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Success determining factors of video game sequels

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Abstract

Video games have become an everyday form of entertainment and since a few years the industry has taken over the movie industry in terms of turnover and profit and the industry keeps growing at more than 10% each year. Next to that, since 2005 more and more video games are sequels instead of new original games. Although video games are experiential goods and a lot of research has been done concerning other experiential goods like wine, movies and books, little research has been done regarding video games. In addition to this, this research has not focussed on (subsequent) sequels and used primarily data derived from experts. Since sequels are considered brand extension, this study uses findings with regard to brand extensions as a starting point.

Since sequels are growing in importance, the goal of this study is to determine what the success (defined as the number of copies sold) determining factors are for sequel and also to determine the effect of consumer data on a video game's success.

For this study two generations of video game home console systems were used, making a total of six systems (Xbox, Xbox360, GameCube, Wii, Ps2 and Ps3). Next to that this study only used video games that have at least three editions, making a total of 756 games and 252 game series. The collected data was analyzed using SPSS.

The results were: (1) Expert review score is significant for the success of all editions edition, while consumer review score was insignificant; (2) The number of expert and consumer reviews of the previous edition has a significant positive effect on the success of current edition; (3) The time between the release of the last and current edition did not have a significant effect on the success of the current edition; (4) The difference in expert /consumer score between the first and second edition did not have a significant effect on the success of the third edition; (5) The number of previous editions did not have a significant effect on a game's success.

Furthermore, this study found that on average the total sales of every additional sequel is less when compared to the previous edition, except for when a game was part of an "old" series. Last, this study found that if a sequel offers a dissimilarity in the form of a difference in content due to "Spin-off", this influences sales in a positive way.

Table of content

1. Introduction

1.1 General introduction

Video games have evolved in the past decades from a form of entertainment with only a small number of users, to a mainstream form of entertainment. In the US for example, an estimated 72% of all households play video games (Entertainment Software Association, 2011). According to Ho & Huang (2009) the world wide video game industry was worth $ 47 billion in 2009, up from $ 33 billion in 2006. In 2010 in the US alone consumers spent $ 25.1 billion on the game industry (Entertainment Software Association, 2011) and in the US the video game industry is growing fast; 10.6% for the period 2005-2009 and 16.7% for the period 2005-2008 (Entertainment Software Association, 2010). All these developments turned the video game industry into a billion dollar industry with sales figures that surpass those of the music and movie industry (Conners, 2009). In addition to the net worth of the industry, the sales figures and the growth rates, video games are an extremely influential power among younger generations, who spend huge amounts of money, time and effort on games (Gentile & Anderson, 2003; Lenhart, Madden & Hitlin, 2005).

Just as with all technologies, video games are driven by an ever-changing technological landscape and development costs for new games have skyrocketed since 2005 when the most recent generation of video game hardware was released (Sacranie, 2010). Because of this development, the video game industry has shown two trends in recent years. One is that more and more games are based on licenses (e.g. movie licenses). The other is that relatively more sequels are being produced than before (Usher, 2007). Hening-Thurau et al. (2009) conducted research into why sequels are so popular in the movie industry and what the advantage of an sequel compared to an original movie was. Their study concluded that sequels generate higher average revenues compared to non-sequels. In addition to this, their study indicated that there is less risk when investing in a sequel than in an original movie. Although the study by Henig-Thurau et al. (2009) was done regarding movies, they believed that their general conceptual framework and conclusions might be applicable to other industries like the video game industry. This suspicion seems to be supported by Sacranie (2010) who states that sequels are risk avert and publishers are less and less willing to take

risks since the numerous commercial failures in recent history had made it clear that it is simply too difficult for most video game companies to overcome the financial implications of an unsuccessful game.

Video games are experiential goods since these goods are defined as ones which consumers choose, buy and use solely to experience and enjoy (Cooper-Martin, 1992). In addition to that, Sood & Dreze (2006) did research concerning movie sequels and they examined movie sequels as brand extensions of experiential goods. Therefore, video games are seen as an experiential good and video game sequels are seen as brand-extensions.

A brand-extension strategy means that an existing brand name is attached to a new product so it raises consumers' interest (Aaker & Keller, 1990; Keller, 2003). This strategy uses what is referred to as "brand equity", which is defined in terms of the marketing effects uniquely attributable to the brand and the extent to which brand knowledge about the original influences to the success of the extension (Balachander & Ghose 2003; Keller, 1993), or in this case how the previous edition influence the success of the current edition. This is also the reason why so many video game producers use the brand-extension strategy: it uses brand equity of the original to positively influence the success of the extension. This brand equity advantage is something an original game does not have and therefore sequels, on average, are more risk-avert and have higher revenues.

Elaborate research has been done on a wide variety of experiential goods, like movies and books, and their extensions (Hennig-Thurau et al, 2009; Sood and Dreze, 2006; Moon et al., 2009; Joshi & Mao, 2010). Furthermore, a study concerning success determining factors for sequels regarding movies has been done by Baseroy & Chatterjee (2008) who tested the influence of sequel characteristics on box office revenue and therefore movie success (in this study, success will be defined by revenues and therefore by number of copies sold). With regard to video game success factors, a study has been done by Sacranie (2010), who showed that quality (measured by aggregate expert review score) had a positive effect on a video game's success. However, this is only one of a handful of studies into video game success determining factors and it did not address sequels. Thus, regarding the experiential goods segment, a lot of research has been done concerning extension success, while for the video

game industry, no studies have been done concerning the success of extensions (sequels) and this represents a research gap. Given the fact that more and more sequels are produced, and the sheer size and growth rate of the video game industry, it is not more than logical that research needs to been done into success determining factors of sequels, so that managers can adapt their marketing strategy to these success determining factors

When looking at an original game and sequels, some grave differences can be found regarding drivers for success. For original games, quality is a major driver of video game success and therefore expert reviews are very important since these signal quality and consumers try to spend their money rationally by purchasing the titles critics consider qualitatively superior (Sacranie, 2010). A study by Reinstein & Snyder (2005) concerning experiential goods also showed that a positive review has a positive effect on revenues. This means that expert reviews are a key success determining factor for new original games. Success in this study will be defined as total revenue and therefore by numbers of copies sold. Next to expert reviews, consumer reviews are also used as a quality signal but given their rather subjective nature, compared to the more objective nature of experts' opinions (Holbrook,1999; Holbrook & Hirschman 1982; Chakravaty et al. 2008), their quality signal is not as strong. This does not mean consumer reviews are not relevant, but just that their relevance as a signal of quality is less when compared to expert reviews since consumers logically prefer to rely on more objective opinions compared to subjective opinions

With regard to sequels, the situation is different since sequels are brand-extensions. This means that consumers use the brand knowledge they have about the original game as a sign of quality (the most important success driver for games) for the extension. Since consumers turn to expert reviews, and in a lesser degree to consumer reviews, as a signal of quality when it involves the first, original video game, but have their own base of quality (the brand knowledge of the first game) when it comes to the sequel, it can be argued that the influence of the opinion of experts and consumer's opinion on a game's success will be less when it involves a sequel when compared to an original game. Furthermore, it can be argued that since brand knowledge (and thereby brand equity) is added with every sequel, the influence

of expert and consumer opinion on a game's success will decline as more sequels are produced.

Next to the deteriorating effect of sequels on the influence of expert and consumer reviews, it is plausible that more brand knowledge about the previous edition can have a more profound influence on the success of the next edition since more brand knowledge equals more brand equity. Since brand equity is measured by the influence of brand knowledge and brand knowledge in turn is measured by brand image and brand awareness (Keller, 1993), more of either one of these should have an influence on the sequel's success.

In addition to the influence of brand knowledge, it can be argued that the amount of time between the release of the previous and the current edition might influence the effect of brand knowledge on the sequel's success, either by deteriorating of brand knowledge, or the building of anticipation. For example: if a game is high in quality, people will naturally be very excited about the next edition and the longer it takes for this next edition to be released, the more excitement is built. A study by Keller (2001) showed that the building of excitement is very important for the strength of a brand. On the other hand, if a game is average or low in quality, instead of getting more excited over time, consumers will forget about the previous edition over time en thereby the effect of brand knowledge will also deteriorate over time.

More expectations can also be created by the level of progress between the first and second edition of a video game. If the second edition (the sequel) receives higher ratings than the first edition (original game), this can lead to high expectations for further improvement in the third edition and thereby influencing the success of the third edition.

One of the components of brand knowledge is brand image and brand image itself is also made out of various components, one of which is brand attitude. Brand attitude is used in a variety of studies (Fishbein & Ajzen, 1975; Bettman, 1986) and is defined as consumers' overall evaluations of a brand (Wilkie, 1986) and evaluations of a brand extension will depend on consumer perceptions of the original brand (Keller & Aaker, 1992). One way this evaluation could take place is by looking at the sheer number of editions. For example, the sheer number of editions can also be a quality signal. The reason for this is simple: why would an extra edition be produced if the previous ones were not positively received? (Burnkant & Cousineau, 1975).

This line of reasoning implies that even if a consumer has no prior knowledge about the original game or sequels that came before this particular sequel, the effect of brand knowledge still takes place since consumers see the number of intervening editions as a sign of quality and therefore have a favourable attitude towards the brand and thereby a positive brand image is created, influencing the decision making process.

1.2 Research question

Given the literature above, the goal of this study becomes clear for it is to conduct research to determine success determining factors for video game sequels and also to see whether or not these factors also apply to subsequent editions. Therefore, the following research question is formulated:

RQ: What are the success determining factors for video game sequels?

1.3 Relevance

The contribution of this study will be twofold. First, this study will only focus on sequels and their success determining factors, something that has never been done before. Second, the limited research that has been done concerning video game success determining factors was all based on data derived from experts (e.g. only expert review score). Although I am convinced that data derived from experts is the most important, I also believe that data derived from consumers is important. Because of this, I will test every hypothesis in this study using expert and consumer data. This had never been done before and will make a valuable contribution to the further understanding of video game sequels, their success determining factors, and the role of consumer data.

