Erasmus University Rotterdam

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Bachelor Thesis

International Bachelor in Economics and Business Economics (IBEB)

'Innovative strategies in the streaming industry: vertical integration of streaming production. A case study of Netflix'

This research analyzes the innovative strategy of vertical integration of the production process within the streaming (TV shows/movies) industry by investigating the pioneer Netflix. This recent development has increased the number of players on this market and affected the business model of other media industries such as videogames and music. The strategic choice to vertically integrate the streaming production ('original' production) is a consequence of traditional streaming rights increasing in price. This paper determines, by means of multivariate OLS regressions, whether there is a significant break after the release of original content 'Netflix Originals' on the content value and the revenues. In addition, the effects of the number of original productions per year and the content library expansion on the number of Netflix customers in the United States (domestic market) and in total are analyzed. The study finds that the implementation positively statistically significantly affected the total number of customers, but showed insignificant effects on the number of U.S. customers, content value and revenues. Further research is recommended to examine the implementation of this strategy by for example adding other players and major strategy changes.

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Table of Contents

1. Introduction

'Did the vertical integration of streaming production help Netflix achieve higher content value, revenues and number of customers?'

"A strategy is an internally consistent configuration of activities that distinguishes a firm from its rivals" (Porter, 2008). Strategy has a vital purpose for any firm, such as setting long-term guidelines and increasing the value and business creation. Most importantly the strategy defines and built a competitive advantage. A firm obtains a competitive advantage with respect to its resources when its core competencies can produce and supply goods/services that are perceived of superior value in some market segments and/or deliver at lower cost (Hunt & Morgan, 1995). Innovative strategies focus on and respond to changes in the competitive environment based on the company's innovative potential (such as resources or knowledge). Linking strategy with innovation creates an opportunity to disclose and meet demands of customers (Galindo & Méndez, 2014). Nowadays, competition exceeds the traditional services and goods, by adding (information) technology to its business model aiming at increasing customer value through a mix of computer, software and network technologies (Yoffie & Cusumano, 1999)

This research will take a closer look at the innovative strategies within the streaming industry (focus here is on streaming of movies and TV shows) since the streaming market is becoming more competitive as some major competitors are rising and globalization is increasing. "The Internet is changing everything" (Gates, 1999). The Internet and technology have helped the globalization of (e-)businesses because it has made boundaries less significant/obstructive (Winsted & Patterson, 1998; Wymbs, 2000). In addition, it has made it possible for services to expand outside national boundaries and decrease transaction costs by adopting a business to customer service without intermediaries (Kotabe et al., 1998; Wymbs, 2000). The remarkable increase in information availability (data) and various tools to analyze this information leads to a change in number and diversity of services, such as the streaming business. In addition, because of the distance insensitivity of information thanks to the Internet, service industries evolve more globally and specialized (Wymbs, 2000). "The Web will fundamentally change customers' expectations about convenience and service" (Taylor, 1999; Wymbs, 2000). 'Dot-com' companies are companies that use the Internet to conduct business by means of a website (World Wide Web), these companies can be categorized under e-business (electronic commerce or business), which will be more elaborately explained in the literature review. The streaming industry is an industry for which the diffusion relies on the Internet and sometimes also on TV networks depending on the

competitor. These changes due to the Internet have affected and raised the expectations of the customer about speed, comparability and price (Wymbs, 2000). Therefore firms need to increase their firm capacity/performance by relying on and steering towards innovative and growth-oriented strategies (Borch & Madsen, 2007). Porter (2001) on the subject of strategy and the Internet, emphasizes the importance of creating customer value and charging for it directly instead of using supporting intermediaries. The key is not imitating competitors, but to fit the Internet applications to the firm's overall strategy, which will ensure sustainability and extend the firm's competitive advantage (Porter, 2001).

Both streaming services Amazon Prime and Hulu provide the service at yearly or monthly paying schedules. Amazon's service includes a wide library of (original) content with no advertisement, unlimited shipping and discounts from their online store. Hulu, on the other hand does allow advertisement to provide the service at a cheaper rate and primarily focuses on earlier access to new shows from multiple traditional networks and originals. Apple and Disney noticed the uprising success and decided to launch their own service. Disney and Apple have an advantage as they already established brand value/equity and have very known products and "fans". Moreover, Disney is launching 'Disney+' releasing (original) content linked to their brands 'Star Wars', 'Marvel' and 'Pixar'. The trend of vertically integrating by releasing (in-house) original production is due to streaming rights that are getting more expensive. In addition, providing a streaming service and using a (artificial intelligence) recommender system delivers companies data (information) that is valuable in improving the companies' services. It gives insight into what customers prefer and helps customers to get "obsessed" with the service.

Traditional leaders affirm their strengths and "dot-coms" adopt more focused strategies. 'Dot-com' companies "distinct themselves by pursuing their own distinctive strategies instead of imitating firms or the positioning of the incumbents" (Porter, 2001). This research will look at the effect of releasing original content on the number of customers. This will be examined by analyzing Netflix, the pioneer in the streaming service, releasing original content. Netflix was first in understanding the data it obtained through its service, which indicated there was a high demand for shows and movies to watch in a rapid succession also known as 'binge-watching' behavior. Netflix was according to academic articles the one that induced that behavior with customers and competitors fear Netflix will grow more. In addition, Netflix does not emit advertisement, which poses a threat to marketers. Producing original content has been the next step for the streaming market competitors to circumvent paying expensive streaming rights, which are geographically bound. Furthermore, customers expect freedom in choice of an exclusive, extensive library and in viewing schedule.

This research has not been done before as it is a relatively new market for which research about this particular strategy in an economic context has not yet been examined. This 'binge' behavior is not only present in streaming, but also in music (such as Spotify: "all you can listen to"), books (such as Scribd: "all you can read") and games (such as GamePop: "all you can play") (Matrix, 2014). Developments that affect the way consumers think of supply of media such as games, music, books, television and film are important to investigate from not only a cultural or societal perspective, but also from an economic point of view as these modifications can possibly also be expected of the services or delivery of product from other industries by the consumers. The way the supply and service need to innovate in order to keep up with competitors due to technological changes and because of changes in consumer preferences are important to analyze for further improvements and evaluation of many other industries which seek to optimize.

The research shows whether vertically integrating, by producing themselves, has an effect on the customer base within the streaming industry. 'Dot-com' companies, the predecessors of the broader category 'e-businesses' to which streaming services belong to, have not been researched that excessively from an economic point of view with regards to the adopted innovative strategies to increase customer base. The relative newness of the market can be a reason for this.

Two hypotheses will be tested in order to answer the research question. The paper is structured as follows after the introduction (section 1): section 2 provides the theoretical framework comprising the literature review and the conceptual framework, section 3 the data and methodology and section 4 provides the analysis and results. Lastly, section 5 contains the conclusion, limitations and recommendations for further research.

2. Theoretical framework

2.1 Literature review

As aforementioned, the choice of strategy is vital to being and staying competitive in the market. The strategies differ from large to small/medium-sized companies and whether they are traditional or e-businesses (such as 'dot-com' companies) for example (Stone, 2003). The aim of a firm, in general, is obtaining a competitive advantage, meaning it is able to produce a good or service at a lower opportunity cost than its competitors (Hunt & Morgan, 1995). The core competencies, combination of resources and capabilities of the firm, providing the

competitive advantage depends on some criteria such as: value (enable to exploit opportunity), imitability (difficult for the competitor to obtain), substitutability (no substitute available), organization (enables for exploitation of resources and capabilities) and rarity (only available to a couple of competitors) (Barney, 1991).

Furthermore, a strategy is successful when a couple of conditions hold such as creating a unique value proposition, set up a distinctive value chain, making clear what trade-offs there are and choose what not to do. In addition to the three aforementioned conditions, strategic fit and continuity need to be satisfied as well. Strategic fit means that the activity choices across the value chain of a firm need to be compatible and reinforce each other leading to a better fit. Lastly, the strategic continuity means that maintaining a certain chosen strategy shows for example reliability towards stakeholders, but it must simultaneously make improvements to its main strategy to ensure success and sustainability (Porter, 1996; Barney, 1991). It has been empirically proven that economic activity stimulates entrepreneurship and innovation, with innovation positively correlating with economic activity (Galindo & Méndez, 2014). Therefore adopting innovation in the firm's strategy can lead to optimization of its performance.

"An e-business is a fundamental way in the way that business will be done - aided, abetted, supported, and enabled by technology" (Stone, 2003). E-businesses, such as streaming service companies, comprise not only "dot-com" companies that merely use the World Wide Web, but it also comprises e-business technologies (portals, mobile, content management and intranets), which are meant to increase profitability (Stone, 2003). In addition, e-businesses change the interactions with customers in various ways, such as providing new distribution channels by means of technologies that allow customers to be reached anywhere. Moreover, once the brand established an online following, new markets can be reached. The e-businesses set up a new business model in contrast to the traditional one, which allows direct interaction with the customer. Lastly, theses businesses deliver improved services at reduced costs (Stone, 2003). E-commerce led to a shift, which is also known as a "disruptive" innovation that radically changes the traditional way of doing business (Lee, 2001).

In this research, the focus lays on innovative strategies within the streaming industry, which are mostly e-businesses. The current predominant strategy is the vertical integration of the production process by releasing original and/or exclusive/newest TV shows and movies. This strategy relies on three important success factors: value proposition (meaning it contains compelling value proposition given by target audience), trusted brand (give experience to customers which encourages trust) and web site quality (aspects of the website such as

security, quality and attractive must be of high standard to achieve value proposition) (Stone, 2003). Therefore this research will try to prove whether or not this a good course of action in satisfying the demand of customers and getting them attached by using Netflix, the pioneer, as an example.

2.2 Recent developments

In a U.S. study conducted by the basic cable network, it was found that the amount of original content provided by online services such as Hulu, Netflix and Amazon have doubled between 2015 and 2016 (Goldberg, 2016). The streaming industry is growing at a fast pace and streaming services are spurring for expansion of content by producing it themselves or making partnerships. In addition, Netflix accounted for about half of the 3% decline in TV viewing in the United States according to a research of MoffettNathanson. The study also published a prediction of Netflix's total streaming hours as a proportion of TV viewings and found an increase to 14% by the year of 2020 in the United States (Spangler, 2016). There is an increase in demand and preference for video on demand (versus appointment viewing) over-the-top (OTT) streaming services (versus cable bundles) (Matrix, 2014).

The rise of the streaming market is affected by the entertainment industry and consequentially led to the strategy of producing "original", "newest" or "exclusive" content. Consumers want to be in control of what they watch and want the liberty of choosing from a wide (exclusive) library. Netflix, the pioneer of the streaming service, is providing a direct service to its customers who pay Netflix flat-fee rates directly for unlimited access to its library, which does not contain advertisement. The fact that some streaming services such as Netflix and Amazon do not allow advertisement is an obstacle and threat to marketers. In addition, releasing original content poses a threat towards TV networks and production companies as these cannot keep up with the wide variety on Netflix at a relatively low subscription rate (Neal, 2013).

Furthermore, two important strategies are often mentioned as strengths of Netflix contributing to meeting demand with consumers: its determination in creating an accurate artificial intelligence-personalized recommender system and producing its own original content (vertical integration of production). First of all, Netflix adopted technological advances that contributed a great deal to its success. It initially used a video-recommender system called Cinematch. On a quest for innovation and improvement of its service, the company organized the "Netflix Prize" in 2006 to beat the existing video-recommendation algorithm, Cinematch. The goal was to obtain an algorithm that predicts customer ratings higher than 10%. In other

words, Netflix wanted to predict a better match of TV shows and movies to its members (Bennett & Lanning, 2007). The improved recommendation system enabled customers to stay attached to the service by creating a switching cost and made underrated movies and TV shows available to customers. A Netflix member will not quickly switch when Netflix knows which movies and TV shows to recommend whereas another competitor can/does not offer you that personal recommendation. Therefore giving up that extra feature of your service as a customer creates the switching cost. One can think of the system as equivalent to predicting the number of stars the viewer would give out of a scale of 1 to 5 (Gomez, 2016).

However, Netflix is not the only competitor in the industry that focuses on customer 'attachment': *"There are many ways to center a business. You can be competitor focused, you can be product focused, you can be technology focused, you can be business model focused, and there are more. But in my view,* ***obsessive customer focus*** *is by far the most important. Even when they don't yet know it, customers want something better, and your desire to delight customers will drive you to invent on their behalf."* Jeff Bezos, founder and CEO (Chief Content Officer) of Amazon describing Amazon's creation of "Customer Obsession" (Chaffey & Ellis-Chadwick, 2019).

The recommender system is a very powerful tool because it also allows Netflix to experiment more than Disney for example, an upcoming competitor. Research suggests viewer loose interest having reviewed 10 to 20 titles after 60 to 90 seconds (Gomez, 2016). In addition, other research related to consumer behavior shows that humans are bad at choosing and quickly get overwhelmed or make poor choices (Schwartz, 2004; Gomez, 2016). The recommender system solves for making poor decisions or losing interest while choosing what to watch, as it proposes (instant) personalized recommendations. Furthermore, the failure costs associated with not instantly creating a successful production are lower for Netflix than its competitor Disney. The system additionally allows "recycling and pushing more hidden titles to a wide audience over a long period of time in order to justify the initial investment needed to acquire or produce a series" (Yu, 2019).

