



# ABSTRACT

Consumers' purchasing behavior tends to change in a recession period. Even though people can postpone purchasing of some goods (e.g. car, furniture, and apartment), it is not really the case for everyday staple products such as food, drinks, cleaning products, personal care etc. This paper investigates impact of investment on the marketing budget in the recession period on the company performance after the recession. Empirical findings indicate that there is not a direct effect of increasing investment on the marketing budget in the recession period on the company's performance after the recession period. When this investment is checked for durable goods producers, here again not more positive impact on the sales is experienced relative to non-durables. The moderator role of increasing spending on an expenditure in the crisis period on the sales after this crisis period are only experienced on SG&A spending. The more positive moderator impact is obtained on R&D investment when durables is compared to non-durables. That is why, companies in durable goods production industry should not underestimate the importance of the R&D on their sales. Even though these findings are not applicable for all companies, at least are useful for the companies in durable goods production industry.

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# Chapter 1: Introduction

## 1.1 Background

The recession is an economic downturn which occurred several times in the past and the latest one was during late 2000s and called “Great Recession”. This worsened economic situation destroyed the entire economy, spoiled performance of companies as well as industries. However, some companies considered a recession as an opportunity to strengthen their businesses and left competitors behind. For example, Procter and Gamble (P&G) was consistently spending on promotion of some of its brands during 1930s recession. Huge amount of investment on the marketing campaigns by Camel cigarettes and Chevrolet allowed them to place themselves on the top market position during the U.S.A. great recession period (Srinivasan, Rangaswamy, & Lilien, 2005). The similar behavior was observed in the recent recession in 2008 as well where the firms - BMW, Cisco, Dell and Walmart invested a lot on marketing and captured bigger market share in the market. So, based on these and similar examples it is quite understandable that the role of the marketing should not be underestimated in a company’s life cycle, especially in an economic crisis period. Reducing marketing spending during a recession in order to meet financial targets may leave a brand of company in a less competitive position after the economic recover. The study by McKinsey & Co. identified that spending on marketing during the recession period is one of the key strategic differences between winners and losers of performance. The investigations over the years also prove that raising marketing spending during an economic slowdown is the best way to keep return on investment increasing (Baker, 2008).

As the changes in consumers buying behavior are experienced in a recession period, companies have to revise their business model and strategy in order to meet customers’ new preferences. In the past, crucial marketing mix and marketing policy adaptations were applied by firms in a recession period. These adaptations were used either in each part of marketing mix separately, or on product policy changes like removing weak and non-profitable products, and spending more on research and development. It has been also revealed that launching a new product has a significant impact on the firm’s performance. For instance, one of the researches by Quelch (2008)

investigated that continuing to invest on advertising boosts sales, income and market share during and after the recession, while the contrary action on advertising impacted the performance of firms negatively. Moreover, selected promotion types - coupons, bonuses, and free samples play a positive role on a company's performance during economic crisis (Quelch, 2008). Another paper written by Notta & Vlachvei (2015) explains that there is a potential for profitability in the long run if the price was kept the same for higher quality products during an economic crisis. However, it is assumed that potential purchasers show the loyalty to the added values or/and accept it as the same quality at lower prices principles (Notta & Vlachvei, 2015).

The active marketing maneuvers during a recession leads to better company performance in the market. Companies have to reinforce their brand specific characteristics which differentiate them from competitors in the eyes of customers in difficult economic times. The majority of marketers agreed that advertising in economic downturn period makes the public feel more positive about the company's responsibility on its products/services. Furthermore, advertising makes clients to think about those companies while doing shopping and can led to changing their brand preference. Taking advantage of new consumer preferences creates an opportunity for a company to gain more stable position in the market, and importantly leads to revenue increase in the long term (Baker, 2008).

In general, marketing spending has been rising faster since decades. There is more than \$1 trillion global marketing spending which is between 1% - 2% of global GDP (McKinsey&Company, 2018). According to The Wall Street Journal, FMCG industry companies allocate the largest budget on the marketing spending (see Appendix A). Companies spent on average 7.5% of total revenue on marketing based on February 2012 report, where consumer packaged goods companies are the second largest spenders (10.9%) after tech companies (13.8%). There is also a big discussion about which spending may be classified as marketing expenditures, as it varies from company to company. For example, almost 48% of companies include wages of marketing staff in the marketing budget. However, some other companies put it in general and administrative or sales expenses. Mostly, direct marketing expenses which are

advertising, trade promotions and direct marketing are included in marketing budget (Deloitte, 2017).

Naturally, consumers' purchasing behavior tends to change in a recession period (Reed & Crawford, 2014). For example, consumers might be interested in buying a car during an expansion period rather than a recession period. Although people can postpone purchasing of some goods (e.g. car, furniture, apartment), it is not really the case for everyday staple products such as food, drinks, cleaning products, personal care and etc. Therefore, the purpose of this research is to investigate an allocation of a marketing budget - whether marketing expenses were cut or not, and effect of this marketing budget on a company's performance after the great recession period. In order to investigate the abovementioned research aim, the list of North American companies in durable and non-durable goods production industries are analyzed for examining the difference in their spending on marketing budget and effectiveness of this marketing budget in the recession period.

## 1.2 Aim of the thesis

In general, there has been already conducted some investigations to measure role of marketing budget in a recession period. However, measuring role of increasing spending on marketing budget in the great recession period on the performance of companies after recession period has not received significant attention. Therefore, one of the main aims of this thesis is to contribute to yet a rather thin body of literature by analyzing marketing budget of durable and non-durable goods production companies in the recession period and the role of investment on the marketing budget after the great recession period. Additionally, the research aims to increase the interest on this topic by providing a base for further research as it is expected that this topic will become even more important and relevant in near future in case of potential economic downturn. Finally, by reviewing the literature and conducting empirical research, the paper aims to provide systematic and scientific information for future researchers and marketers involved and interested in the topic.



### 1.3 Problem statement, research question and sub-questions

This paper helps to understand effectiveness of the marketing budget in the economic downturn period on the company's performance, namely durable and non-durable goods companies, after the economic downturn period. The research focuses on some specific companies and uses their sales and marketing expenditures data. The following research question is served as a guideline in this study:

*What is the role of the increasing marketing budget in the recession period on the company's performance after the recession period?*

Additionally, to guide a reader throughout the thesis, change in marketing budget and performance over the period are illustrated in next chapters as well with using descriptive analysis.

Generally, two main conclusions will be derived from the research. The first outcome demonstrates whether there is a difference in the marketing expenditures by comparing them before and after the recession period. The second result analyzes the role of the marketing budget on the company's performance after the recession period. Afterward, the outcomes of these two results - effectiveness of marketing budget are evaluated, and the conclusion of the research is drawn.

The content of the paper is as follows: Chapter 2 discusses theoretical framework; Chapter 3 describes the data used in the research; Chapter 4 is about methodology and statistical methods; Chapter 5 analyzes the statistical results; and the last chapter outlines the concluding remarks and summary.

## Chapter 2: Literature Review

In this chapter, the relevant papers in existing literature are presented and reviewed. In order to answer the research question comprehensively, it is important to review the existing literature on this relation from a broader perspective. The literature review starts with a brief overview of main definitions around the topic and narrows down to this specific topic. After that, main theoretical assumption on the relationship between marketing expenditures and company performance is presented.

### 2.1 Marketing effectiveness in a recession period

Since this research paper focuses on marketing expenditures and the recession period, it is useful to have a broader look on these terms and to see what have been analyzed in the past. Some companies see recession as an opportunity to invest and create an advantage over the weaker firms, while others behave totally contrary- they decrease the marketing expenditures and wait the recession to end (Amissah & Money, 2015).

In most of the business cycles, recessions are usually experienced, and they result with decline in consumer consumption, financial pressures and other holding back situations. The investigation in O'Malley, Story, & O'Sullivan (2011) paper show that investing or cutting back the costs in marketing budget, affect a firm's success directly. Actively spending on marketing in a recession period has specifically strong relation with profit in a long run, shareholder value and customer loyalty (O'Malley, Story, & O'Sullivan, 2011). Some researchers also state that market-oriented firms are the most likely ones to get advantage from investing in economic downturn since these firms are able to identify and respond to the situation strategically (Pearce & Michael, 1997; Srinivasan, Rangaswamy, & Lilien, 2005).

Most of times when there is a need for cutting budget during a recession, marketing is usually the first on the reduction list. Although financial officers start cutting the

spending which are not directly related to revenue, there is evidence that companies which decreased marketing budget in a recession period, perform worse in the long run than those who did not cut (Thoma, 2008). In past few years marketing academics and practitioners have proved to the business world that in order to minimize the effect of the recession, marketing investments are more important in the recession period than economic growth (Hermann, 2009; Kotler & Caslione, 2009). To be more precise, advertising investment has been shown an effect up to five years after ads are played, and the firms which reduce their advertising spending during the recession usually face 20-30% sales and income fall in next years (Binet, 2009). Moreover, there is an argument that companies which cut off the marketing budget during the economic downturn, have to invest noticeably more than they saved for recovering the suffer (Rhodes & Stelter, 2009).

Recent surveys and reports show extreme decline in marketing budget in the most of industries during the great recession. Since the marketing spending are affected more drastically on business to business firms, the recession made these firms to change their marketing investments. An example for this, shifting from traditional marketing to online marketing can be (Rollins, Nickell, & Ennis, 2014). Rollins, Nickell, & Ennis (2014) explored in their research that companies which adapted to the economic crisis quickly, can emerge stronger than others. At the end, the authors proposed three long term effects of great recession on business to business marketing which are: demand for analytics and metrics, better integration between sales and marketing functions, and a rise in the use of social media (Rollins, Nickell, & Ennis, 2014). These effects can be useful to take into account if any economic downturn is expected in the future.

Generally, companies in major industries show significant sensitivity to economic contractions. Dekimpe, Peers, & Heerde (2015) focused on impact of business cycle on service sector in their research and they reached to an interesting outcome at the end. The finding here shows that although the industry is highly sensitive to economic downturn, the recovery is not as slow as the whole economy. This sector slowly follows the quick growth after the depression period. There was not also any evidence to state that high instability in the economy hurts the growth in long term in this specific industry (Dekimpe, Peers, & Heerde, 2015). In Heerde, Gijzenberg, Dekimpe, & Steenkamp

(2013) research authors were more specific with focusing on marketing instruments of consumer packaged goods in the period of economic tide. Although some of these instruments are more sensitive during expansions and some of them are in contraction periods, the elasticity of the marketing instruments changes in the long term. It is explained with the difference of brands levels (premium, value mass or niche) and product classes (Heerde, Gijzenberg, Dekimpe, & Steenkamp, 2013).

Some previous studies about the relationship of marketing effectiveness and economic recession period are discussed by Amissah & Money (2015) as well, which could be value added on this research too. One of study focuses on 1923 recession and reports that the highest sales increases were experienced by those companies that advertised the most during the recession. Other example was about World War II and evaluated the annual advertising expenditures of companies and correlated the figures with sales and profits for before, during and after the recession. Here also results illustrated that sales and profits declined in those companies which cut advertising spending. Additionally, gain in market share is found out as well, when there was intensive investment on advertising spending during recession (Amissah & Money, 2015). Therefore, according to all these recommendations, cutting the marketing budget during recessions worsen the economic situation of a company in long terms.

