



BI Norwegian Business School - campus Oslo

GRA 19502

Master Thesis

Component of continuous assessment: Thesis Master of Science

Spending on advertising, managerial incentives and firm performance

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Start: 02.03.2018 09.00

Finish: 03.09.2018 12.00

Master Thesis

Study programme: Master of Science in Finance

Student: Lukas Širšinaitis

Hand-in date:
03.09.2018

This thesis is a part of the MSc programme at BI Norwegian Business School. The school takes no responsibility for the methods used, results found and conclusions drawn.

Abstract

We analyse the incentives of managers to spend on marketing and the relationship between advertising expenses and financial performance of companies. Three hypotheses on managers' behaviour are stated - real need of normal spending (H1), spending to increase the prestige of the firm in financial markets (H2) and spending the free cash flows for the private benefit of managers (H3). The industry and company level data of publicly traded US companies in the period of 1995-2011 was collected from Compustat, Execucomp and OECD input-output tables. The main method of analysis was panel regression with fixed or random effects estimators. The models were also checked for Granger causality. Results provide support for all three hypotheses. This paper provides interesting directions for future research and contributes to the literature of agency problem between managers and shareholders.

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1. Introduction

Corporate governance is widely known as a possible determinant of company's success or failure. Various corporate governance indices were even created to inform investors about the governance of a company. One of the criteria is the quality of board of directors who try to monitor company and reduce its agency problems which is a very important topic in corporate governance.

The agency conflict between shareholders and managers is one of the issues the board of directors is meant to reduce. The conflict exists due to the asymmetry of information, since it is impossible for shareholders to know about the company as much as managers know. Managers are the key decision makers in the company, but have a fiduciary duty to its shareholders, i.e. they have to act in their best interest. However, long time ago the famous Adam Smith (1776) told that managers usually do not watch over other people's money with the same care as if it was their own. Shareholders want to maximize the value of their investment while managers have other things to focus on – recognition, salary, bonuses, etc. (Byrd et al, 1998) They are usually found to be making decisions favouring short-term yields and harming long-term gains for shareholders (Narayanan, 1985). These decisions are likely to be possible due to the asymmetric information problem mentioned above. It is impossible to write complete contracts which perfectly describe every future situation with prescription on how managers should act. Thus, controlling managers is usually a necessity for larger shareholders or boards of directors.

One of the main ways to assess managers' decisions is reading financial statements (Ali Shah S.Z., 2001). There are many metrics which have rather clear meaning – EBITDA, R&D expenses, etc. However, data on advertising expenses is usually difficult to interpret, yet it is very important to make sense of it for an investor who seeks to understand company's financial performance.

More fundamentally, there is a basic disagreement on the benefits of advertising for shareholders. First of all, advertising could be a way to improve firm's financial performance. It is just the original purpose of advertising and the main goals are standard - attracting more customers, increasing sales, improving profitability. This is the outlook towards advertising usually assumed by investors and there is some literature which investigates it (Amit Joshi, 2010). The

conventional interpretation of advertising expenses ought to be most beneficial for shareholders, since the residual profit belongs to them.

However, advertising has direct and indirect routes to benefit the company (Amit Joshi, 2010), so another interpretation would be that it is a means of increasing firm's financial valuation. Advertising is known to improve the investors' and consumers' perception of the quality of the firm (Bentley T., 2015) which naturally leads to increased stock price. Sometimes this behaviour can be observed before the end of the vesting period of managers' stock options. As one would expect, the benefit to shareholders in this case is ambiguous.

The third interpretation is that advertising benefits just managers who burn cash, take unprofitable projects in order to create the impression that important work is being done. Such situation is often prevalent in the companies which have a lot of cash available. The free cash flow problem has been well described in a paper by Jensen (1986). Anecdotally, in 2018 due to the pressure from activist investors and lack of sufficient sales growth many of the world's largest consumer goods companies such as P&G, Unilever, Danone, Mondelez, Nestlé were cutting costs in order to boost profits. Not only this alternative is bad for shareholder value, but it can also be an indication of poor corporate governance.

One way or another, the meaning of advertising expenses in the financial statements is still not extensively researched. Therefore, we will investigate manager's incentives to spend on advertising and its relationship with financial performance of companies.

We state three hypotheses based on the literature. First hypothesis is that managers spend cash on advertising to get more attention from consumers. Second hypothesis claims that managers spend cash on advertising for prestige – in order to increase company's perceived value and stock price. Third hypothesis claims that managers spend cash on advertising inefficiently, for vanity, in order to make impression that they work. Not only it is a less researched area in the field of corporate governance, but our study also differs from the previous research that it tests and compares all three hypotheses at once.

We collected data of U.S. publicly traded companies from Compustat and Execucomp databases and U.S. industry data from input-output tables available at OECD. We gathered traditional financial data and also calculated industry level Herfindahl-Hirschman indexes. Our sample contains 196820 observations from the period of 1995-2011.

Panel regression models with fixed or random effects estimators which absorb constant company and year specific effects were used. In addition, Hausman test was used in order to choose between random and fixed effects. Furthermore, in order to determine the direction of causality Granger test was put to use.

Significant support for all three hypotheses was found. First hypothesis is clearly supported by our results. There is a significant positive relationship of advertising expenses with company's *market share* ($p < 0.01$), cash holdings ($p < 0.01$) and *sales* ($p < 0.01$), although advertising expenses Granger cause only *cash holdings*. This means that higher advertising expenses are likely to increase *sales*, *market share* and cash holdings of the company, supporting the conventional interpretation of advertising. Besides, industry's exposure to consumers has positive relationship ($p < 0.01$ unlagged and at lag 1) and Granger causes *average advertising*. Therefore, we can say that more advertising is done in consumer-facing industries which supports the first hypothesis. In general, we can state that managers are likely to spend money in order to attract consumer attention.

The results support second hypothesis as well. There is Granger causality and a strong positive relationship of advertising with *Tobin's Q* ($p < 0.01$) and *total shares owned* ($p < 0.01$) by the manager. This indicates that managers may spend on advertising in order to improve investors' perception of the company and increase the share price. The tests with advertising expenses and *restricted stock holdings* indicate negative relationship ($p < 0.01$) and no Granger causality. However, it does not contradict the second hypothesis, since the end of vesting period may not have come and managers may be deliberately postponing advertising expenses. Thus, the results say that managers tend to spend money for prestige.

The third story is that managers spend cash on advertising inefficiently, for vanity. Industry level Herfindahl-Hirschman index in terms of sales has positive significant relationship ($p < 0.01$ unlagged and $p < 0.05$ at lag 1) and Granger causes advertising. This shows that managers tend to spend more on advertising in less competitive industries. Besides, industry level Herfindahl-Hirschman index in terms of purchases has negative significant relationship ($p < 0.01$) and Granger causes advertising. This means that the more manager controls the industry as a single buyer, the more he is likely to spend money on advertising. Both of the relationships provide support for hypothesis 3, because when you are in power, as a purchaser or as a seller, advertising should be less and less necessary.

Furthermore, there is Granger causality and a significant negative relationship ($p < 0.01$) of *ROA* and advertising. The finding that advertising does not increase *ROA* allows us to question the benefits of advertising expenses. Granger causalities and positive relationships of *market share* ($p < 0.01$) and cash holdings ($p < 0.01$) with advertising again support the theory that managers abuse agency issue of free cash flow (Jensen, 1986). On the whole, managers seem to have a tendency of spending money for no reason.

All in all, we see support for agency problem and the need to control managers' behaviour. Investors usually see advertising expenses as a way to attract consumer attention. However, support for prestige spending story implies that advertising can be the way to lure investors into buying the stock. Even worse, spending for vanity can be detrimental to shareholder value. A good anecdotal example of vanity spending by a Japanese internet retailer is the outlay of €220 million for putting Rakuten brand on the shirt of the players of Barcelona football club. The investment was motivated by the ambiguous goal to improve the visibility of the brand and the benefit to shareholders is highly questionable. Therefore, investors should be aware of these issues and take them into account during the decision process.

We contribute to the literature of agency problem between managers and shareholders by providing a detailed perspective on advertising spending. We can see signs of abuse of information asymmetry in the agency issue between shareholders and managers, since advertising seems to be not only the way to benefit investors, but also a way to convince them to buy the stock. Spending for vanity is more important for existing shareholders in order to avoid non-trivial losses. The study also provided some interesting questions for future research, such as managers' behaviour in different countries, specific industries, advertising types, etc.

The rest of the paper is structured as follows. Section 2 contains hypothesis development together with literature review. Section 3 describes the data and variables calculated. Section 4 describes the methodology. The results and discussion are presented in sections 5 and 6 respectively. Finally, we conclude in section 7.

2. Hypothesis development

Managers' incentives to spend on advertising are unclear and interesting due to their implications for shareholder value. Since various tendencies of behaviour can be observed in the literature, we will separate them into three hypotheses. Investigating them will help us understand what shareholders can expect from managers' spending on advertising.

H1. *Managers spend cash on advertising to get more attention from the consumers*

Traditionally, advertising has been described as having a role in increasing sales, market share and maintaining leadership position (Ali Shah S.Z., 2001). Besides, increased advertising spending is usually found to be related with rise in retail buying (Dong Lou, 2014). Thus, our first hypothesis (H1) is that managers spend money in order to get attention from customers and increase sales.