Furthermore, initially Netflix viewed itself as a complement to cable networks, but due to the growing popularity decided to vertically integrate by producing 'Netflix Originals' (Hastings & Wells, 2011). However, it is important to understand some misconception about the 'Netflix Originals' as this term does not only comprises the content produced by Netflix, but also the shows for which the firm obtained exclusive rights. These exclusive rights mean that Netflix is the sole distributor of that show, which they call 'Netflix Originals' for marketing purposes since the word exclusive has a negative connotation according to consumers

(Hastings & Wells, 2012). Therefore 'Netflix Originals' comprises its own produced content and exclusive rights, referring to rights for which the company is the sole distributor. In addition, the traditional expensive streaming rights can be bought by others and are geographically bound. Therefore streaming services of TV shows/movies opt for vertical integration of the production to save costs and thus focus on original content.

In February 2013, Netflix commences its release of original content. The long-term aim of Netflix is to become the first global TV network excluding advertisement directly delivered and paid online (McAlone, 2017). When Netflix released the TV show 'House of Cards' they noticed that a significant amount of subscribers had watched the entire season in less than 24 hours. Netflix then quickly understood that there was a high demand for a wide variety of (quality) content and needed to match the supply of content for subscribers to 'binge-watch'. Therefore this research investigates whether a wide variety in library content, circumventing expensive traditional streaming rights and being (more) independent from other production houses is a key strategy in this market.

2.3 Conceptual framework

The research aims at answering the research question by testing two hypotheses that are formulated on previous research, press releases and letters to shareholders in order to find an answer to the research question of this paper:

'Did the vertical integration of streaming production help Netflix achieve higher content value, revenues and number of customers?'

Not only did the TV and movie industry, but also Netflix realize the value of traditional streaming rights would increase and how difficult it would get to obtain them in the future. This would especially be the case if other companies like Disney and Apple, who are major players in the entertainment and technology/digital industry, would enter the market (McAlone, 2017). The streaming rights represent the high barrier costs of the (streaming) market entry (Porter, 2008). Releasing 'Netflix Originals' was a way of circumventing these costs and in addition conditioning consumers to 'binge-watch' behavior (Matrix, 2014). Original content could be viewed anywhere in the world where Netflix is operational, whereas traditional streaming rights are bound to the country. The company streams in over 190 countries at a flat-fee monthly rate without advertisement and has become a very known brand worldwide. Netflix in addition obtains a lot of data through its service about the

viewers, which its (former) partner production houses such as Disney, do not have access to giving Netflix a crucial advantage in the streaming market.

The advantage of producing original content is that Netflix can release the entire season of its original production in one go wherever the service is operative instead of spread over time in selected countries. This allows for deeper storytelling since binge viewers are assumed to better recall previous episodes and 'binge-watching' is only possible when entire seasons are released completely (Tryon, 2015). The production of original content has become central to the growth of the company (Lynch, 2017).

"*Our viewing data shows that the majority of streamers would actually prefer to have a whole season of a show available to watch at their own pace. Netflix has pioneered audience choice in programming and has helped free consumers from the limitations of linear television. Our own original series are created for multi-episodic viewing, lining up the content with new norms of viewer control for the first time*." -Ted Sarandos, CCO (Chief Content Officer) of Netflix (Neal, 2013).

Following the quote above, Netflix implemented the strategy of vertically integrating the production as a long-term investment. Its aim is to circumvent being dependent on traditional streaming rights (country bound rights that every competitor can obtain) that are increasing in price. Therefore they decided to produce 'Netflix Originals' comprising their own original content and exclusive content (bought content for which Netflix is sole distributor). Netflix that has opted for the long-term investment, is currently not profitable, however, analysts stay positive and reckon the company will increase in subscribers due to its original content, which will in the future close the gap in revenue generation (Wright, 2018). It was found that Netflix earns the same revenue as what is spent on the content value (McAlone, 2017). In addition, it is stated that Netflix earns one dollar for every dollar spent on original content in contrast to competitors that earn two to four dollars (McAlone, 2017). Furthermore, to illustrate, the current content value of Netflix is estimated at 11 billion U.S. dollars which is relatively large compared to known incumbents in television/movie and streaming industry such as: Time Warner's (comprising HBO, Turner and Warner Bros) with a content of 10 billion U.S. dollars, the total content value of Viacom is worth 4.9 billion U.S. dollars and Discovery Communications with a content value of 2.4 billion U.S. dollars (Wright, 2018).

Moreover, literature shows the importance of the value of Netflix's current (library) content value and revenue for the growth of the company. Therefore the first hypothesis will focus on the current content (net) value and revenues of Netflix. The release of original production,

which started with the TV show 'House of Cards' in the first quarter of 2013, is translated into the dummy variable 'Producing_Original_dummy', which will serve as a main explanatory variable, in order to observe a significant break in current content (net) value and revenues after its first release of original content.

The variable 'Log_Streaming_Expense' refers to the (logarithmic) expenses of the operating streaming service and 'Log_DVD_Expense' refers to (logarithmic) expenses of the buying DVD services. Both these variables serve as a control variable in the regressions. The streaming expenses comprise not only the 'Netflix Originals' streaming rights but also the traditional expensive streaming rights. In addition, this research will not only look at the effect on the dependent variables (logarithmic) current content (net) value ('Log_Content_value') and (logarithmic) revenues ('Log_Revenues') of Netflix at Time T, but also at Time T+1 (representing one quarter time delay as it is quarterly data). The reason is because the expenses and the number of awards for 'Netflix Originals' plausibly require time to take effect in both dependent variables. This hypothesis helps answering the research question as it gives insight whether the implementation of the innovative strategy showed an immediate result in the library value ('Log_Content_value') and revenues ('Log_Revenues'), which are central to the growth.

Hypothesis 1: The break (2013Q1= 'Producing_Original_dummy') has a positive statistically significant effect on Netflix' current content net value 'Log_Content_value' and revenues 'Log_Revenues'.

H1.a

$$\begin{aligned} Y_{Log\_content\_value} &= \alpha + \beta_{producing\_original\_dummy}X_1 + \beta_{log\_Streaming\_expense}X_2 \\ &+ \beta_{Log\_DVD\_expense}X_3 + \beta_{Log\_RD\_expense}X_4 + \beta_{Log\_Marketing\_expense}X_5 \\ &+ \beta_{Log\_Emmy\_Win}X_6 + \beta_{qseas1}X_7 + \beta_{qseas2}X_8 + \beta_{qseas3}X_9 + \beta_{qseas4}X_{10} + \varepsilon_t \end{aligned}$$

H1.b

$$\begin{aligned} Y_{Log\_Revenues} &= \alpha + \beta_{producing\_original\_dummy}X_1 + \beta_{log\_Streaming\_expense}X_2 + \beta_{Log\_DVD\_expense}X_3 \\ &+ \beta_{Log\_RD\_expense}X_4 + \beta_{Log\_Marketing\_expense}X_5 + \beta_{Log\_Emmy\_Win}X_6 \\ &+ \ +\beta_{qseas1}X_7 + \beta_{qseas2}X_8 + \beta_{qseas3}X_9 + \beta_{qseas4}X_{10} + \varepsilon_t \end{aligned}$$

When comparing Netflix with HBO (an American pay television channel), they have two distinct characteristics in common which are important in explaining their popularity with the subscribers. The first characteristic is the idea of paying a fixed monthly fee to access the

media instead of paying per rental (of movie/show). The second one is the linkage between the subscription and an exclusive wide range of content (Tryon, 2015). The term used to describe the effect of consumers conditioned to 'binge-watch' behavior is referred to as the 'Netflix effect' (Matrix, 2014). The strategy of producing 'Netflix Originals' was intended for multi-episodic viewing and the release of an entire season of a TV show instead of spread over time. The reason for releasing an entire season is to answer to the preferences of the subscribers' expectations and the "new norms of viewer control", which keeps consumers attached to the service (Neal, 2013).

Association between Netflix subscribers, original content and provision to binge-watch is often mentioned as a major advantage over others' services. Netflix provides and promises unlimited choice (quality) content in addition to control of own viewing schedules to its subscribers. Original content is central to Netflix's growth and thus the attraction of more subscribers. Hence, the second hypothesis will look at the relation between its total ('Log_Total') and domestic (United States) ('Log_US') streaming subscribers with the number of 'Netflix Originals', which is split up into the variables 'Log_All_Originals' and 'Log_New_Originals'. The variable 'Log_All_Originals' is the logarithmic cumulative number of releases per year, as the shows and movies remain on the platform. The variable catches the effect of the library expansion on its customer base, which is by gaining new customers and maintaining customers. The variable 'Log_New_Original' represents the logarithmic number of releases of original content per year. The variable 'Log_New_Originals' rather catches the effect of the number of original releases per year itself on the number of Netflix customers. A positive statistically significant effect of the 'Netflix Originals' would show that the innovative strategy of vertically integrating Netflix its production is successful with its customers.

Hypothesis 2: 'Netflix Originals' (split up into 'Log_New_originals', the effect of the original release per year, and 'Log_All_Originals', the effect of original library expansion) have a positive statistically significant effect on Netflix's customer base: domestically (United States; 'Log_US') and in total ('Log_Total').

H2.1a: 'Log_All_Originals' has a positive statistically significant effect on the total customer base of Netflix's streaming service.

$$Y_{Log\_Total} = \alpha + \beta_{Log\_All\_Originals}X_1 + \beta_{Log\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

H2.1b: 'Log_New_Originals' has a positive statistically significant effect on the total customer base of Netflix's streaming service.

$$Y_{Log\_Total} = \alpha + \beta_{Log\_New\_Originals}X_1 + \beta_{Log\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

H2.2a: 'Log_All_Originals' has a positive statistically significant effect on the domestic (United States) customer base of Netflix's streaming service.

$$Y_{Log\_US} = \alpha + \beta_{Log\_All\_Originals}X_1 + \beta_{Log\_US\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

H2.2b: 'Log_New_Originals' has a positive statistically significant effect on the domestic (United States) customer base of Netflix's streaming service.

$$Y_{Log\_US} = \alpha + \beta_{Log\_New\_Originals}X_1 + \beta_{Log\_US\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

3. Data and Methodology

3.1 Data

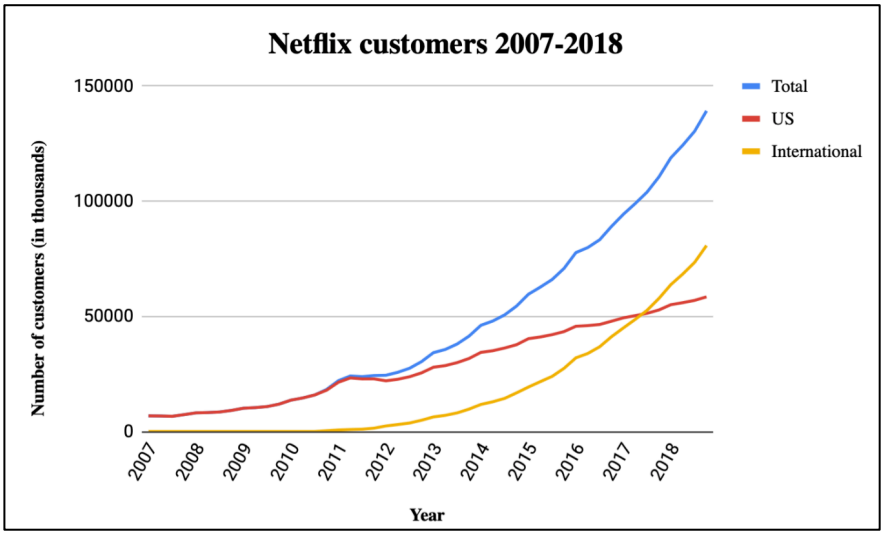
Table 1 – Overview of the three datasets used to examine the hypotheses

Dataset	Year	N° of observations	N° of variables
H1.a ($Y_{content}$)	2010-2018	36	10
H1.b (($Y_{Revenues}$)	2010-2018	36	10
H2.a (Y_{Total})	2007-2018	48	8
H2.b (Y_{Total})	2007-2018	48	8
H2.a (Y_{US})	2009-2018	40	8
H2.b (Y_{US})	2009-2018	40	8

The datasets, shown in the summary table above (Table 1), used for this research are based on three sets of quarterly data. The first hypothesis regarding the current content (library) value and the revenues is based on a dataset that consists of quarterly data from 2010 until 2018 comprising 36 observations and 10 variables. The second hypothesis regarding domestic (United States) and total number of customers consists of two datasets, one for each regression. The dataset for domestic customers (*U.S.*) uses a dataset from 2009 until 2018 with 40 observations and 8 variables. The dataset for the total amount of customers (*Total*) starts from 2007 until 2018, has 48 observations and also contains 8 variables. Most of the

data is extracted from Netflix's quarterly earnings reports available through its platform for shareholders "Netflixinvestor.com". The number of 'Netflix Originals' ('Log_All_Originals' and 'Log_New_Originals') and the number of Emmy Awards (an award for excellence in the television industry) for a 'Netflix Original' is extracted from other sources such as Statista, shareholder letters from Netflix and news articles. The evolution of the customer base of Netflix is shown in the graph below (*Graph 1*). The customers are divided into customers in total, domestically and internationally.