In line with all this information, the following hypotheses can be derived for this research paper:

*H<sub>1</sub>: There is a break in the marketing effectiveness between before and after the recession period.*

*H<sub>2a</sub>: There is a positive effect of increasing marketing expenditures in the recession on the company's performance after the recession period.*

*H<sub>2b</sub>: There is a positive moderator effect of increasing marketing expenditures in the recession on the marketing effectiveness.*

The main ideas in these hypotheses are to examine marketing budget in the great recession period. In hypothesis 1, it is expected that spending on marketing expenditures are different before and after the recession period. The logical explanation is quite

straightforward, because companies' marketing spending can change due to effect of the economic crisis. In the second hypothesis, effectiveness of marketing expenditures on company's performance and moderator impact of these marketing expenditures on the marketing effectiveness are examined which leads to the conclusion of the central research question.

## 2.2 Marketing budget

A budget is a financial road map for all businesses and has an important role in a marketing plan. All costs relate to marketing activities usually have a clear overview in a marketing budget (SmartSheet, 2016). Market research, product development, promotions, sales and service are examples for marketing expenditures.

Generally, a marketing budget is expensive. This is because new and emerging brands are working on to capture a market share and improve brand recognition in a market which is going to make existing companies to keep investing in marketing. Share of spending on marketing budget changes from companies to companies. If a company is new in a market (approximately operates up to five years in a market), it is suggested spending on marketing is 12-20% of gross revenue, while it is 6-12% for established companies. These numbers start to drop when a company creates a stable position in a market (Mintz, 2015). Based on 2017 CMO survey, average spending of a budget and a revenue on marketing across all industries are 11.4% and 6.9%, respectively. The survey also claims that marketing is able to lead 38.4% revenue growth. In Appendix B, marketing spending of some companies are listed (Brady, 2017).

Now question is what is included in marketing budget? - It is all marketing expenses that serve to the selling of a product or service such as advertising, communications, selling, promotions and others. In Appendix C the graph illustrates the distribution of 2016 and 2017 marketing budget in North America and United Kingdom, and it is found out that most of the marketing budget (22% and 27%) was spent on technology in these years (Statista, 2018). In this research, the marketing budget is examined with focusing on advertising, research and development (R&D) and selling

general and administrative (SG&A) expenses which are believed to be the main drivers of the marketing budget for this paper.

The costs that occur in the daily operations of a company and relate to selling and delivering of a product or service and generally managing of a company are part of selling, general and administrative expenses (Investopedia, 2018). Research and development (R&D) expenses incur when there is a need for improvement of an item or development of a new product. Founder of sarv.com has mentioned in his article that firms which apply R&D in their business are more likely to achieve marketing success than those who do not (Choudhary, 2017). Pharmaceutical companies are the biggest investors in this area, about 18% of revenues (Investopedia, 2018). Those companies which get great benefit from R&D investment likely to increase their R&D spending during an economic crisis as well. Moreover, these firms evaluate the downturn as an opportunity to upgrade R&D (McKinsey&Company, 2009). However, relatively small sized companies usually face with difficulties to invest R&D and maintain it during a financial crisis.

Advertising expenses characterize the important marketing instrument and relate to promoting a product or service for stimulating audience to buy it. Some small companies combine all marketing expenses in advertising category for convenience where public relations, advertising, promotion are included. Growing businesses define the advertising expenditures more specific, and advertisements on magazines, banners or spots of radio station could be examples in this case (Ashe-Edmunds, 2018). Based on the past researches, advertising is examined as the most affected expenditure by business fluctuations. The article by Deleersnyder, Dekimpe, Steenkamp, & Leeflang (2009) concludes that advertising is more sensitive to the fluctuations than the economy. The investigation also states the performance of companies slows down when the advertising spending are reduced in the recession, since there is a need for more awareness when buyers are looking for alternatives (Deleersnyder B. , Dekimpe, Steenkamp, & Leeflang, 2009). In the current paper, the research is conducted considering this expense as well, because of above mentioned reasoning.

As a support to this research paper and for understanding the role of the recession period on the marketing budget, following hypothesis is going to be tested as well:

*H<sub>3</sub>: There is an effect of the recession period on the marketing budget investment.*

This hypothesis aims to examine the effect of the recession period on the marketing budget spending. With this way, it is possible to see whether investing on the marketing budget changes because of the economic downturn.

## 2.3 Consumer goods

Consumer goods are final products that are last result of production and manufacturing and are on a shelf of a store for a consumer's availability. There are 3 types of consumer goods which are durable goods, non-durable goods and services. Durable goods are products for a longer time period usage. Their long-lasting life means that they have some of the attributes assets. For example, washing machine, car, jewelry is part of this category. The process of buying a durable good is similar with a firm making an investment decision. Basically, firms weigh the cost of purchasing an additional unit of capital against the present value of the expected future income that it will generate, while consumers weigh the cost of an additional durable good against the benefits from the flow of services derived from the good or from saving the income (Bulletin, 2010). Non-durable goods are opposite of durable goods. This group's goods have short life period and are consumed in 3 years period. Products are considered as non-durable are food, drinks, clothing. Finally, services category serves for repairing, hair cutting and others (Investopedia, 2018). This thesis focuses on the first 2 categories - durables and non-durables because of their contrast business activities and the main distinction of this research from the previous ones are examining the difference in the behavior of durable and non-durable goods production companies at the same time frame - in the great recession period.

Since non-durable goods everyday consumables, their purchases cannot really be postponed after economic recession period. However, it is expected not to be the case for durable goods (Heerde, Gijsenberg, Dekimpe, & Steenkamp, 2013). In contrast to this, Deleersnyder, Dekimpe, Sarvary, & Parker (2004) found out that durable goods are

influenced more by business cycle fluctuations than the overall economic activity (Deleersnyder B. , Dekimpe, Sarvary, & Parker, 2004). This conducting research is going to be helpful guide in order to analyze the marketing activities' effectiveness of the durable and non-durable goods production companies in the recession period with focusing on the same sources and the geographical location.

According to all this information, the following hypothesis can be derived for this paper:

*H<sub>4</sub>: There is more break in the marketing effectiveness of durables compare to non-durables between before and after the recession period.*

*H<sub>5a</sub>: Increasing spending in the recession period on the marketing budget has more positive effect on the performance of durable goods relative to non-durables.*

*H<sub>5b</sub>: Increasing spending in the recession period on the marketing budget has more positive moderator effect on the marketing effectiveness of durable goods relative to non-durables.*

These hypotheses lead to investigate the difference in the performance of the durables and non-durables with focusing on their marketing expenditures spending in the economic downturn period.

## 2.4 Model

The conceptual model summarizes the relation between independent variables and dependent variable. All independent variables come from the previous literature on marketing effectiveness and marketing budget.

In this thesis, it is estimated that increasing spending in the recession on marketing expenditures has a positive effect on sales after the recession. In other words, the more a company spends on the marketing budget in the recession, the more positive sales growth after the recession period is expected in that company. Moreover, role of the



company types – durable and non-durable in abovementioned relation are examined as well. Below in Figure 2.1, the conceptual model is summarized.

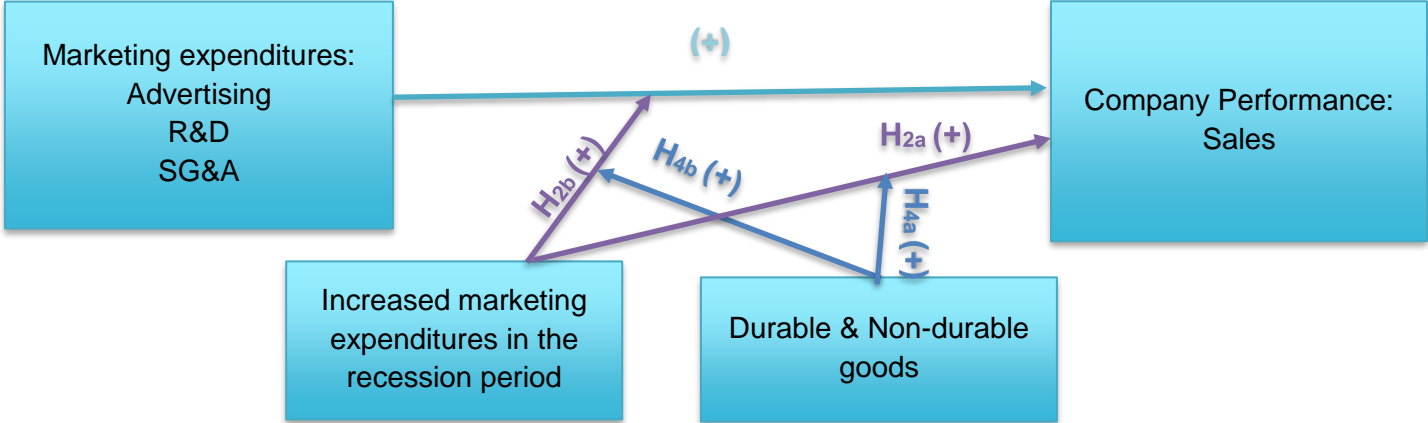


Figure 2.1. Conceptual Model

Since  $H_1$ ,  $H_3$  and  $H_4$  hypotheses help to have general overview for the research, they are not included in the conceptual model.

## Chapter 3: Data

In order to collect the data for the research, a secondary data collection method is applied to the study. The sample for the research was retrieved from the Compustat North America database which is accessible in Wharton Research Data Service (WRDS). It consists of 193 US and Canadian companies' data between 1 January 2000 and 31 December 2017 period. Compustat North America gathers this information from the annual reports of companies. Moreover, in the sample, companies are categorized as durable and non-durable goods production firms.

Derived data for the study represents advertising, research and development (R&D), selling, general and administrative (SG&A) expenses and sales, and are represented in U.S.A. dollars. Advertising expenditures characterize the cost of advertising, media (e.g. radio, television and periodicals) and promotional expenses; R&D summarizes all costs incurred during a year that relate to the development of products; SG&A expenses focus on direct and indirect selling, general and administrative costs; and lastly, sales are company's gross sales. As stated in the literature review section, the first three variables can be taken as a part of a marketing budget. Therefore, they are going to be also used in this research paper.

Moreover, there have been applied several transformations on the data. First of all, it was not possible to extract the data for the consumer goods production companies. That is why, firstly, the entire database is searched. The output is downloaded in an Excel spreadsheet and there was listed around 10,000 companies in total. Since the needed information was not available for all companies, those columns without the data are filtered out the file. Furthermore, it is checked whether the remaining information is available for 2000-17 time period for each company. If there is still missing information for any year, those companies are deleted from the list as well. Lastly, company business descriptions are checked in order to categorize the companies as durable and non-durable goods producers. At the end 93 non-durable and 100 durable goods producers are left in the database. This control is done with manually examining of each company's description. A separate sheet is made for the final outcome of these two industries.

Descriptive statistics were provided for advertising, research and development, selling, general and administrative expenses and sales for 2000-17 time period below. The tables 3.1 and 3.2 provide information about the minimum, maximum, standard deviation and mean of the durable and non-durable goods production companies.