One could argue that since games and movies are both experiential goods and most sequels related research has been done with regard to movies, these research results could be applied to games and no separate studies are needed. This is not the case. Although movies and games share several similarities and it would be logical to use movie research findings for the basis of this study, it is not logical to automatically apply those findings on the video game industry. This is the case for two main

reasons. First of all, the empirical measures (e.g., actors' "star power," MPAA rating, etc.) cannot be found in the video game industry so their findings cannot be generalised beyond the movies industry (Anderson, 2007). Secondly, watching a movie is a rather passive experience (you just sit and watch), while games are a very active experience since consumers are more in "control". Given these differences, separate research into sequel success needs to be conducted.

1.4 Structure

This thesis will be structured in the following way. The next section will be used for literature review and the development of the hypotheses. After that, the data and methods for research will be described and then the results will be presented. Lastly, a discussion will presented with the limitations of this study, suggestions for further research and managerial implications that can be derived from the findings of this study.

2. Literature review and hypotheses development

2.1 A brief history of the gaming industry

Video games have become one of the most prevailing forms of entertainment media and an important form of social activities and leisure in the world (Griffiths & Hunt, 1995). Some ideas about interactivity with the television were introduced in the 1950's, but the video game industry only took off with the launch of the first home entertainment system called the Odyssey (Shah, 2005) in 1972. On this system Pong was introduced in the same year and Atari entered the market in 1977, followed by Nintendo in 1978 (Videogames, no date). During the 1980's the console industry (home entertainment) and the arcade industry really started to grow with US arcades generating revenues in excess of five billion dollars in 1981 alone (Gamespot, 2011). In 1986 Nintendo introduced the Nintendo Entertainment System (NES) followed by the Game Boy in 1989. During the 1980's Nintendo dominated the video game industry with huge hits like Donkey Kong, Super Mario and Tetris. During the 1990's more competitors entered the market. Sega introduced the 16-bit Genesis system, followed by a 32-bit update in 1994 and Sony entered the market in 1995 with the Playstation. Because the Playstation was relatively cheap compared to the competition it soon became market leader. In response to this Nintendo released the N64 the next year with tremendous success in Japan. Sega responded in 1999 with the Dreamcast, a 128-bit system (Videogames, no date).

In 2000 the Playstation 2 was introduced and in 2001 a new competitor entered the market: Xbox, which was owned by Microsoft. By 2005 the market was dominated by Sony, followed by Microsoft and Nintendo. The failure of the Dreamcast system made Sega change their marketing strategy and decided to focus only on the production of games and to step out of the console market. In the second half of the first decade of the 21st century the Playstation 3, Xbox360 and Nintendo WII were introduced. This caused a mayor change in market share whereby Nintendo regained the leadership position that it had lost in 1995.

In 2011 the video game industry was bigger than the movie industry in terms of turnover, profit and growth and has established itself as a dominant and permanent form of entertainment (Entertainment Software Association, 2011; Entertainment Software Association, 2010)

2.2 Original game success determining factors

Experiential goods were defined in the introduction as goods "which consumers choose, buy and use solely to experience and enjoy". In addition to this, experiential goods are also goods for which the quality is uncertain prior to consumption (Reinstein & Snyder, 2005; Anderson, 2007). When a new game is released, consumers have no basis of their own to determine the quality of a video game. Next to that, the sheer number of newly released games contributes to overwhelming consumers in the choice progress (Moon et al. 2009). To help the customer is the decision making process they turn to expert reviews, since these are considered the strongest measure of quality in the gaming industry. These expert reviews help consumers make good choices since they provide them with information that signals unobservable product quality (Rao, 2000). Research by Reinstein & Snyder (2005) showed that positive expert reviews have effect on revenue and thereby on the success of an experiential good (movies in this case). Furthermore, the positive influence of expert reviewing on consumers purchasing decisions (and thereby success) has been proven in 12 separate studies (Zhu, 2009). With regard to video games, the same results were found by Sacranie (2010). His study indicated that the influence of expert reviews with regard to experiential goods is substantial since product quality is derived from the opinion of experts.

Next to expert reviews, consumer reviews also influence purchase decisions, but when comparing expert en consumer reviews some differences are found. Experts tend to be more objective when reviewing a game, while consumers are often not. Research by Zhu (2009) identified 8 studies that measured the impact of consumers reviews on purchase decision, but contrary to studies on the influence of expert reviews, these studies showed mixed and contradicting results and showed that their influence is rather small for a number of reasons. First of all, Eliashberg & Shugan (1997) showed that online reviews sometimes serve as predictors rather than influencing purchase decisions. Second of all, Anderson (1998) found that a disproportionate number of consumer reviewers were either extremely satisfied or extremely dissatisfied, adding to the strongly biased nature of these reviews. Finally, parties who gain in positive reviews can manipulate online forums quit easily and thus it could be possible that video game producers, as part of their strategy, post positive online reviews in an effort to boost the sales of their own products (Dellarocas, 2006;

Mayzlin, 2006). To elaborate on the findings of the study by Zhu (2009), research by Anderson (1973) showed what the causes for this subjective reviewing by consumers are. One of the reasons for subjective reviewing and rating could be found in the assimilation-contrast theory. This theory suggests that when there is a small difference between actual performance and expectation, the consumer will rate the product in line with his expectations, rather than the actual performance. On the other hand, when the difference between expectations and actual performance is rather large, the contrast effect will present itself and the product is reviewed less favourably and less in line with actual performance. The main reason for this subjective rating is the fact the consumers have certain expectations of the video game based on various information sources such as previews. When these expectations are not met, it results in subjective reviewing. Another reason for the biased reviewing of consumers can be found in the theory of cognitive dissonance. This theory suggests that when a consumer has certain expectations and opinions and these expectations are not met or these opinions not confirmed, psychological tension / dissonance (stress) is created. To counter this tension, the consumer tries to reduce this dissonance by changing the cognitive information so that it fits the consumer's original expectations and opinions. Research by Olson & Dover (1979) confirmed the applicability of this theory. This kind of behaviour leads to biased reviewing since the purpose of the reviewing is not to give an objective opinion but to counter the dissonance and reduce the psychological tension.

Examples of this difference between consumer and expert reviews can be found on video game forums and websites. For example, take Modern Warfare 3: the expectations for this game were very high and most video game review websites (ign.com, vgchartz.com, Metacritic.com) rated the game 9 out of 10 or higher. On the other hand, when looking at the consumer reviews the variety is very large. Some rated the game a perfect 10, something that experts never or rarely do. On the other hand, others rated it 1 or 2 (Metacritic, 2012). This kind of consumer rating behaviour can be found with regard to virtually every game. This clearly demonstrates the different views and thereby subjectivity of consumers.

Thus, given the literature above, expert reviews are the most import success determining factor for a video games success. This does not mean that consumer reviews are not relevant at all, but just that the extent of their influence is not as high

compared to expert reviews. Because of this, it is important to make a distinction between expert and consumer reviews and to account for both when conducting research into video game success determining factors.

2.3 Brand equity and sequel success

Given the high costs and risks involved in launching new brands, the use of established brand names is seen by many companies as an attractive way to launch a new product (Buil, Martinez & de Chernatony, 2009) since brand-extensions broaden choice, reduce marketing costs like trade deals, advertisement and price promotions (Collins-Dodd & Louviere 1999; Tauber, 1988) and increase the probability of success (Morrin, 1999; Sullivan, 1992). A brand extension strategy is often used in high-budget media products like motion pictures, books, music and video games (Ainslie et al., 2005) and is overall a very important and often used branding strategy (Völckner et al., 2010). One of the reasons for using an already established brand for launching a new brand (extension) is that a known brand name is an important risk reducer for consumers (Milewicz & Herbig, 1994). In other words, consumers will be more prone to buy products from an already established brand compared to a new brand. Brand knowledge of the parent brand is thus used in the decision making process. These findings have been successfully tested with regard to movies. For example, sequels in the movie industry build on the commercial success of the previous edition (Basuroy & Chatterjee, 2008) and producers try to capitalize on the success of the previous edition (Sood & Dreze, 2006). That means that consumers tend to see high quality of the original as a signal of the quality of the sequel and success of the original leads to expectations for the sequel (Moon et al., 2009). This is in line with research done by Buil et al., (2009) which showed that initial parent brand equity has a positive influence on consumers' attitudes towards the brand extension, even with limited brand knowledge (Broniarczyk & Alba, 1994). Thus, brand extension strategy uses the brand equity (and therefore brand knowledge) of the parent brand to launch new products. Translated to video games this means that the brand equity of the previous edition is used to influence the success of the current edition.

As was said in the introduction, the situation with regard to sequels is very different because next to expert and consumer reviews, consumers also use their own brand knowledge about the first edition (the original game) to help them in the decision making process and therefore brand equity will have an influence on sequel success. Brand equity is the added value that a brand name gives to a product (Cobb-Walgren et al, 1995) and consumer-based brand equity is defined as the differential effect of brand knowledge on consumer response to the marketing of the brand (Keller, 1993).

Brand knowledge itself is defined in terms of two components: brand awareness (the extent to which the consumers are aware of the original game) and brand image (the perceived quality of the original game) (Keller, 1993; Cobb-Walgren et al. 1995). The effect of brand image on extension success has been proven by many studies (Buil et al., 2009) and when consumers have positive associations with the parent brand (first video game of the series) these positive associations are often transferred to the brand extension (the sequel or second edition) (Ruyter & Wetzels, 2000). With regard to extension success of experiential goods, research by Moon et al. (2009) showed that movie sequels reap higher revenues but receive lower ratings. The reason for this is that the consumers used the high quality of the original movie as a signal of the quality of the sequel. In other words, the brand image of the original experiential good serves as an evaluative context and influences consumer perceptions (Brown and Dacin, 1997), thereby influencing the sequel's success. Using the parent brand image as a cue in judgement, consumers transfer relevant brand knowledge and affection to the extension and anticipate the extension to posses certain properties and benefits that have made the original such a success (Joshi & Mao, 2010).

Next to brand image as a part of brand knowledge, brand awareness also influences the success of the (subsequent) sequel. Consumers' attitudes towards brand extensions are likely to be more favourable when consumers are aware of the original game (Buil et al., 2009). To guide both new decision and repeated choice tasks, consumers draw on brand awareness (Hoyer & Brown, 1990; MacDonald & sharp, 2000). The extent to which customers have knowledge of the original game, will affect the success of the sequel (Klink & Smith, 2001) and facilitates the transfer of associations from the parent brand to the brand extension (Anderson, 2007). Brand knowledge is important for a number of reasons (Keller, 1993). First, a high level of brand awareness will

make the brand part of a consideration set for purchase. Second, brand awareness simplifies the decision making and thereby raises the level of probability that a brand is purchased. Third, brand awareness affects consumer decision making by influencing the formation and strength of brand associations. This does not mean that brand knowledge about the original game is the only factor determining sales. The expert and consumer reviews of the sequel will also have an influence on the sequels success but since consumers now also have a base of their own (brand knowledge) to help them in their decision making process, the influence of expert and consumer reviews will be lower.