Graph 1- Netflix customers from the United States, internationally and in total 2007-2018



3.2 Variable description

As aforementioned, Netflix started its streaming service in 2007 hence the small sample size, which presents a limitation to this research to take into account for the analysis. In addition, the number of years differs per regression, as certain variables could not be determined for the same time length of the other datasets.

The first hypothesis is divided over two regressions that contain the same control variables and main explanatory variable, but have two different logarithmic dependent variables: the content value ('Log_Content_value') and the revenues ('Log_Revenues'). In addition, the logarithm is taken of the variables to normalize the distribution. The main explanatory variable investigated in the first hypothesis is the dummy variable 'Producing_Original_dummy' representing the transition to original content in the first quarter of 2013 (value=0 from 2010Q1-2013Q1 and value=1 2013Q2-2018Q4). Moreover, Netflix initially categorized the expenses of the operating streaming service

‘Log_Streaming_Expense’ and expenses of the buying DVD service ‘Log_DVD_Expense’ together under the general name “acquisition of content library”. However, the separation in the quarterly earnings only started in the year 2010. Hence, the dataset starts in 2010, as it cannot be determined for sure how much of that amount Netflix initially divided. As aforementioned, the streaming expenses does not only comprise the expenses for original content streaming rights (including exclusive rights), but also for the traditional streaming rights it tries to circumvent as much as possible by adopting the highlighted strategy in this research. In addition, the control variables ‘Log_RD_Expense’ represent the (logarithmic) research and development expenses and ‘Log_Marketing_Expense’ represent the (logarithmic) marketing expenses. The control variable ‘Log_Emmy_Win’ represents the (logarithmic) number of Emmy Awards won by a ‘Netflix Original’. The Emmy Award is a worldwide-recognized television award organized in the United States and is therefore also used in all the regressions. In addition, there is no award in Europe that comes near to the popularity (for television) and recognition of an Emmy Award since most are country-specific. The United States has a very large population and large following in Europe and other countries. The award serves in the research as a control variable and proxy for quality of the content. The assumption here is the better the quality, the more popular the shows/movies, the more awards are won and thus the more customers it should attract thanks to the recognition. Lastly, the variables ‘qseas1’, ‘qseas2’, ‘qseas3’ and ‘qseas4’ serve as seasonal quarterly dummy control variables. The variables control for any seasonality since the dataset consist of quarterly data meaning that the data might vary at specific intervals such as quarters because of various factors such as certain holidays or the weather.

The second hypothesis looks at the logarithmic number of customers in total (H2.1; international and United States consolidated) and in the domestic market (H2.1; United States), both represented by the dependent variables: ‘Log_Total’ and ‘Log_US’. In addition, two main explanatory variables (‘Log_All_Orignals’ and ‘Log_New_Originals’) are used for both dependent variables: total and U.S number of customers. The variable ‘Log_All_Originals’ is the logarithmic cumulative number of original releases per year, as the shows and movies remain on the platform. The variable represents the effect of the library expansion on its customers. The variable ‘Log_New_Original’ represents the logarithmic number of original content releases per year. The variable ‘Log_New_Originals’ rather catches the effect of the number of releases per year on the number of Netflix customers. Furthermore the ‘Log_RD_Expense’, ‘Log_Marketing_Expense’ and the ‘Log_US_Marketing_Expense’ represent the logarithmic expenses for research and development and marketing. As aforementioned in the first hypothesis the logarithm of the variables is taken to normalize the distribution, which is also applied to the variable of the

second hypothesis. Furthermore, the other control variables used in hypothesis one: 'Log_Emmy_Win', 'qseas1', 'qseas2', 'qseas3' and 'qseas4' are also implemented in the second hypothesis. Lastly, The number of observations differs in the two datasets since Netflix does not specify its marketing expenses spent on the domestic market (United States) in its financial statements (quarterly earnings) before 2009. Therefore the dataset used for the regression regarding the domestic customers starts from 2009 instead of 2007.

The number of 'Netflix Originals' does not change whether it is domestic or international. However, the total (including non-original content) amount of TV shows and movies do change geographically. The table below shows the number of originals released since Netflix started its 'Netflix Originals'. In the dataset this is split up in 'Log_All_Originals' where the releases per year are cumulative (and logarithmic), as the shows are not removed the next years but stay available. The variable 'Log_New_Originals' are the (logarithmic) releases per year as is shown in the table below (Table 2).

Table 2 – Number of "Netflix Originals" productions released per year 2013-2018

Year	Drama	Marvel	Comedy	Animation	Anime	Child_Fam	Foreign	Docu	Reality	Talk_shows	Co_Production	Continuations	Specials	Total
2013	3	0	0	0	0	2	0	1	0	0	0	1	0	7
2014	1	0	0	1	0	2	0	0	0	0	0	3	3	10
2015	3	2	5	1	0	9	1	2	0	0	4	1	3	31
2016	5	1	9	0	0	13	3	7	2	1	14	3	0	58
2017	6	3	13	1	2	16	6	15	1	2	11	3	6	85
2018	10	0	5	3	8	24	20	33	19	8	16	7	9	162

Furthermore, in the quarterly earnings reports from which most of the data is extracted, two variables are classified differently in the statements of the reports. The variable 'research and development' expense is classified as "Technology and development expense", but no other expenses are mentioned in the statements regarding research and development. In this industry it is for a considerable part related to (research in) technology and therefore one can assume it serves as a suited proxy. In addition, the number of customers is classified under three categories in the statements: total, free and paying subscribers at the end of the period. In order to avoid possible double count, the research solely maintains the number of paying subscribers at the end of each period (quarters) serving as a proxy for customers.

Table 3.1 – Descriptive statistics of hypothesis 1

Variable	Obs.	Mean	Std. Dev.	Min	Median	Max
Content_value (Y1)	36	2,29 Bn. USD	1,57 Bn. USD	55,6 Mn. USD	1,90 Bn. USD	5,15 Bn. USD
Revenues (Y2)	36	1,72 Bn. USD	1,08 Bn. USD	494 Mn. USD	1,37 Bn. USD	4,19 Bn. USD
Producing_ Original_dummy	36	.64	.49	0	1	1
Streaming_ Expense	36	1,37 Bn. USD	1,02 Bn. USD	50,5 Mn. USD	997 Mn. USD	3,78 Bn. USD
DVD_ Expense	36	17,9 Mn. USD	7,10 Mn. USD	7,51 Mn. USD	18,0 Mn. USD	36,9 Mn. USD
RD_ Expense	36	145 Mn. USD	84,6 Mn. USD	37,4 Mn. USD	118 Mn. USD	332 Mn. USD
Marketing_ Expense	36	221 Mn. USD	165 Mn. USD	62,8 Mn. USD	142 Mn. USD	730 Mn. USD
Emmy_Win	36	7,03	8,45	0	3	23

USD = U.S. dollars; Bn. = billion; Mn. = million

The following part will be the analysis covering the minimum, medium and maximum derived from the descriptive statistics (Table 3.1, 3.2 and 3.3). From the table above (table 3.1), the dependent variable content value ranges from 55,6 million U.S. dollars to 5,15 billion U.S. dollars, with a median of 1,90 billion U.S. dollars. The median indicates Netflix exceeded one billion round the end of 2013 (as the numbers are increasing over time), the year Netflix started its original content. The revenues range from 494 million U.S. dollars to 4,19 billion U.S. dollars, with a median of 1,37 billion U.S. dollars and mean of 1,72 billion U.S. dollars per quarter. Also, Netflix's revenues exceeded 1 billion U.S. dollars revenues round the year it started original content. Furthermore, the 'Producing_Original_dummy' is a dummy variable taking the value 0 (before implementation strategy) and 1 (after) and from the table can be seen that original content does not happen in the middle of the timeline of the dataset.

The two regressions contain the same main explanatory and control variables in order to observe a significant break in both dependent variables after the launch of original content. The logarithm is taken to minimize multicollinearity and normalize the distribution. The variable 'Streaming_Expense' (range: 50,5 million - 3,78 billion U.S. dollars) and the variable 'DVD_Expense' (range: 7,51 million – 36,9 million U.S. dollars) represent the

expenses of the operating streaming service and expenses of the buying DVD service. The variable 'Marketing_Expense' (range: 62,8 million -730 million U.S. dollars) represents the marketing expenses and 'RD_Expense' (range: 37,4 million – 332 million U.S. dollars) represents the research and development expenses. Lastly, the table shows that original content has won and obtained a maximum of 23 Emmy Awards.

Table 3.2 – Descriptive statistics of hypothesis 2.1 (Total number of customers)

Variable	Obs.	Mean	Std. Dev.	Min	Median	Max
Total_ Customers (Y1)	48	46,4 Mn.	38,9 Mn.	6,61 Mn.	32,3 Mn.	139 Mn.
All_ Originals	48	60.02	105.88	0	0	353
New_ Originals	48	29.27	48.51	0	0	162
Marketing_ Expense	48	179 Mn. USD	160 Mn. USD	40,1 Mn. USD	114 Mn. USD	730 Mn. USD
RD_ Expense	48	114 Mn. USD	91,0 Mn. USD	13,2 Mn. USD	87,4 Mn. USD	332 Mn. USD
Emmy_Win	48	5.27	7.92	0	0	23

USD = U.S. dollars; Bn. = billion; Mn. = million

From the table above (Table 3.2), the total number of customers (Total_Customers') ranges from 6,61 million to 139 million customers, with a median of 32,3 million customers. This means the number total of customers acquired by Netflix contained a relatively large customer base round 2012. Netflix expanding in 2012 to Canada, Latin America, Central America, Caribbean, United Kingdom, and Scandinavia could form also be a possible explanation for this. The release of original content ('New_Originals') per year was maximum 162 TV shows/movies and the library ('All_Originals') contained a maximum of 353 TV shows/movies. The median of both variables related to original content ('All_Originals' and 'New_Originals') show a median of 0, which means the release of original content does not happen in the middle of the dataset timeline (2007-2018). In addition, from the table can be derived that Netflix spent minimum ('Marketing_Expense') 40,1 million and maximum 730 million U.S. dollars on marketing per quarter, with an

average of 179 million U.S. dollars per quarter. The research and development expenses ('RD_Expense') vary from minimum 13,2 million U.S dollars and maximum 332 million U.S. dollars per quarter, with an average of 114 million U.S. dollars per quarter.

Table 3.3 – Descriptive statistics of hypothesis 2.2 (U.S. customers)

Variable	Obs.	Mean	Std. Dev.	Min	Median	Max
US_ Customers (Y2)	40	33,4 Mn.	14,9 Mn.	10,1 Mn.	33,0 Mn.	58,5 Mn.
All_ Originals	40	72.3	112.35	0	12	353
New_ Originals	40	35.13	51.23	0	8.5	162
Marketing_ Expense (U.S.)	40	206 Mn. USD	160 Mn. USD	59,8 Mn. USD	121 Mn. USD	580 Mn. USD
RD_ Expense	40	133 Mn. USD	88,0 Mn. USD	23,4 Mn. USD	104 Mn. USD	332 Mn. USD
Emmy_Win	40	6.33	8.29	0	2	23

USD = U.S. dollars; Bn. = billion; Mn. = million

Moreover, the table above (Table 3.3) shows the descriptive statistics from the domestic market, the United States. The number of customers in the United States (dataset 2009-2018) was minimum 10,1 million and maximum 58,5 million customers (17% of the U.S. population in 2018). The median of 33 million customers shows the amount of customers reached around the time Netflix started the implementation of its strategy and start original content in 2013. As aforementioned, the originals are not bound to the country in contrast to shows and movies diffused under traditional streaming rights, therefore the originals distributed are the same as anywhere else where Netflix is operative. The number of originals per year reaches for this reason also in the domestic market a maximum ('New_Originals') 162 original TV shows/movies. The library in the U.S. also contains a maximum of ('All_Originals') 353 TV shows/movies of original content in total. Furthermore, Netflix spent a minimum of ('US_Marketing_Expense') 59,8 million and maximum of 580 million U.S. dollars per quarter on marketing expenses for the U.S. market, with an average of 206 million U.S. dollars per quarter. The research and development expenses vary from a

minimum of 23,4 million U.S. dollars to a maximum of 332 million per quarter U.S. dollars, with an average of 133 million U.S. dollars per quarter.