*Table 3.1. Durable goods production companies' marketing expenditures*

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
<b>Advertising</b>	1,800	230.71	677.69	00.002	5800
<b>Research &amp; Development</b>	1,800	626.63	1747.27	0	13098
<b>Selling, general &amp; administrative</b>	1,800	2349.67	5062.92	-90.59	33057
<b>Sales</b>	1,800	12148.17	32252.58	0.317	262394

*Table 3.2. Non-durable goods production companies' marketing expenditures*

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
<b>Advertising</b>	1,674	401.34	956.30	0	9729
<b>Research &amp; Development</b>	1,674	423.17	1545.32	0	22620
<b>Selling, general &amp; administrative</b>	1,674	3222.65	8820.60	1.63	101284
<b>Sales</b>	1,674	11884.72	40073.98	0	483521

According to these descriptive statistics, although the average spending on the advertising and selling, general and administrative is higher for non-durable goods production companies, average sales turnover is higher for durable goods production companies. This may clarify that investing a lot does not always lead to higher sales or since the average research and development expenses higher for durables that could also play a role. The standard deviations' values are quite high in both graphs which clarify that the data points are spread out over a wider range of values. Except SG&A expenses, other two marketing expenditures have zero spending as minimum value for non-durable production companies. Negative value of SG&A expenses in durables can

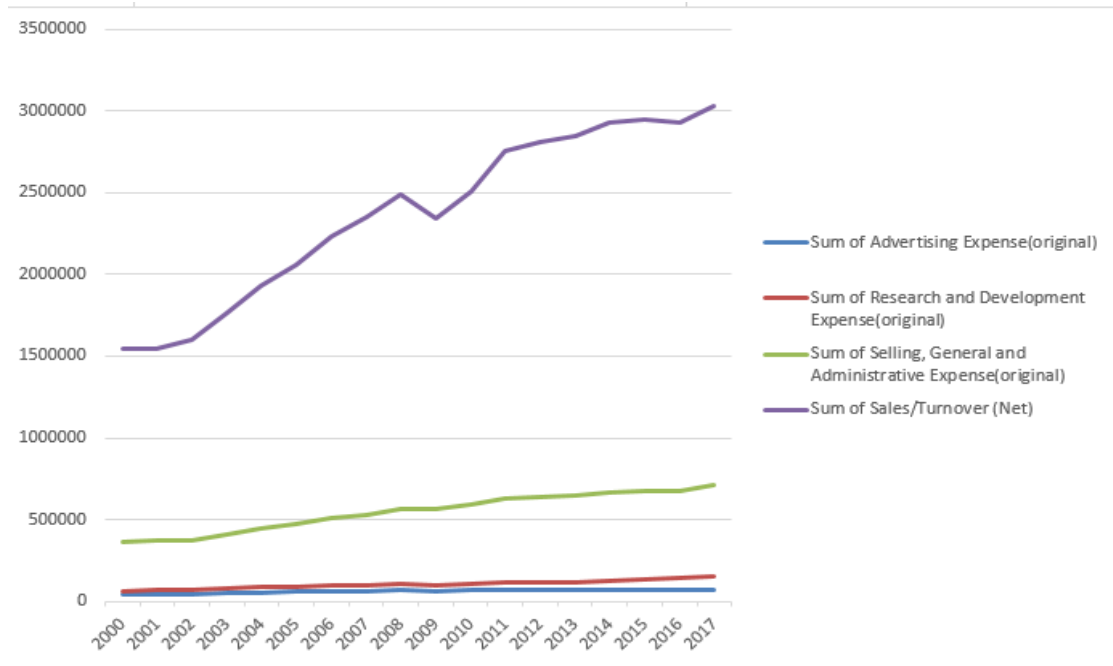
be explained with the way that the allocated cost in a year was cancelled in next year. Moreover, non-durables invest more on advertising and SG&A expenses compare to durables on the absolute difference and based on independent sample t-test outcome there is statistically significant difference in SG&A expenses' means. Table 3.3 summarizes the outcome of the t-tests. F and significant value in the table are labeled as Levene's Test for Equality of Variances. Since significant value is smaller than 0.05, it means that durables and non-durables have different amount of variability between their marketing expenditures. Sig. (2-tailed) values tell whether the difference is statistically significant. So, there is statistically significant difference in the means of marketing expenditures of durables and non-durables.

*Table 3.2. Independent sample t-tests for testing means of durables and non-durables*

Variable		F	Sig.	t	df	Sig. (2-tailed)
<b>Advertising</b>	Equal variances	57.488	0.000	- 5.806	3472	0.000
	assumed					
<b>Research &amp; Development</b>	Equal variances	31.051	0.000	3.963	3472	0.000
	assumed					
<b>Selling, general &amp; administrative</b>	Equal variances	23.467	0.000	- 3.265	3472	0.001
	assumed					

Moreover, in the Graph 3.1 below, the trend of the marketing expenditures are illustrated. In general, the companies spend more on SG&A than others and the amount of the spending is more or less constant over the years. Investing on advertising and R&D expenses are almost the same during the period, only in 2010 there is more spending on R&D than advertising on the absolute difference. Sales line is the most varied one in the graph. There is a decline between 2008 and 2009 and the line starts to increase again after those years.

Graph 3.1. Trend in marketing expenditures and sales over the period



# Chapter 4: Methodology

After collecting relevant data for the research, in this chapter, the research design of the thesis, the independent and dependent variables and the relationship between them are analyzed. Therefore, the description of the methodology, justification applied on the data together with the independent and dependent variables are described here.

## 4.1 Research design

Two types of statistical tests were applied in order to conduct the research. In next sub-sections, these are going to be discussed.

### 4.1.1 Structural break test

The first statistical method used was structural break analysis which was performed in STATA. Structural break investigates whether the coefficients in time series change at a point in time by known and/or unknown break dates. This test is also known as Quandt Andrews test, a modified Chow test. In Chow break test, if the model of the data is,

$$Y_t = a + b \cdot X_{1t} + \mathcal{E}$$

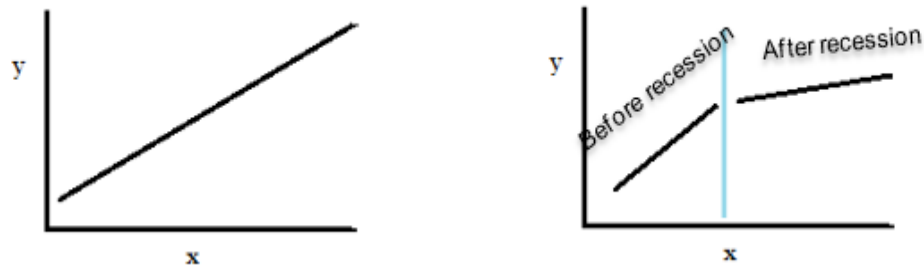
and it is divided in 2 periods (for example, before and after the recession period) then the equations are as follows:

$$Y_t = a_1 + b_1 \cdot X_{1t} + \mathcal{E}$$

and

$$Y_t = a_2 + b_2 \cdot X_{2t} + \mathcal{E}$$

The left side graph on the below Figure 4.1 illustrates the regression for the single time period (the first equation), while the graph on the right has a breakpoint in the middle and two regression lines (next 2 models).



*Figure 4.1.*

If two parts can be represented in one single regression line, then it is concluded that the regression can be “pooled”, on the other words, parameters are equal (Chow, 1960) which refers to:  $a_1 = a_2$  and  $b_1 = b_2$ .

In structural break test, the values for the maximum Wald statistic are formulated which tests the structural change of regression parameters. The Wald statistic computes the possible break points in the time series and the null hypothesis which states no change in the parameters (Cooper, Piehl, Braga, & Kennedy, 2001). In order to find out whether the recession period is the break in the data, structural break test at a known break date is run for this study. This analysis only after performing the regression test is possible to perform. Detecting when the structure of the time series changes can give the insights into the problem. In this research, 2007-09 period is chosen as the recession period, since it is also recorded by Federal Reserve History on this period (The Great Recession, 2013). With the help of the structural break test, whether there is a significant change in the data comparing before and after the recession period for each company are investigated. The test is run for each company separately in each year of the recession period in order to see role of these years individually. The following equation is utilized in the research:

$$Sales_i = \alpha + \beta_1 * Marketing\ Expenditures_i + \epsilon_i$$

As stated in literature review part, advertising, research and development (R&D) and selling, general and administrative (SG&A) expenses represent marketing expenditures, and they are independent variables of this research. The sales characterize the company performance which is the dependent variable in the model. Epsilon represents errors term associated with the model, and  $i$  in the index of the variables characterize the companies. After running the regression analysis, the structural break test is conducted. The null hypothesis in this statistical test states that there is not a structural break in the marketing effectiveness before and after the recession period and based on the p-value whether the null hypothesis rejected or not is determined.

#### 4.1.2 Multivariate regression analysis

The second statistical method used was a multivariate regression analysis which was also performed in STATA. The regression analysis is a powerful statistical technique that is mostly used in social sciences to analyze the relationship between two or more variables (Uyanik & Guler, 2013). The investigated variable is called the dependent variable (Y) and the variables which influence dependent variable are known as the independent variables (X).

It is usually useful to check whether the sample data is normally distributed or at least there is symmetry before running the regression analysis. Reviewing the distribution can be done with histogram graph. Here it is possible to see the frequency distribution for all variables separately and compare them with the normal distribution curve. If the data is not symmetric, transformation can be done in order to have symmetric data and analyze it easily. So, from Appendix D it is noticeable that values of marketing expenditures and sales are not normally distributed as they do not follow a bell shape which is the indicator of the normal distribution.

In order to have a normal distribution, log transformation is applied on each marketing expenditures variables and sales. After this transformation, marketing



expenditures, namely advertising, research and development and selling, general and administrative, and sales demonstrate a normal distribution as it can be seen in the graphs in Appendix E.

It is also expected that there are no large outliers in the relationship of independent and dependent variable. Regression model is highly sensitive to them and thus, might give inconsistent results. The scatterplot in Appendix F illustrates the relationship between marketing expenditures and sales, and this relationship with the log transformation. So, after applying the log transformation, there are not large outliers in the data. Additionally, “robust” function to the regression model is applied in order to correct for heteroscedasticity.

Since it is important to evaluate the effect of the increasing marketing budget on sales in this research, relative percentage difference of marketing expenditures in 2006 with the average of the recession period – 2007-09 is calculated in the Excel file. The difference of the spending before the recession period – in 2000-06 years does not change notably, that is why only one year before from the crisis period is chosen in this relative difference. If the difference is higher than 1%, it means spending on the marketing expenditures in the recession are more than before the recession period, if the value is lower than -1%, it means the spending decreases after the recession, and the change between 1% and -1% is assumed as stable. The first is one is increasing marketing expenditures dummy, the second is decreasing marketing expenditures and the last one is reference category.