H2. *Managers spend cash on advertising for prestige.*

Our second hypothesis is that managers spend on advertising in order to make their company prestigious, impress investors, other stakeholders, improve the image and share price of the company.

In advertising literature, there are widely known theories of signalling and spillover effects. The effects from signalling mean that consumers interpret advertising as a sign of good company's situation and high quality of products. A paper by Bentley T. (2015) tested signalling theory of advertising. It found support for it, since there is a positive correlation among spending on advertising and consumer perception. In addition, advertising spills over to investors' perceptions as a signal of high future earnings, company's financial strength and future sales growth. Besides, investors, having a limited attention span, like to invest into familiar rather than ambiguous stocks (Dong Lou, 2014 and Amit Joshi, 2010).

Managers are also known to have a tendency of practicing opportunistic advertising as attention attractor and short-term stock returns booster, if they have incentives to increase the stock price. A problem of different shareholders' and

managers' horizons has been described by Byrd et al (1998). Investigating advertising is important, since opportunistic advertising gives non-trivial costs to shareholders. They were especially visible in firms with poor corporate governance whose managers are dictators (Dong Lou, 2014).

Advertising can also impact the intangible value of a company, i.e. brand image, even though there is no direct substantial consumer impact (Amit Joshi, 2010). In addition, role of advertising as a means of spreading information, creating brand awareness and boosting brand image has been described by Ali Shah S.Z. (2001). One of the examples is luxury consumer brands, such as Louis Vuitton, which want their stores to be situated in the best locations and prestigious buildings, since they use them to reinforce their brands' image in consumers' heads. Another instance could be information technology industry where there is a fierce competition for the best talent. Thus, in order to retain the talent companies such as Google spend huge amounts of money in order to have their offices in the most prestigious locations. Thus, in general managers' spending for prestige can have rational reasons.

To sum up, hypothesis 2 states that managers tend to spend money for prestige which impacts the company's image and valuation of shares.

H3. *Managers spend cash on advertising inefficiently, for vanity, in order to make impression that they work.*

This hypothesis describes the situation when the firm has a lot of cash and managers just invest that cash somewhere inefficiently, making an impression that they do important work. The high agency costs of free cash flow have been well described in a paper by Jensen (1986). In the situation of excess free cash flow managers tend to invest in unprofitable projects in order to increase their status or for other reasons. The opposite situation is high company's debt which has a well-known role of motivator for managers to behave in shareholders' interest. Excess free cash flow is likely to be ineffectively used when company has no or little debt. The paper by Jensen (1986) also stresses that companies which do not have strict cash payout policies are especially hit by conflict of interest between shareholders and managers. Moreover, companies that have low growth prospects and generate large cash flows are known to be usually wasting cash.

However, anecdotally young companies are known to be chasing 1 billion market valuations while wasting cash along the way. For instance, before its collapse a startup called Powa Technologies chose one of London's tallest skyscrapers as the headquarters for the unprofitable business. Another example is Uber's 2018 announcement that they will be changing the company's strategy in order to reduce the cash which is wasted. Venture capitalists expect part of the portfolio companies to fail, likely giving rise to the possible abuse of money by the executives. Thus, investigating the hypothesis of vanity spending is important, since it seems to be a real issue for shareholders and other stakeholders.

In order to test these hypotheses, we need to choose the relevant financial data. We also need a method which observes general tendencies of managers' behaviour. We decided that panel regression with random or fixed effects estimators is the best method to investigate this, since constant year or company specific effects will be absorbed. Besides, Granger causality test will be used in order to determine the direction of causality. Only then we can analyse if the results of the tests support the hypotheses or not.

3. Data

The data on financial performance of U.S. companies was collected from Compustat North America and Executive Compensation (Execucomp) databases available at Wharton Research Data Service. Compustat data (1965–2017) contained 530738 observations, Execucomp data (1992-2016) contained 275611 observations. The OECD industry data for HHI calculation was available only at years 1995 to 2011.

Since industry level data and company data was taken from different sources, the industry categories had to be matched. Standard Industry Classification code and the industry type in the input/output tables were matched using SQL database, R programming language and manually when necessary. After data matching we decided to narrow the sample down from the period 1961-2017 to the period of 1995-2011, leaving 196820 observations. If a variable is winsorized, it was done at 5% and 95% levels, i.e. values below 5% and above 95% were replaced with the values at the 5% and 95% percentiles respectively. This is done in order to reduce the effect of possibly spurious outliers. The unique database code of the variables taken will be provided in the brackets.

3.1. Definition of variables acquired from Compustat

- *Advertising / total exp.* – winsorized advertising expenses (*XAD*) divided by winsorized total company expenses (*XOPR*). Division is done in order to normalize for company's size, etc. This variable will account for company's advertising expenses.
- *Advertising / total exp. growth* – yearly percentage change of *advertising / total exp.*
- *Total assets* – winsorized total assets (*AT*) of a company. This variable will be used to account for firm's size.
- *Cash / total assets* – winsorized cash holdings (*CH*) divided by winsorized total assets (*AT*) of a company. Division is again done in order to normalize for company's size. This variable will account for company's cash holdings.

- *Closing price* – closing market’s stock price (*PRCC_F*). Values of zero were omitted.
- *Company key* – global company key (*GVKEY*) assigned to each individual company in Compustat.
- *Year* – the year of the observation (*FYEAR*).
- *Net income* – company’s net income (loss) (*NI*).
- *Interest expenses* – company’s interest expenses (*XINT*).
- *Book value per share* – book value per share (*BKVLPS*).
- *Book value of debt* – book value of total liabilities (*LT*) of a company.
- *Number of shares* – number of common shares outstanding (*CSHO*).
- *Book value of assets* – *book value per share* times *number of shares*.
- *Sales* – winsorized sales (*SALE*) of a company.
- *Sales growth* – yearly percentage change of *sales*.
- *Volatility* - winsorized standard deviation (%) of company’s *closing price*.
- *Market capitalization* – *closing price* times a *number of shares*, winsorized.
- *Revenue* – total company’s revenue (*REVT*).
- *Cost of goods sold* – cost of goods sold (*COGS*) by the company.
- *Tobin’s Q* – winsorized Tobin’s Q, calculated using this equation:

$$\text{Tobin's } Q = \frac{\text{market capitalization} + \text{book value of debt}}{\text{book value of assets} + \text{book value of debt}}$$

Equation no. 1.

- *Margin* – winsorized margin of a company, calculated using this equation:

$$\text{Margin} = \frac{\text{revenue} - \text{cost of goods sold}}{\text{revenue}}$$

Equation no. 2.

- *ROA* – winsorized return on assets, calculated by this equation:

$$\text{Return on assets} = \frac{\text{net income} + \text{interest expenses}}{\text{total assets}}$$

Equation no. 3.

3.2. Definition of variables acquired from Execucomp

Additional data of two variables on insider holdings were gathered from Execucomp. These variables will be used to know how managers behave when they care about the company.

- *Total Shares Owned.* The percentage of company's shares owned by the named executive officer, options excluded (*SHROWN_EXCL_OPTS_PCT*). It is summed for all company's executives in a given year and winsorized.
- *Restricted stock holdings / total market cap.* – winsorized sum of company's restricted stock holdings (*STOCK_UNVEST_VAL*) for all executives in a given year divided by winsorized *market capitalization*. Division is again done in order to normalize for company's size.

3.3. Definition of variables acquired from OECD input-output tables

Herfindahl-Hirschman index (HHI) is known as a useful way of measuring competition, according to one paper (Giroud, 2009). It is well described in industrial organization theory (Tirole, 1988). A higher HHI implies weaker competition. The HHI is defined as the sum of squared market shares:

$$HHI = \sum_{k=0}^n s_i^2$$

Equation no. 4. S_i - market share of firm i in the market, and n is the number of firms.

In order to identify supplier-customer relationships at the industry level the U.S. data from input-output tables was gathered from OECD website. Two Herfindahl-Hirschman indexes (HHI) were calculated.

- *HHI in terms of industry sales.* S_i in the equation is the percentage of sales in industry i .
- *HHI in terms of industry purchases.* S_i in the equation is the percentage of purchases in industry i .

Other useful variables were also calculated:

- *B2C part of industry* - part of industry sales to households (*HFCE*) divided by total industry sales. Both variables were taken from OECD input-output tables.
- *Average advertising* - average advertising of US publicly traded companies in specific industry and year. The advertising data was acquired from Compustat. Again, industry categorization is done according to OECD input-output tables.
- *Market share* - winsorized company's *sales* (acquired from Compustat) divided by total sales in company's industry (acquired from input-output tables).

4. Methodology

Summary statistics of key ratios and variables will be calculated. Industry by industry correlations among *advertising / total exp.* and other variables will be calculated. This will be done in order to determine the extent of differences between industries. Furthermore, summary statistics of *ROA* will be calculated for companies which report advertising expenses and for those which do not report in order to compare them. The results section will follow below, but more detailed results will be put into Appendix 4. All the computations will be done with *RStudio*, using *Hmisc*, *DescTools*, *plm* packages.

