cash EPS), Activision Blizzard 1.32 USD was more than double of that obtained by Activision/Vivendi whose cash EPS was 0.57 USD. This difference can be explained by the higher operational cash flow of Activision Blizzard as the number of shares is virtually the same.

**Table 13:** Profitability ratios of Activision/Vivendi Games and Activision Blizzard, in millions USD

	Activision + Vivendi Games 2007	Activision Blizzard 2008
<b>Profitability/valuation ratios</b>		
P/E ratio	31	12
Earnings per share	0,21	0,73
Cash earnings per share	0,57	1,32
Return on assets	5%	5%
Return on equity	9%	6%
Return on sales	15%	31%
Profit margin	5%	14%

The Return on assets (ROA) was the same for both Activision/Vivendi Games and Activision Blizzard, as they scored 5% in this item, being both equally efficient when applying their total assets. As for return on equity (ROE), Activision/Vivendi Games obtained a ratio of 9%, being higher than Activision Blizzard ROE of 6%. From this point of view Activision/Vivendi Games was more efficient than Activision Blizzard being this explained by the much lower shareholders' equity of the company sum when compared with the equity of Activision Blizzard.

Return on sales (ROS) of Activision Blizzard stood by 31%, being more efficient than Activision/Vivendi, since this one obtained a ROS of 15%, being this situation explained by the p higher EBITDA of Activision Blizzard, when related to the revenue level of both companies.

Regarding profit margin, Activision Blizzard obtained a ratio of 14%, thus being more profitable than Activision/Vivendi Games since it presented a ratio of 5%. Reasons for this were a lower net income of Activision/Vivendi Games related to its revenues, when compared to Activision Blizzard proportion of net income and revenues.

Analyzing now some liquidity ratios, starting by the current ratio, it can be seen that Activision Blizzard's ratio of 2.37 was better than the one obtained by Activision/Vivendi,

since this company's ratio was 2.17. This means that after merger the capability to cover current liabilities with current assets improved.

Relating to acid-test ratio, Activision Blizzard garnered ratio of 1.8, being slightly higher than the ratio obtained by Activision/Vivendi Games, since for this company it stood by 1.64. Once again, and related to the previous ratio current assets excluding inventories, cover more than the current liabilities that both companies have.

The operational cash flow ratio of Activision Blizzard was 0.54, being superior to the one generated by Activision/Vivendi, that only garnered a ratio of 0.50. As a conclusion for this ratio, the Activision Blizzard improved its capability to cover current liabilities with OCF.

**Table 14:** Liquidity ratios of Activision/Vivendi Games and Activision Blizzard, in millions USD

	Activision + Vivendi Games 2007	Activision Blizzard 2008
<b>Liquidity ratios</b>		
Current ratio	2,17	2,37
Acid-test ratio	1,64	1,82
Operating cash flow ratio	0,50	0,54
Solvency ratio	41%	39%
Asset turnover	1,13	0,34
Inventory turnover	26	19

Solvency ratio of Activision Blizzard was 39%, being lower than the ratio of 41% obtained by Activision/Vivendi. This situation leads to the fact that Activision Blizzard experienced some deterioration of its capability to cover total liabilities with OCF.

Regarding asset turnover, Activision Blizzard had a ratio of 0.34, while Activision/Vivendi Games scored 1.13, thus being more efficient than Activision Blizzard and in this point of view, efficiency was lost in the merger process. This is explained by the higher amount of

assets of Activision Blizzard when compared to those of Activision/Vivendi, besides revenues of the former being higher.

Lastly inventory turnover of Activision Blizzard was 19, whilst Activision/Vivendi Games had a ratio of 26, which meant that Activision Blizzard had to sell and replace less its inventories than Activision/Vivendi Games.

#### **8.4. Projections of Activision Blizzard 2009-2013**

The valuation of this merger was done by projecting operations of Activision Blizzard, based on their 2008 year, from 2009 to 2013.

Revenues were fixed for all this period in 69% of product sales and 31% of subscription, licensing and distribution, as the average annual growth of revenues was fixed at 15% for this period, being 2008 the base year. This rate was derived from the one available at NASDAQ and incorporated a panel of analysts and researchers that achieved a consensus on that rate. After the five year period, the assumption is that the company has a perpetual growth rate of 3%.

Regarding the cost structure, it was based in the 2008 fiscal year, which made cost of sales, product costs, software royalties and amortization, intellectual property licenses and MMORPG fixed at 25% of revenues for the first item, and 5% for the other three items. Product development and sales/marketing were accounted for 10% of revenues, whilst general and administrative costs represented 5% of revenues. The year of 2009 still has restructuring costs because they were predicted in the Activision Blizzard report of 2008 fiscal year.

This cost structure determines that for every year, except 2009, EBITDA is 35% of revenues. After this, investment income was fixed at 1% of revenues, in line with 2008, while in amortization and depreciation were locked at 10% of revenues.

After applying a 35% tax rate to EBIT, it is obtained the net income, which is 15% of revenues in 2009, 17% in the next four years.

Operational cash flow achieves 25% of revenues in 2009, 27% in the subsequent four years while capital expenditures were fixed at 2% of revenues, according to values of 2008 fiscal

year, whilst working capital is 18% of revenues, also according to values calculated with support of 2008 fiscal year report.