The regression model also covers interaction terms in the analysis. The interaction terms lead to see the effect of the increasing marketing expenditures in the recession period on the sales after the recession period and on the relationship of marketing expenditures and the sales. In order to do so, several steps are applied. First of all, a time period variable is created for after the recession period. In the model,  $T$  represents full period – 2000-17,  $T_1$  captures the period after the recession (2010-17). It is named as after recession dummy in the model. Then, in order to be able to measure the effect of the increasing marketing expenditures in the recession on the sales after the recession period, the interaction of after the recession dummy variable with the increasing of marketing expenditures in the recession is created ( $\beta_8$  in the model below). The

moderator role of the increasing marketing expenditures on the marketing effectiveness is tested with the interaction of above mentioned new interaction variable and the marketing expenditures ( $\beta_{10}$  in the model below). In addition to this, decreasing marketing expenditures in the crisis period is added to the model as well, in order to see whether there is a difference in the effect of the increasing and decreasing investment on the sales. Therefore, the equation of this thesis looks like the following:

$$\begin{aligned}
 Sales_{it} = & \alpha + \beta_1 * MarketingExpenditures_{it} + \beta_2 * IncreasingMarketingExpenditures_{it} + \\
 & \beta_3 * DecreasingMarketingExpenditures_{it} + \beta_4 * AfterRecessionDummy + \\
 & \beta_5 * MarketingExpenditures * IncreasingMarketingExpenditures_{it} + \\
 & \beta_6 * MarketingExpenditures * DecreasingMarketingExpenditures_{it} + \\
 & \beta_7 * MarketingExpenditures * AfterRecessionDummy + \beta_8 * \\
 & IncreasingMarketingExpenditures_{it} * AfterRecessionDummy + \beta_9 * \\
 & DecreasingMarketingExpenditures_{it} * AfterRecessionDummy + + \beta_{10} * \\
 & MarketingExpenditures_{it} * IncreasingMarketingExpenditures_{it} * AfterRecessionDummy + \\
 & \beta_{11} * MarketingExpenditures_{it} * DecreasingMarketingExpenditures_{it} * AfterRecessionDummy \\
 & + \epsilon_i
 \end{aligned}$$

Here,  $\alpha$  denotes the constant term or intercept,  $\beta$  is the slope (beta coefficient) that measures the effects of independent variables on the dependent variable. Epsilon represents errors term associated with the model.  $i$  in the index of the variable is the number of the companies and  $t$  denotes a year. Marketing expenditures in the model represent 3 marketing variables – advertising, R&D and SG&A. The regression model is run for each of them separately. The reason for this is that there are high correlations between these marketing expenditures variables. Table 4.1 summarizes the Pearson correlation coefficients of marketing variables and it is clear from the table that there are strong positive relationships between the marketing expenditures variables. The correlation between independent variables brings to multicollinearity in the analysis.

Table 4.1 Correlations of the marketing expenditures variables

	Advertising exp.	R&D exp.	SG&A exp.	Sales
Advertising exp.	1.000	0.632*	0.668*	0.619*
R&D exp.		1.000	0.605*	0.512*
SG&A exp.			1.000	0.911*
Sales				1.000

\*Correlation is significant at 0.05 level.

Additionally, in order to avoid multicollinearity and to have a meaningful interpretation of the interaction terms, mean centering of marketing expenditures is used in all interactions of the regression analysis.

#### 4.1.3 Multivariate regression analysis with consumer goods variable

In order to see the role of durable and non-durable goods production companies in the analysis, durables dummy is created as well. Its interaction with the increasing marketing expenditures in the recession period ( $\beta_{20}$  in the model below) and the moderator role on the increasing marketing expenditures in the marketing effectiveness is created for this part of the research ( $\beta_{22}$  in the model below). The model is as follows for this case:

$$\begin{aligned}
 Sales_{it} = & \alpha + \beta_1 * MarketingExpenditures_{it} + \beta_2 * IncreasingMarketingExpenditures_{it} + \\
 & \beta_3 * DecreasingMarketingExpenditures_{it} + \beta_4 * AfterRecessionDummy + \\
 & \beta_5 * DurablesDummy + \beta_6 * MarketingExpenditures * IncreasingMarketingExpenditures_{it} + \\
 & \beta_7 * MarketingExpenditures * DecreasingMarketingExpenditures_{it} + \\
 & \beta_8 * MarketingExpenditures * AfterRecessionDummy + \beta_9 * MarketingExpenditures * \\
 & DurablesDummy + \beta_{10} * IncreasingMarketingExpenditures_{it} * AfterRecessionDummy + \\
 & \beta_{11} * DecreasingMarketingExpenditures_{it} * AfterRecessionDummy + \\
 & \beta_{12} * IncreasingMarketingExpenditures_{it} * DurablesDummy + \beta_{13} * \\
 & DecreasingMarketingExpenditures_{it} * DurablesDummy + \\
 & \beta_{14} * AfterRecessionDummy * DurablesDummy + \beta_{15} *
 \end{aligned}$$

$$\begin{aligned}
& \text{Marketingexpenditures}_{it} * \text{IncreasingMarketingexpenditures}_{it} * \text{AfterRecessionDummy} + \\
& \beta_{16} * \text{Marketingexpenditures}_{it} * \text{DecreasingMarketingexpenditures}_{it} * \text{AfterRecessionDummy} \\
& + \beta_{17} * \text{Marketingexpenditures}_{it} * \text{IncreasingMarketingexpenditures}_{it} * \text{DurablesDummy} + \\
& \beta_{18} * \text{Marketingexpenditures}_{it} * \text{DecreasingMarketingexpenditures}_{it} * \text{DurablesDummy} + \\
& \beta_{19} * \text{Marketingexpenditures}_{it} * \text{AfterRecessionDummy} * \text{DurablesDummy} + \\
& \beta_{20} * \text{IncreasingMarketingexpenditures}_{it} * \text{AfterRecessionDummy} * \text{DurablesDummy} + \beta_{21} * \\
& \text{DecreasingMarketingexpenditures}_{it} * \text{AfterRecessionDummy} * \text{DurablesDummy} + \beta_{22} * \\
& \text{Marketingexpenditures}_{it} * \text{IncreasingMarketingexpenditures}_{it} * \text{AfterRecessionDummy} * \text{DurablesDummy} + \\
& \beta_{23} * \text{Marketingexpenditures}_{it} * \text{DecreasingMarketingexpenditures}_{it} * \text{AfterRecessionDummy} \\
& * \text{DurablesDummy} + \varepsilon_i
\end{aligned}$$

In general, regression model 1 in this chapter is the main model of this research. As the hypothesis 2b and 5b focuses on consumer goods performance, 2<sup>nd</sup> model is specified for it. Since the regression model is run for each marketing expenditure separately, in the result chapter, 3 models for each of these models will be discussed.

#### 4.1.4 Multivariate regression analysis with recession period and marketing expenditures variables

Lastly, with the aim of evaluating the role of the recession period on each company's marketing expenditure spending, effect of the economic crisis period on the marketing expenditures is tested with the regression analysis. The model is as follows:

$$\text{Marketing Expenditures}_i = \alpha + \beta_1 * \text{RecessionDummy} + \varepsilon_i$$

Here, marketing expenditures represent the relative difference over the years (t-(t-1)). Recession dummy has 1 value when it captures the recession period – 2007-09, otherwise it is 0, as it is discussed in Section 4.1.2. The regression analysis is run for each company and marketing expenditure variable individually.

In the statistical analysis, the null hypothesis is rejected if the reported p-value is lower than the significance level  $\alpha$ . The  $\alpha$  significance level is the probability of rejecting the null hypothesis, and it often takes value of 0.05. In this research, 5% significance level is taken into the account for testing.

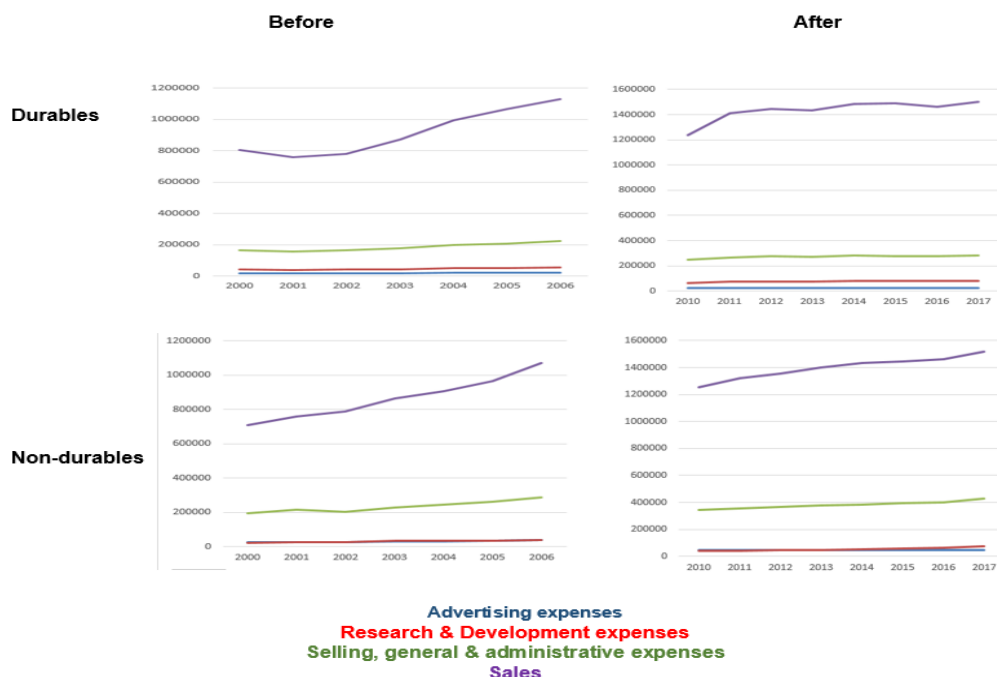
# Chapter 5: Results

Since the sample of this research is presented and the research methodology is explained, in this chapter the outcomes of the statistical processes are described in order to understand whether the hypotheses are rejected or not.

## 5.1 General statistics

To start the analysis, first, it is useful generally to observe the collected data. In Graph 5.1 below, the marketing expenditures variables before and after the recession for durables and non-durables are illustrated. Not a big difference is experienced on the spending of marketing expenditures and sales of non-durables before and after the crisis period. Spending on advertising and research and development expenses are the same for non-durable, only from 2016 research and development are overinvested. There are up and downs in the sales of durables. It starts to increase from 2002, and after the recession period from 2010 sales keeps increasing as well.

*Graph 5.1. Durables and non-durables before & after the recession period*



Moreover, in Table 5.1 the descriptive statistics of new created variables are summarized. Only some of the interactions are interesting for this research are included on this table. In general, the variables without durables dummy have higher means and standard deviation values than interaction with durables dummy. Increasing SG&A expenses and moderator SG&A variables have the highest mean value which means SG&A overinvested comparing with other 2 marketing expenditures. The highest standard deviation of increasing advertising expenses and moderator advertising explains that they are as concentrated as others. Increasing investment on the marketing variables in the crisis period after the crisis period is not added to the table, because these variables are dummies, so they have 1 and 0 values.

*Table 5.1. Descriptive statistics of new variables*

New Variable	Obs.	Mean	Std. Dev.	Min.	Max.
<b>Moderator: increasing advertising expenses</b>	3,474	0.019	0.170	- 2.097	2.430
<b>Moderator: increasing R&amp;D expenses</b>	3,474	0.007	0.062	- 1.047	0.872
<b>Moderator: increasing SG&amp;A expenses</b>	3,474	0.037	0.165	- 1.110	2.606
<b>Moderator: increasing advertising expenses of durables</b>	3,474	0.002	0.090	- 1.298	1.005
<b>Moderator: increasing R&amp;D expenses of durables</b>	3,474	0.004	0.055	- 1.047	0.872
<b>Moderator: increasing SG&amp;A expenses of durables</b>	3,474	0.012	0.077	- 0.812	1.089

## 5.2 Structural break test

The structural break test with known breaks – here these are 2007, 2008 and 2009, are run for each company individually. In general, it is possible to conclude these years are break points in the selected data and there are more structural break points in durable production companies than non-durables. If the company has shown the significance value for more than one year, the whole recession break has been evaluated as the break points for that company. These three years have been evaluated as the break points for 115 companies out of 193 in 2000-17 years. It means that p-values are statistically significant ( $p\text{-value} < 0.05$ ) and null hypothesis of no structural break for the specified dates is rejected. In table 5.2, the findings of this test have been summarized.