In the game industry most sequels are followed by another sequel/edition (e.g. Halo 1, 2, 3; Tekken 1, 2,3,4,5, 6; Mario Kart 1, 2, 3,4,5,6, and 7; the Final Fantasy series, the Call of Duty series etcetera.) and therefore the effect of brand knowledge will become stronger and the effect of expert and consumer reviews will go down as more sequels/editions are produced. It can even be argued that the influence of expert reviews will be close to non-relevant when the game is part of an old or classic series. In that case the games itself has become a franchise (Basuroy & Chatterjee, 2008) For example, whenever a new Zelda or Mario is released most consumers buy the game because they know that in the past Mario and Zelda games have always been high in quality and consumers do not need to consult experts or consumer reviews in their decision making process. The literature and argumentation discussed leads to the following hypothesis:

> *H1: The effect of expert and consumer opinion on a game's success will be less with regard to the sequel compared to the first, original game and will gradually decline as more sequels are produced, especially when it involves an old series.*

2.4 Brand awareness and sequel success

As Keller (1993) pointed out, brand knowledge is made up of two components: brand image and brand awareness and these are considered as important drivers of brand extension success according to Hennig-Thurau et al. (2009). In their study concerning movie sequels the variable parent brand image was measured looking at review scores or ratings of consumers, critics and experts. Expert reviews are the most important determining variable of brand image since they are the most objective and have a strong influence on video game success. An important example of this is that a favourable expert review is often mentioned on the game case itself (in store promotion), while consumer reviews are sometimes mentioned in advertisement. The variable parent brand awareness was measured by looking at the number of theatres the movie was shown in the opening weekend. With regard to video games, brand awareness can be measured by the number of consumer reviews and the number of expert reviews. Under the assumption that an equal amount of consumers per consumers and an equal amount of experts per experts that buy a particular video game write a review, more reviews would equal more consumers and experts that have bought the game and thereby more brand awareness and video game popularity.

In addition to the above, I argue that with respect to brand knowledge, brand-awareness is more important than brand-image. The reason for this is that although some games can have a very high expert review score, the brand knowledge that it creates really depends on the number of people that are aware of the game. For example, some games can have very high ratings (high quality), but due to certain access restrictions like genre and age restriction, a high level of brand image does not always lead to a high level of brand knowledge. For example, educational games or interactive fishing games might receive very high ratings but because these genres do not appeal to a broad audience, little brand knowledge is created. The same can be said with regard to American football games. Although these games sometimes receive high ratings, very few games are sold in Europe when compared to US sales figures simply because there is less interest in that genre in Europe. Another example can be found in regard to RPG's when compared to first person shooters: sales of the former have lagged behind the latter in the US, but in Japan it is the other way around (VGChartz, 2011).

Since both brand-image and brand-awareness are important for the creation of brand knowledge and it is argued that the latter is more important than the former, it is only logical that more expert and consumer reviews equal more brand awareness about the previous edition. More brand awareness of the previous edition, naturally leads to more brand knowledge and thereby to more brand equity. Since brand equity is important for the success of the sequel, one could argue that more experts and consumer reviews equals more brand equity and thus influences the success of the sequel. Therefore the following hypotheses is formulated:

> *H2: The number of consumer reviews and the number of expert reviews of previous edition will be a positive influence on the success of current edition, since more expert and consumer reviews equal more brand awareness.*

2.5 The effect of excitement on brand equity and sequel success

As mentioned before, brand equity is instrumental to the success of a new edition since this new edition tries to build on the commercial success of the previous edition and producers try to capitalize on this success. The above thread of reasoning suggests that a new edition uses the positive associations of the previous edition. Research by Wyer & Srull (1986) showed that the ability to recall those associations depends on the strength of the associations and parent brand memories. Since memories fade over time and become less strong (Feldman & Lynch, 1988), it can be argued that the longer the period between the release of the previous and new edition, the weaker the memories to the brand and therefore the brand knowledge becomes. This hypothesis has been tested with regard to movies by Basuroy & Chatterjee (2008) whose research concluded that sequels that quickly follow their parents do better than sequels with longer time gaps. The reason Basuroy & Chatterjee (2008) gave for this outcome was that the buzz and anticipation perhaps dissipates in consumers' memories.

My research diverges from past studies concerning the influence of time on the effects of brand knowledge on an extension's success by making an addition. I argue that the amount of time between the release of the previous and current edition will have an asymmetrical effect; it will have a positive effect on high quality games, but it will have a negative effect for average or low quality games.

The reason for this asymmetrical effect is threefold. First of all, where high quality games are concerned, more people know about the game since high quality games are naturally purchased by a lot of consumers. When a lot of consumers buy a particular video game, a large community is created at the same time, causing more discussion (Word-of-Mouth) and thereby more expectations and more excitement (Liu, 2006; Hennig-Thurau et al. 2001). The longer it takes for the next edition to be released, the more discussion that takes place and the more people get excited about the next edition and long for it to be released. All this excitement is released when the next edition finally arrives, contributing to the edition's success. Research by Keller (2001) showed that creating feelings of excitement is important for building a strong brand and therefore brand equity and Grass and O'Cass (2002) found that the creation of feelings is important for a branded product. Other studies stressed the importance of the creation of excitement to influence consumer behavior (Schmitt, 2010; Liu & Arnett, 2000; Holbrook & Hirschman, 1982; Yoo, Park & MacInnis, 1998) .

Since excitement is built over time, the longer the period between the release of the previous and current edition, the more excitement is created. These feelings of excitement raise the level of intensity. Second of all, with the passing of time consumers tend to romanticize the previous edition and the memories concerning the previous edition are strengthened and therefore the effect on brand equity is enlarged over time. Thirdly, with the passage of time, consumers also start idealizing the yet to be released edition. These latter two effects have been described by the famous German philosopher (Schopenhauer, 1974) who stated that man with all his knowledge and ability to have memories and think about the future is never really living in the present, only animals do that. Man the other hand is always living in the past or the future. Whenever a man is in the present and feeling normal, he starts to think about the joys and excitement he has had in the past or will have in the future. In addition to this, he starts to intensify these feelings. With this intensification, he starts to romanticise the past as being better than the present. He also starts to long for the future because in his mind the future is all better and will bring feelings of excitement and even thinking about the future will cause feelings of excitement. What this means for brand equity theory is that the memories about good experiences in the past (in this case a very good video game) are strengthened, causing brand equity effect to rise. He also starts to get excited about the future and starts to think that the future will bring the same or even better experience than the past; in this case the yet to be

released next edition. I expect this effect of romanticizing and creation of excitement to be more profound with video games compared to movies. The reason for this is that a movie is a rather passive experience of about two hours, while a game is a more active, deeper, experience with a duration of as many as 30 hours, or in any case longer than movies.

So the passing time has three effect with regard to high quality games: it increases the number of discussions and therefore the level of excitement for the next edition, it romanticizes the brand memories (thereby strengthening the brand equity) and it idealizes the yet to be released edition.

On the other hand, when a game is average in quality, the community will be smaller and hence less discussion will take place and less excitement and expectations are created with regard to the sequel. Furthermore, contrary to high quality games, the passing of time will lead to a deterioration of the memories of the previous edition and therefore the effect of brand equity is diminished over time. The future edition will not be idealized either. Given the reasoning described above, the following hypothesis are formulated:

H3A: The amount of time between the release of previous and new edition will have a positive effect for high quality games.

H3B: The amount of time between the release of previous and new edition will have a positive effect for average quality games.

2.6 The effect of expectation building on sequel success

As mentioned previously, consumers use brand knowledge of the previous edition to form expectations about the next edition and this has a positive influence on the success of the next edition (Moon et al. 2009). What this means is that if consumers have positive experiences with the previous edition, they create expectations and will tend to buy the next edition more readily. Given this line of argumentation that expectation building is important for the success of the second (or third) edition it is reasonable to expect potential customers to partly base their game-related expectations on the progress made in the second edition compared to the first. If the second edition is better in quality than the first (higher expert review score), it can be argued that the customer will expect a similar rise in quality in the third edition. Thus the difference or delta Δ between the first en second edition, raises the expectations for the third edition, causing excitement and anticipation, resulting in higher sales for the third edition. Testing this with regard to video games is important and can very easily be executed given the high number of sequels some video games have. The following hypotheses is developed:

> *H4: The difference (delta; Δ) in quality of edition A and B has a positive effect on the success of edition C, due to the creation of excitement and expectation.*

2.7 Number of previous editions: building brand knowledge and signalling quality

Some games become franchises over time after they have produced multiple editions and spinoffs. The most elaborate example of this is Mario. Mario is almost synonymous with Nintendo and a wide array of Mario games has been produced. Not only as a sequel and different editions on different consoles, Mario has also produced countless spinoffs like Mario Kart, Super Smash Bros, Mario and Sonic, Mario Party, Mario Fortune Street, Mario Sports, Mario Football, Mario Golf, Mario Tennis etc.

Some consumers have full knowledge of all previous editions and in line with the creation of extra brand knowledge due to extra editions, one could argue that more intervening editions have a positive effect on a sequel's success since it is creating

stronger brand knowledge with every subsequent edition. But not all consumers have prior knowledge about the intervening sequels; especially with regard to games this group is rather large. The reason for this is that, as was stated before, the industry is growing at an incredible rate (e.g. 16.7% a year for the period 2005-2008) and given the growth of the industry, the number of new people who start playing video games and have no prior knowledge is substantial. For this group the number of sequels can be sign of quality. Research by Basuroy et al. (2006) concerning movies showed that sequels themselves also signal quality; why would a video game producer make so many sequels unless they have had favourable feedback and evaluations from the market (Burnkant & Cousineau, 1975; Cohen & Golden, 1972)? In addition to this, research by Keller & Aaker (1992) found that successful intervening extensions had a facilitating effect on the evaluations of a proposed extension and research by Dacin & Smith (1994) showed that a high number of previous brand extensions had a positive effect on the brand extension's success. With regard to movies Basuroy & Chatterjee (2008) showed that the number of previous editions had a positive effect on the success of the next edition.