Following the analysis of the descriptive statistics, the analysis of multicollinearity. In order to test whether there is no multicollinearity between the independent variables, the correlations between these variables need to be calculated. The preferred results are weak to no correlations. The following part shows the result of the correlations between the independent variables in the tables below (*Table 4.1, 4.2, 4.3*)

Table 4.1 – Correlations between the variables Hypothesis 1

Correlation	**Log_ Content_ Value (Y1)**	**Log_ Revenues (Y2)**	Producing _Original _Dummy	Log_ Streaming _Expense	Log_ DVD_ Expense	Log_ R&D_ Expense	Log_ Marketing _Expense	Log_ Emmy_ Win
Log_ Content_ Value (Y1)	1.0000							
Log_ Revenues (Y2)	0.8977	1.0000						
Producing_ Original_ Dummy	0.7729	0.7950	1.0000					
Log_ Streaming Expense	0.9726	0.9174	0.7488	1.0000				
Log_ DVD_ Expense	-0.6025	-0.5748	-0.3104	-0.5617	1.0000			
Log_ R&D_ Expense	0.9379	0.9896	0.8097	0.9450	-0.5687	1.0000		
Log_ Marketing_ Expense	0.8206	0.9774	0.7184	0.8558	-0.5549	0.9542	1.0000	
Log_ Emmy_ Win	0.7759	0.9212	0.8659	0.7913	-0.4672	0.8920	0.8837	1.0000

The table above (Table 4.1) shows the results of the correlations between the independent variables (main explanatory variable and control variables) of the regressions with dependent variable 'Log_Content_Value' and 'Log_Revenues'. Strong correlation approaches the -1 and 1 and a weak correlation approaches 0. The two dependent variables have a strong positive correlation (0.8977). The main explanatory variable 'Producing_Original_dummy' is strongly positively correlated with the dependent variables and control variables, except for with 'Log_DVD_Expense', which is negative and weak correlated (-0.3104). Furthermore, the logarithmic expenses of the buying DVD service are negatively but relatively weakly

correlated to the other independent variables. The variables 'Log_Streaming_Expense', 'Log_RD_Expense', 'Log_Marketing_Expense' and 'Log_Emmy_Win' are positively and relatively strongly correlated to the other dependent variables.

Table 4.2 – Correlations between the variables Hypothesis 2 - Total number of Customers

Correlation	**Log_ Total (Y1)**	Log_ All_ Originals	Log_ New_ Originals	Log_ Marketing_ Expense	Log_ R&D_ Expense	Log_ Emmy_ Win
Log_Total (Y1)	1.0000					
Log_ All_ Originals	0.9116	1.0000				
Log_ New_ Originals	0.9120	0.9991	1.0000			
Log_ Marketing_ Expense	0.9587	0.9276	0.9253	1.0000		
Log_ R&D_ Expense	0.9927	0.8779	0.8788	0.9460	1.0000	
Log_ Emmy_ Win	0.8823	0.9610	0.9560	0.8963	0.8463	1.0000

Moreover, the table above (Table 4.2) shows the multicollinearity results of the independent variables (main explanatory variable and control variables) of hypothesis 2.1 with dependent variable 'Log_Total'. The hypothesis consists of two regressions, one containing 'Log_All_Originals' and the other containing 'Log_New_Originals' as main explanatory variable. The two explain a different effect: one shows the (logarithmic) effect of the expansion and the other shows the (logarithmic) effect of the number of releases itself per year. The dependent variable is positively strongly correlated to the main explanatory variable and control variables. The correlation between the main explanatory variable and the control variables is positive and strong, especially between the logarithmic marketing expenses and the two main explanatory variables ("Log_All_Originals and "Log_New_Originals") as most of the scores approach 1.

Table 4.3 – Correlations between the variables Hypothesis 2.2 **- Customers from the United States**

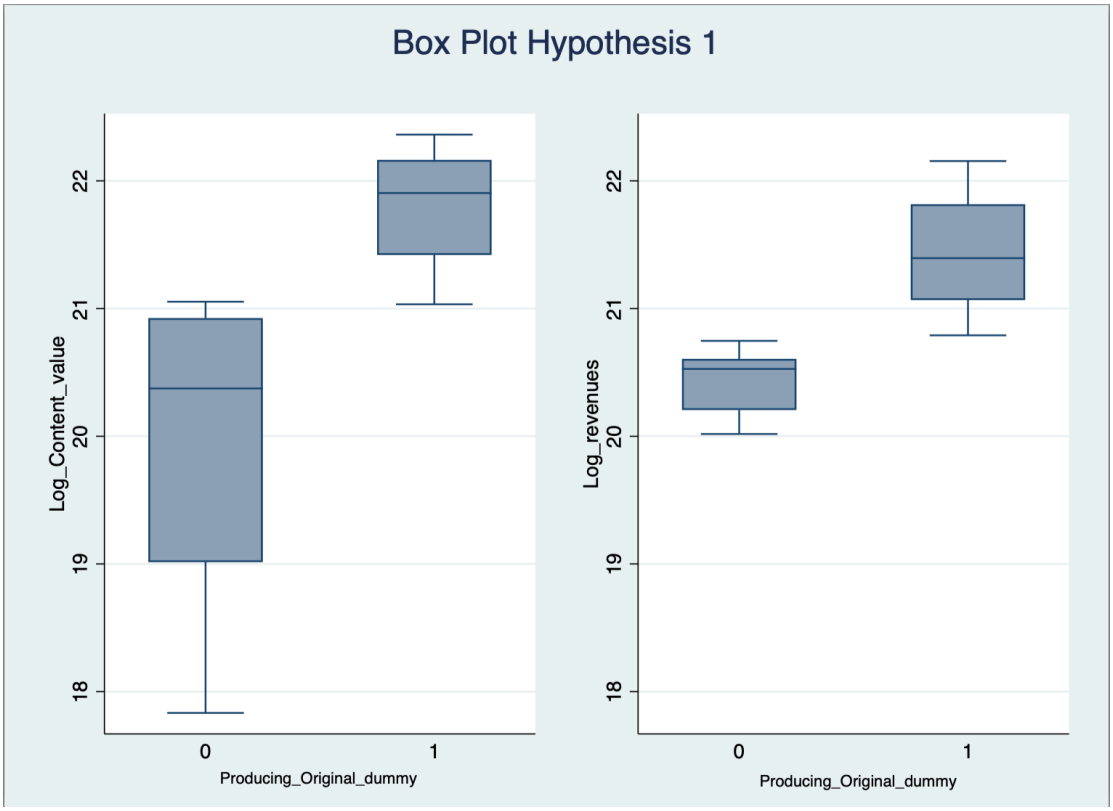
Correlation	**Log_US (Y2)**	Log_ All_ Originals	Log_ New_ Originals	Log_US_ Marketing_E xpense	Log_ R&D_ Expense	Emmy_ Win
Log_US (Y2)	1.0000					
Log_ All_ Originals	0.9014	1.0000				
Log_ New_ Originals	0.9018	0.9989	1.0000			
Log_US_ Marketing_ Expense	-0.4486	-0.2897	-0.3010	1.0000		
Log_ R&D_ Expense	0.9886	0.9086	0.9082	-0.4236	1.0000	
Log_ Emmy_Win	0.8628	0.9541	0.9481	-0.2683	0.8669	1.0000

Lastly, the multicollinearity results of hypothesis 2.2, with dependent variable the (logarithmic) number of customers from the United States (the domestic market), are shown in the table above (Table 4.3). There is a positive and strong correlation between the variables 'Log_All_Originals', 'Log_New_Originals' and the control variables, except for a negative weak correlation with the logarithmic marketing expenses for the United States, which is -0.2897/-0.3010 and lie very close to 0. The control variable 'Log_US_Marketing_Expense' is also negatively and relatively weakly correlated with the other variables such as the (logarithmic) number of Emmy Awards (-0.2683).

The multicollinearity results given in the tables (Table 4.1, 4.2, 4.3) above show overall positive strong correlation indicating extreme multicollinearity. However, the correlations are not perfect besides than with itself, which means that the confidence intervals will be rather large and could potentially pose problems in rejecting the hypothesis. A potential reason for this is as aforementioned the small sample size of the dataset and therefore it is needed in the results to acknowledge that multicollinearity is present when interpreting the data results (Williams, 2015).

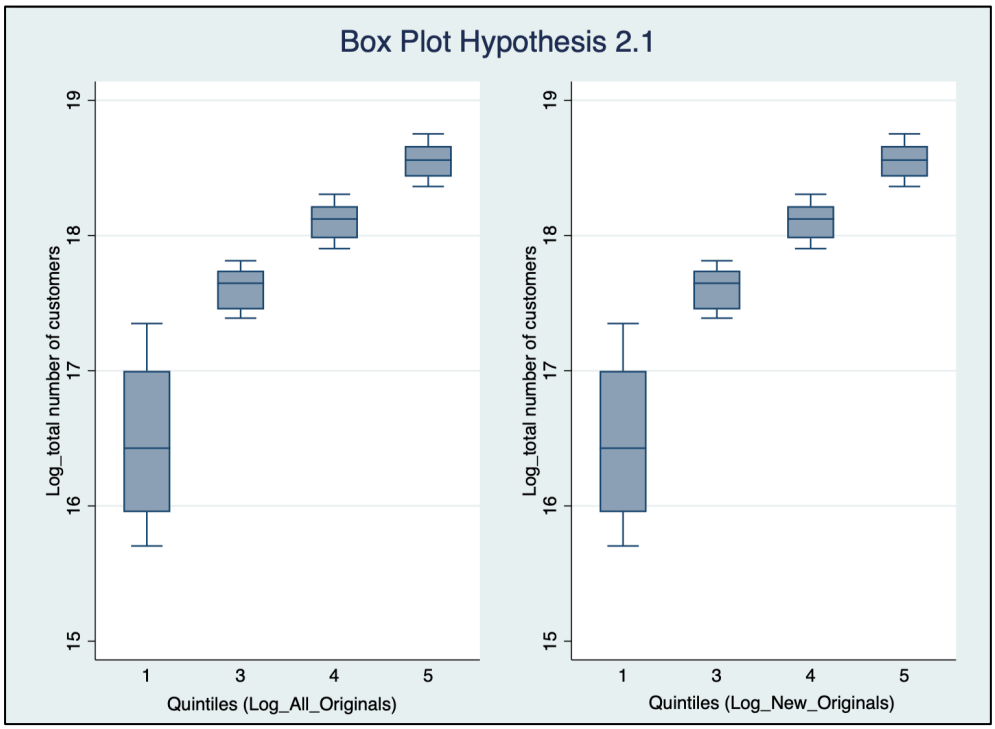
The following part consists of an analysis of the distribution of the maintained variables. This has been done by means of box plots and histograms. The box plot below (Graph 2.1) shows that the variables 'Log_Content_value' and 'Log_Revenues' have higher values after the release of original content ('Producing_Original_Dummy' = 1).

Graph 2.1 – Box plot hypothesis 1: the dependent variable 'Log_Content_value' and 'Log_Revenues' over the main explanatory variable 'Producing_Original_Dummy'

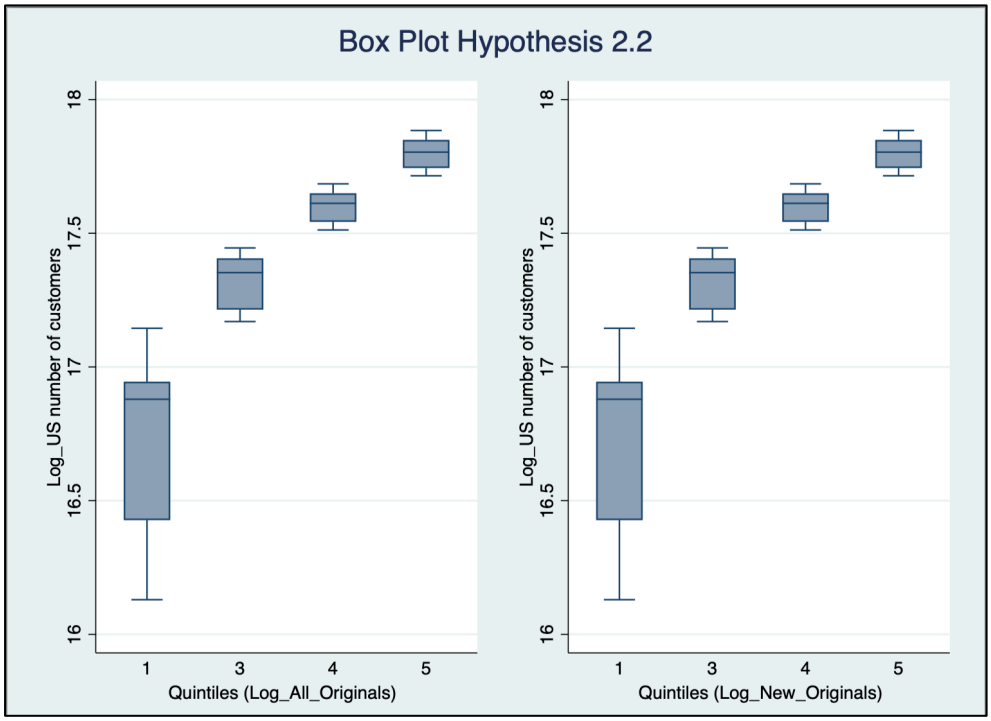


Furthermore, the box plots below (Graph 2.2 and 2.3) show that the main explanatory variables 'Log_All_Originals' and 'Log_New_Originals' are 0 at the beginning and after the release linearly increase. The first two quintiles are grouped together under the label '1' on the x-axis as more than 40% of the data takes on the value '0'. The 'Log_All_Originals' reaches a maximum of 353 original shows/movies and 'Log_New_Originals' a maximum of 162.