*Table 5.2 Breaks in each recession year break points for consumer goods*

	Durables	Non-durables	Total
2007	67/100	54/93	121/193
2008	52/100	47/93	99/193
2009	61/100	55/93	116/193

## 5.3 Multivariate regression analysis with recession period and marketing expenditures variables

Table 5.3 reviews the impact of the economic crisis period on the marketing expenditures spending of each company. It is clear from the table that the recession does not have significant effect on the marketing budget spending in the majority of the companies. This could explain that investing on the marketing expenditures by companies was not directly affected by the recent recession period. However, the crisis period could have negative significant impact on the spending of selling, general and administrative (SG&A) expenses of the most of non-durables, while this effect is positively significant for durables. This is also experienced in the investment on advertising expenditures.



Table 5.3 Impact of the recession on the marketing budget of companies

		Negative sign.	Positive sign.	No effect
<b>Durables</b>	Advertising	10	3	87
	R&D	8	15	77
	SG&A	5	11	84
<b>Non-durables</b>	Advertising	16	8	69
	R&D	8	5	80
	SG&A	17	12	64

## 5.4 Multivariate regression analysis

In order to answer the second and fifth hypotheses the regression analyses are run. The table 5.4 summarizes the outcomes of the second hypothesis's analysis including main and interaction effects. Since three independent variables represent the marketing expenditures, their affects are tested separately, as it was stated in Chapter 4, methodology part.

According to the results of the regression analyses of three marketing expenditures individually, all marketing expenditures variables have positive and statistically significant effect on sales at 5% significance level ( $p\text{-values} < 0.05$ ). Effect of increasing spending on marketing expenditures in the crisis period on the sales after the recession period does not have statistically significant effect in none of the model ( $p\text{-value} > 0.05$ ). So, hypothesis 2a is not supported in this research. Interestingly, decreasing spending on selling, general and administrative (SG&A) expenses has statistically significant impact ( $p\text{-value} < 0.05$ ) and this effect is negative. This means that the decreasing SG&A expenses in the recession period, decreases the sales after the recession period by 0.4818<sup>1</sup> points, ceteris paribus.

Moderator effect of increasing marketing expenditures in the recession period on the marketing effectiveness is statistically significant for R&D and SG&A expenses. So,

<sup>1</sup>  $0.4007 + 0.1395 + 0.0880 - 0.1464 = 0.4818$

hypothesis 2b is partially supported here. However, increasing investment on R&D expenses in the economic downturn period has negative moderator impact on marketing effectiveness, while this is positive in SG&A investment. So, if the investment on R&D rises by 1 point in the crisis period, marketing effectiveness declines by 3.3088<sup>2</sup> points, and 1 point more investment on SG&A expenses in the crisis period increases the marketing effectiveness by 1.479<sup>3</sup> points. Moreover, impact of decreasing spending on each marketing expenditures variables namely, advertising, R&D and SG&A, in the recession period on the marketing effectiveness is statistically significant and positive, which means one point increasing on these decreasing spending, increases the sales by 3.372<sup>4</sup>, 4.0506<sup>5</sup> and 2.6123<sup>6</sup> points, respectively.

From the table 5.4, it is obvious that F value is significant in all models at 5% significant level. F value explains whether the regression model provides better fit to the data than a model without any independent variables, in other words, intercept-only model. If the F is statistically significant, it is possible to conclude that the model serves a better fit than the intercept-only model (Frost, 2017). The total amount of the variance of the dependent variable that can be explained by the independent variables is represented with R-squared in the models. The highest one is obtained in model 3 - SG&A regression model (94%), while the model 2 – R&D regression model has the lowest R-squared value (43%).

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<sup>2</sup>  $2.4063 + 0.55 - 0 + 0.1726 + 0 - 0.4159 - 0 - 1.2092 = 3.3088$

<sup>3</sup>  $0.4007 + 1.0252 + 0.0871 + 0.088 - 0.1164 - 0.4642 - 0 + 0.4586 = 1.479$

<sup>4</sup>  $1.966 + 0.776 + 0 + 0 - 0.282 + 0.548 + 0 + 0.364 = 3.372$

<sup>5</sup>  $2.4063 + 0.55 + 0.2813 + 0.1726 + 0 - 0.4159 + 0 + 1.0563 = 4.0506$

<sup>6</sup>  $0.4007 + 1.0252 + 0.1395 + 0.880 - 0 - 0.4642 - 0.1464 + 0.7775 = 2.6123$

Table 5.4. Composition of models

	Model 1: Advertising expenses	Model 2: Research & Development Expenses	Model 3: Selling, general & administrative expenses
Log (marketing expenditures) ( $x_1$ )	0.776*	0.550*	1.0252*
Increasing marketing exp. ( $x_{2a}$ )	0.025	- 0.448	0.0871*
Decreasing marketing exp. ( $x_{2b}$ )	0.078	0.2813*	0.1395*
After Recession period ( $x_3$ )	0.082	0.1726*	0.0880*
$X_1 * X_{2a}$	- 0.235*	0.1209	- 0.1164*
$X_1 * X_{2b}$	- 0.282*	0.4841	- 0.0386
$X_1 * X_3$	0.548*	- 0.4159*	- 0.4642*
$X_{2a} * X_3$	0.069	- 0.0600	- 0.0646
$X_{2b} * X_3$	0.074	0.0599	- 0.1464*
$X_1 * X_{2a} * X_3$	0.543	- 1.2092*	0.4586*
$X_1 * X_{2b} * X_3$	0.364*	1.0563*	0.7775*
Constant	1.966*	2.4063*	0.4007*
Number of obs.	3,474	3,474	3,474
F	1892.11	335.92	5234.72
Sig.	0.000	0.000	0.000
R-squared	0.8171	0.4319	0.9443
Root MSE	0.4637	0.81714	0.25583

Dependent variable: *Log (sales)*

\* Correlation is significant at the 0.05 level

## 5.5 Multivariate regression analysis with consumer goods variable

Table 5.5 represents outcomes of the analysis of the fifth hypothesis. Here again, the regression model is run for each marketing expenditures' variable separately including dummy durables in the model in order to compare the effect of marketing expenditures in the recession on the performance of the durable goods production companies with non-durables.

Durable goods production companies' dummy variable is statistically significant and negative in model 3 and 4. It means that, if the companies are durable good production then the sales decreases relative to non-durable goods. Increasing investment on marketing expenses by durable goods producers in the recession period has statistically insignificant effect on the sales after the recession period. Therefore, there is no evidence to support hypothesis 5a. This result is also obtained in decreasing investment. It means that change in the marketing investment of durables does not have an impact on the sales.

Moderator effects of durables' increasing spending on advertising and R&D expenses are statistically significant ( $p\text{-value} < 0.05$ ) and one point increases on R&D spending enhances the marketing effectiveness by 3.8186<sup>7</sup> points, while advertising investment decreases the marketing effectiveness by 1.6566<sup>8</sup> points. Decreasing investment of durables on advertising expenses in the crisis period has negative significant impact on the marketing effectiveness as well. There is not a statistically significant impact of increasing SG&A expenditures by durables on the marketing effectiveness.

F values of all 3 models are statistically significant which mean that models have a better fit than intercept-only model. R-squared values are almost the same with previous models which are not specified for durable and non-durables. The highest R- squared is obtained on the SG&A model as well, with the value of 95%.

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<sup>7</sup>  $2.4953 + 0.5462 - 0.1709 + 0.1448 - 0.2594 + 0 - 0.3381 + 0 + 0.3346 + 0 - 2.2508 - 0 - 0 - 0 + 1.6719 = 3.8186$

<sup>8</sup>  $2.0978 + 0.779 - 0 + 0 - 0.2889 - 0.1911 - 1.3772 + 0.1519 + 0.2881 + 0 + 1.4374 - 0.2752 + 0.0772 - 0 - 1.0424 = 1.6566$

Table 5.5 Composition of models with durables

	Model 4: Advertising expenses	Model 5: Research & Development Expenses	Model 6: Selling, general & administrative expenses
Log (marketing expenditures) ( $x_1$ )	0.779*	0.5462*	2.0286*
Increasing marketing exp. ( $x_{2a}$ )	- 0.112	-0.1709*	0.1084*
Decreasing marketing exp. ( $x_{2b}$ )	- 0.104	0.3849*	0.0815
After Recession period ( $x_3$ )	0.0231	0.1448*	0.2349*
DurablesDummy ( $x_4$ )	- 0.2889*	-0.2594*	0.0649
$X_1 * X_{2a}$	-0.1911*	0.0629	-0.1340*
$X_1 * X_{2b}$	-0.2229	0.2650	-0.3951*
$X_1 * X_3$	-1.3772*	-0.3381*	-1.3548*
$X_1 * X_4$	0.1519*	0.2654*	0.2596
$X_{2a} * X_3$	0.1161	0.0286	-0.2089
$X_{2b} * X_3$	0.1130	0.2469*	-0.2502*
$X_{2a} * X_4$	0.2881*	0.3346*	-0.0559
$X_{2b} * X_4$	0.3690*	-0.05950	0.0858
$X_3 * X_4$	0.0974	0.0598	-0.2131
$X_1 * X_{2a} * X_3$	1.4374*	-2.2508*	1.4216*
$X_1 * X_{2b} * X_3$	1.2992*	1.8059*	1.9671*
$X_1 * X_{2a} * X_4$	-0.2752*	-0.3497	-0.1984
$X_1 * X_{2b} * X_4$	-0.2859	0.4132	0.3206
$X_1 * X_3 * X_4$	0.7772*	-0.3821	0.7809
$X_{2a} * X_3 * X_4$	-0.8339	-0.1634	0.2146
$X_{2b} * X_3 * X_4$	-0.7617	-0.2986	0.1444
$X_1 * X_{2a} * X_3 * X_4$	-1.0424*	1.6719*	-1.1248
$X_1 * X_{2b} * X_3 * X_4$	-0.9029*	1.5203	-1.2879
Constant	2.0978*	2.4953*	0.3672*

<b>Number of obs.</b>	3,474	3,474	3,474
<b>F</b>	1002.19	191.35	2727.16
<b>Sig.</b>	0.000	0.000	0.000
<b>R-squared</b>	0.8196	0.4445	0.9454
<b>Root MSE</b>	0.46137	0.8091	0.25369

Dependent variable: *Log (sales)*

\* *Correlation is significant at the 0.05 level*

## Chapter 6: Conclusion

This thesis aimed to contribute to the existing knowledge about the marketing effectiveness in the recession period. To be more precise, it analyzed the impact of increasing spending of marketing expenditures in the recession period on the sales after the recession period. So far, there was quite a lot of focus on marketing effectiveness in general, and in the recession period, and significantly less attention was given to the role of marketing spending in the recession on the sales after the recession period. This leads to the central research question of this thesis, which is:

*What is the role of the increasing marketing budget in the recession period on the company performance after the recession period?*

In order to answer the main question, hypotheses are defined and answered in previous chapters. In this chapter, all these answers are summarized. Moreover, the limitations of the research, recommendations and managerial implications for a future research are presented.