Thus, the number of previous editions is used as a signal of quality, which itself is associated with brand image; the more previous editions, the more positive the brand image. This means that a brand image, and thereby brand knowledge and brand equity, are created even without prior parent brand experience.

The number of previous editions can thus affect the perceived quality of the new edition. For example, given the huge variety new consumers have when it comes to purchasing a game, the number of previous editions can help by simplifying the decision making process. If consumers lack the ability or motivation (which is likely to occur with so many titles), consumers will use signals or other cues to help them determine the quality of video games (Olson and Jacoby, 1972); in this case the number of previous editions. Given the huge amount of new gamers and growth of the industry, it can be expected that the effect of the number of previous editions on the perceived quality of the game is more substantial compared to other experiential goods like movies or books.

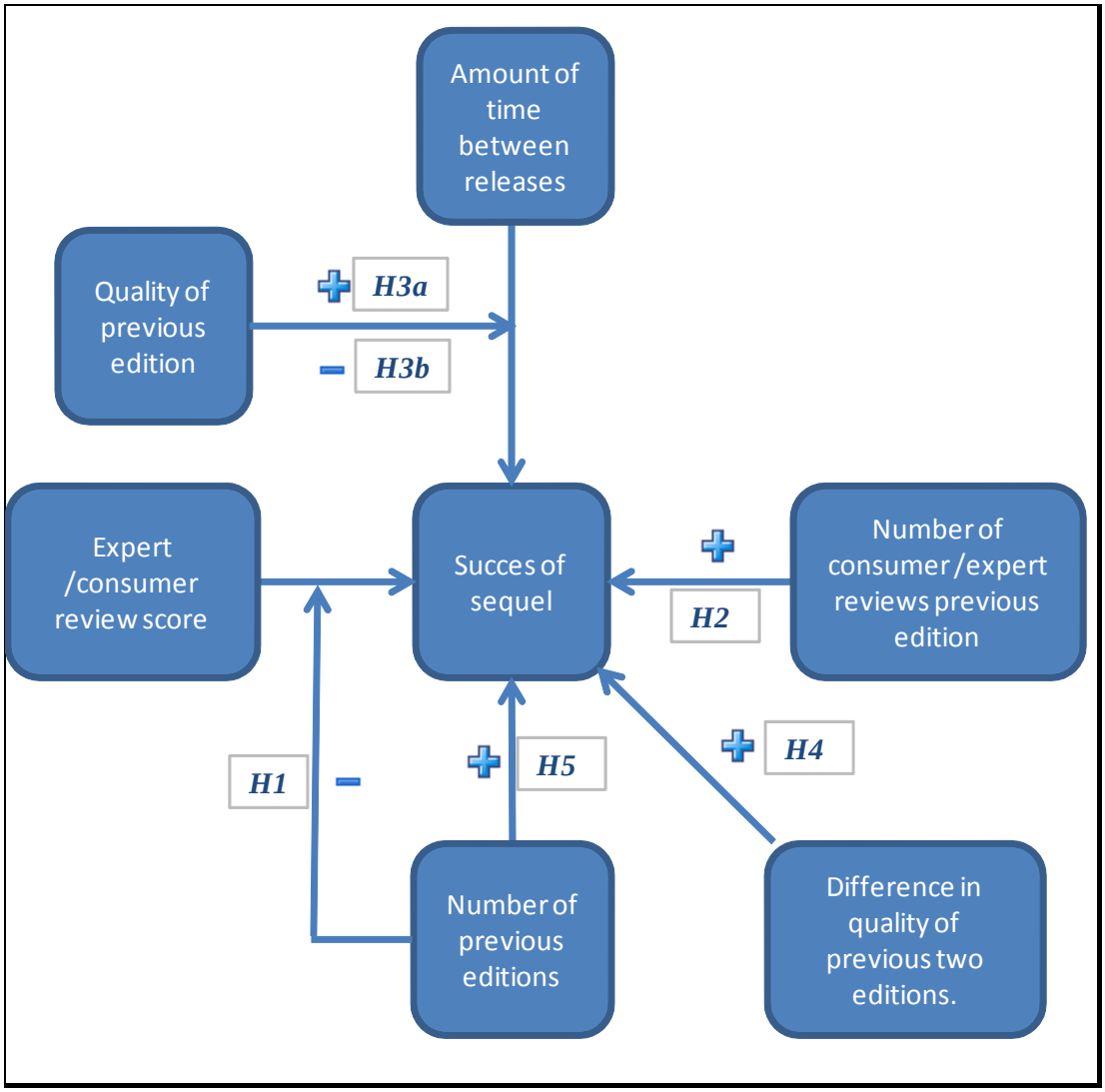
On the other hand, it could be argued that this effect is countered by the saturation effect that occurs with regard to experiential goods (Sood and Dreze (2006). This means that consumers get saturated over time and switch to other video game (series)

for new experiences. This is not likely to occur with regard to video games for a number of reasons.

First of all, saturation can only occur if consumers have prior experience and since a lot of consumers are new to the world of video games, it is no more than logical that this effect does not occur for new consumers. Secondly, in addition to the number of new consumers, the saturation effect might not occur for consumers who have prior knowledge. The reason for this is that in contrast to movies, most games offer new features and can therefore differ from their prequel in a greater variety of ways. For example, a movie can only add a new character or story line, while video games can also add new game play like side-quests, new ways to move around (control of vehicles), new multiplayer modes, co-up mode, etcetera. Thirdly, even if saturation occurs, it can be argued that switching to another video game series is still less likely to occur when compared to movies. The study of Sood and Dreze (2006) was based on movie series and the switching to other movie series can occur due to the low price (€10,- for a theatre visit). A lower risk is thus incurred. Video games on the other hand are rather expensive (€ 60,- for a new video game) and this makes switching more risky and since people are risk avert, less likely to occur. In addition to this, the degree of perceived risk is highest when the consumer cannot evaluate quality before purchasing (Ayden & Ozer, 2005). Since this is the case with video games because they are experiential goods, switching to another video game series is perceived as risky while staying with the series the consumer already knows is perceived as less risky, since the consumer has brand knowledge about the video games series due to his/her experience with previous sequels. Given the literature and argumentation discussed above, the following hypothesis is developed:

H5: The success of an edition is positively related to the number of editions that came before it, especially when it involves an old series.

2.8 Conceptual model



3. Data collection and methodology

3.1 Data collection

The data for this study will be all game series that have at least 3 editions. If a game series has more than three editions, only the data of the first three editions will be collected for the sake of validity and reliability. So called “stand-alone” games will be excluded. Remakes (e.g. Halo: Anniversary) and add-ons (downloadable content) will also be excluded , since they are not sequels in the true sense of the word. The reason I collect game series with at least three editions instead of four or five is because if I would do that the data set would become too small for reliable results since only a very small percentage of video game series has four or more editions.

I will collect data from the two latest generations of video game home console systems for the sake of collecting as many data points as possible, since more data points make for a more robust analysis and stable results. What video game home console system the data was collected from will be mention in the data set under SYSTEM. Data will therefore be collected for Xbox, Xbox360, Ps2, Ps3, GameCube and WII since these represent the entire video game home console market, thereby excluding PC games and the ever popular mobile phone games. The reason for excluding the phone is the lack of available data. The reason for excluding the PC is the fact that a lot of games on the PC are not legal and therefore not represented in the data, making this data less reliable. This does not mean that the results in this study will not be applicable to PC; since both PC and video game home console systems offer the possibility to play video games it is arguable that the findings can be applied to PC games as well. But given the difficulty of acquiring reliable date, they will be excluded in this study.

Data will be collected from two popular sources; VGChartz (2012) and Metacritic (2012). The former website will be used to collect the sales data per game, while the latter will be used to collect data regarding score, number of reviewers, genre and release data. All other variables will be derived for the data obtained at these websites. The number of data points (number of games) in this research will be 756 games, making a total of 252 game series. Every game series will receive a number and will be mentioned in the data set as SERIE_NUMBER. In addition to this

every edition *in* the series will receive an A, B or C and will be mentioned in the data set as GAME_NUMBER.

Our data comprise of world wide data offering this study and its outcomes a solid basis for reliability. The time period for collecting will be from the start of the console release to December 1, 2011. This to collect as many data point as possible. Data December 2011 and 2012 will not be collected since the bulk of most video games is sold in the first seven weeks after the release (Sacranie, 2010) and data collection for this research started on January 21th 2012.

Data will be collected per game, per console system. This means that if a game is released on multiple platforms (e.g. the PES series), data will be separated instead of combined. There are multiple reason for doing this: first, some data regarding sales, number of reviews, score, etcetera, was sometimes not available for all console systems; combining the data would result in unreliable results. Second, sometimes series were not consistently released on all console systems. For example; Call of Duty: Modern Warfare part 1 and 3 were released on all console systems, but part 2 was only released on PS3 and Xbox360. Third, often games were not released at the same time. Fourth, the control system of the WII is very different from the control system of the other two console systems, leading to very different gaming experiences for consumers, even if the actual game is the same. This difference influences the consumers image, making the combining of game data undesirable. Fifth, in the current market of video game home console systems Nintendo (WII) has a 49,10% market share, while Sony (PS3) has 23,28% and Microsoft (Xbox360) has 27,53% (VGChartz, 2010). This is a very different division of market share compared to the last generation of video game home consoles (XboX, GameCube, Ps2) were Sony was market leader, followed by Microsoft and Nintendo. Combining the data could lead to non-reliable results.

3.2 Variables

Dependent variables

Given the importance of video game sales for most video game producing companies the dependant variable will be the total number of copies sold word wide. This will be the variable SALES_TOTAL. The total sales will be measures per million, thus 1 stand for one million copies sold, 0,73 stands for 730.000 copies sold worldwide etcetera.

There are a number of reasons for picking number of copies sold instead of another variable like profit or turnover. One reason is that data will be collected spanning several years and by using numbers of copies sold, the effects of inflation that occurs over the years is excluded. Another reason is that some games have become "Classics" (e.g. Halo 3) and are sold for about 50% of the normal price for a game. In addition to this, since data is collected world-wide and price differences can be found per region (Japan, Europe, USA) due to a variety of reasons like differences in value added tax.

