EFFECTS OF SUBSCRIPTION VIDEO ON DEMAND ON THE US MOVIE INDUSTRY
Analysis of windowing strategy

Master’s thesis

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Abstract

This thesis investigates how emergence of internet video streaming technology and subscription video on demand (SVOD) business model affects the windowing strategy adopted by the US movie industry. Netflix, Inc. is chosen as a proxy for SVOD business model. 419 movies’ releases released onto Netflix in 2010-2013 are analyzed using regression analysis. The analysis concludes that there has been a statistically significant increase of movie release lag (delay) onto Netflix platform in 2013. The analysis also suggests that successful movies are released earlier onto physical mediums while their release lag onto Netflix is increasing. Furthermore, it is found that dominant distributors tend to delay the release onto Netflix.
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1 Introduction

“The warp speed of technological advancement - the internet, streaming, multi-platforming, happens to have coincided with the recognition of television as an art form. So you have this incredible confluence of a medium just coming into its own as technology for that medium is drastically shifting. Studios and networks, who ignore either shift, whether the increasing sophistication of storytelling or the constantly shifting sense of technological advancement will be left behind. If they fail to hear these warnings, audiences will evolve faster than they will. They will seek out stories and content providers who give them what they demand - complex, smart stories available whenever they want, on whatever device they want, wherever they want.”

This was Kevin Spacey, an academy award winning actor urging the media industry to take a look back to their audiences during his famous speech at the James MacTaggart Memorial Lecture in summer 2013. After launching his original series “House of Cards” on Netflix, Mr. Spacey expressed his frustration of the way the American film industry is today and criticized the conservatism that has plagued the US movie industry.

Kevin Spacey only embodies and gives a very powerful voice to the shift that the industry has been facing. That shift, however, is not happening in the industry. It is happening to the industry as preferences of their audiences change and these audiences, with a help of a few innovative businesses, find new and more appealing ways to consume the content.

There is also evidence to back these claims. DVD/Bluray sales are declining each year (Sales of online movies jumps; DVDs continue to decline - WSJ.com.), while Netflix and other streaming services are observing a hike in subscribers. Furthermore, Netflix, who operates on two segments - DVD/Bluray renting via mail and video streaming over the internet, has been observing a clear tendency of customers switching from physical media over to a more convenient streaming service. (Netflix, 2012)

But it is not only consumers who benefit. Media has been all about the “Netflix effect” after AMC’s original series “Breaking Bad” reached its record ratings after releasing the previous seasons on Netflix (Netflix: ‘Breaking bad’ ratings record due to streaming service muscle | variety.). Netflix reach, its flexibility and scale helped generate the interest in a TV series to a level never seen before.
It is not all about the reach and different sized screens that can be taken anywhere. Netflix is more than that. Netflix, and other streaming services, possess a vast amount of information about their viewers, content, and their habits. That information is ready and if read properly, can tell much more than TV ratings or box office results ever will. This access to information is partly the reason why Netflix, which has never produced a single piece of video content, was so successful in producing their very first own original series (House of cards and our future of algorithmic programming | MIT technology review.). These video delivery and marketing innovations, are not only disruptive to the TV businesses, they are also disruptive to the major content creators – The Hollywood. Netflix is changing the way the content is marketed, distributed and produced and if that does not make the Hollywood raise their eyebrows, probably nothing will.

Evidently, this must sound familiar to many. After all, many industries have seen innovative new companies dethroning their industry leaders. Academics within the field of disruptive innovation often quote examples of Kodak, Seagate, Apple, etc. And today, when Netflix and other streaming companies are attempting and succeeding in re-shaping the business of home entertainment (Zhao, 2013), it is very interesting to investigate how companies within the US movie industry are stepping up to the challenge of disruptive change.

2 Research question

The home entertainment industry has seen a lot of changes lately. Among others, emergence of internet streaming services and new business models that destroying sales of physical disks (Sales of online movies jumps; DVDs continue to decline - WSJ.com.; Zhao, 2013). These changes are also embraced by Netflix’s very successful debut in original programming. In the light of these new disruptive technologies and business models in the home entertainment business, this thesis adopts the following research question:

*Is the American movie industry reacting to the new challenges posed by the emerging video streaming industry in terms of the windowing strategy?*

Windowing strategy is a practice adopted by the movie industry to delay release of movies onto different mediums in an effort to maximize revenues. (Lehmann & Weinberg, 2000) The research is carried out by comparing movie release dates onto different mediums (sales channels). This helps
evaluate whether there are changes in the Hollywood’s windowing strategy regarding home entertainment. This paper only evaluates changes in the windowing strategy. It does not take into account other actions that could be taken by the US movie industry to address the disruption.

3 Delimitation
The innovation in question is two-fold. Firstly, there is a technological innovation of video streaming. It is a technology enabling instant video delivery per user’s request. Secondly, there is a strategic innovation, namely subscription video on demand. It is a business model, which allows users to view unlimited amount of content for a fixed low monthly fee. This thesis considers a mix of these two innovations to be the disruptive force, which is embodied by Netflix, Inc. (Christensen, Horn, & Johnson, 2008; Netflix, 2012)

The industry of interest in this thesis is the US movie industry. However, market that is being investigated must also be delimited, since firms within the US movie industry operate on multiple markets, among others - film exhibition market, home entertainment market, merchandise and clothing market (Moul, 2005). It is believed that Netflix is causing the disruption in the home entertainment market by cutting the DVD sales. This is reflected in declining DVD sales, raising numbers of Netflix streaming service subscribers, and, as Netflix reports, tendency of customers switching from DVD mail rental service onto streaming (Sales of online movies jumps; DVDs continue to decline - WSJ.com.; Netflix, 2012). Therefore, the market is delimited to the home entertainment market.

To eliminate the probability of complexity caused by various environmental factors of international markets, the thesis operates within the bounds of the US home entertainment market. It does not consider international activities that both Hollywood and Netflix engage in.

4 Structure of the paper
The paper is structured as follows. Firstly, theoretical framework section presents a brief literature review and relevant theory and frameworks on disruptive innovation and economics of film. Secondly, details about Netflix and their business model are presented. Thirdly, analysis and empirical

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1 In this paper DVD is used to refer to physical mediums.
evidence section presents empirical findings. And, finally last section of the thesis presents conclusions as well as limitations and further research.
5 Theoretical framework
The theoretical framework section of this paper consists of two main themes – theory on disruptive innovation and economics of the movie industry. Each of these sections provide a brief overview of the literature in the respective field and then focuses on the relevant theory that warrant the empirical research.

5.1 Disruptive Innovation
The field of disruptive innovation literature has been established by works of Clayton Christensen, who in 1997 developed the original early disruptive innovation theory. Since, then the theory has been developing and various practical frameworks using the theory have emerged (Assink, 2006; Charitou & Markides, 2003; Christensen & Overdorf, 2000; Christensen et al., 2008). Markides (2006) criticized Christensen for a lack of clear distinction between disruptive technological innovation, disruptive business model innovation and radical product innovation. He also urged scholars to clearly define the phenomena. Christensen (2006) responded by publishing an article about the process of building a theory and illustrating that process with a case of the disruptive innovation theory claiming that it is still a theory under development.

This thesis makes use of the theory developed by Christensen (2008; 2006; 2002; 1995) and frameworks that had been developed based on this, yet developing theory.

5.1.1 Defining Disruptive Innovation
Since the academic literature of disruptive innovation has not been able to agree on a clear definition of disruptive innovation (Markides, 2006), a clearer and more solid definition is derived from the literature.

Innovation could be defined in terms of something that is invented and that invention had been commercialized successfully (Hansen & Wakonen, 1997; Nirmalya Kumar, Lisa Scheer,Philip Kotler, 2000). Disruptive innovation creates an entirely new market by introducing a new product or service that is actually worse initially if judged by the mainstream consumers (Christensen & Overdorff, 2000). These innovations involve significant new technologies, require considerable change in consumption patterns and are perceived as offering substantially enhanced benefits (Sandberg, 2002). Lettice and Thomond (2002) define disruptive innovation as: “A successfully exploited
product, service or business model that significantly transforms the demand and needs of an existing market and disrupts its former key players”. Leifer (2001) uses a term “radical innovation” in his work: “A radical innovation is a product, process or service with either unprecedented performance features or familiar features that offers significant improvements in performance or cost that transform existing markets or create new ones” (Figure 1: top left and bottom right). Disruptive innovation concerns unique challenges both for technological development because of the high level of uncertainty regarding technological feasibility, and commercialization, because of high uncertainty involved (Sandberg, 2002).