### 6.1 Conclusion from the descriptive analysis

Graphs in Chapter 5 illustrates before and after the recession period for durables and non-durables. It is concluded that advertising and research and development expenses are constant before the economic crisis period, while selling, general and administrative expenses have kept increasing over the period. After the recession period all expenses are more or less constant, and slight increase can be experienced again in SG&A expenditures. The sales constantly increase from 2002 onward and in the recession period – 2007-09 diminishing is experienced. After the recession period, from 2012 the sales again have been raised over the period. Last but not least, the durable goods production companies invest on the marketing expenditures more than non-durables.

## 6.2 Answers to the hypotheses

The first hypothesis stated:

*H<sub>1</sub>: There is a break in the marketing effectiveness between before and after the recession period.*

In order to examine this hypothesis, the outcome of the structural break test is discussed in Chapter 5. Since the outcome of more than half of the companies has rejected null hypothesis which states that there is no structural break at the known break points - 2007-09, the hypothesis can be supported partially. So, 2007, 2008 and 2009 are the break points in 2000-17 periods. In other words, the marketing effectiveness changes before and after the recession period. This analysis also answers fourth hypothesis, which is:

*H<sub>4</sub>: There is more break in the marketing effectiveness of durables compare to non-durables between before and after the recession period.*

Since it is found out that there are more structural break points in durable production companies than non-durables, it means more structural change is experienced in durables compare to non-durables.

The third hypothesis was:

*H<sub>3</sub>: There is an effect of the recession period on the marketing budget investment.*

This hypothesis is argued in Chapter 5 as well, and it is concluded that the recession does not have significant effect on the marketing investment of the majority of the companies. However, the indirect impact still can be experienced: the economic downturn period can negatively affect the buying behavior of the consumers which leads to decrease in a company performance, and that is why the company is going to deal with this situation making the marketing investment.



Next hypotheses focused on:

*H<sub>2a</sub>: There is a positive effect of increasing marketing expenditures in the recession on the company performance after the recession period.*

*H<sub>2b</sub>: There is a positive moderator effect of increasing marketing expenditures in the recession on the marketing effectiveness.*

These hypotheses are discussed in Chapter 5, and because of statistically insignificant outcomes from the first 3 regression models, H<sub>2a</sub> is not supported in this research. So, there is not enough evidence to state that increasing marketing expenditures in the crisis period impacts the company performance after this crisis period. Moreover, H<sub>2b</sub> is partially supported, since increasing R&D and SG&A expenses in the recession period has statistically significant effect which means they moderate the marketing effectiveness. However, only investment on SG&A expenditures in the economic crisis period has positive moderator impact. Interestingly, decreasing the investment on the marketing expenditures has positive and statistically significant effect on the marketing effectiveness.

Last hypotheses were about:

*H<sub>5a</sub>: Increasing spending in the recession period on the marketing budget has more positive effect on the performance of durable goods relative to non-durables.*

*H<sub>5b</sub>: Increasing spending in the recession period on the marketing budget has more positive moderator effect on the marketing effectiveness of durable goods relative to non-durables.*

The fifth hypothesis is discussed by the remaining regression models in Chapter 5. Although increasing investment on 2 marketing expenditures by durable goods production companies has been shown statistically significant effect, these effects are negative. That is why H<sub>5a</sub> is not supported in this thesis. Besides this, there is the evidence to claim that raising investment on research and development by durables in the

economic downturn period has the positive moderator effect on the marketing effectiveness relative to non-durables.

### 6.3 Answers to the central research question

So, since all hypotheses are presented and interpreted, the answer to the main research question can be provided. The central research question has been already presented in the first chapter and it is:

*What is the role of the increasing marketing budget in the recession period on the company performance after the recession period?*

In general, it is possible to conclude that there is not a direct effect of increasing investment on the marketing budget in the recession period on the company performance after the recession period. The investment by durable goods producers does not have more positive impact on the sales relative to non-durables. The moderator role of increased spending on an expenditure in the crisis period on the sales after this crisis period are only experienced on SG&A spending. The more positive moderator impact is obtained on R&D investment when durables are compared to non-durables. Interestingly, when the effect of decreasing spending on the marketing budget in the recession period is checked, it is concluded that decreasing these spending has positive effect on the sales after the crisis period. In general, it is possible to conclude that reducing the spending on the marketing budget in the recession could be more beneficial for the companies' sales after the recession period.

## 6.4 Limitations of this research and recommendations for a future research

In reference to the limitations of this research, there are a couple of issues which should be taken into the account when discussing the results of this study. First of all, in this research only the North American companies were focused on, because of the availability of the data. It would make the research paper more valid if the companies around the world were examined/investigated. This method will allow obtaining even more generalizable results.

The second limitation of this thesis is that the impact of the marketing expenditures variables is examined individually not altogether. As it is mentioned in Chapter 4, because of high correlation among independent variables, the regression analysis is run for each of them separately. However, it is also quite interesting to see tradeoff between marketing expenditures' variables. That is why in future researches this relationship should be examined as well, and if needed different transformation and/or statistical analysis can be applied.

Moreover, a company size and operation period in the market can be matter in this investigation as well. There is a difference in the investment on the marketing budget from company to company. If a firm is active in the market for a long time and already has awareness in the market, then its investment is not the same with a firm which recently joined the market. Big companies are also capable to spend more on the marketing than small ones. Therefore, any attempts to expand the existing literature on the marketing effectiveness by concentrating on a company size and life cycle in the market are of added value.

Another limitation of this paper could be the chosen time period. Focusing on the quarterly data not yearly, could allow testing the effectiveness more efficiently. For example, some of the marketing activities express their effectiveness weekly or/and monthly. That is why, it is highly recommended to take this factor into consideration in next research as well.

Additionally, different break tests can be applied for identifying break point in the data, because the test used in this paper considered intercept as well when the break

point is tested for marketing expenditures in 2000-17 time period. The research will be more accurate if only interested variables is checked and not manipulated by other factors like intercept.

Lastly, the increasing investment on the marketing budget in the recession period did not explain through the portion of this investment. If this relative difference is divided in groups, for example, 25%-50%-25% of the increasing investment on the marketing expenditures, then it will be possible to see the impact of each group on the company performance individually.

When taking into account all above mentioned limitations of this study, the future venues of the research can be identified. Consequently, to obtain more scientific evidence about the relation between marketing expenditures and the company performance, the subject should be studied applying a different method than the one used in this thesis. For instance, the different design would add more robustness to the findings of this research. Indeed, a different sample of countries will also add more evidence on the subject and would allow obtaining even more generalizable results. Despite of these shortcomings, this thesis shed a light on the following issues and explained the impact of increasing spending on marketing budget in the recession period on sales after the recession period.

Even though marketing effectiveness is broad and is expanding every year, there is relatively less attention given to the role of the recession period in this relationship. Therefore, any attempts to expand the existing literature on this topic are of added value. Consequently, this not only would expand the literature on the relation between marketing budget, the company performance and a recession period, but also would provide relevant information for marketers.

## 6.5 Managerial implications

The findings in this research paper can be helpful guide for managers and marketers when they have to make marketing investment decision in the economic downturn situation. During a recession period, companies usually are under pressure of

how to allocate their budget on the marketing. This thesis offers the answer to this difficulty. Although there was not direct positive impact of investing on the marketing budget on the sales after the recession, selling, general and administrative expenses have positive indirect role on the marketing effectiveness if the spending on these expenses increases in the crisis period. In other words, this expenditure plays the moderator role on the marketing effectiveness. Additionally, research and development have indirect positive effect if durable goods producers invested in the recession period relative to non-durables. That is why, companies in durable goods production industry should not underestimate the importance of the R&D on their sales. Even though these findings are not really applicable for all companies, at least are useful for the companies in durable goods production industry.

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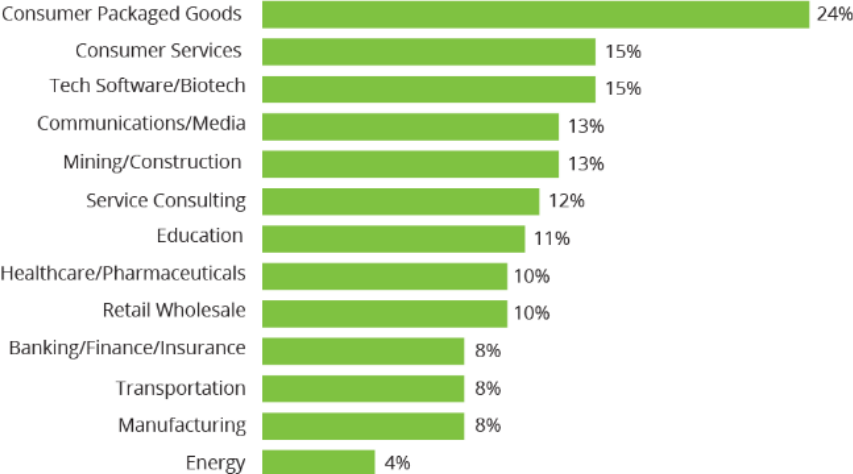
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# Appendixes

## Appendix A.

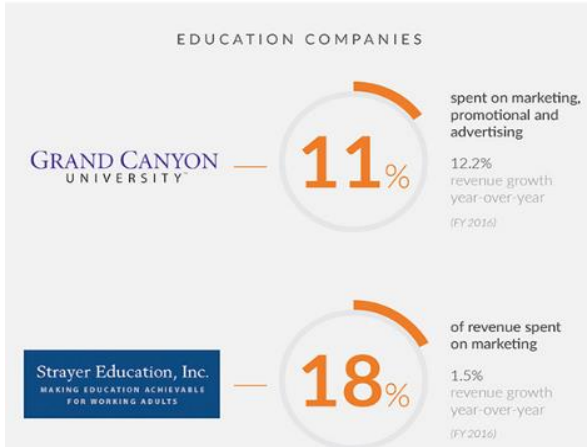
**Figure 1: Marketing Budgets By Industry**

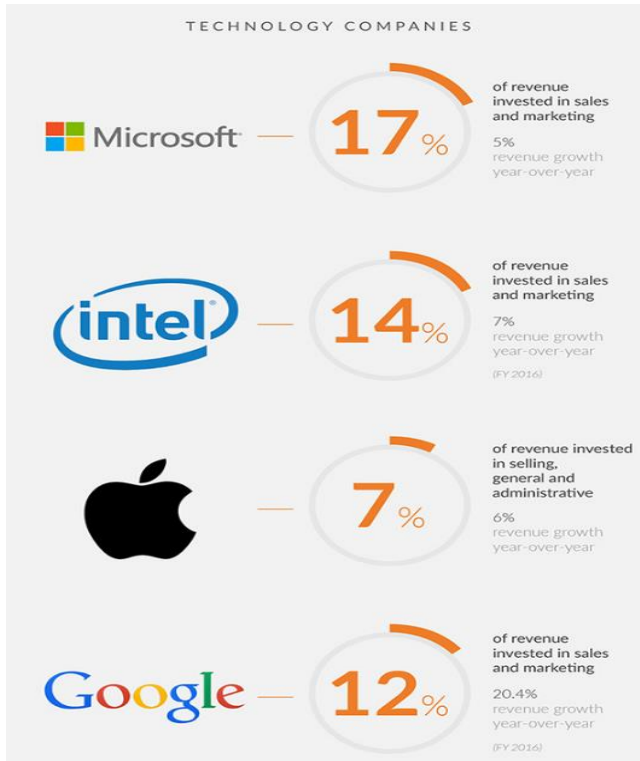
Marketing accounts for what percentage of your overall budget?