4.1. Panel regressions with fixed or random effects estimators

In order to evaluate the hypothesis, we decided to run panel regression with fixed or random effects estimators to investigate cross sectional and longitudinal panel data.

$$y_{it} = \alpha + \beta x_{it} + \varepsilon_{it}$$

Equation no. 5.

y – the dependent variable, x – independent variable, α and β are coefficients, i and t are indices for individuals and time. ε is the error term. The error term is important, since the assumptions underlining it determine if the fixed or random effects estimators are used. Random effects model assumes that error term varies stochastically with respect to i and t . Fixed effects model assumes that error term varies non-stochastically with respect to i and t and is analogous to dummy variable model. Hausman test is the traditional way to determine if fixed effects or random effects model should be used.

We decided that all the regression models will have fixed or random effects estimators for *year* and *company* key variables. Hence, constant individual company and year effects will be absorbed. The statistical parameters of interest will be signs of coefficients and significance levels at 0,1 and 2 lags. Since we are looking for general tendencies, we consider statistical relationship to be significant at $p < 0.1$ level.

4.2. Granger causality tests

Furthermore, the direction of causality will not always be clear in these tests. Thus, we also decided to check for Granger causality on the models described above.

Definition. The variable x is said to be Granger causing y if predictions of y based on previous values of x and y have smaller forecast error variance than predictions of y based only on past values of y .

There are two main assumptions underlying Granger's causality. The cause has to happen before its effect and cause has to contain unique information on future values of the effect. Both of these principles will be fulfilled in our models. We will consider the Granger causality to be significant at $p < 0.1$ significance levels.

4.3. Panel regression models for normal spending (H1)

Advertising is traditionally associated with increase in profitability due to higher consumer attention. In order to determine whether profitability (*ROA* or *margin* as y) has a positive relationship with company's advertising we regress company's profitability measure on *advertising / total exp.* without and then with control variables (*volatility* accounts for company's risk, *Tobin's Q* accounts for company's growth opportunities, *total assets* variable accounts for company's size):

$$y = \alpha + \beta_1 \frac{\text{advertising}}{\text{total exp.}} + \beta_2 \text{volatility} + \beta_3 \text{Tobin's } Q + \beta_4 \text{total assets} + \varepsilon$$

Equation no. 6.

Another aspect to test will be traditional response of increased sales to advertising expenses. Hence, we will run this model to check for significant positive relationships:

$$y = \alpha + \beta_1 \frac{\text{advertising}}{\text{total exp.}} + \beta_2 \text{total assets} + \varepsilon$$

Equation no. 7.

y – sales, sales growth, market share or cash. The sales growth is regressed on advertising / total exp. growth. Total assets is a control variable for company's size. The regression model is run with and without control.

Finally, we will check if B2C part of industry impacts advertising:

$$y = \alpha + \beta_1 \text{B2C part of industry} + \varepsilon$$

Equation no. 8.

y – average advertising (in a specific industry and year). This regression will allow us to check if there is a positive relationship of the extent of consumer exposure to the average advertising in a given industry.

4.4. Panel regression models for prestige spending (H2)

To test H2, first we will check if there is a positive relationship between Tobin's Q and advertising / total exp. In literature Tobin's Q is known as a proxy for company's future growth prospects. Besides, it is also a proxy of increase in market capitalization. Total assets is a control variable for company's size. Again, the model will be run with and without the control variable.

$$\text{Tobin's } Q = \alpha + \beta_1 \frac{\text{Advertising}}{\text{total exp.}} + \beta_2 \text{total assets} + \varepsilon$$

Equation no. 9.

Variables from Execucomp database show the extent to which managers care about their company. The relationship is expected to be positive, since their

advertising spending is likely to be normal (H1) or for prestige (H2):

$$\frac{\text{advertising}}{\text{total exp.}} = \alpha + \beta_1 \text{Execucomp var.} + \beta_2 \text{margin} + \beta_3 \text{Tobin's } Q \\ + \beta_4 \frac{\text{cash}}{\text{total assets}} + \beta_5 \text{total assets} + \varepsilon$$

Equation no. 10.

Execucomp variable is *total shares owned or restricted stock holdings / total market cap.* Other variables act as a control for margin, growth opportunities, cash holdings and company's size (*margin, Tobin's Q, cash / total assets, total assets* respectively). Models again will be run with controls and without controls.

Equation 10 models will be run only lagged by 1 and 2. The reason is that the Execucomp variables are recorded at the end of the year while advertising / total exp. is accumulated throughout the whole year. Thus, we have to shift back Execucomp variables by one period in order to investigate the relationship with *advertising / total exp.*

4.3. Panel regression models for vanity spending (H3)

To test the H3 we will put to use our calculated Herfindahl-Hirschman indexes in terms of industry purchases or sales.

$$\frac{\text{Advertising}}{\text{total exp.}} = \alpha + \beta_1 \text{HHI} + \varepsilon$$

Equation no. 11.

HHI here is *HHI in terms of industry sales* or *HHI in terms of industry purchases.* *HHI in terms of industry purchases* will show if managers tend to spend more on advertising (we expect positive relationship) when they control the industry as a major purchaser of goods and services. This is called a state of monopsony in microeconomic theory. The relationship of *advertising / total exp.*

with *HHI in terms of industry sales* is again expected to be positive, i.e. more advertising is likely to be done in more concentrated industries.

The following regression model will show what is the relationship of *ROA, market share, cash, sales and advertising / total exp.:*

$$\frac{\textit{Advertising}}{\textit{total exp.}} = \alpha + \beta_1 x + \beta_2 \textit{total assets} + \varepsilon$$

Equation no. 12.

x – *ROA, market share, cash or sales*. The models will be run with controls and without the control variable *Total assets* which is a proxy for company's size. The relationship is again expected to be positive, i.e. managers are likely to be spending more when they have higher *ROA, market share, cash holdings or sales*.

5. Results

5. 1. 1. Results of panel regression models testing hypothesis 1

Test. No.	Regression equation	Lag		
		[0]	[1]	[2]
(1)	ROA ~ Advertising / total exp.	(-), (***) (-6.883)	Insignif.	(-), (**) (-2.176)
(1C)	ROA ~ Advertising / total exp.	Insignif.	(-), (***) (-2.833)	(-), (*), (-1.953)
	volatility	(+), (**), (2.468)	(+), (***) (-3.469)	(+), (***) (4.682)
	Tobin's Q	(-), (***) (-37.406)	(-), (***) (-5.331)	(-), (***) (-5.381)
	Total assets	(+), (***) (26.353)	(+), (***) (14.151)	(+), (***) (13.120)
(2)	Margin ~ Advertising / total exp.	Insignif.	Insignif.	Insignif.
(2C)	Margin ~ Advertising / total exp.	(+), (***) (3.991)	Insignif.	(-), (**), (-2.190)
	volatility	(+), (***) (2.659)	(+), (***) (2.702)	(+), (***) (2.957)
	Tobin's Q	(-), (***) (-23.191)	(-), (***) (-3.391)	Insignif.
	Total assets	(+), (***) (6.078)	(+), (***) (4.378)	(+), (***) (3.964)
(3)	Market share ~ Advertising / total exp.	(+), (***) (5.429)	(+), (***) (3.416)	Insignif.
(3C)	Market share ~ Advertising / total exp.	(+), (***) (8.208)	Insignif.	(+), (***) (3.713)
	Total assets	(+), (***) (104.177)	(+), (***) (24.890)	(+), (***) (17.696)
(4)	Sales growth ~ Advertising / total exp. growth	(+), (***) (3.537)	Insignif.	Insignif.
(5)	Sales ~ Advertising / total exp.	(+), (***) (4.340)	(+), (***) (3.380)	Insignif.
(5C)	Sales ~ Advertising / total exp.	(+), (***) (6.371)	(-), (***) (-3.797)	(+), (***) (2.633)
	Total assets	(+), (***) (326.670)	(+), (***) (36.548)	(+), (***) (26.538)
(6)	Cash / total assets ~ Advertising / total exp.	(+), (***) (22.217)	(+), (***) (4.482)	(+), (***) (4.840)
(6C)	Cash / total assets ~ Advertising / total exp.	(+), (***) (23.238)	(+), (***) (4.972)	(+), (***) (5.160)

	Total assets	(-), (***) (-23.069)	(-), (***) (-12.060)	(-), (***) (-7.719)
(7)	Average advertising ~ B2C part of industry	(+), (***) (42.774)	(+), (***) (3.707)	(+), (*) (1.663)

Table 1. It displays the results of running regression models for testing the hypothesis 1 which states that managers spend on advertising to get more attention from consumers. The dependent variables are ROA, Margin, Market share, Sales growth, Sales, Cash / total assets, Average advertising. Explanatory variables are Advertising / total exp. and B2C part of industry. Control variables are volatility, Tobin's Q, Total assets. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic.

Regressions in Table 1 are for testing the support for normal spending hypothesis. Some regressions give dubious results. For instance, *advertising / total exp.* as an explanatory variable for ROA (see tests no. 1, 1C) seems to be either significant and negative ($p < 0.01$ and $p < 0.1$ in 1 and 2 lags respectively) or insignificant with significant controls in all lags – *volatility* (positive relationship, $p < 0.05$ at 0 lags and $p < 0.01$ at 1 and 2 lags), *Tobin's Q* (negative relationship, $p < 0.01$ at all lags), *total assets* (positive relationship, $p < 0.01$ at all lags). Thus, it does not support normal spending hypothesis. Another set of tests (2,2C) is also trivial. *Advertising / total exp.* has a negative relationship with margins at 2 lags ($p < 0.05$), insignificant at 1 lag and the unlagged regression's direction of causality is unclear. Granger test will be useful in this case. The *volatility* and *total assets* have positive relationship with *margin* ($p < 0.01$ in all lags), *Tobin's Q* has negative relationship in lags 0, 1 ($p < 0.01$).