This thesis uses the following definition of disruptive innovation derived from the above mentioned sources:

*A successfully commercialized new product, service or business model that involves new technologies, form new markets that were not there before or transform the existing ones as well as form new consumption patterns by offering consumers substantially enhanced benefits and disrupts markets key players.*

**Figure 1. Innovation application space (Assink, 2006)**
5.2 Addressing disruptive Innovation – the organizational perspective

Well established organizations find it quite hard to change course and cope with disruptive innovation (Assink, 2006; RK Chandy, 2000). Without addressing disruption many companies would find themselves losing the competition and eventually going out of business or losing the market position (Christensen & Overdorf, 2000). Incumbents must find a way how to address a disruption in the market and while doing so avoid the risk of damaging their existing business and undermining their existing strategies (Charitou & Markides, 2003).

Charitou & Markides (2003) recognize, that companies that want to address or create disruption, new ground breaking technologies are not necessary – innovation within strategy could accomplish a whole lot. Strategic innovation could be achieved by “breaking the rules” – essentially doing something different from what other industry players are doing (Markides, 1997). The big question, however, is what has to be done different, if at all. Disruptive strategic innovation leads companies to play a different game that is different from and in conflict with the traditional way (Charitou & Markides, 2003; Christensen & Overdorf, 2000).

C. D. Charitou and C.C. Markides (2003) analyzed 98 companies in 11 industries in the US as well as the European Union in order to grasp how companies perceive and respond to disruptive innovation. They systematically identified five key responses that organizations may take when faced with disruptive innovation. The research has been recognized within the academic community and cited more than 200 times. This thesis uses this framework as a guide that provides a good starting point when attempting to detect the US movie industry’s responses to disruptive innovation. The following section discusses responses in detail.

5.2.1 Focus on and invest in traditional business

This response is grounded in an assumption that the new way will not take over completely and while the innovation is growing it will only reach a certain point without taking over the market. An established company does not necessarily have to embrace the innovation, instead they may focus on their key businesses, since senior management believes their competencies lie within their
core activities and large investment into their current business has already been made and not yet capitalized on (Charitou & Markides, 2003). Survey results in Charitou & Markides (2003) (see Figure 2) indicate, that this response is the most common amongst the surveyed firms.

5.2.2 Ignore the innovation

Often, the “new way of doing business” – the way companies that embrace the disruptive innovation follow, deals with new market segments, offers value that is not valued by the old market segments and requires completely different skills and different competencies. While a disruptive innovation may be a part of the established company’s industry, it may not be a part of its market, thus automatically following the disruptive innovation could lead to disastrous consequences. Companies must carefully evaluate whether the disruptive innovation is related to their core businesses at the competency level, rather than the industry level (Charitou & Markides, 2003; CONSTANTINOS C. MARKIDES, 1994).

5.2.3 Attacking back – disrupting the disruption

New entrants that enter the market with a disruptive innovation usually have offerings that differ from those of established companies by providing customers certain novel product or service attributes that in turn attract new customers in new segments. Novel offerings, however, almost always fall behind offerings by established companies in terms of attributes and performance that matter to a wider market segment (mainstream consumers), which is not keen on adopting new ways just yet
Attacking back would be focusing and emphasizing on an attribute or attributes that neither the novel, nor the established offering has. This action comes with certain risks, however. There are certain conflicts that companies may encounter when playing two games at a time (Charitou & Markides, 2003).

5.2.4 Adopt the innovation by “Playing Both Games at Once”

Adopting and embracing the innovation is also seen as a way to respond to disruptive innovation. Doing so may be problematic as an established company that already has a strong foothold in the market has to find a way how to embrace and adopt a disruptive innovation without hurting its existing business.

Despite the challenge, majority of the companies that Charitou & Markides (2003) analyzed decided to adopt the disruptive innovation. It is worth noting, that managerial perceptions about possible conflicts varied considerably. Those that viewed adoption of the disruptive innovation as a source of a serious risk tended not to embrace the innovation (see Figure 3).

5.2.5 Embrace the innovation completely and scale it up

The final option for established companies is to adopt the disruptive innovation completely and abandon their existing business.
While this option presents obvious risks for established companies, it also presents an opportunity. Creating new disruptive innovations requires established organizations to adopt an ambidextrous mindset of coupling two activities together – exploitation and exploration - developing new ground-breaking innovative products and then creating a market for it, since it was not existent before (Hsing-Er Lin, Edward F. McDonough III, Shu-Jou Lin, & Carol Yeh-Yun Lin, 2012). New entrants often do have great ideas that may change the market, however they lack the skills and capabilities as well as resources to grow and scale the idea for the mass market (Charitou & Markides, 2003; Christensen & Overdorf, 2000).

5.3 Disruptive Innovation and incumbent organizations

Success in the future greatly depends on firm's ability to innovate and create new markets (Assink, 2006). When it comes to innovation and change, incumbent organizations are not particularly great performers. Even before the internet revolution and globalisation, incumbent organizations' track record of dealing with change was no good (Christensen & Overdorf, 2000). Large organizations usually have vast resources and talented managers and despite that they still constantly fail when it comes to disruptive change (Assink, 2006; Christensen & Overdorf, 2000).

This section offers an overview of what problems incumbents of the US movie industry may be dealing with when trying to deal with innovation. Research on incumbents’ inability to innovate helps build the understanding of issues and inner-workings of Hollywood major studios that control the market.

There are a number of reasons why incumbents mainly fail, when it comes to disruptive innovation. The literature in the field names these reasons as being the predominant factors for large organizations' failure in regards to disruptive innovation (Assink, 2006):

- The adoption barrier
- Organizational dualism
- Excessive bureaucracy
- Stifling of the status quo
- The mindset barrier
- Lack of distinctive competencies
- Obsolete mental models
The following sections discuss these inhibitors in detail as well as present other academic evidence on why incumbents find it hard to innovate.

5.3.1 The adoption barrier

Organizations are limited by their own success. Organizations tend to limit themselves to incremental innovation, which is improving the existing products without pursuing the benefits disruptive innovation has to offer (Assink, 2006). Existing successful products, technology and design limit companies’ will to innovate (Charitou & Markides, 2003). The reason for such behavior is perceived incentives - incumbent organizations derive a significant stream of rents from existing products that are based on the current technologies and strategies (RK Chandy, 2000).

5.3.2 Organization dualism

Organizational structure also plays a part in one’s ability to innovate and pursue disruptive innovation. Incumbent organizations usually have a rigid hierarchical structure in place that accommodates routine-based processes, activities and continuous improvements (Assink, 2006). However, this type of organizational structure does not meet the needs of radical innovation development since it does not provide the flexibility this type of development requires (Assink, 2006; Christensen & Overdorf, 2000; RK Chandy, 2000).

5.3.3 Excessive bureaucracy

As organizations grow, numbers of employees grow along. High numbers of employees make it difficult to manage large firms, so they develop layers of administrative staff and rules of communication in order to adapt to the situation (RK Chandy, 2000). This sort of set up demands allegiance to rules and procedures that ultimately diminish creativity (Assink, 2006). Bureaucratic organizations are much slower to respond to change as the decision making process involve more screening and more group decision making (RK Chandy, 2000). Moreover, large organizations kill disruptive technologies early in the process because according to their estimates, the said technologies would not bring in the required profit margin (Christensen & Overdorf, 2000; Joseph L. Bower, 1995).

5.3.4 Stifling of the status quo

Deviation from standard, variety and everything that does not reinforce the status quo is perceived risky and therefore negatively by large organizations (Assink, 2006). Constant reinforcement of the
status quo makes it difficult for firms to address disruption, reduces probability of experimentation and cause firms to fall into the familiarity trap (Assink, 2006; Joseph L. Bower, 1995; RK Chandy, 2000).

5.3.5 The “Mindset Barrier”

The “Mindset Barrier” or as Assink (2006) names it “inability to unlearn” is a process by which firms and individuals eliminate old logic and substitute it with something completely and fundamentally new.