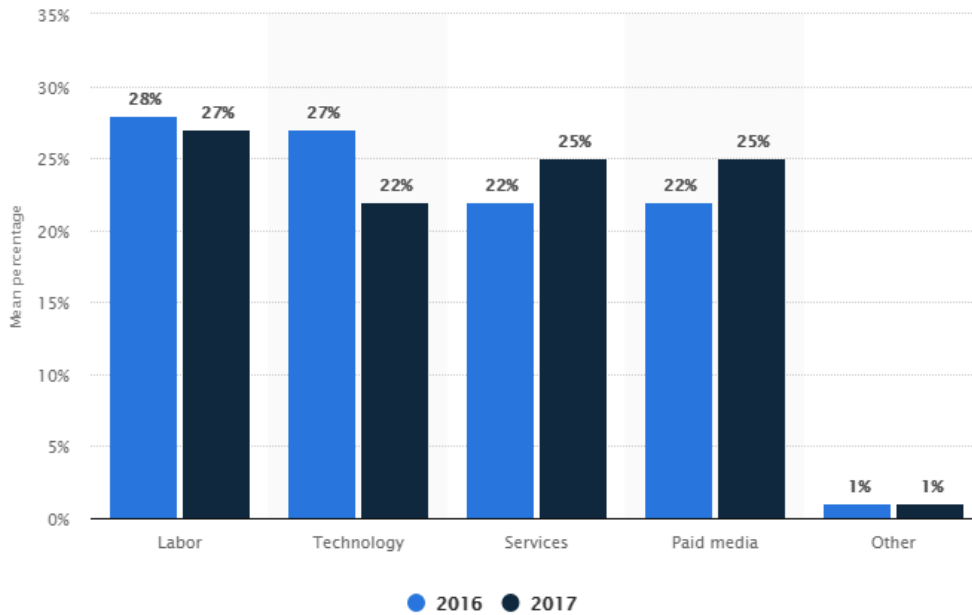
Source: The CMO Survey and Deloitte Digital

## Appendix B. Spending on marketing

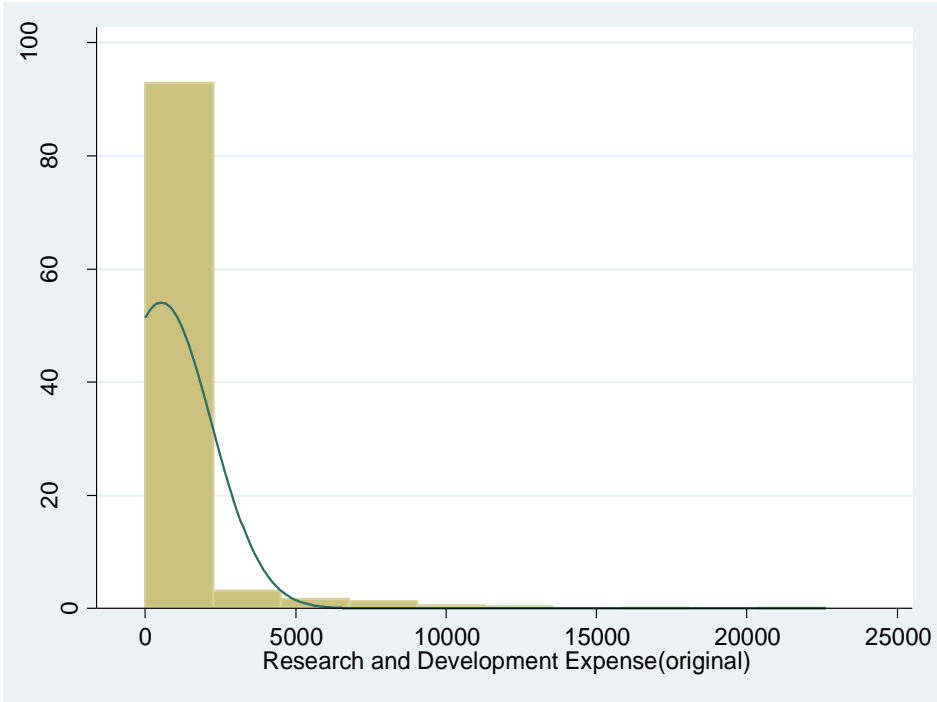
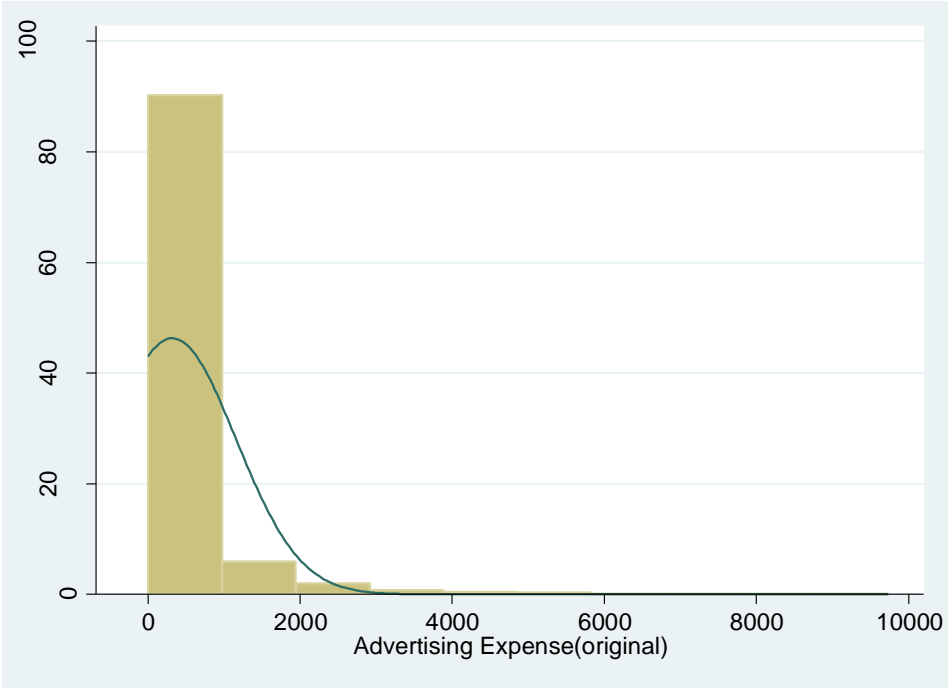


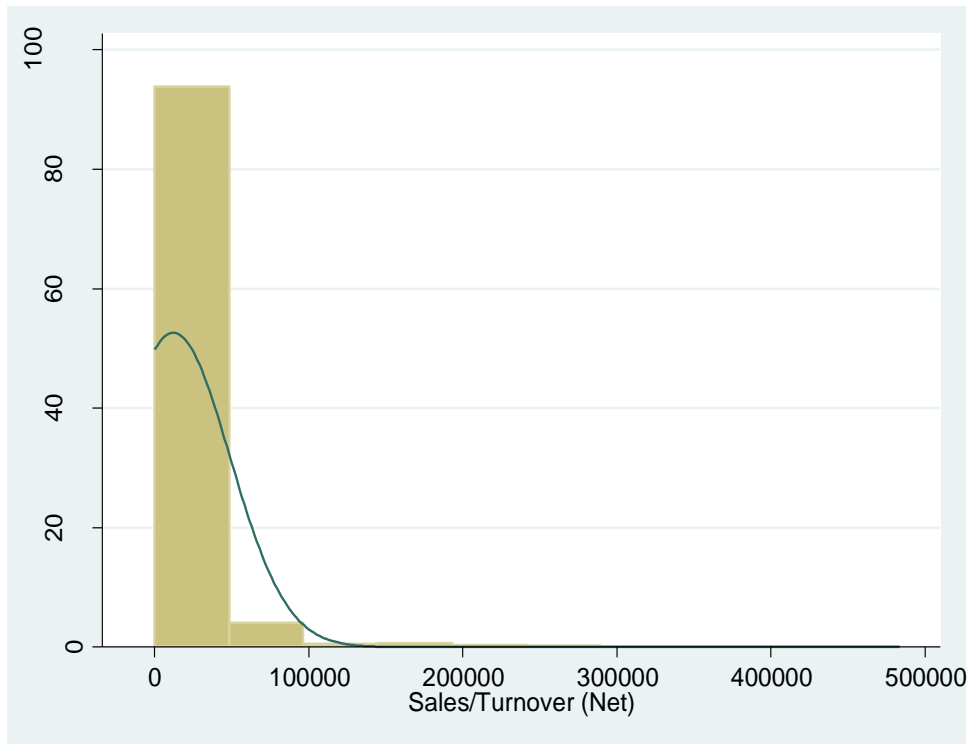
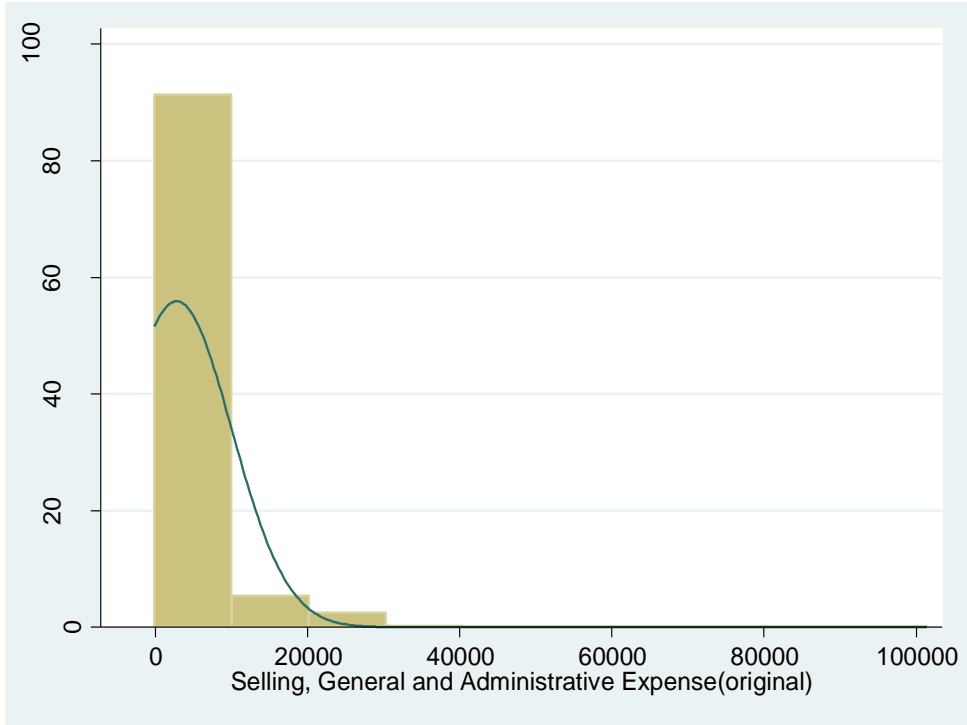