Graph 2.2 – Box plot hypothesis 2.1: the dependent variable 'Log_Total' over the main explanatory variables 'Log_All_Originals' and 'Log_New_Originals'

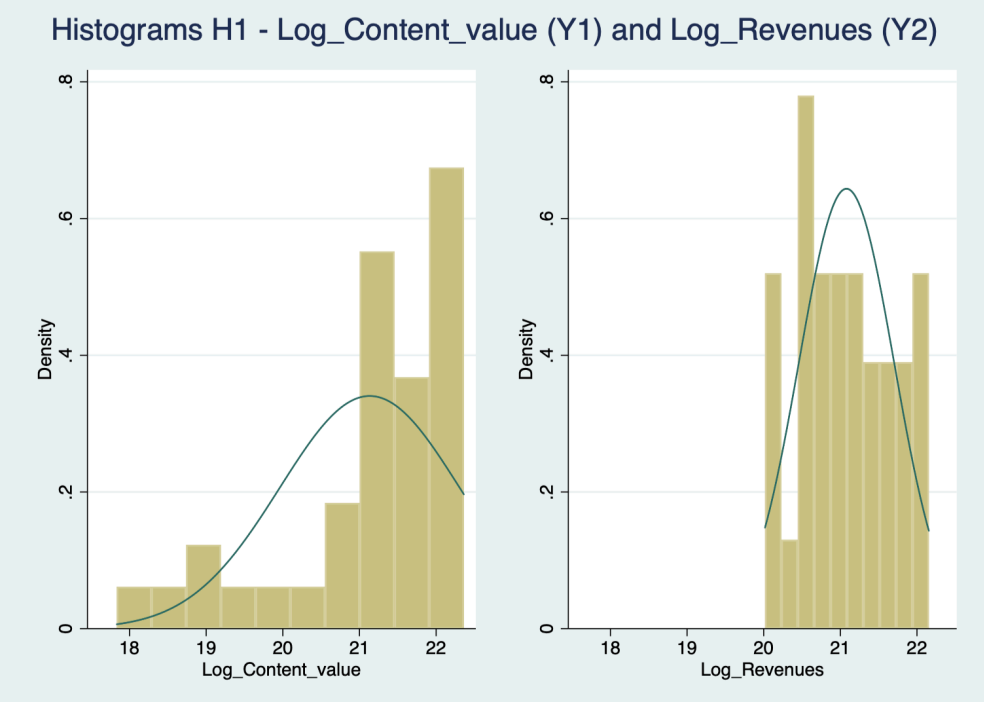


Graph 2.3 – Box plot hypothesis 2.2: the dependent variable 'Log_US' over the main explanatory variables 'Log_All_Originals' and 'Log_New_Originals'



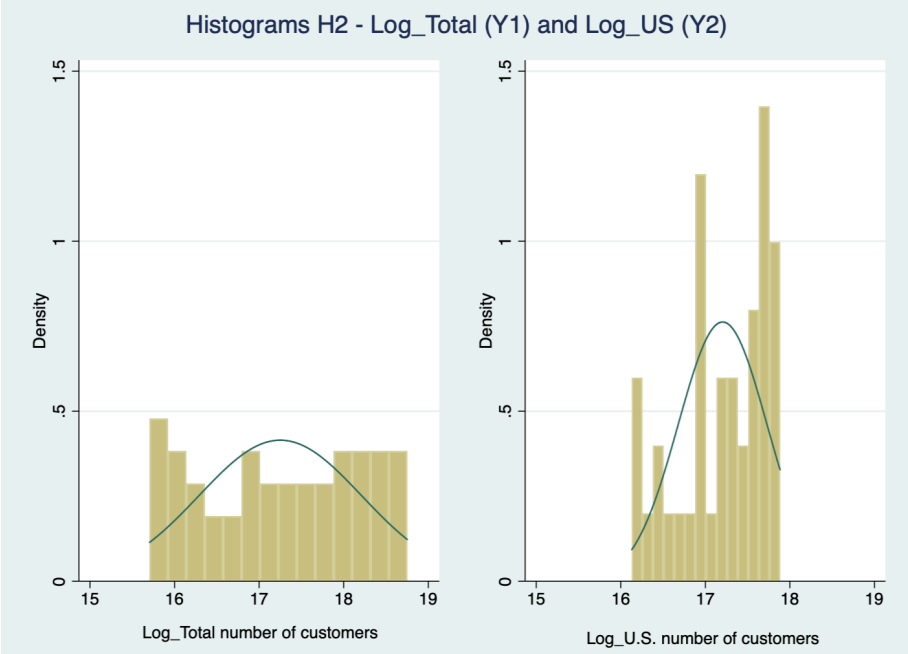
The last part of this section discusses the histograms below (Graph 3.1 and 3.2) showing the distribution of the dependent variables used in the regression models. The dependent variables have been transformed into logarithmic values since they did not follow a normal distribution (appendix Graph 3.3 and 3.4). The graph below (Graph 3.1) shows the distribution of the dependent variables based on a dataset of 36 observations. 'Log_Content_value' shows a slightly left-skewed distribution and most of the logarithmic values have more "larger values" (>21) and the number of "smaller values" are more constant. The histogram of the logarithmic revenues is approaching a good fit, however, the distribution contains some peaks.

Graph 3.1 - Histogram distribution (H1) dependent variables 'Log_Content_value' and 'Log_Revenues'



The histograms with the distribution of the dependent variables 'Log_Total' and 'Log_US' are shown below (Graph 3.2). The distribution of 'Log_Total' is based on a dataset containing 48 observations and 'Log_US' is based on 40 observations. The logarithmic total number of customers ranges from approximately 16 until 19 customers and shows a relatively constant distribution with a couple of peaks. The logarithmic number of customers within the U.S. ranges from around 16 to 18 customers and is slightly skewed to the left containing several peaks.

Graph 3.2 - Histogram distribution (H1.1) dependent variables 'Log_Total_Consumers' and 'Log_US_Customers'



3.3 Methodology

The methodology of the research is based on six multivariate (ordinary least squares) OLS regressions, which will be explained in the following section.

Hypothesis 1: The break (2013Q1= 'Producing_Original_dummy') has a positive statistically significant effect on Netflix' current content net value 'Log_Content_value' and revenues 'Log_Revenues'.

H1.a

$$Y_{Log\_content\_value} = \alpha + \beta_{producing\_original\_dummy}X_1 + \beta_{log\_Streaming\_expense}X_2 + \beta_{Log\_DVD\_expense}X_3 + \beta_{Log\_RD\_expense}X_4 + \beta_{Log\_Marketing\_expense}X_5 + \beta_{Log\_Emmy\_Win}X_6 + \beta_{qseas1}X_7 + \beta_{qseas2}X_8 + \beta_{qseas3}X_9 + \beta_{qseas4}X_{10} + \varepsilon_t$$

H1.b

$$Y_{Log\_Revenues} = \alpha + \beta_{producing\_original\_dummy}X_1 + \beta_{log\_Streaming\_expense}X_2 + \beta_{Log\_DVD\_expense}X_3 + \beta_{Log\_RD\_expense}X_4 + \beta_{Log\_Marketing\_expense}X_5 + \beta_{Log\_Emmy\_Win}X_6 + \beta_{qseas1}X_7 + \beta_{qseas2}X_8 + \beta_{qseas3}X_9 + \beta_{qseas4}X_{10} + \varepsilon_t$$

The regressions used for the first hypothesis has the (logarithmic) current content net value and (logarithmic) revenues as the dependent variable. As aforementioned the variables in these regressions are transformed into logarithmic variables to normalize the distribution. The main explanatory variable is the 'Producing_Original_dummy', which represents the start of Netflix implementing its innovative strategy of producing its own content in the first quarter of 2013. The analysis will investigate whether the launch of original content in the first quarter showed a significant break in the content value and the revenues of Netflix. Furthermore the (logarithmic) expenses for the buying DVD service and the (logarithmic) expenses for the operating streaming service are represented by the control variables 'Log_Streaming_Expense' and 'Log_DVD_Expense'. The 'Log_Streaming_Expense' contains the streaming rights expenses and comprises not only the expenses related to original content (including exclusive streaming rights), but also the traditional streaming rights. Furthermore, two other control variables are (logarithmic) expenses: marketing expenses and the research and development expenses. Marketing expenses involve promoting Netflix itself and its shows/movies to customers and prospective customers. Research and developments comprise for example improvements to the artificial recommender system, which helps people choose what to watch and analyze the data obtained via the platform. The service by the recommender system as mentioned before keeps customers attached/attracted to Netflix and helps in deciding what shows or movies to produce next. The variable 'Log_Emmy_Win' is the (logarithmic) number of awards handed out to original content, serving as a proxy for the quality/success of the original shows. The variables 'qseas1', 'qseas2', 'qseas3' and 'qseas4' serve as seasonal quarterly dummy control variables. The variables control for any seasonality since the dataset consist of quarterly data, which means that the data might vary at specific intervals such as quarters because of various factors such as certain holidays or the weather. Lastly, not being able to control for the time trend since it would mechanically drive out the effect of the main explanatory variable "Producing_Original_dummy", poses a limitation to this research. Therefore the research implicitly controls for the time trend through the expenses although they are not a perfect control for this.

Hypothesis 2: "Netflix Originals" (split up into 'Log_New_originals', the effect of the original release per year, and 'Log_All_Originals', the effect of original library expansion) have a positive statistically significant effect on Netflix's customer base: domestically (United States; 'Log_US') and in total ('Log_Total').

H2.1a: 'Log_All_Originals' has a positive statistically significant effect on the total customer base of Netflix's streaming service.

$$Y_{Log\_Total} = \alpha + \beta_{Log\_All\_Originals}X_1 + \beta_{Log\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

H2.1b: 'Log_New_Originals' has a positive statistically significant effect on the total customer base of Netflix's streaming service.

$$Y_{Log\_Total} = \alpha + \beta_{Log\_New\_Originals}X_1 + \beta_{Log\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

H2.2a: 'Log_All_Originals' has a positive statistically significant effect on the domestic (United States) customer base of Netflix's streaming service.

$$Y_{Log\_US} = \alpha + \beta_{Log\_All\_Originals}X_1 + \beta_{Log\_US\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

H2.2b: 'Log_New_Originals' has a positive statistically significant effect on the domestic (United States) customer base of Netflix's streaming service.

$$Y_{Log\_US} = \alpha + \beta_{Log\_New\_Originals}X_1 + \beta_{Log\_US\_Marketing\_expense}X_2 + \beta_{Log\_RD\_expense}X_3 + \beta_{Log\_Emmy\_Win}X_4 + \beta_{qseas1}X_5 + \beta_{qseas2}X_6 + \beta_{qseas3}X_7 + \beta_{qseas4}X_8 + \varepsilon_t$$

Moreover, the second hypothesis shows whether the implementation of original content ('Log_All_Originals' and 'Log_New_Originals') attracted customers for Netflix. The second hypothesis, shown above, is split over the number of customers in the total (H2.1 with dependent variable 'Log_Total') and the number of customers in the United States (H2.2 with dependent variable 'Log_US'). For both groups of customers, total and U.S., two main explanatory variables are tested 'Log_All_Originals' and 'Log_New_Originals'. The variable 'Log_All_Originals' is the logarithmic cumulative number of releases per year, as the shows and movies remain on the platform. The variable catches the effect of the library expansion on its customers. The variable 'Log_New_Originals' represents the logarithmic number of releases of original content per year. The variable 'Log_New_Originals' rather catches the effect of the release of the original content per year on the number of Netflix customers. The variables are logarithmic values as it conforms to the intuition: if an original TV shows/movie library is small (at the start of the implementation of original content) adding a movie has a lot more value to the customers compared to when the library is large (e.g. 300 movies) because a newly added movie will make up only a small percentage of a large library whilst it is a significant addition to a small library. The several expenses are represented by the control variables 'Log_RD_Expense', which represents the logarithmic research and development

expenses, which is the same for both dependent variables 'Log_Total' and 'Log_US'. These expenses involve for example improvements to the recommender system that has become a salient part in e-commerce and in keeping customers attached to the service. However the logarithmic marketing expenses do differ: 'Log_Marketing_expense' is the consolidated (total) expense and 'Log_US_Marketing_expense' is the marketing expenses solely for the United States. Furthermore, the variable 'Log_Emmy_Win' refers to the (logarithmic) number of Emmy Awards handed out to 'Netflix Originals'. The award is worldwide recognized, which could help in gaining popularity of the shows or movies as it receives recognition for its quality. Lastly the variables 'qseas1', 'qseas2', 'qseas3' and 'qseas4' serve as seasonal quarterly dummy control variables since the dataset for the second hypothesis is also quarterly. Lastly, as aforementioned not being able to control for the time trend poses a limitation to the research. However, it is implicitly controlled for through the expenses despite not being a perfect control for this matter.