5.3.6 Lack of distinctive competencies

Organization's use of old competencies makes it harder to change capabilities. Core competencies become core rigidities and most large organizations lack the management ability to adapt. Meanwhile, pursuing disruptive innovation by establishing new businesses could be seen as a feasible way to reap the benefits disruptive innovation presents. However, these collaborations usually fail, because they focus on developing new products and not new capabilities (Assink, 2006). It is extremely hard to achieve, since organization's capabilities reside not only in individual employees, but in firm's resources, processes and values (Christensen & Overdorf, 2000).

5.3.7 Obsolete mental models and theory-in-use

The successful dominant players are trapped by their own success (Assink, 2006). Changing the mindset and mental models of the corporation is one of the hardest things to do (Brown, 1998). Organization-wide beliefs, mental models and theory-in-use form the organization's perception about the world. It creates barriers for disruptive innovation to appear and succeed within the organization (Assink, 2006). Managers are also locked in - they keep doing what has worked in the past - serving the rapidly growing needs of their current customers (sustaining innovation) and dismissing the potential that disruptive technologies present (Christensen & Overdorf, 2000).

Literature presented in this section identified ways how firms are likely to respond to disruptive innovation. It is recognized that the framework proposed by Charitou & Markides (2003) is not industry specific and generalizations must be made with caution, however, it serves well as a road map for searching for responses by the US movie industry. To help better understand the ability or inability for incumbents to respond to new products and business models, academic evidence on incumbent innovation was also presented.
Having presented the ways and barriers on responding to disruptive innovation industry specific knowledge is required. The next section presents the economics of films to fill the gap of industry specific business knowledge.

5.4 Understanding the economics of films

Economics of films are often viewed from the political economy point of view and incorporates the main characteristics of the political economy: social change and history, social totality, moral grounding and praxis (Mosco, 1996; Moul, 2005). Political economists are interested in processes that govern how movies are produced and then distributed, especially the relatively recent development of the films to become more commercial through “product placement, as well as spawning new commodities such as merchandise and other media products” (Wasko et al., 2005, p. 12) as well as the media conglomerates (“the majors”) that control these processes and operate at a global level while also seeking assistance from the State (Wasko et al., 2005).

Other research on the market and distribution, which does not incorporate political economy into the picture is extensive and primarily deals with market characteristics (Moul & Shugan, 2005; Vogel, 2001) and product specific drivers for demand (Hui, Eliashberg, & George, 2008). Academic research area when it comes to theatrical releases and related demand and success factors is especially developed (Elberse & Eliashberg, 2003; Eliashberg, Elberse, & Leenders, 2006; Moul, 2005). However, literature that directly addresses issues related to subscription video on demand (SVOD) as a distribution channel for movies and literature on digital movie distribution is scarce. Literature in the home entertainment field primarily deals with DVDs and more traditional video on demand business models (Hennig-Thurau, Henning, & Sattler, 2007; Nelson & Rutherford, 2010; Papies & Clement, 2008). These studies, except for Nelson & Rutherford (2010), analyze the film distribution from consumers’ stand point and often conclude in favor of the new ways of distribution, such as downloads or conventional video on demand. Hennig-Thurau, Henning, & Sattler (2007) concluded that earlier release of movies onto a digital distribution channel could increase overall profits of a motion picture. It stresses the importance of consumers’ preferences – the online channel should be configured according to consumers’ preferences for the demand to be evoked. Research by Papies & Clement (2008) investigates these preferences.

A fair amount of attention has been devoted to the research of sequential distribution channels and optimal release timing (Eliashberg, 2005; Lehmann & Weinberg, 2000; Weinberg & Moul, 2005).
Research in this area attempts to find an optimal release time into different mediums as it discovers, that the value of a given movie decays over time, while early releases tend to cut the sales of the previously utilized distribution channel.

5.4.1 Windowing strategy
The supply chain for movies consist of the distributor, exhibitor and the audience (Eliashberg, 2005). The audience has an ability to choose from a variety of media outlets to view the motion picture on. These media outlets may include: theaters, cable TV, network TV, home video, video on demand (Eliashberg, 2005). A movie is rarely released to all of these outlets all at once. These outlets are considered as subsequent distribution/sales channels (Lehmann & Weinberg, 2000) and special practices are applied when releasing movies into subsequent sales channels, i.e. the “windowing strategy” (Elberse & Eliashberg, 2003).

These distribution channels represent different streams of revenue for the distributors (Weinberg & Moul, 2005). Usually, the very first sales channel is domestic theaters. The performance of the movie in a domestic box office is considered to be a critical success driver by practitioners and usually sets an agenda for subsequent releases (Eliashberg, 2005; Lehmann & Weinberg, 2000). The purpose of the “windowing strategy” is to achieve an optimal release lag between different distribution channels, so the maximum profit is achieved (Weinberg & Moul, 2005).

The size of the window between a movie’s theatrical release and its release into a subsequent distribution channel is of vital importance, since a release that is too early is believed to cannibalize the theatrical sales, while a release that it is too late would never make use of the momentum created in the previously utilized distribution channel. Later releases are considered to be of less value as interest along with the possible revenues of the movie decays over time (Lehmann & Weinberg, 2000).

It is widely believed within the industry that a release into a subsequent channel basically forecloses the sales for the previously utilized sales channel (Lehmann & Weinberg, 2000). On the other hand, there has been no empirical evidence that simultaneous or nearby releases would cannibalize the sales in the previously utilized distribution channel (Weinberg & Moul, 2005).

Hollywood mainly utilizes windowing strategy for obtaining maximum revenue from each of the channels (Eliashberg, 2005; Eliashberg et al., 2006; Hoskins, McFadyen, & Finn, 1997; Moul & Shugan, 2005). However, evidence exists that windowing strategy does not always serve the
agenda of profit maximization. Lehman & Weinberg (2000) found that actual practice by Hollywood is quite contrary to their research, which attempted to find the most optimal release window for movies that start out in the theaters and later are released onto home entertainment mediums.

By manipulating release windows between different distribution channels, distributors and studios attempt to fight piracy or prolong the lifecycle of a medium (Eliashberg, 2005). This evidence, although limited, is in line with the research of movie industry and reinforces the notion that Hollywood applies diverse utilities to ensure the market dominance and controls the industry in an oligopolistic fashion (De Vany, 2011; Wasko et al., 2005).

5.4.2 “Paramount decrees” – the antitrust case

Hollywood, as an industry has been historically characterized by antitrust activity and legal action. This section provides an overview of the most influential antitrust case known as “paramount decrees”, which forced vertical disintegration of the industry (Wasko et al., 2005).

In the first half of the 20th century, five Hollywood major studios who were producers as well as distributors - Loew's (MGM), Paramount, R.K.O., Twentieth Century-Fox and Warner Brothers, owned chains of first-run theaters. Through reciprocal agreements, each of the major studio agreed to give first-run status rights to the other, in turn creating a bottleneck on the final exhibition market. This arrangement put the five major studios in control of production, distribution, exhibition and the key personnel who were inputs into the production. In turn, three minor distributors and many independent distributors had a much smaller bargaining power as they did not own any theaters (Conant, 1981; Wasko et al., 2005).

After the supreme court’s ruling in 1948, “Paramount decrees” came into effect and forced the majors to divorce their theater operation while also declaring certain trade practices (such as block booking and admissions price fixing) illegal (Wasko et al., 2005).

While some call “Paramount decrees” as a “triumph for antitrust”, some argue, that this very legal action was responsible for the production-distribution companies to diversify into the newly emerging media outlets such as home video, cable, etc. (Wasko et al., 2005). This newer form of vertical integration has been embraced by the majors with few challenges from the governmental antitrust authorities and it was the fundament of the industry structure we see today (Hoskins et al., 1997; Wasko et al., 2005).
According to political economists, the majors dominate the domestic and international markets not only by transparent competition with other companies within the industry, but also with conscious attempts to gain protection and assistance from the State (Wasko et al., 2005). In many cases, the Motion Picture Association of America (MPAA) is used as a tool to promote favorable State policies through lobbying, fighting unfavorable trade policies and copyright infringement, while the Motion Picture Association (MPA), often referred to as an export cartel of the majors, clears the way in international markets by direct trade negotiations with foreign governments and various other strategies (Wasko et al., 2005).