On the other hand, we start to see support for H1 in tests no. 3, 3C. *Advertising / total exp.* has a positive relationship with *market share* at 0, 1 lags ($p < 0.01$) and 0, 2 lags ($p < 0.01$) when the regression is controlled for *total assets* (positive relationship, $p < 0.01$ at all lags). It implies that the companies are fighting for higher *market share*. Additionally, in test no. 4 *advertising / total exp. growth* is an explanatory variable for *sales growth* at 0 lags ($p < 0.01$). Furthermore, in tests 5, 5C it seems that *advertising / total exp.* has mostly positive relationship with *sales* ($p < 0.01$ everywhere except uncontrolled regression lagged by 2 periods) which supports H1. Although in the second controlled test negative coefficient shows that opposite effect of *sales* when lagged by one, it does not contradict the normal spending hypothesis, since the reaction to *advertising / total exp.* is likely to take place at the same year. Going

further, tests with *cash / total assets* as a dependent variable (test no. 6, 6C) give clear support for normal spending hypothesis as well – we can see significance ($p < 0.01$) and positive coefficient in all lags. However, we can see the same effect of *cash / total assets* on *advertising / total exp.* (tests no. 16,16C). Hence the direction of causality is not clear, so Granger test again will be useful in this case. The final support for H1 is seen in test no. 7 where variable accounting for *B2C part of industry* has a positive relationship ($p < 0.01$ at lags 0,1 and $p < 0.1$ at 2 lags) with *average advertising*. Which means that companies which have higher exposure to consumers tend to spend more on advertising. Overall, the story here is straightforward - normal spending hypothesis seems to have plenty of support in *Table 1*.

5. 1. 2. Results of panel regression models testing hypothesis 2

Test. No.	Dep. Var.: Tobin's Q	Lag		
	Explanatory variables	[0]	[1]	[2]
(8)	Advertising / total exp.	(+), (***) (22.134)	(+), (***) (8.815)	(+), (***) (7.977)
(8C)	Advertising / total exp.	(+), (***) (23.414)	(+), (***) (4.571)	(+), (***) (3.985)
	Total assets	(-), (***) (-24.139)	(-), (***) (-12.695)	(-), (***) (-10.458)

*Table 2. It displays the results of running regression models for testing the hypothesis 2 which states that managers spend cash on advertising for prestige. The dependent variable is Tobin's Q. Explanatory variable is Advertising / total exp. Total assets is control variable. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic.*

Test. No.	Dep. var.: Advertising/total exp.	Lag	
	Explanatory variables	[1]	[2]
(9)	total shares owned	(+), (***) (9.491)	Insignif.
(9C)	total shares owned	Insignif.	Insignif.
	Margin	(-), (***) (-5.464)	(-), (***) (-6.450)
	Tobin's Q	(+), (***) (11.748)	(+), (***) (9.759)

	Cash / total assets	Insignif.	Insignif.
	Total Assets	(-), (***) (-1.839)	Insignif.
(10)	Restricted stock holdings / total market cap.	Insignif.	Insignif.
(10C)	Restricted stock holdings / total market cap.	(-), (***) (-3.605)	(-), (***) (-3.415)
	Margin	(-), (***) (-5.480)	(-), (***) (-6.454)
	Tobin's Q	(+), (***) (11.60)	(+), (***) (9.589)
	Cash / total assets	Insignif.	Insignif.
	Total Assets	Insignif.	(-), (*), (-1.662)

Table 3. It displays the results of running regression models for testing the hypothesis 2 which states that managers spend cash on advertising for prestige. Advertising / total exp. is the dependent variable. Total shares owned and Restricted stock holdings / total market cap. are explanatory variables. Margin, Tobin's Q, Cash / total assets, Total Assets are control variables. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic.

Tables 2 and 3 have tests look for support for hypothesis of spending for prestige. In tests no. 8, 8C, as there is a clear positive relationship ($p < 0.01$ at all lags) of Tobin's Q with advertising / total exp. which supports H2. Control variable total assets has negative relationship ($p < 0.01$ at all lags) with Tobin's Q, which is logical, since larger companies tend to have lower growth opportunities. Positive signs of advertising / total exp. coefficients support H2.

Tests 9, 9C mildly support H2, since total shares owned variable is significant without controls only at 1 lag ($p < 0.01$) and insignificant with controls. Significant controls in 9C are margin (negative relationship at both lags, $p < 0.01$), Tobin's Q (positive relationship at both lags, $p < 0.01$) and total assets (negative relationship at 1 lag, $p < 0.01$). Logical interpretation of this is that when managers own shares, they care more about the company. They view advertising as a meaningful action at least for prestige (H2) or real benefit for the company (H1) and it opposes spending for vanity (H3).

However, we can see that in test no. 10, 10C, restricted stock holdings / total market cap. variable is insignificant when uncontrolled and significant at

lags 1 and 2 when controlled for other variables. This can support H2, but only in certain situation which will be covered in discussion part of the thesis. Significant controls in 10C are *margin* (negative relationship at both lags, $p < 0.01$), *Tobin's Q* (positive relationship at both lags, $p < 0.01$) and *total assets* (negative relationship only when lagged by 2, $p < 0.1$). Overall there is support for prestige spending, i.e. the managers are likely to advertise for company's prestige and possibly higher stock price.

5. 1. 3. Results of panel regression models testing hypothesis 3

Test. No.	Dep. var.: Advertising / total exp. Explanatory variables	Lag		
		[0]	[1]	[2]
(11)	HHI in terms of industry sales	(+), (***) (5.100)	(+), (**) (2.425)	Insignif.
(12)	HHI in terms of industry purchases	(-), (***) (-27.909)	(-), (***) (-7.861)	(-), (***) (-3.773)
(13)	Market share	(+), (***) (11.131)	Insignif.	Insignif.
(13C)	Market share	(+), (***) (8.208)	Insignif.	(+), (**) (2.522)
	Total assets	(+), (***) (4.113)	(-), (***) (-4.602)	(-), (***) (-5.032)
(14)	ROA	Insignif.	(+), (*), (1.737)	Insignif.
(14C)	ROA	(-), (***) (-8.576)	Insignif.	(-), (***) (-4.139)
	Total assets	(+), (***) (9.964)	(-), (***) (-4.704)	(-), (***) (-3.324)
(15)	Sales	(+), (***) (-4.647)	(-), (**) (-2.452)	Insignif.
(15C)	Sales	(+), (***) (6.473)	Insignif.	Insignif.
	Total assets	Insignif.	(-), (***) (-3.288)	(-), (***) (-2.958)
(16)	Cash / total assets	(+), (***) (22.217)	(+), (***) (2.658)	(+), (***) (4.954)
(16C)	Cash / total assets	(+), (***) (23.238)	(+), (**) (-2.057)	(+), (**) (4.382)
	Total assets	(+), (***) (10.903)	(-), (***) (-4.415)	(-), (***) (-3.733)

Table 4. It displays the results of running regression models for testing the hypothesis 3 which states that managers spend cash on advertising inefficiently, for vanity, in order to make

*impression that they work. Advertising / total exp. is the dependent variable. HHI in terms of industry sales, HHI in terms of industry purchases, Market share, ROA, Sales, Cash / total assets are explanatory variables. Total assets is control variable. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic.*

As for hypothesis for vanity spending, *Table 4* and even other tables contain many tests with significant relationships. For instance, in *Table 1* tests no. 1, 1C indicate unexpected result where *advertising / total exp.* variable is significant and negative relationship with *ROA* at lags 0 ($p < 0.01$) and 2 ($p < 0.05$) and lags 1, 2 ($p < 0.01$ and $p < 0.1$) respectively. Same effect supporting H3 can be observed at test no. 2C at 2 lags ($p < 0.5$) and negative relationship with *advertising / total exp.* as a dependent variable. Negative relationship clearly supports H3. Even more, in test no. 14 we can see that *ROA* as an explanatory variable for *advertising / total exp.* is positive and significant ($p < 0.1$) at 1 lag, But *ROA*'s coefficient is different (negative, $p < 0.01$ at lags 0 and 2) when controlled for *total assets* (positive coefficient, $p < 0.01$ at 0 lags and negative coefficient, $p < 0.01$ at 1,2 lags). Even positive relationship with the dependent variable at 0 lags ($p < 0.01$) at test no. 2C tells an interesting story. Even though managers know that advertising does not increase *margin* (see negative relationship at 2 lags), managers still burn money, hence it supports H3.

Going back to *Table 4*, *market share* is significant and positive, explains higher advertising spending only at 0 lags ($p < 0.01$) along with 0 ($p < 0.01$) and 2 lags ($p < 0.5$) when controlled (tests no. 13, 13C). The direction of causality is again not clear, so Granger test will be of assistance. Another interesting finding consistent with H3 is that *HHI in terms of industry sales* has positive relationship with *advertising / total exp.* (test no. 11) at 0 ($p < 0.01$) and 1 ($p < 0.05$) lags, thus, a decrease in competition seems to increase advertising spending. In addition, *HHI in terms of industry purchases* (test no. 12) seems to have a negative relationship with *advertising / total exp.* ($p < 0.01$ at all lags). This indicates that when the market power as a purchaser is higher, company spends more money on advertising. This supports H3, since with higher market power a company should not need more advertising.