4. Results

The following part of the paper investigates the obtained results from the tested hypotheses based on six multivariate OLS regressions discussed in the previous parts.

The table below (Table 5.1) shows the regression results for hypothesis one based on a dataset of 36 observations (2010Q1-2018Q4). In addition, the regressions are also tested at Time T+1 (appendix Table 5.2) since the expenses and the awards might have some delayed effect on the dependent variables 'Log_Content_value' and 'Log_Revenues'.

First of all, the regression with dependent variable 'Log_Content_value' and 'Log_Revenues' (Graph 5.1) does not experience a statistically significant effect from the variable 'Producing_Original_dummy' at both Time T and T+1 (one quarter delay). The p-value of the main explanatory variable is 0.451 in model 1 (Y1= 'Log_Content_value') and 0.058 in model 2 (Y2= 'Log_Revenues'), which is above the significance level of 0.05. This indicates that the current content value and revenues did not experience a significant break at the launch 'Netflix Originals' in the first quarter of 2013.

The logarithmic expenses of the operating streaming service ('Log_Streaming_Expense') have a positive statistically significant effect on the content value (p-value 0.000 <0.05 significance level). This means that if streaming service expenses were to increase by 10%, the content value would increase by 5,6% (the formula used $((1.10)^{\beta} - 1)\times 100$), with here

coefficient β=0.570). This control variable has an insignificant effect on the dependent variable 'Log_Revenues'. The logarithmic expense of the buying DVD service ('Log_DVD_Expense') has an insignificant effect on the revenues, but has a negative statistically significant effect on the content value (p-value 0.003<0.05 significance level). Therefore the regression results indicate that if DVD service expenses were to increase by 10%, the content value would decrease by 3.3%. Netflix started with DVD's and bought more DVD's when the content value was lower. In addition, at that time original production and streaming content did not yet start or was relatively small.

Furthermore, the logarithmic research and development expenses have a positive statistically significant effect on both content value and revenues of Netflix. The results indicate that a 10% increase in research and development leads to an increase of 16.8% in content value and 5.06% increase in revenues. The expense has a greater effect on the content value than the revenues. The results for the marketing expenses show a negative statistically significant effect on the content value (p-value 0.002 < 0.05 significance level) and a positive statistically significant effect on revenues (p-value 0.000 < 0.05 significance level). From this follows if the marketing expenses were to increase by 10%, the content value would decrease by 8.14% and increase revenues by 2.8%. A possible explanation could be that the "better" content requires less marketing, but marketing is nevertheless important for revenue generation. However, at Time T+1 (appendix Graph 5.2), the marketing expenses have an insignificant effect on content value and remain to have a positive statistically significant effect on revenues. Lastly, the logarithmic number of Emmy Awards dedicated to original content has an insignificant effect (p-value 0.245 > 0.05 significance level) on content value and a positive statistically significant effect on revenues (p-value 0.000). The results imply that if Netflix won 10% more Emmy Awards, the revenues would increase by 0.86%. The Emmy Award serves as a proxy for quality and does not affect the content value, but is important for revenue generation.

Table 5.1 – Regression results with dependent variables 'Log_Content _value' and 'Log_Revenues'

VARIABLES	(1) Log_Content_value	(2) Log_Revenues
Producing_Original_dummy	0.240	-0.0578
	(0.174)	(0.0341)
Log_Streaming_Expense	0.570***	0.0242
	(0.133)	(0.0315)
Log_DVD_Expense	-0.355***	-0.00404
	(0.106)	(0.0235)
Log_RD_expense	1.629***	0.518***
	(0.450)	(0.102)
Log_Marketing_Expense	-0.891***	0.291***
	(0.264)	(0.0580)
Log_Emmy_Win	-0.117	0.0902***
	(0.0781)	(0.0136)
Seasonality (Quarter dummies)	YES	YES
Constant	1.944	5.401***
	(2.988)	(0.622)
Observations	36	36
R-squared	0.979	0.996

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
NOTE: control variable 'Log_Emmy_win' transformed to logarithms by means of the formula: log (Emmy_Win+1), with +1 to avoid missing values

Secondly, the table below (Table 6.1) shows the regression results for hypothesis 2.1 with dependent variable 'Log_Total' based on a dataset of 48 observations (2007Q1-2018Q4). The regressions are also tested with a 1-year delay (44 observations) (appendix Table 6.2 and 6.3) and 2-year delay (2007Q1-2017Q4; 40 observations) (Graph 4.1 and 4.2) since the expenses and the awards might have a delayed effect on the total number of customers.

The main explanatory variable 'Log_All_Originals', which can be interpreted as the expansion of the library, has a positive statistically significant effect (p-value 0.013 < 0.05 significance level) on the number of customers. If the library were to expand by 10%, the total number of customers would increase by 0.49% (the formula used $((1.10)^{\beta} - 1)\times 100$), with here coefficient β=0.0508). Likewise for the main explanatory variable 'Log_New_Originals', which can be interpreted as the effect of the release itself, has a positive statistically significant effect (p-value 0.013) on the total number of customers. Therefore the results imply that if Netflix would increase its release per year by 10%, the total number of customers would increase by 0.52%. The main explanatory variables loose significance when adding time delay (appendix Table 6.2 and 6.3). The graphs 4.1 and 4.2 show the coefficients have more effect spread over three quarters and afterwards decreases in effect around approximately 0.02. This means that consumers increase by less than one

percent when Netflix expands its original content library and increases the number original production releases per year by 10%.

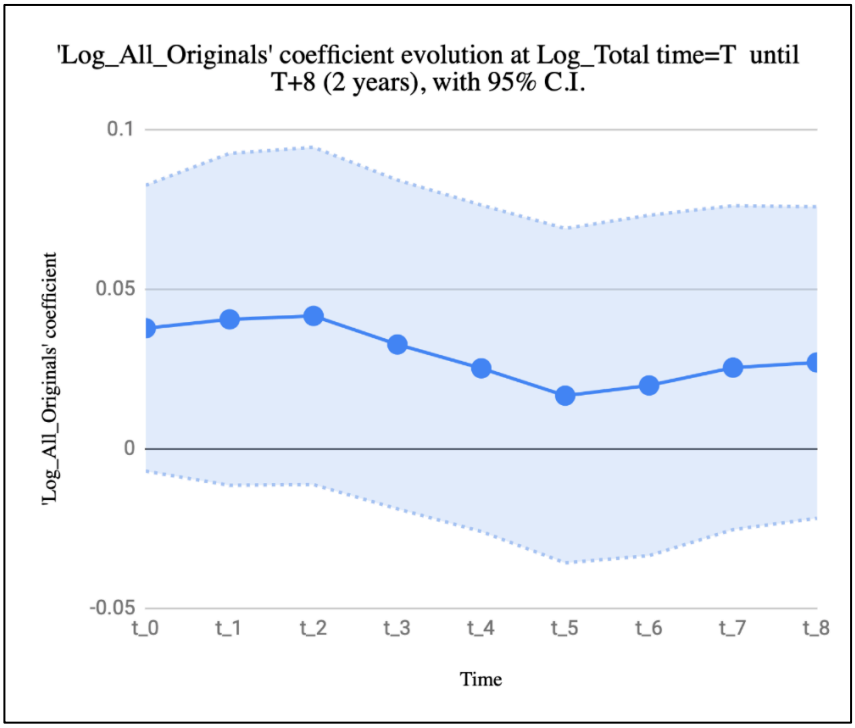
Lastly, the logarithmic research and development expenses have a positive statistically significant effect on the total number of Netflix customers (p-value 0.000). If research and development expenses were to increase by 10%, the total number of customers would increase by (8.23% in model 1 and 8.20% in model 2) approximately 8%. The research and development expenses affect the number of consumers more than the main explanatory variables. The Emmy Awards have a positive statistically significant effect on the total number of customers: if Netflix were to win 10% more awards for 'Netflix Originals', the total number of customers would increase by approximately 0.40% (model 1: 0.39%; model 2: 0.44%). The number of awards dedicated to original content has the smallest significant effect on the number of consumers.

Table 6.1 – Regression results with dependent variables 'Log_Total' and two main explanatory variables 'Log_All_Originals' and 'Log_New_Originals'

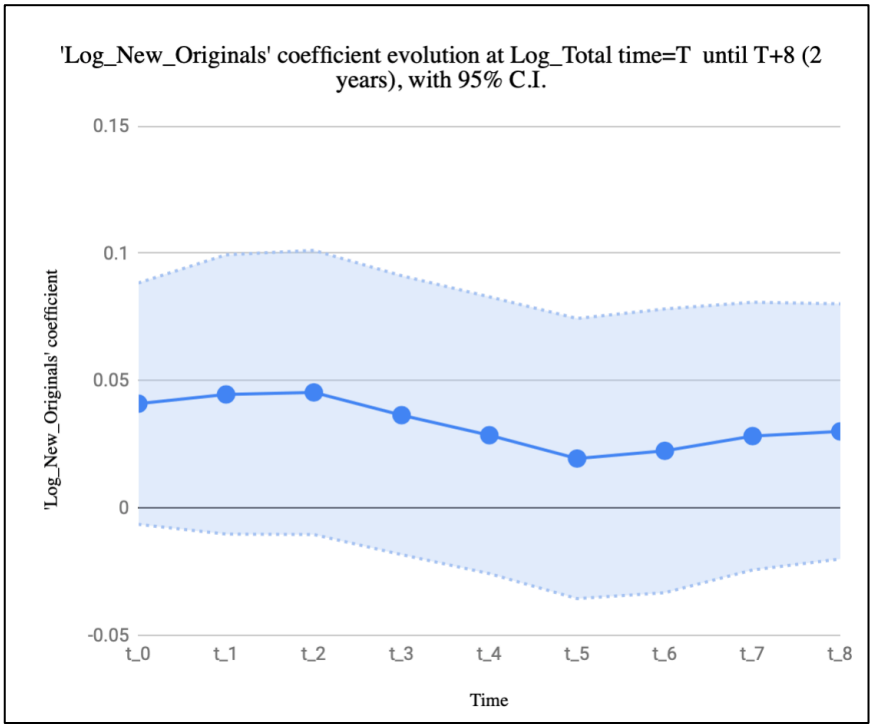
VARIABLES	(1) Log_Total model 1	(2) Log_Total model 2
Log_All_Originals	0.0508**	
	(0.0196)	
Log_New_Originals		0.0546**
		(0.0211)
Log_Marketing_Expense	0.0163	0.0219
	(0.0501)	(0.0491)
Log_RD_Expense	0.830***	0.827***
	(0.0390)	(0.0397)
Log_Emmy_Win	0.0406**	0.0462***
	(0.0165)	(0.0166)
Seasonality (Quarter dummies)	YES	YES
Constant	1.698*	1.712*
	(0.937)	(0.926)
Observations	48	48
R-squared	0.993	0.993

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
NOTE: Variables 'Log_All_Originals', 'Log_New_Originals' and 'Log_Emmy_Win' transformed to logarithms by means of the formula: log (All/New_Originals+1) and log (Emmy_Win+1), with +1 to avoid missing values

Graph 4.1 – The evolution of the 'Log_All_Originals' coefficient at Log_Total time T, T+1, T+2…T+8 with a 95% confidence interval



Graph 4.2 – The evolution of 'Log_New_Originals' coefficient at Log_Total time T, T+1, T+2…T+8 with a 95% confidence interval



Lastly, the table below (Table 7.1) shows the regression results for hypothesis 2.2 with dependent variable 'Log_US' based on a dataset of 40 observations (2007Q1-2018Q4). The regressions are also tested with a 1-year delay (36 observations; 2007Q1-2017Q4) (appendix Table 7.2 and 7.3) and 2-year delay (2009Q1-2016Q4; 32 observations) (appendix Graph 5.1 and 5.2) since also in this case the expenses and the awards might have some delayed effect on the total number of customers.

The two main explanatory variables 'Log_All_Originals', the effect of the library expansion, and 'Log_New_Originals', the effect of the release per year, have an insignificant effect on the number of consumers within the United States. A plausible explanation for this can be the fact that the United States has more content available (i.e. the U.S. has approximately three times as much content as an average European country (Marcus, 2019). Therefore the original content represents a smaller part of the content available in the U.S. compared to the rest of the world. Variables more specific to U.S. customers might have been omitted such as the influence of availability of other streaming services.

Furthermore, the control variable 'Log_RD_Expense', the logarithmic research and development expenses also have a positive statistically significant effect on the U.S. customers (p-value 0.000). If the research and development expenses were to increase by 10%, the number of customers in the United States would increase by approximately 6.20% (in model 1: 6.20%; model 2: 6.19%). Its effect on the total number of customers is greater than solely on the U.S. customers. In addition, the effect of the research and development maintains its effect in the long run (appendix table 7.2 and 7.3). The Emmy Awards, which are organized in the United States, have an insignificant effect on the U.S. customers. This can possibly be explained by the plenitude of awards in the U.S. or because U.S. customers rather choose shows/movies based on famous actors instead of awards.