Contemporary Hollywood’s actions in domestic as well as international markets serve the agenda of maintaining their dominance. According to Wasko (2005) the majors cooperate in typical oligopolistic fashion in order to determine industry policies and to protect and promote the industry. Despite the disintegration of the 1940s-1950s, market concentration at the present times remains high and if the same Paramount case arguments were made today it would be a concern to regulators (De Vany, 2011).
6 Netflix – the innovation in the home entertainment market

6.1 Company Profile
Netflix started out by renting DVDs by mail back in 1999. Their business model was (and still is) to send physical disks to their subscribers each week. Subscribers must return the DVDs by mail – there are no lines at the counter nor any late fees. This innovative business model disrupted the market and forced their main competitor – Blockbuster – out of business (Netflix has won: Blockbuster is closing its last retail stores.; Netflix, 2012).

Later, Netflix introduced their own streaming service. In the beginning, it posed restrictions on users allowing them to stream limited amount of content each month. However, as Netflix’s streaming business developed these restrictions were lifted and in January, 2008 Netflix started offering streaming as a separate service (Netflix, 2012).

6.2 SVOD business model
Netflix offers to stream unlimited amount of content for a low fee of $8.99 a month. Within the video distribution industry, this business model is known as “Subscription Video on Demand” or “SVOD” (Netflix, 2012). This business model proved to be very popular as Netflix bypassed Bit Torrent peer to peer file sharing service (often illegal) in terms of total internet traffic in North America in March, 2011 (Netflix beats BitTorrent's bandwidth | wired business | wired.com.). The success of the business model is also illustrated by rapid and active international expansion. In 2012 Netflix expanded into Northern Europe, Ireland, the UK. It is also rumored that Netflix is planning to expand to Germany and France in 2014 (Netflix, 2012).

To facilitate this business model Netflix leverages internet video delivery technologies. From complex video decoding/encoding, digital rights management to even more complex cloud infrastructure of Amazon. Netflix utilizes these technologies to create a seamless video delivery experience offering superior video quality – in some cases video resolution reaches 4K. This video delivery is supported by a variety of set top boxes, Smart TVs, tablets, smartphones, gaming consoles enabling users to view the content anywhere, anytime on any screen they want(Netflix, 2012; Netflix, 2014).

Netflix’s SVOD business model along with the internet streaming technology is considered to be the disruptive force disrupting the US home entertainment market. The signs of disruption are seen in declining sales of physical media and long term Netflix’s DVD by mail service subscribers switching over to streaming. (Sales of online movies jumps; DVDs continue to decline - WSJ.com.; Netflix, 2012; Netflix, 2014)
6.3 First sale doctrine
Netflix takes advantage of the “First sale doctrine” by getting certain content from 3rd parties that the company would not be able to get directly from the distributors. Netflix has deals in place with content aggregators that license the content from the distributors. Since the content has already been licensed (the first sale), distributors have no legal power to prevent Netflix from getting the content (Criminal resource manual 1854 copyright infringement -- first sale doctrine.; Netflix, 2012).

In some cases this doctrine could affect the release lag for Netflix, since the company tends to use content aggregators to get more recent content that is otherwise not available for the SVOD businesses from distributors directly. (Starz to split from netflix - WSJ.com.).

6.4 Original Programming
Netflix, which possesses a user base of more than 48 million users worldwide (Netflix, 2014), also possesses a vast amount of information on these users and their preferences. The company is able to leverage this information and provide users with personalized recommendations on what to watch. This information can also be used the other way around – find out what users would watch. Netflix successfully employed that information in the field of content production (Netflix, 2012).

The company successfully produced three seasons of original series and distributed them to its own users. Shows like “House of Cards” not only received great interest from Netflix’s users, but also won recognized awards. Successfully implemented big data algorithms allowed Netflix to produce successful shows without even doing a “pilot”, which is a pre-requisite for established networks and studios (House of cards and our future of algorithmic programming | MIT technology review.).

Undoubtedly, Netflix is a powerful platform that enables next generation of content delivery, marketing and production. However, the platform is just a platform without any content on it. Surely, Netflix proved that they are able to produce high quality content on their own, however, producing content to satisfy its 48 million customer base may prove tricky. This is the reason Netflix maintains a close relationship with the US movie industry and TV networks (Netflix, 2012).

As a result, original programming could also be considered to be a part of the disruptive force disrupting the home entertainment market. Netflix’s enter into the production business may also have triggered some reaction from the US movie industry that could be reflected in their windowing strategy.
6.5 Netflix as a proxy for SVOD

The choice of Netflix as a proxy for the SVOD business model was not accidental. Firstly, Netflix is the largest SVOD service in the world with more than 48 million subscribers worldwide. (Netflix, 2014) The company also deals directly with many distributors. Their content offering is comprised from content from the majors, independents and content aggregators, which provides an overall picture of the industry. (Netflix, 2012). Secondly, Netflix platform provides an API, which allows third party websites to get information on Netflix’s content. Information that is delivered through this interface is always fresh and reliable. Finally, even though Netflix is a large organization, it is not yet an incumbent and is not associated with the typical problems incumbents face when it comes to innovation.
7 Hypotheses development

Hypotheses are developed based on the framework developed by Charitou & Markides (2003). This thesis uses this framework as a guidance on how companies can respond to disruptive innovation. This framework is applied to the movie industry through windowing strategy perspective. Windowing strategy chosen by movie studios is used as an indicator of their response to the innovation brought by Netflix to the movie industry (the response is measured in changes in release windows for different mediums). Windowing strategy is almost exclusive to the movie industry and changes in the windowing strategy can be measured quantitatively.

A first course of action (first does not imply the superiority over others) by Charitou & Markides (2003) in their framework is to “Focus and invest in traditional business”. In movie distribution business, this would translate to promoting the traditional ways of distribution, which are exhibition in movie theaters (“theater” henceforth) and home video distribution by selling/renting out DVDs and Blu-ray discs and in some cases releasing the movie onto premium video on demand services (“DVD” henceforth) (Lehmann & Weinberg, 2000; Weinberg & Moul, 2005). Since value of movie decays over time and box office success essentially means higher value (Eliashberg, 2005; Eliashberg et al., 2006; Lehmann & Weinberg, 2000), promoting this sales channel could be done by releasing more valuable content onto the DVD distribution channel, hence:

Hypotheses 1: Release lag for successful movies onto the DVD sales channel is declining.

Conversely, window of release for home video may not change, since it could be damaging to the box office results (Lehmann & Weinberg, 2000). Instead window of release for subscription video on demand (henceforth – Netflix) may increase in an attempt to promote the sales in the home video sales channel, hence:

Hypotheses 2: Release lag for Netflix has increased since introduction of Netflix streaming service in 2008.

Another response that could be enacted by organizations facing disruption, is simply to ignore the innovation (Charitou & Markides, 2003). In windowing strategy terms, this would mean virtually no significant change in release windows over time, hence:

Hypotheses 3: Release window for both channels (Netflix and DVD) remains the same since the introduction of Netflix streaming service.
A response that is quite the opposite of the previously mentioned one – adopting the innovation also is considered as a way to respond to disruptive innovation. This course of response suggests to adopt the innovation and remain active in their established activity (Charitou & Markides, 2003). Following this logic in the context of windowing strategy, release window for home video would not change while release window for SVOD would see decreases in release lag, hence *Hypotheses 4*.

*Hypothesis 4: Release lag for DVD stays the same while release lag for Netflix decreases over time.*

It is worth noting that a variety of other actions could be taken by movie distributors to adopt the innovation. Just to name a few – acquisition of companies that have competences and experience in the field as well as establishing spinoff companies, which is the case for Warner and HBO who established their own SVOD services (HBO launches netflix rival | media maverick - CNET news.; Warner archive instant launches, offers subscription to stream classic movies and TV shows.; Christensen & Overdorf, 2000). However, since this paper deals only with windowing strategy, *Hypotheses 4* is reflects the available response in terms of windowing strategy.