Sales do not seem to have consistent positive relationship with *advertising / total exp.* *Sales* variable is insignificant at 2 lags at test no. 15 and lags 1,2 at test no. 15C. Even though it has a positive coefficient at 0 lags when controlled ($p <$

0.01) and uncontrolled ($p < 0.01$), there is a negative coefficient ($p < 0.5$) at 1 lag in uncontrolled regression, indicating possible support for H1 rather than H3. Finally, *cash / total assets* seem to have positive relationship with *advertising / total exp.* as dependent variable only when uncontrolled ($p < 0.01$ at all lags), indicating unclear direction of causality. Besides, *cash / total assets* variable has a positive relationship (test no. 16C, $p < 0.01$ at 0 lags and $p < 0.5$ at lags 1,2) with *advertising / total exp.* when controlled for *total assets* (test no. 16C, $p < 0.01$ at all lags). Overall, support for vanity spending is strong, but Granger tests should clarify the story.

5. 2. 1. Results of Granger tests for hypothesis 1

Test. No.	Equation	Support for H1 (causality)
(18)	ROA ~ Advertising / total exp.	✓ Yes p-value = 0.001377
(19)	Market share ~ Advertising / total exp.	✗ No p-value = 0.678
(20)	Margin ~ Advertising / total exp.	✗ No p-value = 0.2815
(21)	Sales ~ Advertising / total exp.	✗ No p-value = 0.5689
(22)	Cash / total assets ~ Advertising / total exp.	✓ Yes p-value = 2.437e-12
(23)	Average advertising ~ B2C part of industry	✓ Yes p-value = 1.81e-15

Table 5. It displays the results of running Granger tests for hypothesis 1 which states that managers spend on advertising to get more attention from consumers. The dependent variables are ROA, Market share, Margin, Sales, Cash / total assets, Average advertising. Explanatory variables are Advertising / total exp. and B2C part of industry. The Granger causality is considered to be significant at $p < 0.1$.

Table 5 contains Granger tests which investigate H1. We start to see support in H1 where bigger advertising expenses are likely to cause larger cash holdings (test no. 22, $p < 0.01$). Strong support for H1 is in test no. 23 as well,

where *B2C part of industry* seems to be the cause for higher *average advertising* ($p < 0.01$).

The tests for *market share*, *company's margin* or *sales* (tests no. 19, 20, 21) show no support. Although *advertising / total exp.* seems to cause *ROA* (test no. 18, $p < 0.01$), it has a negative coefficient in panel regression (test no. 1). We can see no support here, since less advertising should not cause lower *ROA* in case of normal spending. Thus, H1 in Granger tests has some support, even though it is much weaker than in the results of panel regressions.

5. 2. 2. Results of Granger tests for hypothesis 2

Test. No.	Equation	Support for H2 (causality)
(24)	Tobin's Q ~ Advertising / total exp.	✓ Yes p-value = 1.854e-07
(25)	Advertising / total exp. ~ total shares owned	✓ Yes p-value = 0.01903
(26)	Advertising / total exp. ~ Restricted stock holdings / total market cap.	✗ No p-value = 0.2302

Table 6. It displays the results of running Granger tests for hypothesis 2 which states that managers spend cash on advertising for prestige. *Advertising / total exp.* is the dependent variable in tests 25 and 26 and explanatory variable in test 24. *Tobin's Q* is the dependent variable. *Total shares owned* and *Restricted stock holdings / total market cap.* are explanatory variables. The Granger causality is considered to be significant at $p < 0.1$.

Now let's look at Granger tests in Table 6 where there is some support for H2. No causal relationship is seen when Granger test is done for *advertising / total exp.* on *restricted stock holdings / total market cap.* (test no. 26).

But significant support can be seen in test no. 24, as *advertising / total exp.* variable seems to have a causal relationship with *Tobin's Q* ($p < 0.01$). Again, *Tobin's Q* is widely known to be representing company's growth prospects, thus, companies tend to spend more on advertising in order to increase their prestige.

In addition, we can observe the causality in Granger test with *advertising / total exp.* variable tested on *total shares owned* (test no. 25, $p < 0.05$). Managers spend more when they own shares and are more concerned with the situation of

the company. Hence it again supports the prestige spending (H2) and opposes vanity spending (H3).

5. 2. 3. Results of Granger tests for hypothesis 3

Test. No.	Equation	Granger causality
(27)	Advertising / total exp. ~ ROA	✓ Yes p-value = 3.818e-07
(28)	Advertising / total exp. ~ HHI in terms of industry sales	✓ Yes p-value = 0.0003965
(29)	Advertising / total exp. ~ HHI in terms of industry purchases	✓ Yes p-value < 2.2e-16
(30)	Advertising / total exp. ~ Market share	✓ Yes p-value = 0.04237
(31)	Advertising / total exp. ~ Sales	✗ No p-value = 0.4777
(32)	Advertising / total exp. ~ Cash / total assets	✓ Yes p-value < 2.2e-16

Table 7. It displays the results of running Granger tests for hypothesis 3 which states that managers spend cash on advertising inefficiently, for vanity, in order to make impression that they work. Advertising / total exp. is the dependent variable. ROA, HHI in terms of industry sales, HHI in terms of industry purchases, Market share, Sales, Cash / total assets are explanatory variables. The Granger causality is considered to be significant at $p < 0.1$.

Table 7 contains results of Granger tests which investigate if managers tend to spend money for vanity. In more concentrated industries in terms of sales advertising seems to be more prevalent, since *HHI in terms of industry sales* has a causal relationship (test no. 28, $p < 0.01$) with advertising. *HHI in terms of industry purchases* seems to cause *advertising / total exp.* (test no. 29, $p < 0.01$) as well. If a company buys more, it is very likely to have a higher market power, thus, it probably does not need advertising, i.e. it's spending for no reason. Moreover, larger *market share* (test no. 30, $p < 0.05$) and *cash / total assets* (test no. 32, $p < 0.01$) seem to be the cause for higher advertising spending, again supporting vanity spending hypothesis.

Although *ROA* seems to cause larger *advertising / total exp.* ($p < 0.01$), but there is causality in both directions (see tests no. 18 and 27) and the coefficient in panel regression is negative (test no. 14C), suggesting no support for H3. Same situation of causality in both ways is with *Cash / total assets* (see tests no. 22 and 32). Company's *sales* appear not to cause advertising spending (test no. 31 is insignificant) as well. All in all, there is enough support for H3 in *Table 7*. The discussion part will interpret the results more thoroughly.

6. Discussion

6.1. Support for hypothesis 1

The traditional purpose of advertising as a means of getting more attention from customers seems to receive plenty of support in our results. Firstly, *advertising / total exp.* has strong positive relationship with *sales*. Granger test of advertising tested on sales is insignificant, however it checks if past values of explanatory variable predict dependent variable. *Sales* reaction to *advertising / total exp.* is very likely to occur at the same year, so managers do tend to spend on advertising in order to increase sales. Furthermore, managers fight for higher *market share*, increasing their advertising spending, since there is clear positive significant relationship. Lack of Granger causality again does not negate it due to the fact that reaction to advertising takes place on the same year. Managers' spending on advertising seems to be likely to increase *cash* holdings which is a strong support for hypothesis of normal spending. Finally, according to our results, the higher industry's exposure to consumers on a specific year, the more managers tend to spend on advertising on average. Although advertising does not seem to increase *ROA* or *Margin*, in general we can claim that our results support H1.

6.2. Support for hypothesis 2

We see support for the idea that managers spend opportunistically on advertising in order to increase market capitalization and company's growth opportunities perceived by investors (Dong Lou, 2014 and Amit Joshi, 2010).

We can claim that due to strong positive relationship of *advertising / total exp.* as an explanatory variable with *Tobin's Q* in both panel regression data and Granger test. Besides, it also supports the idea that advertising can create substantial changes in valuations of the company (Amit Joshi, 2010).

Another aspect of our study was to check how managers behave when they have more shares and care about the company more. Our results showed Granger causality and positive relationship of percentage of *total shares owned* variable with advertising. This implies that managers treat advertising as a means to increase *sales*, market share (H1) or company's prestige, market value (H2).

The situation with *restricted stock holdings / total market cap.* variable is a little bit different. The relationship with advertising is significant, but negative. However, this does not negate H1 or H2. In this case the managers have not yet received stock holdings. They may be postponing advertising changes and waiting for the moment which is more favourable, i.e. when they receive the stock.

In general, we observed the tendency of prestige spending. It is an important finding for investors, since advertising may be just a way to lure them into buying the stock. Even more, a logical idea would be to create models for investing which incorporate the amount of recent publicity and adjust the stock price for it.

6.3. Support for hypothesis 3

Managers seem to be spending for vanity as well. The regression models with Herfindahl-Hirschman indexes support this story. Firstly, managers tend to spend more on advertising in less competitive industries, because *HHI in terms of industry sales* as an explanatory variable for *advertising / total exp.* has positive coefficient and Granger causality. Secondly, *HHI in terms of industry purchases* has a negative relationship with *advertising / total exp.* and again provides support for H3. The more manager's company controls the industry as a single buyer, the more it is likely to spend on advertising. However, when you are in power, as a purchaser or seller, advertising should be less and less necessary.