Independent variables

Given the fact that data concerning consumers (next to expert data) is relevant for explaining video game success, data regarding consumers will also be used in this study, but under the assumption that their influence is less when compared to expert data.

The independent variable, or predictors, will be: (1) EX_SCORE or expert review score; (2) CON_SCORE or consumer review score; (3) #_EX_REV or the number of expert reviews; (4) #_CON_REV or the number of consumer reviews; (5) DELTA_TIME or the time between two editions; (6) DELTA_SCORE_EX or the Δ (delta) of the expert reviews score of the previous two edition; (7) DELTA_SCORE_CON or the Δ (delta) of the consumer review scores of the previous two edition; (8) #_PREV_ED or the number of previous editions.

EX_SCORE and CON_SCORE will be measured using a aggregate review score (1-100) and will be used to test hypotheses 1.

#_EX_REV and #_CON_REV will be measured by using the total amount of absolute number of expert and consumer reviews and will be uses to test hypotheses 2.

DELTA_TIME will be measured in months. This will be indirectly measured by collecting data regarding the release data of every video game (mentioned in the data set under RELEASE) and then use this data to derive the time between releases. This data will be used to test hypothesis 3. In addition, a moderate variable will be used; namely if a game is high in quality or not. This moderate variable will be used because I argue that DELTA_TIME has an a-symmetrical effect, depending on whether a game is high in quality or not. To account for this moderate variable I will include the dummy variable HIGH_QUALITY_EX and HIGH_QUALITY_CON to indicate if a game is high in quality or not (which takes the value of 1 if a game is high in quality, and 0 if it is not). A game will be considered high quality if it has an expert or consumer review score of 80 or higher. This classification is derived from IGN (2012), whereby every game that scores 80 or higher is "Great" or "Awesome"; terms more associated with high quality than the term used for games under 80, which is "good"; signalling more an "OK" or average quality, rather than high quality.

The DELTA_SCORE_EX and DELTA_SCORE_CON will be measured by looking at the difference in score between the previous two editions of a particular game. This data will be indirectly measured by looking at the difference in EX_SCORE and CON_SCORE of the two previous edition and will be used to test hypotheses 4.

#_PREV_ED will be measured by looking at all editions that came before a particular edition on the same system and will be used to test hypotheses 5. Also, only the game series that have numbered sequels will be used for testing this hypotheses for obvious reasons.

Control variables

For the sake of the validity of this study certain control variables will be used to serve as covariates in our study.

The first control variable that will be used is GENRE or the genre the video game is. The reason why genre is so important as a control variable is that certain genres naturally appeal to a broader audience than others. Genres like "shooters" have sold particularly well over the last few years, while role playing games have

lagged behind (Sacranie, 2010). To measure the effect of genre I will assign every game to one of seven major genres: Action, Sports, Racing, Shooter, Fighting, Rhythm games and miscellaneous. This is not the genre division used by Metacritic (2012). The reason for this is that the division of genres according to what is used by Metacritic (2012) would lead to 27 different genres. First, this would lead to several problems during the data analysis; accounting more variables is harder to analysis. Second, the more variables are used, the less reliable the research results would be. Third, since I use 252 game series and a total of 756 games, using 27 genres would make for very small portions of games assigned to each genre; using all genres would lead to less reliable results given the small number of games per genre. To counter all these effect I assigned all games to one of only seven genres:

'Action',' Action/adventure',' Adventure', 'RPG',' Platformer', 'Real time strategy ' and 'Strategy' were assigned to the major genre 'Action' since all games in these genres have an action element in its game play. Also, I assigned the two strategy genres to 'Action' because only 13 games were assigned to one of these categories by Metacritics (2012). This is also the reason for assigning the genre 'platformer' to this category. All sports genres like 'Golf', 'Baseball', 'Soccer' etcetera were assigned to the major genre 'Sports' for obvious reasons. All games that were labeled as 'racing' and 'other driving games' were assigned to the major genre 'Racing'. This also for obvious reasons. The genres 'Shooter', 'First person shooter' and 'Combat sim' were assigned to the major genre 'Shooter' since the major game play element in these genres is shooting. The genres 'Fighting' and 'Wresting' were assigned to the major genre 'Fighting' since all games in this genre have a hand-to-hand fighting element as their major game play element. All 'Rhythm' genre games were assigned to 'Rhythm' because 45 games were assigned to this genre by Metacritics (2012) and therefore the number of video games was big enough to have its own major genre. Last, the game genres 'Parlor games', 'Party games', 'Virtual life games' and 'Compilations' were assigned to the major genre' miscellaneous' because these genres could not be assigned to one of the major genres above and because only a maximum of 10 games were assigned to one of these genres by Metacritics (2012).

The second control variable I will include is the dummy variable CRISIS to control for game being released before and after the financial crisis of 2008 (which takes the value of 1 if it is after the crisis and 0 if it is not) since it can be argued that video game sales were affected by the worldwide financial crisis. Before and after

will be determined on the basis of the game being released before or after September 2008. This is the month that Lehman Brothers fell and triggered the worldwide financial meltdown.

The third control variable that will be used is when the video game is a sequel in an old series like Mario, Sonic, Final Fantasy, Fifa etc. With "Old series" I mean video game brands that have been released on more than one generation of video game console. This to counter the effect of the legitimacy building that has happened due to the long life span of these games. It is plausible that customers use multi-generational video game brands as a sign of quality and risk reducer, enhancing the video game's success. For this purpose I will use the dummy OLD_SERIES (which takes the value of 1 if the game is part of an old series, and 0 if not)

The last two dummy variables are all indicative of whether the sequel offers a dissimilarity. Sood & Dreze (2006) did research concerning the evaluations of movie sequels and found that dissimilar sequels were rated higher than similar sequels. A movie was dissimilar if the title was named instead of numbered. Joski & Mao (2010) also addressed the effects of saturation on a movies sequel's success and found that content similarity results in satiation (whereas dissimilarity does not) and therefore hampers the success of the sequel. To account for the effect of dissimilarity I will include two dummy variables.

The fourth dummy variable is when the sequel is named instead of numbered, since a named sequel signals a dissimilarity. I will also account for this dummy variable if a sequel is both numbered and named. I will use the dummy variable NAMED (which takes the value of 1 if the sequel is named or named & numbered, and 0 if not)

The fifth dummy variable is if the sequel is a SPINN_OFF (which takes the value of 1 if the sequel is a spin-off, and 0 if not). I will define "Spin-off" for any sequel who's story or content is not a continuation of the previous edition. For example: Halo: Reach and Halo 3: ODST were not real sequels, but rather video games that followed a new direction.

4. Results

4.1 Descriptive statistics

The sample consists of 252 different games. Each game has a first edition and two sequels, resulting in a total of 756 game editions. The genres of the games are subdivided into seven categories, see table below.

GENRE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Action	197	26.1	26.1	26.1
	Fighting	46	6.1	6.1	32.1
	Miscellaneous	31	4.1	4.1	36.2
	Racing	86	11.4	11.4	47.6
	Rhythm games	45	6.0	6.0	53.6
	Shooter	87	11.5	11.5	65.1
	Sports	264	34.9	34.9	100.0
	Total	756	100.0	100.0	

The table below demonstrates the descriptive statistics of the independent variables.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
TOTAL_SALES	756	,0000	20,8100	1,195119	1,7382880
EX_SCORE	756	25	97	75,87	11,823
CON_SCORE	756	8	100	77,29	13,201
lag_#exrev	504	3,00	105,00	31,0575	17,46233
lag_#conrev	504	2,00	2885,00	65,1647	227,92755
DELTA_TIME	503	,0000	55,0000	14,905471	7,1364468
DELTA_SCORE_EX	504	-30	27	-,40	8,333
DELTA_SCORE_CON	504	-86	47	-,71	13,536
Valid N (listwise)	503				

The games are also subdivided into the following categories:

- Old series 44%, not old series 56%
- Crisis 23%, not crisis 77%
- Named 30%, not named 70%
- Spin off 11%, not spin off 89%

4.2 Hypotheses

Hypothesis 1

H1: *The effect of expert and consumer opinion on a game's success will be less with regard to the sequel compared to the first, original game and will gradually decline as more sequels are produced, especially when it involves an old series.*

I expect the correlations between the review scores and sales to be the strongest for the first edition and to become weaker for the second edition and third edition. Also, I expect the relationship to be weaker for when the game is part of an "old series".

The table below demonstrates the partial correlation coefficients, corrected for our control variables, between review scores and total sales, by edition and 'old' vs. 'not old' series.

Table 1: Pearson correlations with total sales

	edition	*1 (A)*		*2 (B)*		*3 (C)*	
		EX SCORE	*CON SCORE*	*EX SCORE*	*CON SCORE*	*EX SCORE*	*CON SCORE*
not old	Pearson Correlation	0.299**	0.167	0.397**	0.199*	0.439**	0.223*
	Sig. (2-tailed)	0.002	0.089	0.000	0.043	0.000	0.023
	N	111	111	111	111	111	111
old	Pearson Correlation	0.336	0.147	0.416**	0.028	0.405**	0.092
	Sig. (2-tailed)	0.000	0.091	0.000	0.746	0.000	0.291
	N	140[1]	140	141	141	141	141

**p<.05, **p<.01*

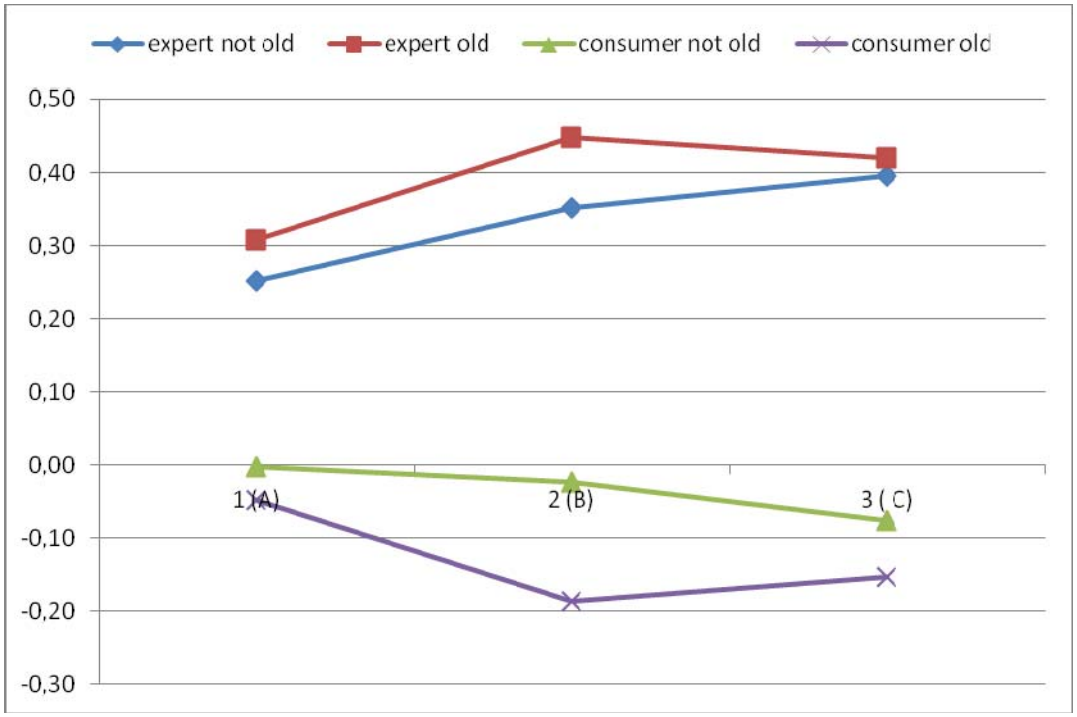
For the expert scores, the consumer scores are also used as a control variable, and vice versa.