Assink (2006) as well as Christensen & Overdorf (2000) and RK Chandy (2000) suggest that large incumbent organizations are unable to innovate for a variety of reasons that were named in the Theoretical framework. Furthermore, political economy studies on the movie industry in the US suggest that majors employ a handful of techniques in order to maintain the market dominance (De Vany, 2011; Wasko et al., 2005). Taking these facts into the context of windowing strategy translates into higher release lags for SVOD from major studios, hence:

*Hypothesis 5: Release lag for Netflix is positively influenced by a major labeled distributor.*

Alternatively, this would translate into smaller release lags for more traditional distribution channels such as DVDs. Incumbent organizations are in favor of protecting the status quo and find it quite hard to free themselves from old and sometimes obsolete mental models. (Assink, 2006; Clayton M. Christensen, Mark W. Johnson, Darrell K. Rigby, 2002; RK Chandy, 2000) In this case, sales of DVDs represent the status quo, hence:

*Hypothesis 6: Release lag for DVD is negatively influenced by the size of the distributor*
Movie success in the box office is believed to be an ultimate success factor (De Vany, 2011; Eliashberg, 2005). The following hypothesis’ reasoning is grounded by the work of Lehmann and Weinberg (2000). They found that the value of the movie decays over time and that the decay rates are different for theatrical releases and video releases. Nevertheless, in a more general sense, it could be interpreted that the later the release, the smaller fraction of the value remains. In terms of windowing strategy, this translates into greater release lags for more successful movies, which consequently can be interpreted as if the distributors are depriving Netflix of valuable content in an effort to protect their established businesses, hence:

**Hypothesis 7: Release lag onto Netflix platform is positively influenced by the box office success**

This section attempted to draw connections between the two theory themes in an effort to develop hypotheses in order to structure the paper better and provide a sense of structure for the analysis. However, it must be noted that one possible response to disruptive innovation as defined by Charitou & Markides (2003), namely “Attacking back – disrupting the disruption” was not included into the development of hypotheses, since it suggested for firms to compete with disruptive innovations by presenting other disruptive innovations that are different and emphasize different product or service attributes, and that simply goes beyond the scope of the analysis of the windowing strategy.
8 The data
In order to evaluate different release windows a dataset comprised of extensive information on individual movies must be rendered. This section of the thesis will elaborate on the data collected and shed a light on the data collection process as well as provide descriptive statistics for the sample.

8.1 Type of data
To analyze release windows, information on movie release dates into different distribution channels is needed. Firstly, all movies in the sample must be released into all three distribution channels, namely domestic theaters, home video (DVD) and SVOD (Netflix). Secondly, the data gathered must include the exact date when the movie was released onto a given channel so release lag between different distribution channels can be calculated. Thirdly, the distributor of a given movie must also be available so the type of the distributor can be determined. Finally, in order to evaluate success of the movie, domestic box office receipts must also be a part of the dataset, since success in the box office is believed to be an indicator of success (Eliashberg et al., 2006).

Netflix started offering unlimited streaming for a fixed fee in January, 2008, therefore movies that were released onto Netflix prior to 2008 were excluded when selecting the data for the sample.

Unfortunately, there is no single source that could provide this sort of information. Therefore, multiple sources and different methods had to be used to obtain the information and render the final dataset.

8.2 Collection
Data collection was carried out using two methods – web scraping and downloading plain text version of the Internet Movie Database (the IMDb).

Web scraping is a technique when a piece of software is employed to automatically collect information from publicly accessible websites. The software connects to a pre-defined website and follows pre-defined rules in order to collect the needed information. Usually these rules are not universal and different set of rules (a small-scale computer program) has to be prepared for each individual website. After the scraping is done the software saves the information locally so it can be cleaned, processed and finally analyzed.

Downloading plain text files from the IMDb is much more straightforward as IMDb itself provides an alternative access to their databases and allows downloading parts of the database in plain text format (Alternative interfaces.).
8.2.1 Data sources
As multiple websites were used to gather the data an overview of these data sources is provided. Although different data sources were used to gather different kinds of information, a couple of common elements had been chosen so different datasets that had been retrieved could be merged together correctly. These elements were the title of the movie and the year of release onto the theatrical distribution channel. These elements were chosen, since they were the only ones that could ensure that different data across different datasets corresponds to the same movie. It is highly unlikely that two or more movies with the identical title would be released in the same year. To eliminate even the slightest probability of this event, all datasets were filtered for duplicates.

8.2.1.1 Instantwatcher.com
Instantwatcher.com was scraped in an effort to gather information on movies and their releases onto Netflix. The website makes use of the Netflix API, therefore information published on this website comes directly from Netflix itself and is believed to be up to date and correct (SARAH PEREZ, 2009).

8.2.1.2 Ondvdreleases.com & dvdsreleasedates.com
These two websites provide the public with the information on upcoming and past DVD releases. Ondvdreleases.com acquires information on the release information from retailers such as Amazon, iTunes or Redbox and the distributors themselves. Dvdreleasedates.com uses a different approach and utilizes TMDb API, which fetches the data from community based TMDb. (DVDs release dates - the latest info on new DVD releases.)

8.2.1.3 Boxofficemojo.com
Box Office Mojo, a subsidiary of the famous IMDb, contains the most recent information on box office release dates and box office receipts (About box office mojo.). The website was scraped and used as a source for box office receipts and box office release dates.

8.2.1.4 IMDb
The Internet Movie Database was the only source that provided an easy access to the information, thus web scraping techniques were not necessary. The IMDb is the largest movie database on the internet accessed by 190 million unique visitors

<table>
<thead>
<tr>
<th>Website</th>
<th>Number of movies scraped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instantwatcher.com</td>
<td>10449</td>
</tr>
<tr>
<td>Ondvdreleases.com</td>
<td>1132</td>
</tr>
<tr>
<td>Dvdreleasedates.com</td>
<td>3183</td>
</tr>
<tr>
<td>Boxofficemojo.com</td>
<td>14448</td>
</tr>
</tbody>
</table>

**Table 1. Websites and items scraped.**
monthly. It stores data on more than 2.7 million movies (IMDb conditions of use.). Data acquired from IMDb was used to identify distributors responsible for distributing movies.

8.2.2 The final dataset
After elaborate processing of 5 different datasets from different sources the final dataset was rendered. It includes the following information:

- Title of the movie;
- Date of theatrical release;
- Date of DVD release;
- Date of Netflix release;
- Domestic box office receipts;
- Distributor.

Moreover, in order to ease the analysis, release lags between different distribution channels were calculated in number of days and incorporated into the dataset. These included: release lag between theatrical and DVD/Bluray releases, release lag between theatrical and Netflix releases and release lag between DVD/Bluray and Netflix releases. The complete dataset includes full information on 419 movies that were released onto Netflix from January 2010 to December 2013.

Movies that had been released onto Netflix in 2008 and 2009 were removed from the sample because of one or more of the following reasons:

1. Movie had not been released onto all three mediums (theatrical, DVD, Netflix)
2. Full information on a given movie was not available.
3. After having removed the movies according to the reasons (1) and (2), very few observations were left – 4 and 1 for years 2008 and 2009 respectively. These numbers do not represent the given years well and therefore these years were not included in the final dataset.

The reason why there are very few observations on 2008 and 2009 is that instantwatcher.com reflects the current Netflix content library and does not include the movies that had been taken down by Netflix itself. Table 2 presents observations by Netflix release year, while Table 3 presents the descriptive statistics of the sample.
<table>
<thead>
<tr>
<th>Year</th>
<th>Observations</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>19</td>
<td>4.5</td>
</tr>
<tr>
<td>2011</td>
<td>80</td>
<td>19.1</td>
</tr>
<tr>
<td>2012</td>
<td>151</td>
<td>36.0</td>
</tr>
<tr>
<td>2013</td>
<td>169</td>
<td>40.3</td>
</tr>
<tr>
<td>Total</td>
<td>419</td>
<td>100.0</td>
</tr>
</tbody>
</table>

**Table 2. Observations By Netflix release year**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Min.</th>
<th>Max.</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theater - Netflix (days)</td>
<td>419</td>
<td>-442</td>
<td>2,838</td>
<td>600</td>
<td>411</td>
<td>613</td>
</tr>
<tr>
<td>Theater – DVD (days)</td>
<td>419</td>
<td>-224</td>
<td>1,184</td>
<td>167</td>
<td>122</td>
<td>140</td>
</tr>
<tr>
<td>DVD – Netflix (days)</td>
<td>419</td>
<td>-549</td>
<td>2,738</td>
<td>432</td>
<td>253</td>
<td>622</td>
</tr>
<tr>
<td>Box office receipts in USD</td>
<td>419</td>
<td>3</td>
<td>352,390,543</td>
<td>11,897.2</td>
<td>391.67</td>
<td>34,217,693</td>
</tr>
<tr>
<td>Year the movie was released on Netflix</td>
<td>419</td>
<td>2010</td>
<td>2013</td>
<td>2012</td>
<td>2012</td>
<td>0.873</td>
</tr>
<tr>
<td>Valid N (listwise)</td>
<td>419</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Table 3 Descriptive Statistics of the Sample**
9 Variables and models

The analysis is carried out by using a linear regression analysis accompanied by descriptive statistics. The following section provides an overview of the variables and models used for the regression analysis.