The FCFE obtained in each of the five years of projections, plus the continuity value were discounted at a CAPM (WACC=RE) rate of 7.19% which led to an enterprise value in 2008 of 34,731 million USD, or \$26.70 per share when dividing the enterprise value by the 1,301 million of shares involved at the time of this merger. The unlevered beta was obtained from NASDAQ, the risk free rate from Bloomberg and it is based on US Treasury bond with a maturity of 5 years and risk-premium obtained from Damodaran equity risk premiums.

At that time both parts of this deal, valued it at 17,888 million USD or 13.75 USD per each of the 1,301 million shares of this operation.

So this merger may be more beneficial to both parties than they predicted, because the estimated value it is likely to create in the future is far superior to the one they valued at the time of the merger, since the enterprise value of these projections, 34,701 million USD is superior (almost double) to the one they valued this operation in 2008, 17,888 million USD.

These benefits were somewhat offset by the results of 2009 that were only available in March of 2010, because real revenues of 2009 were lower than it was estimated in the same year in this thesis. Reasons to this were the difficult macroeconomic environment that led to a reduction of products sold, mainly in the casual game market, specifically the music genre with Guitar hero, DJ hero and Band hero, all selling less units than expected.

Still after these results, panels of analysts that track this company were consulted by NASDAQ and the estimated average annual growth for the period of 2010-2014 is 17%, above the 15% used in this thesis.

In 2010 it was announced a second stock repurchase program of 1,250 million USD and for the first time, Activision Blizzard will pay a dividend to its shareholders, amounting to 0.15 USD, factors that may cause the current price of this stock to rise.

## **9. Conclusion**

In the previous chapter it was seen that in a financial point of view, this merger operation may create more value than both parties were expecting in 2008, as the enterprise value obtained from the projection years is greater than the one that Activision and Vivendi Games had valued this operation in 2008. This situation is likely to have a positive impact on the wealth of the shareholders, however it does not affect the division among them, since the deal was essentially a share exchange and both parties remained in the group after the merger, so they are splitting a larger sum between them.

Synergies came in form of cost reductions mainly due to shared corporate services such as finance, human resources, IT, legal, accounting, facilities and marketing/ sales and revenue enhancements, as this merger created an entity that increased revenues in both geographical areas and hardware platforms in which at least one of the merged companies had a weaker position, thus allowing the existence of a more diversified and well balanced portfolio.

Also in the industry it allowed a more evenly distributed power as before, Electronic Arts was the biggest publisher and now is forced to share that spotlight with Activision Blizzard. If this situation is going to bring more benefits to this industry than downsides only time will tell, but as of now there is an increased competition between these two companies to ensure that they have the best development teams and therefore the best possible products to capture competitive advantages from the other and from other minor publishers as well.

Limitations found while developing this thesis were that, the ideal valuation would be to see the income statement of Activision and Vivendi Games (includes Blizzard Entertainment) regarding the year of 2008, and comparing to the income statement of Activision Blizzard of the same year, to have a more reliable comparison before and after this merger, instead of comparing the values of both companies in 2007, with the ones obtained after the merger operation.

Future research guides consist mainly on sensitivity analysis to revenue growth rates, proportion of revenues consumed by the cost structure and to the discount rate at which future cash flows were discounted.



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## **11. Appendix**

### **Glossary**

**AAA videogame** - is a game with a large production and marketing budget, surpassing \$10 million, with a production team of more than 100 people, trying to excel in every gaming areas (technical, artistic, design, gameplay) and expecting to sell over 1 million units.

**Cost of sales – Product costs** – includes direct costs of work force such as game designers, artists/animators, programmers, producers, sound technicians, involved in the production of games after reaching technological feasibility, purchase of raw materials used in game boxes, physical supports (CD's and DVD's), game accessories, inventory, shipping, handling and distribution costs, as well as royalties paid to hardware console manufacturers.

**Cost of sales – software royalties and amortization** is constituted by capitalized costs that are transferred from product development that are not recoverable, so instead of being amortized over a period of time, they are recognized as a cost on one period.

**Cost of sales – intellectual property licenses** represent license fees paid to intellectual property rights holders for use of their trademarks, copyrights, software, technology, music or other proprietary rights in the development of Activision Blizzard products, and could be used in multiple products over multiple years or just for a single product. If these costs are capitalized and not recoverable, are recognized in this item on one period, otherwise if are recoverable, are considered and asset with respective amortization over a period of time.

**Cost of sales – MMORPG** – costs of subscription based business model of Activision Blizzard.

**Product development** includes development costs of games developed by independent software developers under development agreements and direct costs of internally developed games that have not reached technological feasibility, from a technical and design point of view. When the product reaches technological feasibility and costs are determined to be

recoverable, through analysis of technical and design documentation by management estimates, it's recognized as an asset, being amortized over a time period and the total value is transferred to another item. Examples are fully developed software (1-2 years), game engines (2-5 years), license agreements (3-10 years) and internally developed franchises (11-12 years).

**First party videogames** – products created by developers that are in the organizational structure of a hardware system manufacturer and thereby owned by them.

**Second party videogames** – products created by an independent developer that remains outside the organizational structure of the hardware system manufacturer, but those products are released exclusively to that system, through a contract agreed by both sides.

**Third party videogames** – products created by developers and released by publishers that are not directly tied to the primary product that consumer is using, or in other words, the hardware system.