The correlations between expert scores and sales are much stronger compared to the correlations between consumer scores and sales, the latter being not significant in most cases; only in the case of edition 2, "old series". Contrary to our hypothesis,

[1]From the original 141 edition A old games, one was dropped from the analysis because of a missing value in the control variable 'spin off', therefore n=140.

the correlations between expert scores and sales seems to be higher for later editions compared to the first edition, especially the case for 'not old' games. But the differences between the strength of the correlation coefficients is not significant, so I cannot conclude that the number of sequels, or 'old series' affect the strength of the correlations.

The correlations between review scores and total sales are demonstrated in the graph below.



Graph 1.

Hypothesis 1 is not confirmed: First of all, the effect of consumer opinions on sales is in all but one case not significant; both for "old" and "not old" series. Only in the case of edition 2, "old series" is the effect significant, but only barely and in a negative way. Second of all, the effect of expert opinions on sales is not affected by the number of sequels or by "old series" games.

Hypotheses 2, 3 & 4

Hypotheses 2, 3, and 4 are tested in one model. Since the difference in quality of two previous editions (hypothesis 4) can only be calculated for edition C, we will only use the total sales of edition C as the dependent variable.

- ***H2:*** *The number of consumer reviews and the number of expert reviews of previous edition will be a positive influence on the success of current edition, since more expert and consumer reviews equal more brand awareness.*

I expect the number of reviews of previous edition to positively influence the sales of the current edition. The number of expert reviews and the number of consumer reviews are correlated, $r=.49$, $p<.001$, therefore they are entered together in the analyses.

- ***H3A:*** *The amount of time between the release of previous and new edition will have a positive effect for high quality games (review score >79).*
- ***H3B:*** *The amount of time between the release of previous and new edition will have a positive effect for average quality games (review score <80).*

I expect the quality of the previous edition to moderate the influence of the amount of time between releases on total sales.

- ***H4:*** *The difference (delta; Δ) in quality of edition A and B has a positive effect on the success of edition C, due to the creation of excitement and expectation.*

I expect that the differences in quality between the previous two editions to influence the sales of the current edition.

The table below demonstrates the results of the analysis. Only the control variable 'spin off' is significant (t=3.01, p<.01); spin offs sell better than non-spin offs.

In Model 2 the number of consumer reviews and the number of reviews of edition B are added (hypothesis 2), as well as the amount of time between the release of edition B and C, the high quality dummies (hypothesis 3), and the differences in quality of the previous editions according to experts and consumers (hypothesis 4).

Table 2.

	Model 1		*Model 2*		*Model 3*	
	Beta	*t*	*Beta*	*t*	*Beta*	*t*
TOTAL_SALES						
Constant		0.97		0.12		0.06
action	0.12	0.82	0.03	0.21	0.02	0.18
fighting	0.08	0.91	0.07	0.81	0.07	0.85
racing	0.02	0.21	-0.03	-0.32	-0.04	-0.36
rythm	0.11	1.22	0.07	0.79	0.06	0.72
shooter	0.16	1.39	0.00	0.04	-0.01	-0.10
sports	0.01	0.06	-0.08	-0.55	-0.09	-0.65
CRISIS	-0.07	-1.04	-0.13	-1.89	-0.14	-2.05*
OLD_SERIES	0.09	1.33	0.09	1.51	0.08	1.29
NAMED	-0.06	-0.72	-0.04	-0.60	-0.05	-0.62
SPINN_OFF	0.21	3.01**	0.24	3.76***	0.26	3.98***
lag_#exrev			0.21	2.95**	0.21	2.89**
lag_#conrev			0.20	2.82**	0.22	3.11**
lag_delta_ex (qual)			0.03	0.51	0.04	0.53
lag_delta_con (qual)			-0.03	-0.40	-0.04	-0.57
lag_high_ex			0.20	2.78**	0.21	2.94**
lag_high_con			-0.06	-0.86	-0.07	-0.95
DELTA_TIME			-0.02	-0.36	0.02	0.16
exp_dtime					-0.13	-1.58
con_dtime					0.06	0.69
F	2.25		5.11		4.73	
Sig. F	0.02		0.00		0.00	
R Square	0.29		0.52		0.53	
Adjusted R Square	0.09		0.27		0.28	
N[2]	251		251		251	

*p <.05, **p<.01, ***p<.001

[2] From the original 252 edition C games, one was dropped from the analysis because of a missing value on delta time, therefore n=251.

With regard to hypothesis 2 the data shows that the numbers of reviews of the previous edition ha a significant effect on sales of the current edition, t(expert)=2.95, p<.01, t(consumer)=2.82, p<.01. The betas are positive; this indicates that more reviews for the previous edition is associated with higher sales for current edition. Thus, Hypothesis 2 is confirmed.

With regard to hypothesis 3 the data shows two results. First of all it shows that current edition games of which the previous edition had high expert scores (>79), have higher sales, t=2.78, p<.01.In addition to this, the effect of high consumers scores (>79) for the previous edition does not have significant effect on the sales of the current edition, t=-.86, ns.

Second of all, in the final model, the moderating effect of the amount of time between releases on the effect difference in quality of is tested. No significant moderating effects are found, t(expert)=-1.58, ns, t(consumer)=.69, ns. Also, model 2 shows that the amount of time has no influence on sales, t=-.36, ns.Thus, hypothesis 3 is not confirmed: the amount of time between releases does not influence total sales, nor does the quality of the previous edition moderate the influence of the amount of time between releases on total sales

However, what did became apparent is that the quality of the previous edition according to experts, does influence sales of the current edition in a positive way.

With regard to hypothesis 4 the data shows that the difference in quality between the previous two editions does not affect the sales of the current edition, , t(expert)=-.51, ns, t(consumer)=-.40, ns. Thus, Hypothesis 4 is not confirmed.

Hypothesis 5

H5: *The success of an edition is positively related to the number of editions that came before it, especially when it involves an old series.*

To test , one analysis is done to test if the number of previous editions has an influence on the sales of edition A, B and C and if 'old series' moderates the relationship between the number of previous editions and total sales. As was indicated in paragraph 3.2 I used only the series that were numbered for obvious reasons (n=360).

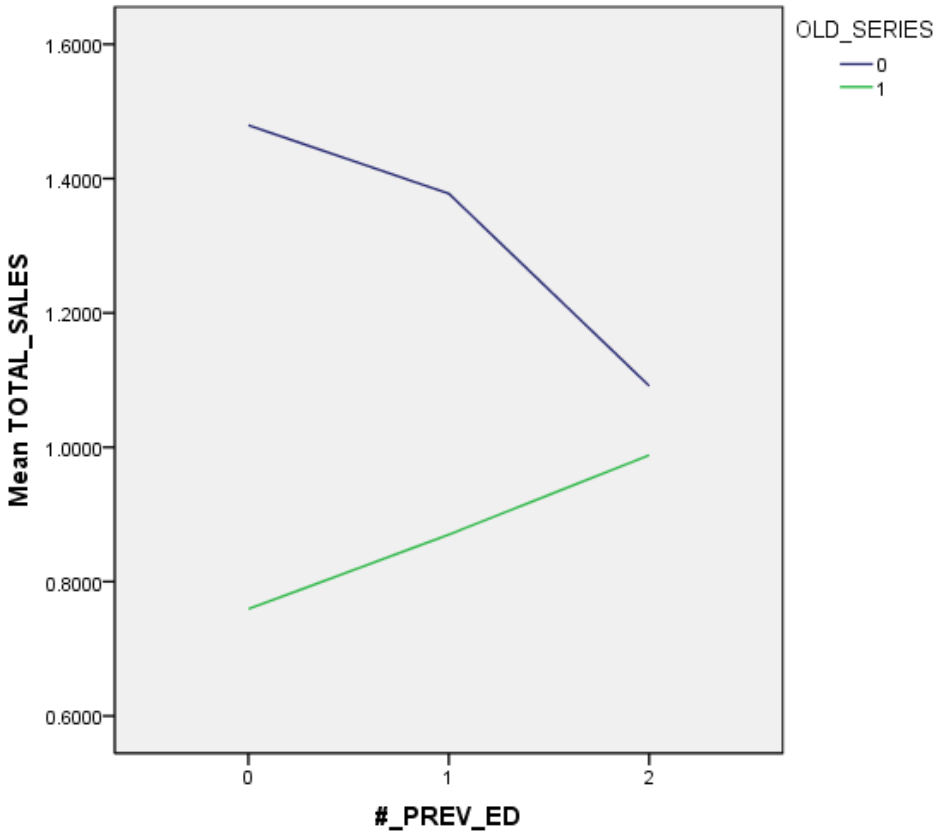
Table 3.