Tests on company's profitability also tell similar story. Managers' advertising spending does not increase company's return on assets, we can tell this because of negative coefficient of *advertising / total exp.* as an explanatory variable of *ROA* in tests 1, 1C as well as negative coefficient of *ROA* as explanatory variable of *advertising / total exp.* in test 14C. Besides, we can claim that test 2C is in favor of H3 as well. Managers know that advertising does not increase *margin* (negative coeff. of *advertising / total exp.* at 2 lags) in the long run, but continue to spend on advertising (positive coeff. at 0 lags).

We can get some interesting insights when looking at tests with variables of *cash / total assets* and *market share* variables. *Market share* and *cash / total assets* as explanatory variables for *advertising / total exp.* have positive coefficients and Granger causality. This supports the theory that managers abuse agency issue of free cash flow (Jensen, 1986). One important detail here is that cash is a stock variable reported at the end of the year and advertising is a flow

variable, so we have to look at lagged *cash / total asset* variable's results. And they are positive and significant when lagged by 1 and 2. But there is one caveat concerning cash variable, there is significance and Granger causality in both directions, but this does not negate support for H3 in other models in *Table 4* and *Table 7*.

All in all, we can see a lot of evidence which supports the idea that managers spend money on advertising for questionable reasons. This is important for investors who pay attention to the data on advertising expenses. Shareholders should have in mind that managers may just spend money on marketing in a way that is non-beneficial for them.

6.4. *Strengths and limitations of the study*

There are many company-specific aspects which can be used as a counter-argument for our results. For example, Statoil brand is changing the name to Equinor in 2018, with rebranding costs of up to NOK 250 million. Anecdotally, younger companies tend to have higher growth prospects which may distort the results. There are many other instances. But the strength of our study is that most company and year-specific effects are absorbed by fixed or random effects estimators.

One of the limitations is questionable accuracy of advertising data. Concerning the results of advertising spending on firm value, firms are more likely to disclose advertising expenses of effective advertising campaigns (Ali Shah S.Z., 2001) and emphasize the success of advertising (Amit Joshi, 2010). However, this is not supported by our finding that companies that do not report advertising have higher average ROA and similar standard deviation (see *Table 10* and *Table 11* in the Appendix 2).

There is another aspect which may possibly impact accuracy of advertising data. If under pressure, managers may be afraid of investors' response or may not want to disclose their actions to competitors (Ali Shah S.Z., 2001).

Finally, firms may aggregate the advertising expenses under a more general marketing category or just choose not to disclose them (Ali Shah S. Z., 2001) due to the absence of strict and explicit requirements.

6.5. *Questions raised by the study*

This study took aggregate-level data and made insights on general trends. This study raises many interesting questions for further researchers. An interesting direction would be to have two samples with product advertising and another with brand-image advertising (Amit Joshi, 2010). Anecdotally, advertising industry is known to have been affected by digitalization, with the emergence of digital marketing duopoly of Facebook and Google. Therefore, another perspective to investigate is distinguishing between the types of advertising spending, such as online banners, online video, television, newspapers, magazines, etc.

Finally, the most valuable direction of research would be industry by industry analysis which may be very useful for investors in specific sectors. The fixed or random effects estimators in our models do absorb constant industry effects. However, varying industry effects stay unabsorbed. Change in economies of scale, barriers to entry, technology, other disruptions in any industry may have affected the results. For instance, advertising extent and effectiveness may vary industry by industry. Firms in certain industries rely on advertising as marketing tool, while firms in other industries use other means of marketing (Ali Shah S. Z., 2001). Industry by industry correlations of *advertising / total exp.* with various variables have widely varying negative and positive values. For instance, in *Table 13* (Appendix 3) correlation of *advertising / total exp.* with *ROA* is negative in 8 industries and positive in 20 industries, ranging from -0.4560 to 0.4486. Correlation of *advertising / total exp.* with *Margin* is negative in 11 industries and positive in other 17 industries, ranging from -0.7793 to 0.4801. Similar tendencies can be observed in correlations of *advertising / total exp.* with *HHI in terms of industry purchases, HHI in terms of industry sales, Tobin's Q, Cash, Log of market capitalization, Total shares owned, Restricted stock holdings* (*Tables 12, 13, 14* in the Appendix 3). Varying correlations indicate the existence of industry specifics which may be interesting to investigate. However, a thorough industry-by-industry analysis is beyond the scope of our study.

Finally, we used only U.S. data, thus companies from other countries would be interesting to investigate. For instance, results of Norwegian companies may be different, since it is a country with societal values of equality and fairness.

All these questions were beyond the scope of our study. We focused on the aggregate-level results which may still be useful for investors.

7. Conclusion

In this master thesis we investigated the possible managers' incentives to spend on advertising. We had three hypotheses. H1 was that managers spend money normally, in order to attract attention from consumers. H2 – managers spend money for prestige, i.e. in order to increase company's valuation and brand image. H3 – managers spend money for vanity, i.e. to spend money so they appear to be working. Industry and company-level data of U.S. publicly traded companies of the period of 1995-2011 was gathered from Compustat, Execucomp databases available in WRDS and OECD input-output tables. Herfindahl-Hirschman indexes, key ratios and variables were gathered and calculated. The main method of analysis was panel regression. Hausman test was done in order to determine if fixed or random effects estimator should be put to use. Additionally, the regression models were checked for Granger causality. The results provided support for all three hypotheses. Although normal spending to attract consumer attention is usually anticipated by investors, other types of spending are not. Prestige spending is an important aspect for investors, since in this case advertising may be a way to lure investors into buying the stock. The spending for vanity is more important for existing shareholders in order to avoid non-trivial losses. The paper has interesting future directions of analysing advertising types, different countries or industry by industry specifics. This study contributes to the literature of agency problem between managers and shareholders by providing a detailed perspective on advertising spending.

Appendix 1. Summary statistics

Variable	n	mean	sd	median
<i>Advertising / Total exp.</i>	46622	0.0357	0.098	0.0174
<i>Closing price</i>	190063	30.541	1039.23	11.02
<i>Cash</i>	217384	129.75	467.498	6.442
<i>Margin</i>	129775	0.0719	0.0768	0.0523
<i>ROA</i>	159925	0.0567	1.888	0.361
<i>Book value per Share</i>	144918	30.31	176.65	5.75
<i>Tobin's Q</i>	150763	1.592	2.0977	0.882
<i>Total Shares Owned</i>	38180	131678.3	67833.22	125035.9
<i>Restricted Stock Holdings</i>	38181	5920.64	45785.77	206.16
<i>HHI in terms of industry sales</i>	217384	0.252	0.715	0.0491
<i>HHI in terms of industry purchases</i>	196820	0.19992	0.11473	0.1601
<i>Average advertising</i>	196761	0.02957	0.01263	0.0281
<i>B2C part of industry</i>	196820	0.4833	1.480	0.413

Table 8. Part 1 of summary statistics of 1995-2011 Data (Compustat, Execucomp, OECD). HHI in terms of industry sales, HHI in terms of industry purchases, B2C part of industry are calculated from Compustat and OECD data. Restricted Stock Holdings, Total Shares Owned are taken from Execucomp database. The rest of the variables are taken from Compustat database.

Variable	min	max	range	kurtosis	se
<i>Advertising / Total exp.</i>	0.000	12.563	12.563	8697.5	0.001
<i>Closing price</i>	0.0183	141600	141600	9287.1	2.384
<i>Cash</i>	0.000	3215.44	3215.44	29.897	1.003
<i>Margin</i>	0.002	0.4605	0.4587	9.60	0.0002
<i>ROA</i>	-13.123	0.9643	14.0873	37.682	0.005
<i>Book value per Share</i>	0.0130	1613.54	1613.52	72.388	0.464
<i>Tobin's Q</i>	0.332	13.246	12.914	16.06	0.005
<i>Total Shares Owned</i>	218.11	582342.5	582124.4	1.062	347.16
<i>Restricted Stock Holdings</i>	-15.97	5113015	5113030	6639.85	234.32
<i>HHI in terms of industry sales</i>	0.00	6.348	6.348	29.514	0.002
<i>HHI in terms of industry purchases</i>	0.05532	0.6307	0.5754	-0.332	0.00026

<i>Average advertising</i>	0.00126	0.0904	0.089	0.09998	3e-05
<i>B2C part of industry</i>	9e-05	24.337	24.337	212.04	0.0033

Table 9. Part 2 of summary statistics of 1995-2011 Data (Compustat, Execucomp, OECD). HHI in terms of industry sales, HHI in terms of industry purchases, B2C part of industry are calculated from Compustat and OECD data. Restricted Stock Holdings, Total Shares Owned are taken from Execucomp database. The rest of the variables are taken from Compustat database.

Appendix 2. ROA comparison

n	mean	sd	median	min	max	range	kurtosis	se
35021	0.06904	0.07831	0.04938	0.0019	0.4605	0.4587	7.5263	0.0004

Table 10. ROA summary statistics of companies which report advertising expenses. Data is taken from Compustat database.

n	mean	sd	median	min	max	range	kurtosis	se
94754	0.0730	0.0762	0.0532	0.0019	0.4605	0.4587	10.4422	0.0003

Table 11. ROA of companies which do not report advertising expenses. Data is taken from Compustat database.