## Appendix C.

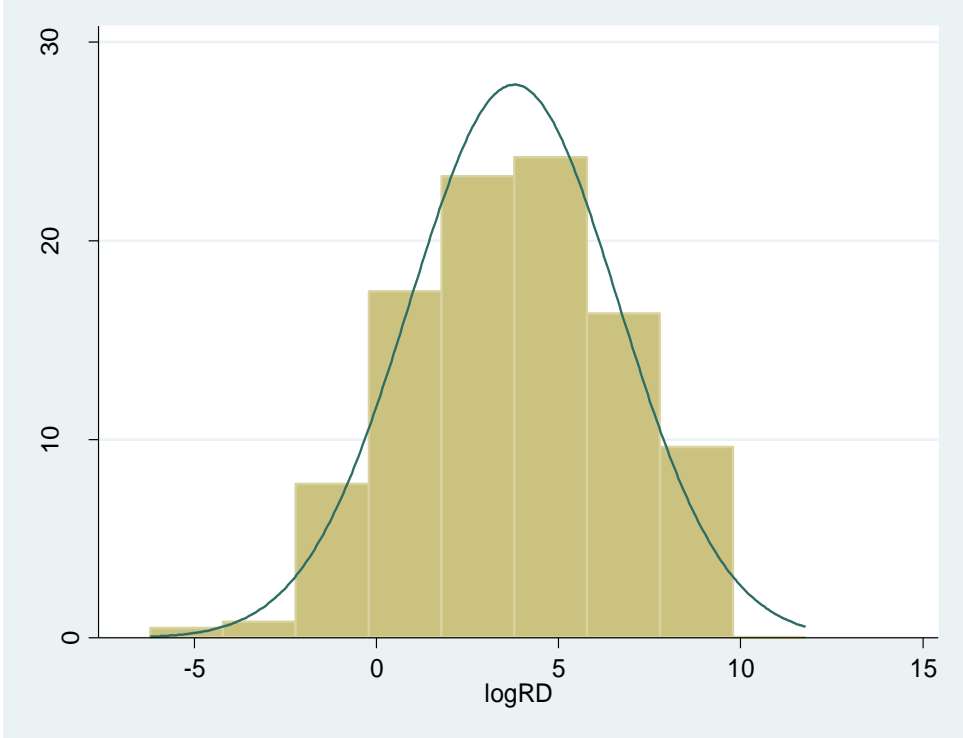
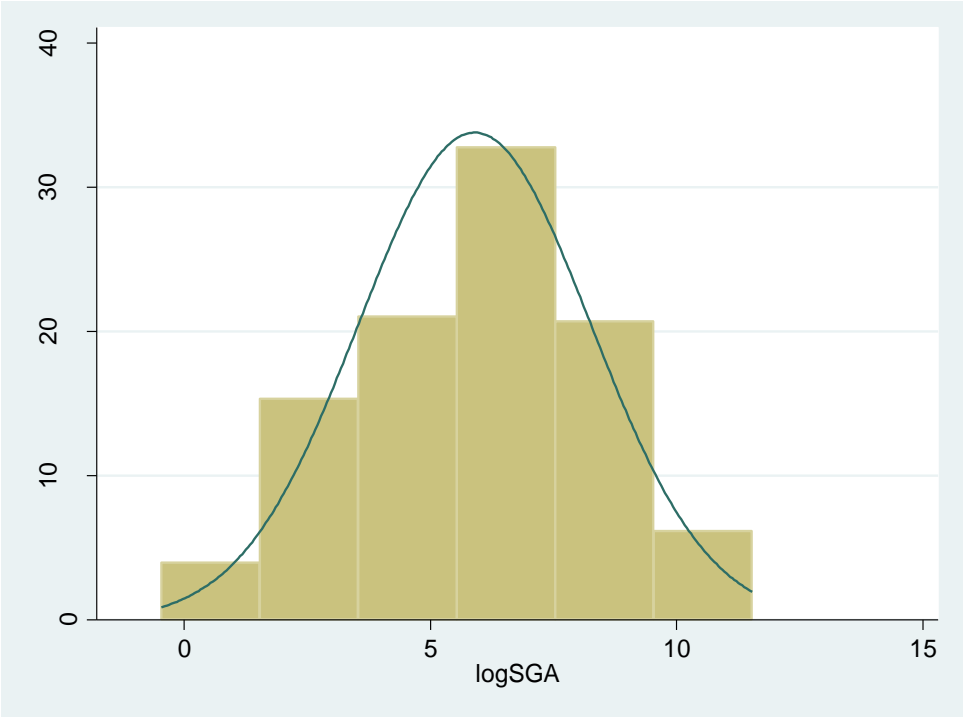


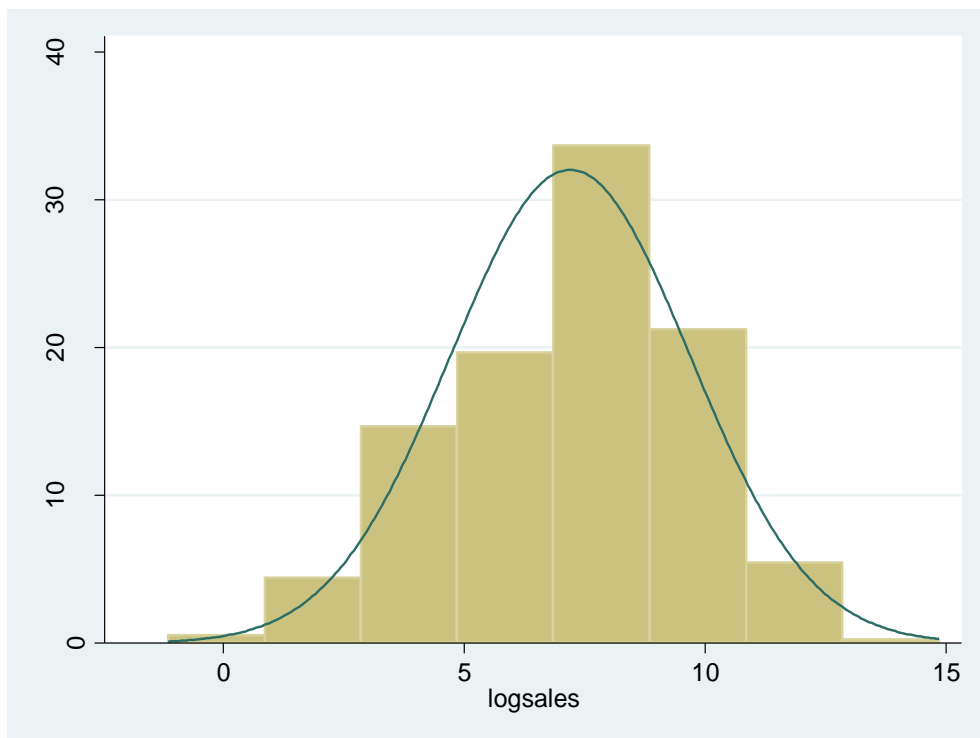
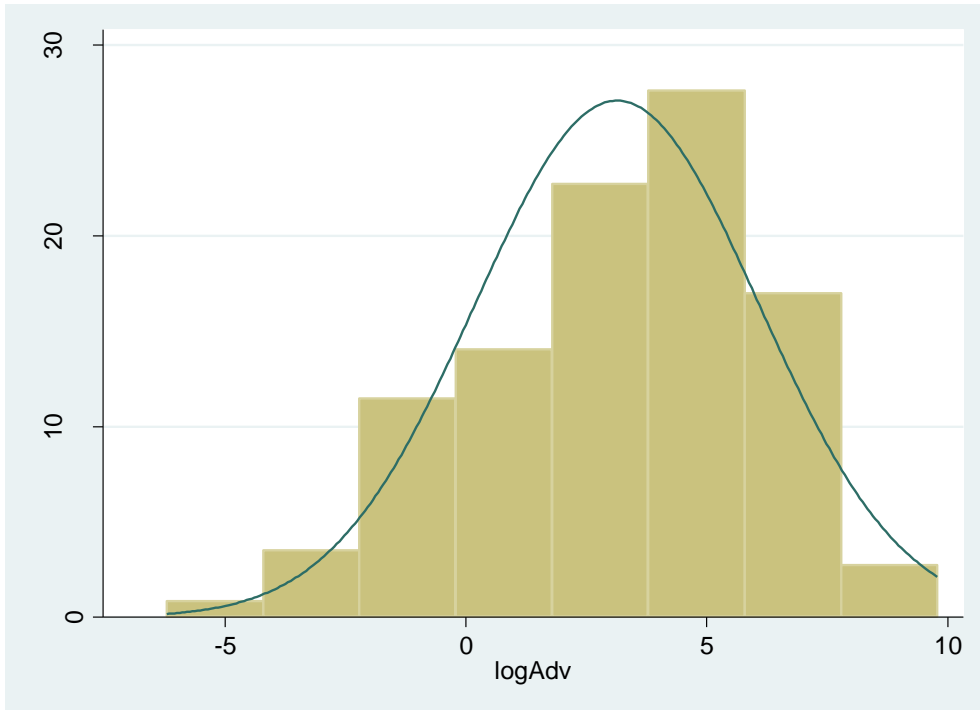
# Appendix D. Histograms





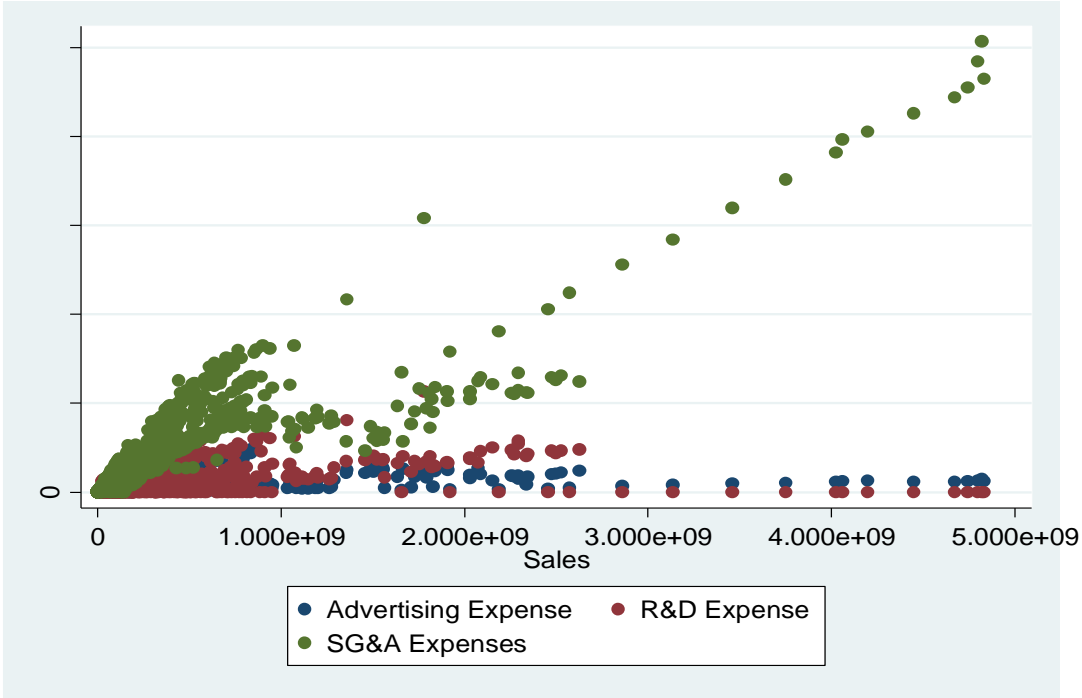
Appendix E. Histograms after the log transformation







# Appendix F. Scatterplots



After log transformation