	Model 1		*Model 2*		*Model 3*	
	Beta	*t*	*Beta*	*t*	*Beta*	*t*
(Constant)		3.38***		3.55***		3.99***
action	-0.06	-0.52	-0.06	-0.56	-0.07	-0.59
fighting	0.08	0.87	0.08	0.88	0.08	0.86
racing	-0.10	-0.99	-0.10	-1.02	-0.10	-1.03
rythm	0.12	1.25	0.11	1.23	0.11	1.23
shooter	0.19	2.26*	0.18	2.21*	0.18	2.21*
sports	-0.26	-1.64	-0.26	-1.64	-0.26	-1.65
CRISIS	0.05	0.96	0.07	1.27	0.07	1.29
OLD SERIES	-0.01	-0.18	-0.01	-0.16	-0.01	-0.15
NAMED	-0.01	-0.10	0.01	0.16	0.02	0.29
SPINN OFF	0.15	2.81**	0.15	2.85**	0.15	2.77**
Edition			-0.06	-1.09	-0.15	-2.08*
Ed*old					0.13	1.85
Sig. F	0.00		0.00		0.00	
R Square	0.20		0.20		0.21	
Adjusted R Square	0.17		0.17		0.18	
N	360		360		360	

*p <.05, **p<.01, ***p<.001

The data above shows two results. First of all, it can be seen that two control variables influence sales; shooter games (t=2.2, p<.05) and spin-offs (t=2.8, p<.01) both have a positive effect on sales. Second of all, the coefficients table demonstrates no significant coefficient of 'edition' in the second step, t=-1.09, ns, but when de moderator is added, the effect of edition becomes significant, t= -2.08, p<.05. The moderator is just not significant, t=1.85, p=.065.

The negative coefficient of ‘edition’ indicates that sales tend to decline after the first edition. The graph below demonstrates that this is only the cases for ‘not old’ series; the sales of ‘old series tend to increase after the first edition.



Graph 2.

Hypothesis 5 is partly confirmed; only for old series is the success of an edition positively related to the number of editions that came before it, the opposite goes for ‘not old’ series.

4.3 Summary

Only hypothesis 2 has been completely confirmed: The number of consumer reviews and the number of expert reviews of edition A have a positive influence on the success of edition B, and the same goes for the reviews of edition B on the success of edition C.

Hypothesis 5 has been partly confirmed: Only for old series is the success of an edition positively related to the number of editions that came before it, the opposite goes for 'not old' series.

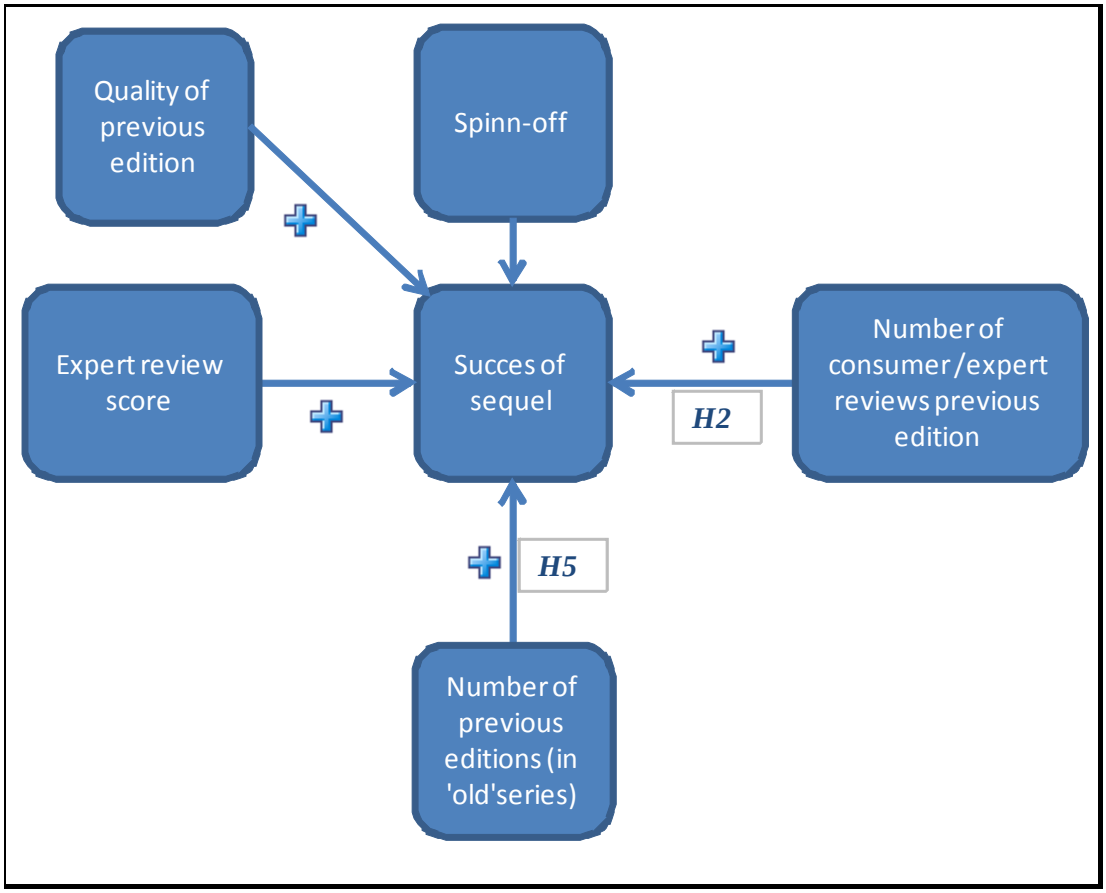
Hypothesis 4 is not confirmed: The quality difference between edition A and B has no significant effect on the sales of edition C. This was confirmed while using both expert and consumer data.

Hypotheses 3 is not confirmed: the amount of time between releases does not influence total sales, nor does the quality of the previous edition moderate the influence of the amount of time between releases on total sales. This was confirmed while using both expert and consumer data. Next to the conclusions with regard to the hypotheses 3, the results also showed that if the previous edition of a game is considered to be of high quality according to experts (review score of 80 or higher) , this will have a positive effect on the sales of the current edition. Although this was not a hypothesis, I have included this relationship in the final model.

With regard to hypotheses 1 I found an association between expert opinions and sales, but contrary to what was hypothesized, the effect of expert opinions on sales is not affected by the number of sequels, or by "old" vs. "not old" series. With respect to consumer score I found no association between score and sales, with the exception for one instance; consumer score has a negative effect on the sales of edition 2, if this game is part of an 'old' series. But since the influence of was only barely significant and was only valid for one edition (the second edition), I did not include it in the final model.

` With regard to the control variables I found that "Spin-off" had a positive effect on total sales in hypothesis 2,3,4 and 5. Furthermore, the control variable "Shooter" had a positive effect on sales for in hypotheses 5. Since the effect of the last two control variables only occurred in one of the five hypothesis I did not include them in the final model. Contrary to this, since the control variable "Spin-Off" was significant in all regression analysis, I did include it in the final model.

Final model


Quality of previous edition
Spinn-off
Expert review score
Succes of sequel
Number of consumer/expert reviews previous edition
H2
H5
Number of previous editions (in 'old'series)

5. Discussion and implications

5.1 Empirical findings and implication

The research question of this study was what the success determining factors are for video game sequels. The empirical findings of this study answer this question and have certain implications that are relevant for managers of game producing companies with regard to sequels. In addition to this, the results of this research also has certain academic implications.

First, this study shows that experts review scores are used as a sign of quality for every edition in a particular game series and that their effect on a games success does not diminish with every additional sequel. This confirms the findings of Sacranie (2010) that sales are correlated with expert review score, but then for sequels and subsequent sequels. The reason why their effect does not diminish may lie in the fact that games are a relative expensive good (between €50, - and €60,-) and thereby considered high risk. If a good is perceived as high risk, it is only natural that consumers consult as many sources as possible. In addition to this, video games are an experiential good for which the quality is uncertain prior to consumption (Reinstein & Snyder, 2005; Anderson, 2007) which contributed to the high level of perceived risk. To completely determine the reasons of this non-diminishing effect, however, more elaborate research needs to be done, which will be addressed in the next section. Furthermore, this research confirms for video games that consumer reviews do not affect a game's success at all. For video game producers this implies that they should focus mainly on the opinion of experts and on trying to satisfy experts.

Second, this study shows that the number of reviews (both expert and consumer reviews) of the previous edition positively influence the sales of the next edition. For managers this implies that they should focus on creating as much discussion as possible. Dellarocas (2006) and Mayzlin (2006) pointed out that it could be possible that video game producers, as part of their strategy, post positive online reviews in an effort to boost the sales of their own products. Video game producers should not so much try to post positive online reviews, for reasons discussed above, but they should try to develop a strategy that leads to an increase in the number of online reviews.

Third, this study showed that the amount of time between releases does not matter. This is contrary to the finding of Baseroy & Chatterjee (2006), who's research concerning movies showed that the time interval between editions has a negative effect on sales. Baseroy & Chatterjee (2006) argue that his is the case because over time memory decays and the strength of associations fades. The reason why this effect does not occur for video games could lay in the nature of the experience; watching a movie is a rather passive experience of about two hours, while a game is a more active, deeper experience sometimes lasting as long as 30 hours, or in any case longer than movies. Because of this, the memories are deeper and more profound. Hence it takes longer for memories to erode. For video game producers this implies that they do not have to produce sequels as quickly as possible. On the contrary, since expert review score influences sales and most high quality games take a long time to produce, video game producers should take as long as they need to try to produce the highest quality sequel possible.

Fourth, this research shows that consumers do not use the difference in score between the first and second edition to form their expectation the quality of the third edition.

Fifth, graph 2 shows that the average sales of video games diminishes with every additional sequel, expect for when a game is part of an "old" series. For video game producers this implies that, although producing sequels is seen as more risk avert compared to producing a new game, producers should be careful not to produce too many sequels. This also implies that video game producers should take efforts to determine which edition in a game series is the "tipping" point, i.e. when will producing a new game be more profitable than producing a sequel? I will elaborate on this in the next section. Furthermore, in regard to "old" series, this study showed that the sales of every subsequent sequel are greater than the previous edition. For video game producers this means that if they want to produce a video game series that has higher revenues with every subsequent sequel (and thereby a steady source of income), they should base this video game series on an "old" series.