Table 7.1 – Regression results with dependent variables 'Log_US' and two main explanatory variables 'Log_All_Originals' and 'Log_New_Original'

VARIABLES	(1) Log_US model 1	(2) Log_US model 2
Log_All_Originals	0.00313	
	(0.0218)	
Log_New_Originals		0.00514
		(0.0235)
Log_US_Marketing_Expense	-0.0294	-0.0294
	(0.0243)	(0.0241)
Log_RD_Expense	0.631***	0.629***
	(0.0551)	(0.0539)
Log_Emmy_Win	0.0140	0.0126
	(0.0264)	(0.0255)
Seasonality (Quarter dummies)	YES	YES
Constant	6.086***	6.135***
	(1.271)	(1.243)
Observations	40	40
R-squared	0.979	0.979

Robust standard errors in parentheses; *** p<0.01, ** p<0.05, * p<0.1
NOTE: Variables 'Log_All_Originals', 'Log_New_Originals' and 'Log_Emmy_Win' transformed to logarithms by means of the formula: log (All/New_Originals+1) and log (Emmy_Win+1), with +1 to avoid missing values

5. Conclusion

The research aimed at answering the research question:

'Did the vertical integration of streaming production help Netflix achieve higher content value, revenues and number of customer?'

The research question was based on two hypotheses that were tested by means of six multivariate OLS regressions.

The first hypothesis tested whether the break (2013Q1= 'Producing_Original_dummy') has a positive statistically significant effect on Netflix' current content net value ('Log_Content_value') and revenues ('Log_Revenues'). The results showed the break was insignificant and failed to reject the null hypothesis ("no effect"). If the coefficient was significant, the hypothesis would have been confirmed and the null hypothesis rejected. The content value and the revenues are detrimental to the growth for pioneer Netflix. However, the results are not surprising since the decision to vertically integrate was intended as a long-term investment. In addition, the company was found to not be as profitable as its competitors

such as Amazon and Disney, but Netflix does own a higher valued library than its competitors. The launch of originals was predicted to attract more customers and hence increase revenues (Wright, 2018). The limitation here, however, is that the analysis is solely based on one firm and one strategy change, adding more companies and strategies could give more significant and accurate results. An additional limitation is that the regressions cannot control for the time trend as it might have mechanically driven out the effect of 'Producing_Original_Dummy', but it does control for seasonality. The analysis tries to implicitly control for the time trend through the expenses although they are not a perfect control for this.

The second hypothesis tested whether the original content 'Netflix Originals' (split up into two main explanatory variables: 'Log_All_Originals' and 'Log_New_Originals') has a positive statistically significant effect on the customers of Netflix in total and in the United States. The variable 'Log_All_Originals' represents the logarithmic cumulative number of releases per year, as the shows and movies remain on the platform. This variable catches the effect of the library expansion on its customers. The variable 'Log_New_Originals' represents the logarithmic number of releases of original content per year. The variable 'Log_New_Originals' rather catches the effect of the release of the original content itself on the number of Netflix customers. The variables are logarithmic values as it conforms to the intuition: if an original TV shows/movie library is small (at the start of the implementation of original content) adding a movie has a lot more value to the customers compared to when the library is large (e.g. 300 movies) because a newly added movie will make up only a small percentage of a large library whilst it is a significant addition to a small library. The expansion of the original content library and the release of originals per year have a positive statistically significant effect on the total number of customers. Therefore the null hypothesis is rejected in favor of the second hypothesis regarding the total number of customers confirmed.

However, the number of U.S. customers experiences an insignificant effect from both main explanatory variables 'Log_All_Originals' and 'Log_New_Originals'. Hence, the null hypothesis regarding U.S. customers cannot be rejected due to the insignificant results. A plausible explanation for this can be the fact that the United States has more content available (i.e. the U.S. has approximately three times as much content as an average European country (Marcus, 2019). Therefore the original content represents a smaller part of the content available in the U.S. compared to the rest of the world. Original content provides a way to decrease streaming rights costs since Netflix can distribute their original content anywhere they are operative in contrast to traditional country bound streaming rights. In addition, since

more content is available in the United States, there might be omitted variables, such as the availability of other streaming services, that are more important to American customers than for people from outside the United States. The U.S. customers might also rather choose TV shows or movies based on famous actors instead of awards for example.

Research and development shows a positive statistically significant effect on the content value, revenues and the number of customers of Netflix. In addition, this variable maintains effect in the long run. Hence, spending more on research and development is key here in increasing Netflix's content value and revenues, but we do not know if the same effect would have been present if they would have chosen a different strategy, which is another limitation in this research. Therefore, for further research it is recommended to add other streaming services to obtain more accurate results/insight and a larger sample.

The implementation of the innovative strategy to vertically integrate in order to circumvent the expensive traditional streaming rights did not show a significant effect on the content value of the library and the revenues at the launch of original content. However as the strategy was adopted as a long-term investment and the research is limited to solely one player and one strategy change, this forms a limitation to the research.

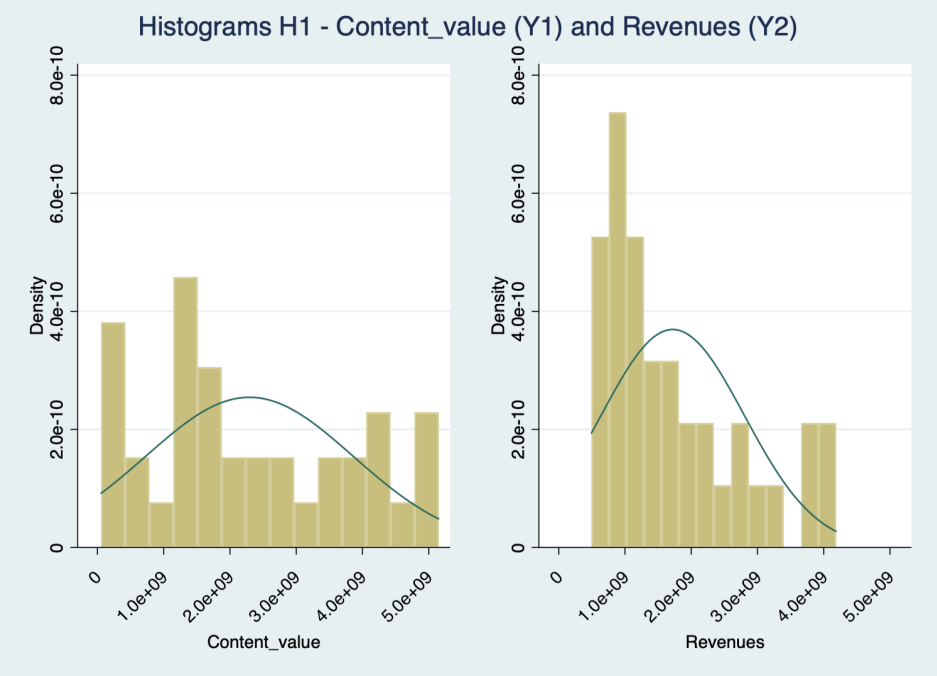
The strategy of original content library expansion (wide variety) and the releases per year (release of original content itself) positively affects the total number of customers in contrast to the customers from the United States where the results were insignificant. A possible reason for this here is as mentioned before, the plenitude of content in the United States compared to an average European country. Some variables might have been omitted, such as the availability of other streaming services, number of non-original content and popular actors, which are important factors influencing the number of U.S. customers since they have access to more content and more choice.

Therefore the innovative strategy of vertically integrating the production process tested in this research was found to have positive effects on the total number of Netflix customers. Hence, both the effect of a wide, exclusive library and the number 'Netflix Originals' increases the total number of Netflix customers. Therefore by adopting this strategy, which in the first place was meant to circumvent buying streaming rights, Netflix gains customers that demand an exclusive, diverse and extensive library. However the U.S. specifically did not experience significant effects of the release of 'Netflix Originals'. Additionally, the content value and revenues did not experience a significant break at the start of the strategy, but this is not surprising as the strategy was intended as a long-term investment.

Furthermore the limitation of the research was mainly the limited dataset and small sample size. The data needed to be normalized by adopting logarithms and minimize extreme multicollinearity. The variables might also be more spread and show more effect for time delays larger than two years. In addition, for further research one might also control for the dispensable income of households in the United States. This has been tested in the models of this research but nevertheless showed insignificant results and was excluded. Additionally, the customers pay a flat-fee monthly payment: 'Premium' (most expensive plan), 'Standard' and 'Basic' (cheapest). These were excluded, as the prices are likely to be set endogenously, based on the number of original shows or movies Netflix wants to release. Possible variables that might have been omitted here can be the number of non-original content, the availability of other streaming services of variables related to more technical implications such as the artificial recommender system and bandwidth. Therefore in further research, if Netflix could release their data on viewership for each content release (which is not publicly disclosed), the viewership could serve as the weights of the original content. This is important as one movie might be much more popular with the viewers, compared to for example three TV shows. The performance data from the various recommender systems used by various giant streaming services would also be interesting in concluding whether the quality of the artificial recommender system is effective in customer attachment.

Appendix

Graph 3.3 - Histogram distribution (H1) dependent variables 'Content_value' and 'Revenues'



Graph 3.4 - Histogram distribution (H2) dependent variables 'Total' and 'U.S.'

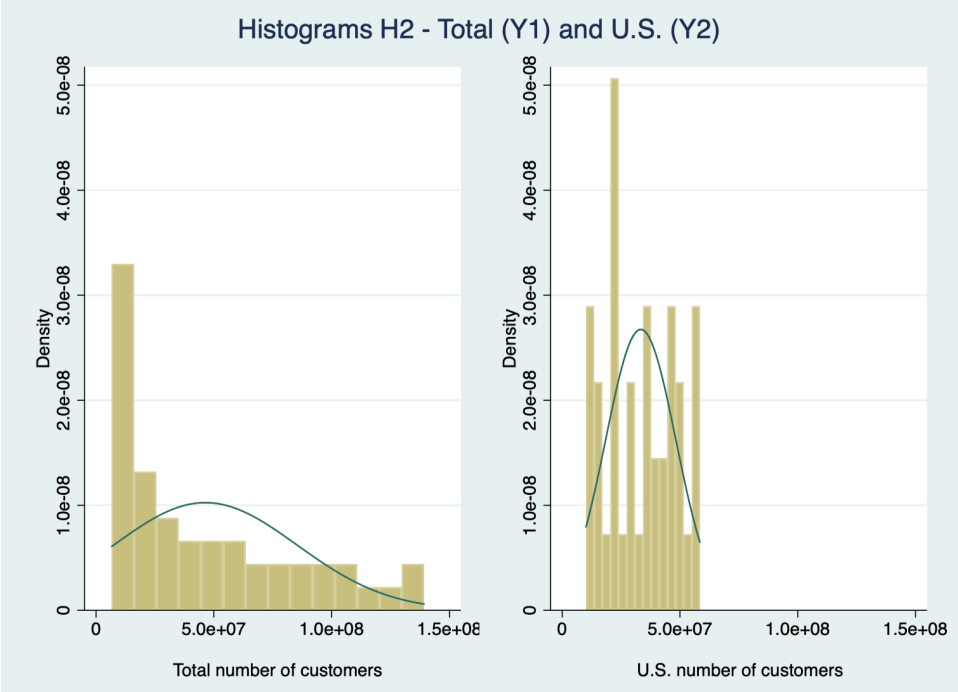


Table 5.2 – Regression results with dependent variables 'Content value' and 'Revenues'

At time T+1

VARIABLES	(1) Log_Content_value_T1	(2) Log_Revenues_T1
Producing_Original_dummy	0.266*	-0.0744
	(0.152)	(0.0591)
Log_Streaming_Expense	0.553***	0.00172
	(0.106)	(0.0480)
Log_DVD_Expense	-0.290***	0.00239
	(0.0999)	(0.0343)
Log_RD_Expense	1.093**	0.543***
	(0.409)	(0.149)
Log_Marketing_Expense	-0.485*	0.278***
	(0.261)	(0.0915)
Log_Emmy_Win	-0.114*	0.111***
	(0.0658)	(0.0237)
Qseas1	-0.0142	-0.0598
	(0.102)	(0.0437)
Qseas2	-0.0533	-0.0349
	(0.0854)	(0.0374)
Qseas3	-0.146*	-0.0146
	(0.0824)	(0.0349)
O.qseas4	-	-
Constant	3.588	5.609***
	(2.669)	(0.834)
Observations	35	35
R-squared	0.979	0.991

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

NOTE: control variable 'Log_Emmy_win' transformed to logarithms by means of the formula: log (Emmy_Win+1), with +1 to avoid missing values

Table 6.2 – Regression results with dependent variables 'Log_Total' and main explanatory variable 'Log_All_Originals' for T, T+1, T+2, T+3 and T+4 (1 year)