Appendix 3. Correlation tables

Advertising / total exp.	HHI	
	In terms of industry sales	In terms of industry purchases
Industry		
<i>Agriculture, hunting, forestry and fishing</i>	-0.2421	0.1274
<i>Mining and quarrying</i>	-0.0015	-0.1740
<i>Food products, beverages and tobacco</i>	-0.0966	-0.0739
<i>Textiles, textile products, leather and footwear</i>	-0.0670	0.0567
<i>Wood and products of wood and cork</i>	-0.0522	0.0885
<i>Pulp, paper, paper products, printing and publishing</i>	0.0215	0.1123
<i>Coke, refined petroleum products and nuclear fuel</i>	-0.2748	-0.2748
<i>Chemicals and chemical products</i>	-0.0640	-0.0561
<i>Rubber and plastics products</i>	0.1643	-0.1019
<i>Other non-metallic mineral products</i>	NA	NA
<i>Basic metals</i>	-0.0640	-0.2213
<i>Fabricated metal products</i>	-0.3401	0.5094
<i>Machinery and equipment</i>	0.0972	-0.1488
<i>Computer, Electronic and optical equipment</i>	0.1371	0.1626
<i>Electrical machinery and apparatus</i>	0.0280	-0.1356
<i>Other transport equipment</i>	0.0975	0.1340
<i>Manufacturing; recycling</i>	-0.0073	-0.0570
<i>Electricity, gas and water supply</i>	-0.0578	0.0141
<i>Construction</i>	-0.0956	-0.0769
<i>Wholesale and retail trade; repairs</i>	-0.0017	-0.0674
<i>Hotels and restaurants</i>	-0.1046	0.0902
<i>Transport and storage</i>	0.0874	-0.2309
<i>Post and telecommunications</i>	-0.1001	0.0759
<i>Financial intermediation</i>	-0.0063	-0.0237
<i>Real estate activities</i>	-0.0059	-0.0635
<i>Computer and related activities</i>	-0.0866	-0.0309
<i>R&D and other business activities</i>	0.2509	-0.2115
<i>Public administration and defence; compulsory social security</i>	-0.1076	-0.1430
<i>Education</i>	-0.0047	0.0753

Table 12. Pearson's correlations of advertising / total exp. with HHI in terms of industry sales and HHI in terms of industry purchases in different industries. The data is taken from Compustat and OECD databases.

Industry's Advertising / total exp.	ROA	Margin	Tobin's Q	Cash
<i>Agriculture, hunting, forestry and fishing</i>	0.3528	-0.7793	0.2471	-0.1869
<i>Mining and quarrying</i>	-0.0638	-0.3160	0.0831	-0.0844
<i>Food products, beverages and tobacco</i>	0.1674	0.1340	0.2428	0.0594
<i>Textiles, textile products, leather and footwear</i>	-0.0010	0.4801	0.0719	0.3539
<i>Wood and products of wood and cork</i>	0.2634	0.3139	0.1936	-0.0534
<i>Pulp, paper, paper products, printing and publishing</i>	0.0107	0.0041	0.1256	-0.0705
<i>Coke, refined petroleum products and nuclear fuel</i>	-0.4560	0.1226	-0.1490	0.2968
<i>Chemicals and chemical products</i>	0.0761	0.0604	0.0386	0.0183
<i>Rubber and plastics products</i>	-0.1059	-0.1394	0.0371	0.1490
<i>Other non-metallic mineral products</i>	NA	NA	NA	NA
<i>Basic metals</i>	0.2827	-0.3664	0.2393	-0.1912
<i>Fabricated metal products</i>	0.1235	0.2970	-0.1397	0.3218
<i>Machinery and equipment</i>	-0.0649	-0.2403	0.3185	0.0535
<i>Computer, Electronic and optical equipment</i>	0.1057	-0.0064	0.0255	0.0092
<i>Electrical machinery and apparatus</i>	0.0441	0.1238	0.1482	0.2162
<i>Other transport equipment</i>	-0.2357	0.3909	-0.0547	0.1276
<i>Manufacturing; recycling</i>	0.0933	0.0397	-0.0017	-0.0152
<i>Electricity, gas and water supply</i>	0.4486	-0.3781	0.5112	-0.0783
<i>Construction</i>	-0.0091	-0.1435	0.1104	-0.1116
<i>Wholesale and retail trade; repairs</i>	0.0635	0.0129	0.0975	-0.0525
<i>Hotels and restaurants</i>	0.1016	0.1950	-0.0314	0.0310
<i>Transport and storage</i>	0.1007	0.0449	0.2005	-0.1029
<i>Post and telecommunications</i>	0.0011	-0.0624	0.1685	0.0005
<i>Financial intermediation</i>	0.2224	0.0097	0.2429	-0.0032
<i>Real estate activities</i>	0.0496	0.0291	0.0294	0.0013
<i>Computer and related activities</i>	0.1711	-0.0601	0.1445	0.0486
<i>R&D and other business activities</i>	-0.0695	-0.1474	0.0054	-0.0744
<i>Public administration and defence; compulsory social security</i>	0.0176	0.0315	0.0192	-0.0013
<i>Education</i>	0.1669	0.1958	-0.0848	0.0766

Table 13. Pearson's correlations of advertising / total exp. with ROA, Margin, Tobin's Q, Cash in different industries. The data is taken from Compustat database.

Industry's Advertising / total exp.	Log of market capitalization	Total shares owned	Restr. stock holdings
<i>Agriculture, hunting, forestry and fishing</i>	-0.3512	-0.1397	-0.2727
<i>Mining and quarrying</i>	-0.1774	-0.2770	-0.2497
<i>Food products, beverages and tobacco</i>	0.2338	-0.1845	0.0666
<i>Textiles, textile products, leather and footwear</i>	0.3780	0.0265	0.0166
<i>Wood and products of wood and cork</i>	0.2605	0.3147	0.0542
<i>Pulp, paper, paper products, printing and publishing</i>	0.0426	0.0745	0.0531
<i>Coke, refined petroleum products and nuclear fuel</i>	0.1104	0.2134	0.8075
<i>Chemicals and chemical products</i>	0.0789	-0.1690	0.1964
<i>Rubber and plastics products</i>	0.1545	-0.1225	0.0032
<i>Other non-metallic mineral products</i>	NA	NA	NA
<i>Basic metals</i>	-0.4664	-0.4497	-0.5383
<i>Fabricated metal products</i>	0.8893	-0.9990	0.9050
<i>Machinery and equipment</i>	0.0510	-0.2837	0.2397
<i>Computer, Electronic and optical equipment</i>	0.0008	-0.1337	-0.0272
<i>Electrical machinery and apparatus</i>	0.3270	-0.1204	0.0774
<i>Other transport equipment</i>	0.2744	-0.0729	-0.0381
<i>Manufacturing; recycling</i>	-0.0466	-0.0555	-0.0484
<i>Electricity, gas and water supply</i>	-0.1119	-0.3503	-0.8551
<i>Construction</i>	-0.1618	0.0485	-0.0040
<i>Wholesale and retail trade; repairs</i>	-0.0733	0.0133	-0.0575
<i>Hotels and restaurants</i>	0.0414	-0.2955	-0.0670
<i>Transport and storage</i>	0.1665	-0.2552	0.3359
<i>Post and telecommunications</i>	0.0249	0.0293	0.1491
<i>Financial intermediation</i>	0.0322	0.0338	0.0595
<i>Real estate activities</i>	0.0100	0.2618	0.0063
<i>Computer and related activities</i>	0.0847	-0.0105	0.0096
<i>R&D and other business activities</i>	-0.2183	-0.5040	-0.0507
<i>Public administration and defence; compulsory social security</i>	0.0154	-0.2038	-0.1303
<i>Education</i>	-0.0118	0.5603	0.0275

Table 14. Pearson's correlations of advertising / total exp. with Log of market capitalization, Total shares owned, Restricted stock holdings in different industries. The data is taken from Compustat and Execucomp databases.