9.1.1 Dependent Variables

*RelLag1* – labeled as “Theater – Netflix” is the release lag between theatrical release and Netflix release expressed in days.

*RelLag2* – the release lag between movie’s theatrical release and release onto a home video (DVD) sales channel in number of days, hence the label “Theater – DVD”.

*RelLag3* – the release lag in number of days between movie’s DVD release and release onto the Netflix platform labeled as “DVD – Netflix”.

9.1.2 Independent Variables

*Year* – The year a given movie was released onto the Netflix platform. This measure was chosen in order to determine whether movies are released later or earlier onto the Netflix platform in respect to their previous releases into theaters and home video as time passes. In other words, value of the movie decays over time (Elberse & Eliashberg, 2003; Lehmann & Weinberg, 2000), thus the longer the release lag, the smaller the value. This variable will help determine whether NETFLIX is getting more or less valuable content as the time passes and will help reveal the change (if any) in distributors’ attitude towards SVOD business models.

9.1.3 Dummy Variables

*Yr2010, yr2011, yr2012* – The year a given movie was released on the Netflix platform. This variable helps the model to determine whether there is a significant difference between release lags in any of these years and year 2013, rather than looking into the linear relationship between release lag and the year the movie was released onto the Netflix SVOD platform.

*Success* – Each movie is labeled as more successful (1) than others in the sample or less successful (0) than others in the sample. Since success of the movie can be measured by box office receipts (Eliashberg, 2005), the success label is appointed to the movies that grossed higher than the sample’s median of box office receipts.

*Major* – This dummy variable indicates whether the movie comes from a major distributor (including their subsidiaries) or an independent. In this case, smaller distributors known as “mini-majors”
are also labeled as majors, because they attempt to compete directly with the major studios and are capable of producing, marketing and distributing high-grossing quality content just as majors do, but on a smaller scale (Eliashberg et al., 2006; Litman & Kohl, 1989). Despite that, mini-majors account for a little more than 18% of the US movie market in 2013, while majors accounted for a little more than 75%.

As there are no academic record of a clear distinction between major and mini-major distributor, the paper relies on other sources that provide insights into the industry, namely filmbug.com; studiosystemnews.com; numbers.com and Box Office Mojo.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Warner Bros</td>
<td>Major</td>
<td>$1,861,194,799</td>
<td>17.08%</td>
</tr>
<tr>
<td>The Walt Disney Studios</td>
<td>Major</td>
<td>$1,721,354,677</td>
<td>15.79%</td>
</tr>
<tr>
<td>NBCUniversal</td>
<td>Major</td>
<td>$1,415,663,293</td>
<td>12.99%</td>
</tr>
<tr>
<td>Sony Pictures (Columbia)</td>
<td>Major</td>
<td>$1,149,187,808</td>
<td>10.54%</td>
</tr>
<tr>
<td>Fox Entertainment Group</td>
<td>Major</td>
<td>$1,069,359,977</td>
<td>9.81%</td>
</tr>
<tr>
<td>Lions Gate</td>
<td>Mini-Major</td>
<td>$1,017,528,833</td>
<td>9.34%</td>
</tr>
<tr>
<td>Paramount</td>
<td>Major</td>
<td>$974,735,713</td>
<td>8.94%</td>
</tr>
<tr>
<td>The Weinstein Company</td>
<td>Mini-Major</td>
<td>$466,650,769</td>
<td>4.28%</td>
</tr>
<tr>
<td>Relativity Media</td>
<td>Mini-Major</td>
<td>$241,346,610</td>
<td>2.21%</td>
</tr>
<tr>
<td>Open Road films</td>
<td>Mini-Major</td>
<td>$149,815,291</td>
<td>1.37%</td>
</tr>
<tr>
<td>CBS Films</td>
<td>Mini-Major</td>
<td>$88,712,175</td>
<td>0.81%</td>
</tr>
<tr>
<td>Metro-Goldwyn-Meyer</td>
<td>Mini-Major</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Table 4 Distributors labeled as "major" in the sample**

---

2 Sources: Filmbug.com; Studiosystemnews.com
3 Source: Numbers.com
4 Sources: Numbers.com; Boxofficemojo.com
5 Data for MGM was not available.
9.2 Model Estimation

The analysis makes use of multiple regression in order to determine whether there is a statistically significant causal relationship between year of release, distributor, success and a release lag.

This particular model\(^6\) includes independent variable *Year* to determine whether there are statistically significant changes in release lag occurring over the timespan of 4 years (2010, 2011, 2012, 2013), hence:

\[
\text{RelLag1} = a + b_1 \text{Success} + b_2 \text{Major} + b_3 \text{Year} + \varepsilon
\]

\[
\text{RelLag2} = a + b_1 \text{Success} + b_2 \text{Major} + b_3 \text{Year} + \varepsilon
\]

\[
\text{RelLag3} = a + b_1 \text{Success} + b_2 \text{Major} + b_3 \text{Year} + \varepsilon
\]

Where \(a = \text{constant}\);

\(b_1, b_2, b_3 = \text{the regression coefficient};\)

\(\varepsilon = \text{error terms}.\)

In the second model\(^7\), the independent variable *Year* is replaced by four dummy variables representing each year so causal relationship between release lag and different release years could be determined, hence:

\[
\text{RelLag1} = a + b_1 \text{Success} + b_2 \text{Major} + b_3 \text{Year}2010 + b_4 \text{Year}2011 + b_5 \text{Year}2012 + \varepsilon
\]

\[
\text{RelLag2} = a + b_1 \text{Success} + b_2 \text{Major} + b_3 \text{Year}2010 + b_4 \text{Year}2011 + b_5 \text{Year}2012 + \varepsilon
\]

\[
\text{RelLag3} = a + b_1 \text{Success} + b_2 \text{Major} + b_3 \text{Year}2010 + b_4 \text{Year}2011 + b_5 \text{Year}2012 + \varepsilon
\]

Where \(a = \text{constant}\);

\(b_1, b_2, b_3, b_4, b_5, b_6 = \text{the regression coefficient};\)

\(\varepsilon = \text{error terms}.\)

---

\(^6\) This model is referred to as “the first regression model”

\(^7\) This model is referred to as “the second regression model”
9.3 Student’s T-test
In addition to regression analysis and descriptive statistics, result of Student’s T-test is provided along with the descriptive statistics. Since this test can only be carried out between two groups of data, Student’s T-test is calculated between pairs of different Netflix release years (2010 and 2011; 2011 and 2012; 2012 and 2013) in order to evaluate whether differences in release lag occurred due to chance (Keller, 2005). All calculations are done with 95% confidence level.
10 Empirical Results

Empirical results section presents two themes: descriptive statistics and regression analysis. Descriptive statistics theme consists of overall descriptive statistics of the sample and two sub-samples (Major and Successful) as well as findings derived from this information. Descriptive statistics are presented in three tables together with the results of Student’s T-test, while findings obtained from the descriptive statistics also include results of the Student’s T-test. Regression analysis follows, which provides more insights into the data.

10.1 Descriptive Statistics

The tables below contain information on release lag in number of days. There are three different tables – release lag for the whole sample (Table 5), release lag for studios labeled as “majors” (Table 6) and release lag for the movies that are labeled as more successful than others in the sample (Table 7).

These tables present average and median release lags. Median was also included since average in some cases is influenced by large release lags for some older movies in the sample and therefore does not represent the current situation well.

T-test is calculated for pairs of release years. The result is depicted in the row of a more recent year in the considered pair.