VARIABLES	(1) Log_Total_T0	(2) Log_Total_T1	(3) Log_Total_T2	(4) Log_Total_T3	(5) Log_Total_T4
Log_All_Originals	0.0445**	0.0461*	0.0454*	0.0371	0.0297
	(0.0210)	(0.0239)	(0.0241)	(0.0238)	(0.0235)
Log_Marketing_Expense	0.0786	0.0320	-0.0109	0.0146	0.0329
	(0.0721)	(0.0885)	(0.0976)	(0.0900)	(0.0913)
Log_RD_Expense	0.801***	0.827***	0.852***	0.841***	0.832***
	(0.0434)	(0.0564)	(0.0659)	(0.0627)	(0.0663)
Log_Emmy_Win	0.0447**	0.0443**	0.0465**	0.0504**	0.0540**
	(0.0172)	(0.0195)	(0.0211)	(0.0222)	(0.0227)
Qseas1	0.00222	0.00906	-0.0239	-0.0450	0.00317
	(0.0382)	(0.0392)	(0.0380)	(0.0439)	(0.0506)
O.qseas2	-	-	-	-	-
Qseas3	0.0168	0.0604	0.0801*	0.0261	0.0265
	(0.0363)	(0.0374)	(0.0428)	(0.0494)	(0.0527)
Qseas4	0.0553	0.119**	0.0912*	0.0368	0.0656
	(0.0422)	(0.0501)	(0.0521)	(0.0537)	(0.0561)
Constant	1.090	1.507	1.930	1.779	1.644
	(1.101)	(1.245)	(1.219)	(1.150)	(1.129)
Observations	44	44	44	44	44
R-squared	0.992	0.989	0.987	0.986	0.985

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NOTE: Variables 'Log_All_Originals', 'Log_New_Originals' and 'Log_Emmy_Win' transformed to logarithms by means of the formula: log (All/New_Originals+1) and log (Emmy_Win+1), with +1 to avoid missing values

Table 6.3 – Regression results with dependent variables 'Log_Total' and main explanatory variable 'Log_New_Original' for T, T+1, T+2, T+3 and T+4 (1 year)

VARIABLES	(1) Log_Total_T0	(2) Log_Total_T1	(3) Log_Total_T2	(4) Log_Total_T3	(5) Log_Total_T4
Log_New_Originals	0.0487**	0.0507*	0.0495*	0.0414	0.0337
	(0.0220)	(0.0251)	(0.0254)	(0.0252)	(0.0249)
Log_Marketing_Expense	0.0862	0.0397	-0.00277	0.0200	0.0364
	(0.0687)	(0.0848)	(0.0943)	(0.0868)	(0.0881)
Log_RD_Expense	0.796***	0.823***	0.847***	0.837***	0.829***
	(0.0441)	(0.0571)	(0.0667)	(0.0633)	(0.0667)
Log_Emmy_Win	0.0485***	0.0480**	0.0506**	0.0529**	0.0554**
	(0.0171)	(0.0189)	(0.0199)	(0.0209)	(0.0214)
Qseas1	-0.0517	-0.109**	-0.114**	-0.0806	-0.0616
	(0.0408)	(0.0513)	(0.0520)	(0.0493)	(0.0519)
Qseas2	-0.0540	-0.118**	-0.0898*	-0.0359	-0.0651
	(0.0416)	(0.0498)	(0.0518)	(0.0534)	(0.0558)
Qseas3	-0.0379	-0.0584	-0.0104	-0.0102	-0.0388
	(0.0366)	(0.0462)	(0.0541)	(0.0547)	(0.0538)
O.qseas4	-	-	-	-	-
Constant	1.086	1.569	1.956	1.782	1.694
	(1.066)	(1.193)	(1.172)	(1.110)	(1.086)
Observations	44	44	44	44	44
R-squared	0.992	0.989	0.987	0.986	0.985

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NOTE: Variables 'Log_All_Originals', 'Log_New_Originals' and 'Log_Emmy_Win' transformed to logarithms by means of the formula: log (All/New_Originals+1) and log (Emmy_Win+1), with +1 to avoid missing values

Table 7.2 – Regression results with dependent variables 'Log_US' and main explanatory variable 'Log_All_Originals' for T, T+1, T+2, T+3 and T+4 (1 year)

VARIABLES	(1) Log_US_T0	(2) Log_US_T1	(3) Log_US_T2	(4) Log_US_T3	(5) Log_US_T4
Log_All_Originals	0.00005	0.00617	0.0127	0.0174	0.0218
	(0.0213)	(0.0240)	(0.0235)	(0.0209)	(0.0184)
Log_US_Marketing_Expense	-0.00487	-0.0190	-0.0361	-0.0498**	-0.0609***
	(0.0282)	(0.0318)	(0.0294)	(0.0229)	(0.0156)
Log_RD_Expense	0.661***	0.600***	0.537***	0.479***	0.428***
	(0.0561)	(0.0719)	(0.0733)	(0.0661)	(0.0593)
Log_Emmy_Win	0.0230	0.0259	0.0285	0.0321	0.0343*
	(0.0276)	(0.0258)	(0.0237)	(0.0208)	(0.0177)
Qseas1	-0.0228	-0.0683	-0.0757	-0.0598	-0.0400
	(0.0419)	(0.0519)	(0.0481)	(0.0390)	(0.0327)
Qseas2	-0.0254	-0.0711	-0.0580	-0.0229	-0.0418
	(0.0409)	(0.0436)	(0.0404)	(0.0347)	(0.0338)
Qseas3	-0.0161	-0.0391	-0.00452	-0.00628	-0.0254
	(0.0240)	(0.0328)	(0.0380)	(0.0335)	(0.0226)
O.qseas4	-	-	-	-	-
Constant	5.107***	6.535***	8.041***	9.375***	10.56***
	(1.397)	(1.732)	(1.705)	(1.451)	(1.208)
Observations	36	36	36	36	36
R-squared	0.978	0.970	0.967	0.970	0.975

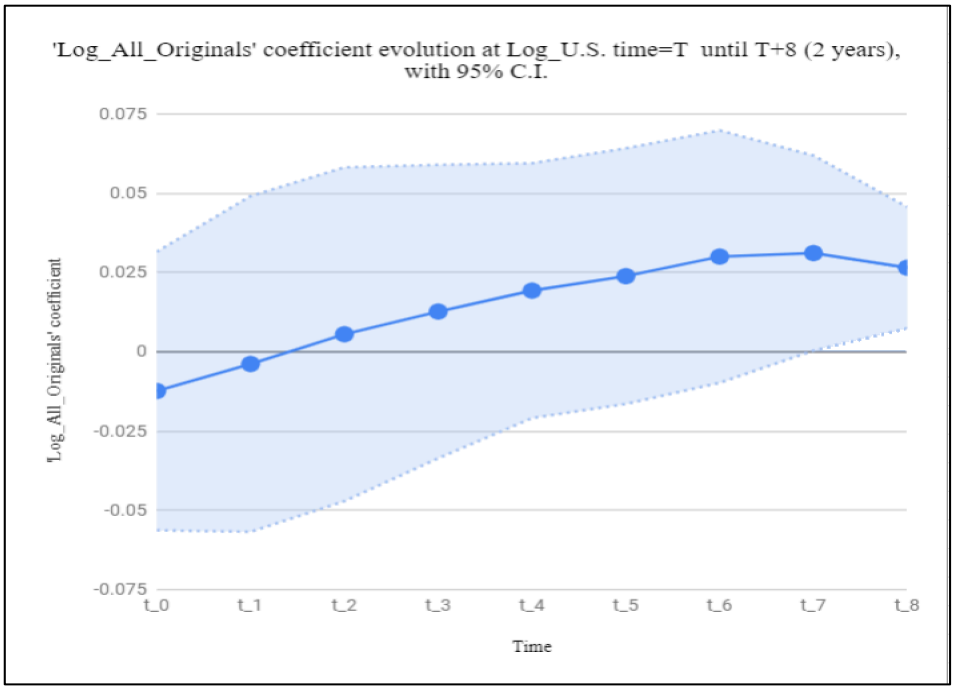
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NOTE: Variables 'Log_All_Originals', 'Log_New_Originals' and 'Log_Emmy_Win' transformed to logarithms by means of the formula: log (All/New_Originals+1) and log (Emmy_Win+1), with +1 to avoid missing values

Table 7.3 – Regression results with dependent variables 'US' and main explanatory variable 'New_Originals' for T, T+1, T+2, T+3 and T+4 (1 year)

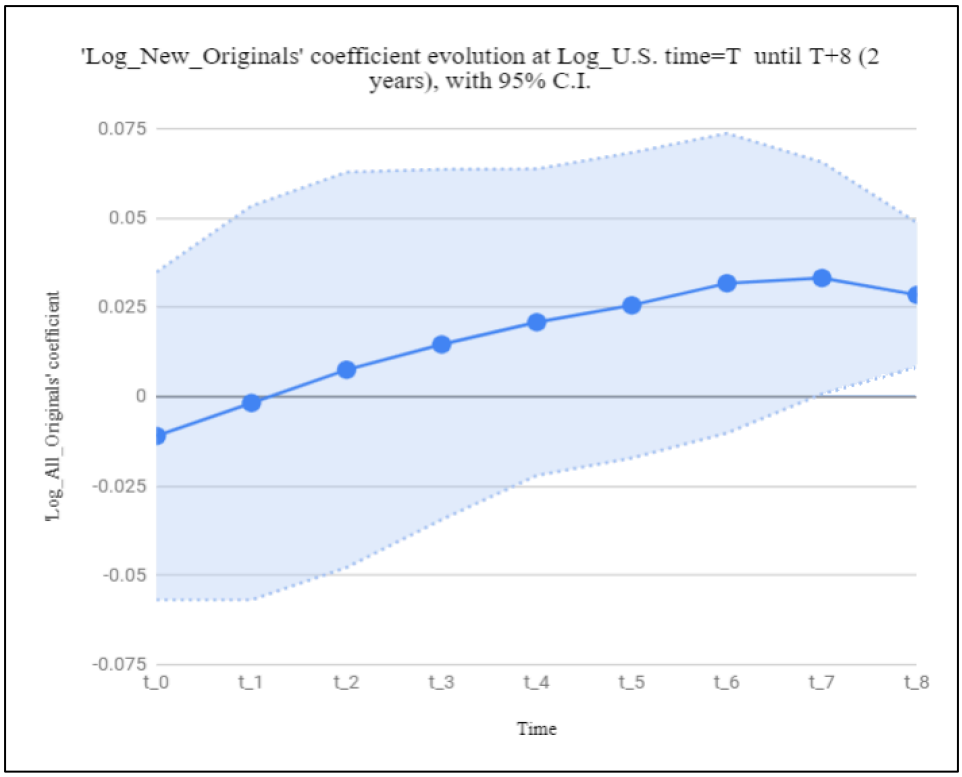
VARIABLES	(1) Log_US_T0	(2) Log_US_T1	(3) Log_US_T2	(4) Log_US_T3	(5) Log_US_T4
Log_New_Originals	0.00404	0.0103	0.0161	0.0202	0.0237
	(0.0225)	(0.0249)	(0.0245)	(0.0219)	(0.0194)
Log_US_Marketing_Expense	-0.00517	-0.0189	-0.0355	-0.0488**	-0.0595***
	(0.0277)	(0.0309)	(0.0285)	(0.0222)	(0.0152)
Log_RD_Expense	0.657***	0.597***	0.535***	0.479***	0.430***
	(0.0544)	(0.0694)	(0.0708)	(0.0640)	(0.0575)
Log_Emmy_Win	0.0190	0.0230	0.0275	0.0327	0.0367**
	(0.0263)	(0.0244)	(0.0224)	(0.0196)	(0.0167)
Qseas1	-0.0231	-0.0682	-0.0752	-0.0590	-0.0389
	(0.0416)	(0.0519)	(0.0482)	(0.0392)	(0.0329)
Qseas2	-0.0258	-0.0713	-0.0581	-0.0229	-0.0416
	(0.0409)	(0.0436)	(0.0404)	(0.0347)	(0.0339)
Qseas3	-0.0164	-0.0393	-0.00456	-0.00622	-0.0252
	(0.0240)	(0.0328)	(0.0380)	(0.0334)	(0.0227)
o.qseas4	-	-	-	-	-
Constant	5.182***	6.587***	8.054***	9.358***	10.50***
	(1.348)	(1.659)	(1.632)	(1.389)	(1.158)
Observations	36	36	36	36	36
R-squared	0.978	0.970	0.968	0.970	0.975

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
NOTE: Variables 'Log_All_Originals', 'Log_New_Originals' and 'Log_Emmy_Win' transformed to logarithms by means of the formula: log (All/New_Originals+1) and log (Emmy_Win+1), with +1 to avoid missing values

Graph 5.1 – The evolution of 'Log_All_Originals' coefficient at Log_US time T, T+1, T+2…T+8 with a 95% confidence interval



Graph 5.2 – The evolution of 'Log_New_Originals' coefficient at Log_US time T, T+1, T+2…T+8 with a 95% confidence interval



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