Finally, regarding the control variables, this study showed that when a sequel is a "spin-off", it has a significant effect on sales. This finding corresponds with the study of Sood and Dreze (2006) that offering dissimilarity has a positive effect on sales. This implies that video game producers should try to offer dissimilarity in the sequel. Since 70% of all sequels is already named, video game producers should not

try to offer a dissimilarity by offering a named instead of a numbered sequels (as was managerial implication of Sood and Dreze, 2006), but they should try to offer a dissimilarity in content by producing a "spin-off" sequel. In addition to this, the high number of sequels that are already named might also explain why the control variable "named" had no significant effect.

This study also showed that the control variable "genre" has no significance what so ever, except for the results of hypotheses 5. Hypotheses 5 showed that the control variable / genre "shooter" had a significant effect on sales. But since this was only the case for one analysis, it cannot be said for certain that producing a certain type of video game genre will generate more sales. Taking a quick look at the titles in this genre that have sold the most, it can be seen that the most successful shooter games also have the highest expert review score, yet again confirming the results of hypotheses 1.

Although it was not initially part of this study, it was confirmed that the expert review score of the previous edition has a positive effect on the sales of the new edition if the rating was "high quality". This means that video game producers should focus on creating a high quality first edition when they intend to start a video game series.

As was mentioned above, the findings of this study are also important from the academic perspective. I extend current knowledge about brand extensions in experiential goods. Video games are a very particular experiential good that is different in many aspects when compared to movies or wine. First of all, this study also tried to determine the effect of consumer data (consumer score, number of consumer reviews) on sales. In contrast to my initial proposition, this study showed that only the number of consumer reviews of the previous edition had a positive effect on sales, while the actual score of consumer reviews did not matter. Also, differences in the results between testing with consumer data or expert data is apparent. The implication for academics is that with regard to further research (whether books, movies or video games) a clear distinctions needs to be made between data derived from experts and data derived from experts. For example; previous research by Hennig-Thurau et al. (2009) combined expert and consumer data and research by Basuroy & Chatterjee (2006) used only expert ratings. My study showed that, given

the different results when using different data sources, for the sake of validity and reliability a clear distinction between data sources needs to be made,

5.2 Limitations and further research

Just as with all studies, this study has certain limitations and suggestions for further research. First, this research indicated that the effect of expert reviews does not diminish with every additional edition, but it did not indicate why this is the case. To find out why this is the case, consumers must be consulted, for example by using a questionnaire.

Second, this study showed that every additional edition sold fewer copies than the previous edition. Although sequels are more risk avert, more research needs to be done to determine the "tipping" point, i.e. when will producing a new game be more profitable than producing a sequel?

Third, this research was done for two generations of home video game console systems and additional research might be needed to determine if the findings of this study are applicable to other systems like handheld consoles (e.g. game boy, PsP) and mobile phone games. This might be relevant since the nature of consummation of these kind of games are different than for a home video game console system, especially where mobile phones are concerned. To elaborate on this, most games for mobile phones need to be easy accessible and not too difficult. For example, a game like "Angry Birds" on the mobile phone is very popular but would have never been as successful on a home video game console. This difference in consuming nature and the growing video game market for mobile phones in particular, additional research is needed.

Fourth, this research made use of the expert and consumer review score, but did not use the content of these reviews (Chevalier and Mayzlin, 2006; Wyatt and Badget, 1990). It is plausible that next to score, the content of the review can influence to behavior of consumers. For example; if consumers have a certain view of what the sequel is about, but the content of the review is not in line with this view, it does not matter how high the expert or consumer score is. In addition to this, some consumers might only look at score, while other might us content. The extent to which each of these is applicable is not clear yet. Therefore, further research is needed to get a better view of the influence of reviews on consumer behavior.

Fifth, this research did not include add-ons and downloadable content as sequels. This might be interesting for further research since more and more add-ons and downloadable content have such an elaborated content, they could be considered full sequels. Also, in addition to downloadable content, the latter is gaining prominence in the way consumers buy video games. It is plausible that the shopping experience is different when buying a video game in a store of just download it on the internet. For example, seeing a video game package in real life is, just as with every other good, a different experience then seeing the product on the internet of in a magazine. Therefore, additional research might be needed.

Sixth, this research excluded the effect of advertisement on sales, even though this has effect for original video games (Moon et al. 2009). Even though consumers use their own brand knowledge to help them in the decision making process with regard to sequels, advertisement also has an influence on this process. Further research could address the extent to which consumer behaviour is influenced by brand knowledge, expert opinions and advertisement.

Seventh, this research used worldwide data, without accounting for the differences between countries and cultures. For example, sequels are seen as risk reducers and therefore it might be plausible that sequels perform better in countries with a high level of "uncertainty avoidance" (Erdem et al. 2006). Contrary to this, new original games might do better in countries with a low level of uncertainty avoidance.

Finally, due to the lack of data, commonly used control variables like gender and age were not used. The reason for this is that the data used for this research was derived from internet data sources and not directly from consumers through a questionnaire. To elaborate on this, some of the remarks and suggestions for further research mentioned above could be addressed by conducting research using direct consumer data through a questionnaire or interview.

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Appendix

Correlations

		EX SCORE	CON SCORE	lag #exrev	lag #conrev	DELTA TIME	DELTA SCORE EX	DELTA SCORE CON	# EDITION
EX SCORE	Pearson Correlation	1	.548**	.229**	.190**	-.029	.420**	.203**	-.028
	Sig. (2-tailed)		.000	.000	.000	.513	.000	.000	.449
	N	756	756	504	504	503	504	504	756
CON SCORE	Pearson Correlation	.548**	1	.010	.011	-.094*	.256**	.598**	-.044
	Sig. (2-tailed)	.000		.814	.810	.035	.000	.000	.226
	N	756	756	504	504	503	504	504	756
lag #exrev	Pearson Correlation	.229**	.010	1	.511**	.212**	-.125**	-.051	.062
	Sig. (2-tailed)	.000	.814		.000	.000	.005	.250	.168
	N	504	504	504	504	503	504	504	504
lag #conrev	Pearson Correlation	.190**	.011	.511**	1	.190**	-.051	-.019	.010
	Sig. (2-tailed)	.000	.810	.000		.000	.249	.672	.818
	N	504	504	504	504	503	504	504	504
DELTA TIME	Pearson Correlation	-.029	-.094*	.212**	.190**	1	-.136**	-.175**	.098*
	Sig. (2-tailed)	.513	.035	.000	.000		.002	.000	.028
	N	503	503	503	503	503	503	503	503
DELTA SCORE EX	Pearson Correlation	.420**	.256**	-.125**	-.051	-.136**	1	.419**	-.098*
	Sig. (2-tailed)	.000	.000	.005	.249	.002		.000	.028
	N	504	504	504	504	503	504	504	504
DELTA SCORE CON	Pearson Correlation	.203**	.598**	-.051	-.019	-.175**	.419**	1	-.175**
	Sig. (2-tailed)	.000	.000	.250	.672	.000	.000		.000
	N	504	504	504	504	503	504	504	504
# EDITION	Pearson Correlation	-.028	-.044	.062	.010	.098*	-.098*	-.175**	1
	Sig. (2-tailed)	.449	.226	.168	.818	.028	.028	.000	
	N	756	756	504	504	503	504	504	756

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		action	fighting	racing	rythm	shooter	sports
EX SCORE	Pearson Correlation	-.184**	-.030	-.018	.092*	.009	.193**
	Sig. (2-tailed)	.000	.412	.626	.011	.797	.000
	N	756	756	756	756	756	756
CON SCORE	Pearson Correlation	.023	.040	-.033	.004	.005	.019
	Sig. (2-tailed)	.529	.266	.362	.909	.893	.604
	N	756	756	756	756	756	756
lag #exrev	Pearson Correlation	.089*	-.002	-.033	.049	.178**	-.186**
	Sig. (2-tailed)	.047	.959	.466	.275	.000	.000
	N	504	504	504	504	504	504
lag #conrev	Pearson Correlation	.040	-.036	-.042	-.020	.249**	-.133**
	Sig. (2-tailed)	.369	.426	.342	.653	.000	.003
	N	504	504	504	504	504	504
DELTA TIME	Pearson Correlation	.074	.017	.106*	-.120**	.123**	-.152**
	Sig. (2-tailed)	.096	.707	.017	.007	.006	.001
	N	503	503	503	503	503	503
DELTA SCORE EX	Pearson Correlation	.018	.024	.008	.000	-.090*	.044
	Sig. (2-tailed)	.682	.589	.852	.999	.044	.329
	N	504	504	504	504	504	504
DELTA SCORE CON	Pearson Correlation	.023	.005	.020	-.049	-.016	.013
	Sig. (2-tailed)	.604	.907	.648	.275	.728	.765
	N	504	504	504	504	504	504
# EDITION	Pearson Correlation	-.015	-.014	.005	.000	.020	.000
	Sig. (2-tailed)	.685	.710	.889	1.000	.577	1.000
	N	756	756	756	756	756	756

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		CRISIS	OLD SERIES	NAMED	SPINN OFF
EX SCORE	Pearson Correlation	-.214**	.071	-.175**	-.118**
	Sig. (2-tailed)	.000	.052	.000	.001
	N	756	756	756	755
CON SCORE	Pearson Correlation	-.277**	-.065	-.032	-.008
	Sig. (2-tailed)	.000	.073	.383	.817
	N	756	756	756	755
lag #exrev	Pearson Correlation	.235**	.024	.112*	.074
	Sig. (2-tailed)	.000	.584	.012	.097
	N	504	504	504	504
lag #conrev	Pearson Correlation	.198**	-.041	.031	.071
	Sig. (2-tailed)	.000	.360	.492	.111
	N	504	504	504	504
DELTA TIME	Pearson Correlation	.248**	-.097*	.017	-.050
	Sig. (2-tailed)	.000	.030	.699	.266
	N	503	503	503	503
DELTA SCORE EX	Pearson Correlation	-.026	-.011	-.087	-.048
	Sig. (2-tailed)	.567	.800	.051	.282
	N	504	504	504	504
DELTA SCORE CON	Pearson Correlation	-.128**	-.047	.030	.065
	Sig. (2-tailed)	.004	.292	.498	.148
	N	504	504	504	504
# EDITION	Pearson Correlation	.360**	.003	.417**	.239**
	Sig. (2-tailed)	.000	.929	.000	.000
	N	756	756	756	755

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).