<table>
<thead>
<tr>
<th></th>
<th>Theater To Netflix</th>
<th>Theater To DVD</th>
<th>DVD To Netflix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Average</td>
<td>T TEST</td>
</tr>
<tr>
<td>2013</td>
<td>486</td>
<td>659</td>
<td>0.026</td>
</tr>
<tr>
<td>2012</td>
<td>364</td>
<td>534</td>
<td>0.186</td>
</tr>
<tr>
<td>2011</td>
<td>392</td>
<td>619</td>
<td>0.31</td>
</tr>
<tr>
<td>2010</td>
<td>297</td>
<td>531</td>
<td></td>
</tr>
</tbody>
</table>

**Table 5. Release Lag in Days. Whole Sample.**

<table>
<thead>
<tr>
<th></th>
<th>Theater To Netflix</th>
<th>Theater To DVD</th>
<th>DVD To Netflix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Average</td>
<td>T TEST</td>
</tr>
<tr>
<td>2013</td>
<td>567</td>
<td>864</td>
<td>0.003</td>
</tr>
<tr>
<td>2012</td>
<td>357</td>
<td>526</td>
<td>0.001</td>
</tr>
<tr>
<td>2011</td>
<td>1125</td>
<td>1133</td>
<td>0.388</td>
</tr>
<tr>
<td>2010</td>
<td>1392</td>
<td>1045</td>
<td></td>
</tr>
</tbody>
</table>

**Table 6. Release Lag in Days. Majors.**
<table>
<thead>
<tr>
<th></th>
<th>Theater To Netflix</th>
<th>Theater To DVD</th>
<th>DVD To Netflix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Average</td>
<td>T TEST</td>
</tr>
<tr>
<td>2013</td>
<td>480</td>
<td>714</td>
<td>0.008</td>
</tr>
<tr>
<td>2012</td>
<td>363</td>
<td>531</td>
<td>0.118</td>
</tr>
<tr>
<td>2011</td>
<td>412</td>
<td>655</td>
<td>0.365</td>
</tr>
<tr>
<td>2010</td>
<td>83</td>
<td>578</td>
<td></td>
</tr>
</tbody>
</table>

**Table 7. Release Lag in Days. More Successful Movies.**

The graph below represents the distribution of movies by studio type.

![Pie chart showing movie releases from major and non-major studios](image)

**Figure 4. Distribution by Studio Type.**
10.2 Findings from descriptive statistics and T-Test

The descriptive statistics of the whole sample suggests that there are no clear tendency regarding release lag Theater-Netflix (Table 5). Statistically significant (according to T-test) change is only observed between 2012 and 2013. Quite similar results are observed in Theater-DVD release lag as no significant tendency is observed and the release lag does not seem to change over the years. As expected, similar results to the ones of Theater-Netflix are observed concerning the DVD-Netflix. Similarity exists due to the nature of DVD-Netflix release lag. DVD-Netflix release lag is almost always a part of the Theater-Netflix release lag and therefore these two release lags are highly correlated (Pearson correlation – 0.974. Correlation is significant at the 0.01 level, 2-tailed). This is because the DVD release almost always comes between the theatrical and Netflix releases.

A different situation is observed on the sub-sample of movies that are labeled as production of a “major” (Table 6). Here, significant decrease in Theater-Netflix release lag is observed in 2012 (when compared to 2011) followed by a significant increase in 2013. The decrease in Theater-Netflix release lag in 2012 is also observed in the whole sample and the “success” sub-sample. However, only in the “major” sub-sample the decrease is significant. This, according to Student’s T-test, significant decrease in release lag could be influenced by misrepresentation of the years 2011 and 2010 in the sub-sample (See Table 8).

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>7</td>
<td>5.3%</td>
</tr>
<tr>
<td>2011</td>
<td>21</td>
<td>15.8%</td>
</tr>
<tr>
<td>2012</td>
<td>48</td>
<td>36.1%</td>
</tr>
<tr>
<td>2013</td>
<td>57</td>
<td>42.9%</td>
</tr>
<tr>
<td>Total</td>
<td>133</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

**Table 8. Observations by Year in the "Major" sub-sample.**

Other two release lags (Theater-DVD and DVD-Netflix) do not interfere with expectations as virtually no changes are observed in the Theater-DVD release lag, while DVD-Netflix release lag correlates with Theater-Netflix release lag thus producing similar results.

The “Success” sub-sample (Table 7) descriptive statistics also produce similar results. There is a significant increase in Theater-Netflix release lag in 2013 when comparing to 2012, no significant change in Theater-DVD releases and as expected DVD-Netflix results correlate with Theater-Netflix.
Conclusions that can be drawn from descriptive statistics are very limited. In this case, descriptive statistics only help illustrate the data better and provide some preliminary insights regarding the tendencies. From the statistics generated only one, more general conclusion can be drawn – there is a significant increase in Theater-Netflix release lag in 2013 when comparing to 2012. Evaluation of the statistical significance in the change in release lags over the years the Student’s T-test is calculated. As it can only be calculated for pairs of years (2010 and 2011, 2011 and 2012, 2012 and 2013) it can only evaluate the difference within these pairs. Further analysis proceeds with regression analysis.

10.3 Findings from regression analysis

10.3.1 No linear relationship found

In the first regression model, where calendar year was incorporated as an explanatory variable, an attempt to find a linear relationship between year of Netflix release and release lag was attempted. The linear relationship essentially means that as time passes, release lag exhibits change in a single direction. Positive coefficient would mean a positive relationship – as years go by, release lag steadily increases, whereas negative coefficient would mean a steady decrease in release lag. However, no linear relationship was found as explanatory variable Year produces high p-values with all three dependent variables (See Table 9) in the first regression model. This is in line with the descriptive statistics, showing that there is no clear tendency in release lag changes.

The reasons for the absence of the linear relationship are likely to lie within the content mix of Netflix, since Netflix acquires content from various sources, such as independents, majors, mini-majors and content aggregators (Netflix, 2012). It is highly unlikely that all these organizations follow the same windowing strategy and implement changes to the windowing strategy at the same time and to the same extent. Future longitudinal studies are required in order to determine the shifting tendency if it at all exists.
The table presents two regression models - 1 and 2. The results of the first regression model represent the linear relationship between Year and three dependent variables. Dummy variables Major and Success are also included. The second part of the table presents the second regression model where Year is recoded into dummy variables Yr2010, Yr2011, Yr2012. Constant of these variables is expressed in difference with the year 2013. Green P values represent significance at the 0.05 level.

<table>
<thead>
<tr>
<th></th>
<th>1. Calendar year as an explanatory variable</th>
<th>2. Year as a dummy explanatory variable</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Theater-Netflix</td>
<td>Theater-DVD</td>
</tr>
<tr>
<td>Constant</td>
<td>-65112.144</td>
<td>.323</td>
</tr>
<tr>
<td>Year</td>
<td>32.569</td>
<td>.320</td>
</tr>
<tr>
<td>Major</td>
<td>297.454</td>
<td>.000</td>
</tr>
<tr>
<td>Success</td>
<td>171.768</td>
<td>.009</td>
</tr>
<tr>
<td>Yr2010</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Yr2011</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Yr2012</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>R^2 adj.</td>
<td>0.09</td>
<td>0.03</td>
</tr>
</tbody>
</table>

**TABLE 9. REGRESSION ANALYSIS.**
10.3.2 No evidence of decreasing release lag for DVD. Success increases release lags for DVDs

No evidence of decreasing lag for DVD releases have been found. All of the coefficients are accompanied by high p-value and therefore are not considered to be good estimators. Except for one – Success, which exhibits a p-value of 0.026 (see Table 9).

Regression analysis reveal that movies that are labeled as more successful in the sample tend to be released earlier onto DVD by almost 35 days. This is interesting because research and Netflix report that consumers prefer streaming over physical media and that the shift to streaming is happening (Netflix, 2012; Zhao, 2013). Since movie’s success is determined by the success in the box office and its value decays over time (Eliashberg, 2005; Lehmann & Weinberg, 2000), this decrease essentially means that more valuable content is released onto DVD.

Since shift from DVD, which is physical media, to streaming is happening, decline in DVD rentals and sales is inevitable. By increasing the value of the content in this medium distributors may try to prolong the sales in this declining sales channel, thus attempting to preserve their established business. The regression analysis, however, is unable to tell when this shift happened. On the other hand, the descriptive statistics of the “success” sub-sample exhibit steady decline in release lag, therefore it can be concluded with some confidence that the shift that is happening did not go unnoticed by the movie industry. Therefore Hypothesis 1 is accepted:

Hypotheses 1: Release lag for successful movies onto the home video sales channel is declining.

10.3.3 Release lag for Theater-Netflix increases in 2013

Regression analysis indicates there is a significant (p-value of 0.043) increase in release lag (Theater-Netflix) in 2013. It is the only significant change in all of the three release lags that was captured by the explanatory dummy year variables.

The big question is, however, why a sudden increase in release lag in 2013. The answer may lie within the process of content procurement. Usually, content agreements are reached and are valid for a period of time and usually they concern a cluster of movies rather than individual productions (Moul, 2005). Once these agreements expire, content is simply removed from the platform and new licensing agreements must be signed. Netflix over the past couple of years has shown a tendency to move away from content aggregators and deal directly with the major and mini-major studios for premium content. The company has reportedly broken off their agreement with Pay-Tv channel
“Starz”. This agreement provided Netflix access to newer content (Starz to split from netflix - WSJ.com.).

In other words, Netflix cannot take advantage of the “First Sale Doctrine” anymore as the company now predominantly deals directly with the major and mini-major distributors. This situation enables these distributors negotiate with Netflix directly and essentially have more control what content and when goes online. Nevertheless, Hypothesis 2 is accepted:

*Hypotheses 2: Release lag for Netflix has increased since introduction of Netflix streaming service in 2008.*

Since it has been established that the release lags for DVD as well as SVOD have changed, Hypothesis 3 and 4 must be rejected:

*Hypotheses 3: Release window for both channels (Netflix and DVD) remains the same since the introduction of NETFLIX streaming service.*

*Hypothesis 4: Release lag for DVD stays the same while release lag for Netflix decreases over time.*

10.3.4 Positive relationship between “major” and Theater-Netflix release lag
There is a positive relationship between distributors labeled as “major” and Theater-Netflix and DVD-Netflix release lags. Predictor “Major” in the model is said to significantly influence the release lag by 295.8 days (p-value 0.000).

These results reinforce the notion expressed when discussing the hike in release lag for Theater-Netflix in 2013. It is worth noting, that descriptive statistics also present a significant change in release lag in 2013 in the “major” sub-sample. Major and mini-major studios are delaying the release onto Netflix, therefore *Hypothesis 5* must be accepted.

*Hypothesis 5: Release lag for Netflix is positively influenced by a major labeled distributor.*

10.3.5 No relationship between size of distributor and Theater-DVD release lag
No evidence on relationship between Theater-DVD and the type of the distributor has been found. Instead, the analysis indicated that a negative relationship between Theater-DVD and movie’s success exists. An elaborate discussion on why such relationship exists has been provided already. The absence of the relationship between the studio type and the Theater-DVD release lag and the existing relationship between the said lag and the success of the movie, suggests, that release decisions are made on per movie basis, considering the overall value of the movie and are not studio specific.
This is in line with the academic evidence, which claims that the decisions on when to release a given movie are made individually (Moul, 2005).

It could be argued, that Netflix itself causes the increase of release lag for successful movies. Reportedly, Netflix has signed agreements that tie the license fee (a price Netflix has to pay for the right to stream the content) to the gross receipts of box office (Netflix, 2012). In other words – the more successful the movie, the more expensive it becomes for Netflix to stream. Even though there are mentions of this scheme in the annual report, it does not include any information regarding the price’s reduction over time. Therefore, it is not possible to assume that this scheme allows older content to be cheaper, since gross box office results do not decrease over time. Evidently, Netflix may choose not to license expensive content at all, rather than wait until it becomes cheaper, since in some cases it simply does not become cheaper. On the other hand, the real cause for the increase is not known as the license fee tying to the box office results is only a part of the complex relationship that Netflix and the distributors have. Nevertheless, enough evidence exists to reject the Hypothesis 6:

**Hypothesis 6: Release lag for home video is negatively influenced by the size of the distributor.**

10.3.6 Box office success increases Theater-Netflix release lag
Explanatory dummy variable “Success” as a factor proved to be significant across all models. Positive relationships are observed for Theater-Netflix and DVD-Netflix, whereas Theater-DVD release lag holds a negative relationship with the success of the movie.

The delay of successful movies’ release onto the Netflix platform could partially be explained by the licensing agreement explained in the previous section. However, this explanation is limited as it only provides some clarity for a fraction of the content as other details of other agreements are not known. Evidence suggests, that release lag Theater-Netflix is also influenced by a given movie’s success in the box office, which is sufficient evidence to accept Hypothesis 7.

**Hypothesis 7: Release lag onto Netflix platform is positively influenced by the box office success**
11 Conclusion
Adapting to the ever-changing business world is a necessity for survival. Every adaptation begins with the recognition of a changing environment which is usually followed by a reaction. Home entertainment industry is now undergoing such transformation – people are switching from physical media onto more convenient streaming services. Such services, empowered by the internet offer a whole variety of advantages for customers as well as businesses that operate the service.

These changes should make the US movie industry a little concerned. Netflix is not only taking the business of renting and selling physical disks away from the US movie industry, the company has also successfully leveraged its user data and produced a very successful political drama and a few more seasons of other original series. This thesis investigated, whether these recent developments have caused any changes to the windowing strategy employed by the US movie industry.

Data on 419 movies released onto the Netflix video streaming platform between 2010 and 2013 was gathered. This information made the analysis of the windowing strategy possible and yielded quite interesting results.

The analysis indicated that there has been a significant increase in release lag in 2013. In other words, this means that older content was released onto Netflix in 2013. In movie economics, older content translates into less valuable content that does not generate as much interest, which in content perspective makes Netflix less attractive (Eliashberg et al., 2006; Lehmann & Weinberg, 2000; Moul, 2005).

Analysis also found that more successful movies – movies that grossed higher amounts in the box office than others in the data sample – were released later onto Netflix and earlier onto the DVD/Bluray. In windowing strategy terms, DVD medium is getting more valuable content, while Netflix is seeing less valuable content. It could be interpreted that studios are reacting to declining DVD sales by trying to promote the physical disc medium by releasing more valuable content earlier.

What is more, major and mini-major studios are found to be prolonging the releases onto the Netflix video streaming platform, too. Delaying the release by these studios can be read as an attempt to protect other mediums from growing Netflix impact.
A significant increase of release lag for Netflix in 2013 could be seen as the US film industry’s reaction to Netflix’s original programming. However, the evidence suggesting that original programming is the cause for this increase is weak.

To conclude, the results indicate that the US movie industry, which is dominated by the major and mini-major studios, is reacting to Netflix and to some extent are changing their windowing strategies. These windowing strategies are being changed in a way that is promoting (in terms of content value) the physical media, while simultaneously depriving Netflix of more valuable content.

11.1 Limitations
The thesis encounters some limitations.

Firstly, the data gathered provides only a limited insight into the changes of windowing strategy. The data only covers the time span of 2010 – 2013. The analysis is not able to investigate the changes in release lags before the 2010 making the analysis unable to investigate whether the release lags have changed right after the inception of the Netflix streaming business model.

Moreover, the analysis also faces limitations. While it was able to determine some factors that increase the release lag, it is unable to pin point the trigger for the reaction. Among others, triggers may include declining DVD sales, Netflix debut in original programming as well as Netflix effect as a phenomena.

Finally, the paper does not consider the complex nature of legal agreements Netflix and the studios may have. These agreements are not public and therefore it is impossible to obtain them.
12 Further research

The results of the analysis raises more questions that could be addressed in further research.

Firstly, to better capture the changing release lag, longitudinal study is necessary. This thesis only investigated the time span between January, 2010 and December, 2013. Also, research on separate reaction triggers could also prove beneficial.

Also, Netflix sets a precedent of producing content by using big data algorithms. Research on how big data algorithms help diminish the risk movie industry faces, could prove beneficial to the field of movie economics.
13 Bibliography

References


Lettice, P. T. \ F. (2002). Disruptive innovation explored. Concurrent Engineering Conference Proceedings,


SARAH PEREZ, R. ().


Zhao, C. C. \ S. (2013). Emergence of movie stream challenges traditional DVD movie Rental—An empirical study with a user focus. *International Journal of Business Administration, 4*