Test. No.	Regression equation	Lag		
		[0]	[1]	[2]
(1)	ROA ~ Advertising / total exp.	(-), (***) (-6.883), (0.001), RE	Insignif.	(-), (**) (-2.176), (0.0002), RE
(1C)	ROA ~ Advertising / total exp.	Insignif., RE	(-), (***) (-2.833), (0.012), FE	(-), (*), (-1.953), (0.0002), RE
	volatility	(+), (**), (2.468)	(+), (***) (-3.469)	(+), (***) (4.682)
	Tobin's Q	(-), (***) (-37.406)	(-), (***) (-5.331)	(-), (***) (-5.381)
	Total assets	(+), (***) (26.353)	(+), (***) (14.151)	(+), (***) (13.120)
(2)	Margin ~ Advertising / total exp.	Insignif.	Insignif.	Insignif.
(2C)	Margin ~ Advertising / total exp.	(+), (***) (3.991), (0.03), FE	Insignif., RE	(-), (**) (-2.190), (0.001), FE
	volatility	(+), (***) (2.659)	(+), (***) (2.702)	(+), (***) (2.957)
	Tobin's Q	(-), (***) (-23.191)	(-), (***) (-3.391)	Insignif.
	Total assets	(+), (***) (6.078)	(+), (***) (4.378)	(+), (***) (3.964)
(3)	Market share ~ Advertising / total exp.	(+), (***) (5.429), (0.003), RE	(+), (***) (3.416), (0.0003), RE	Insignif.
(3C)	Market share ~ Advertising / total exp.	(+), (***) (8.208), (0.02), FE	Insignif., RE	(+), (***) (3.713), (0.01), RE
	Total assets	(+), (***) (104.177)	(+), (***) (24.890)	(+), (***) (17.696)
(4)	Sales growth ~ Advertising / total exp. growth	(+), (***) (3.537), (0.003), RE	Insignif.	Insignif.
(5)	Sales ~ Advertising / total exp.	(+), (***) (4.340), (0.0003), RE	(+), (***) (3.380), (0.0001), RE	Insignif.
(5C)	Sales ~ Advertising / total exp.	(+), (***) (6.371), (0.70), RE	(-), (***) (-3.797), (0.03), FE	(+), (***) (2.633), (0.02), FE
	Total assets	(+), (***) (326.670)	(+), (***) (36.548)	(+), (***) (26.538)

(6)	Cash / total assets ~ Advertising / total exp.	(+), (***) (22.217), (0.01), FE	(+), (***) (4.482), (0.0004), FE	(+), (***) (4.840), (0.0005), FE
(6C)	Cash / total assets ~ Advertising / total exp.	(+), (***) (23.238), (0.022), FE	(+), (***) (4.972), (0.004), FE	(+), (***) (5.160), (0.002), FE
	Total assets	(-), (***) (-23.069)	(-), (***) (-12.060)	(-), (***) (-7.719)
(7)	Average advertising ~ B2C part of industry	(+), (***) (42.774), (0.01), RE	(+), (***) (3.707), (0.0004), RE	(+), (*), (1.663), (0.0003), RE

Table 15. It displays the results of running regression models for testing the hypothesis 1 which states that managers spend on advertising to get more attention from consumers. The dependent variables are ROA, Margin, Market share, Sales growth, Sales, Cash / total assets, Average advertising. Explanatory variables are Advertising / total exp. and B2C part of industry. Control variables are volatility, Tobin's Q, Total assets. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic. Fourth value is adjusted R squared. FE stands for fixed effects regression, RE stands for random effects regression. The choice was made using Hausman test.

Test. No.	Dep. Var.: Tobin's Q	Lag		
		Explanatory variables	[0]	[1]
(8)	Advertising / total exp.	(+), (***) (22.134), (0.04), RE	(+), (***) (8.815), (0.001), RE	(+), (***) (7.977), (0.0001), RE
(8C)	Advertising / total exp.	(+), (***) (23.414), (0.01), RE	(+), (***) (4.571), (0.01), RE	(+), (***) (3.985), (0.002), RE
	Total assets	(-), (***) (-24.139)	(-), (***) (-12.695)	(-), (***) (-10.458)

Table 16. It displays the results of running regression models for testing the hypothesis 2 which states that managers spend cash on advertising for prestige. The dependent variable is Tobin's Q. Explanatory variable is Advertising / total exp. Total assets is control variable. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic. Fourth value is adjusted R squared. FE stands for fixed effects regression, RE stands for random effects regression. The choice was made using Hausman test.

Test. No.	Dep. var.: Advertising/total exp.	Lag		
		Explanatory variables	[1]	[2]
(9)	total shares owned		(+), (***) (9.491), (0.004), RE	Insignif.

(9C)	total shares owned	Insignif., FE	Insignif., FE
	Margin	(-), (***) (-5.464)	(-), (***) (-6.450)
	Tobin's Q	(+), (***) (11.748)	(+), (***) (9.759)
	Cash / total assets	Insignif.	Insignif.
	Total Assets	(-), (***) (-1.839)	Insignif.
(10)	Restricted stock holdings / total market cap.	Insignif.	Insignif.
(10C)	Restricted stock holdings / total market cap.	(-), (***) (-3.605), (0.004), FE	(-), (***) (-3.415), (0.04), FE
	Margin	(-), (***) (-5.480)	(-), (***) (-6.454)
	Tobin's Q	(+), (***) (11.60)	(+), (***) (9.589)
	Cash / total assets	Insignif.	Insignif.
	Total Assets	Insignif.	(-), (*), (-1.662)

*Table 17. It displays the results of running regression models for testing the hypothesis 2 which states that managers spend cash on advertising for prestige. Advertising / total exp. is the dependent variable. Total shares owned and Restricted stock holdings / total market cap. are explanatory variables. Margin, Tobin's Q, Cash / total assets, Total Assets are control variables. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic. Fourth value is adjusted R squared. FE stands for fixed effects regression, RE stands for random effects regression. The choice was made using Hausman test.*

Test. No.	Dep. var.: Advertising / total exp.	Lag		
		[0]	[1]	[2]
(11)	HHI in terms of industry sales	(+), (***) (5.100), (0.001), RE	(+), (**), (2.425), (0.001), RE	Insignif.
(12)	HHI in terms of industry purchases	(-), (***) (-27.909), (0.02), FE	(-), (***) (-7.861), (0.001), FE	(-), (***) (-3.773), (0.0003), FE

(13)	Market share	(+), (***) (11.131), (0.002), RE	Insignif.	Insignif.
(13C)	Market share	(+), (***) (8.208), (0.003), FE	Insignif.	(+), (**), (2.522), (0.001), FE
	Total assets	(+), (***) (4.113)	(-), (***) (-4.602)	(-), (***) (-5.032)
(14)	ROA	Insignif.	(+), (*), (1.737), (0.0004), FE	Insignif.
(14C)	ROA	(-), (***) (-8.576), (0.003), FE	Insignif.	(-), (***) (-4.139), (0.001), FE
	Total assets	(+), (***) (9.964)	(-), (***) (-4.704)	(-), (***) (-3.324)
(15)	Sales	(+), (***) (-4.647), (0.002), RE	(-), (**), (-2.452), (0.003), FE	Insignif.
(15C)	Sales	(+), (***) (6.473), (0.002), FE	Insignif., FE	Insignif., FE
	Total assets	Insignif.	(-), (***) (-3.288)	(-), (***) (-2.958)
(16)	Cash / total assets	(+), (***) (22.217), (0.01), FE	(+), (***) (2.658), (0.002), FE	(+), (***) (4.954), (0.001), FE
(16C)	Cash / total assets	(+), (***) (23.238), (0.01), FE	(+), (**), (-2.057), (0.001), FE	(+), (**), (4.382), (0.001), FE
	Total assets	(+), (***) (10.903)	(-), (***) (-4.415)	(-), (***) (-3.733)

*Table 18. It displays the results of running regression models for testing the hypothesis 3 which states that managers spend cash on advertising inefficiently, for vanity, in order to make impression that they work. Advertising / total exp. is the dependent variable. HHI in terms of industry sales, HHI in terms of industry purchases, Market share, ROA, Sales, Cash / total assets are explanatory variables. Total assets is control variable. First value is sign of coefficient, second value is statistical significance. Significance at the 1%, 5% and 10% levels are indicated with ***, **, and *, respectively. Third value is t-statistic. Fourth value is adjusted R squared. FE stands for fixed effects regression, RE stands for random effects regression. The choice was made using Hausman test.*

References

1. Compustat Industrial [Annual Data]. (1961-2017). Available: Compustat [2017-12-02]. Retrieved from Wharton Research Data Service.
2. Execucomp [Annual Data]. (1992-2016). Available: Compustat [2017-12-02]. Retrieved from Wharton Research Data Service.
3. OECD (2017). Input-Output Tables, U.S. Industry data. Retrieved from <http://stats.oecd.org/Index.aspx?DataSetCode=IOTS> on 2017-11-28
4. Giroud, X. (2009). Does corporate governance matter in competitive industries? *Journal of Financial Economics*, 95 (2010) 312-331.
5. Baltagi, B. H. (2014). *The Oxford handbook of panel data*. New York, NY: Oxford University Press.
6. Tirole, J. (1988). The theory of industrial organization. *Cambridge, MA: MIT Press*, 1988, pp. xii, 479, isbn 0-262-20071-6
7. Giannetti, Mariassunta and Saidi, Farzad, Shock Propagation and Banking Structure (November 3, 2017). Available at SSRN: <https://ssrn.com/abstract=2875331> or <http://dx.doi.org/10.2139/ssrn.2875331>
8. Amit Joshi, Dominique M. Hanssens (2010) The Direct and Indirect Effects of Advertising Spending on Firm Value. *Journal of Marketing*: January 2010, Vol. 74, No. 1, pp. 20-33.
9. Jensen, Michael C. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, 1 May 1986, Vol.76(2), pp. 323-329
10. Milgrom, P., & Roberts, J. (1986). Price and Advertising Signals of Product Quality. *Journal of Political Economy*, 94(4), 796-821. Retrieved from <http://www.jstor.org/stable/1833203>
11. Granger, C. (1969). Investigating Causal Relations by Econometric Models and Cross-spectral Methods. *Econometrica*, 37(3), 424-438. doi:10.2307/1912791
12. Kirchgässner, G., Wolters, J., & Hassler, U. (2013). *Introduction to modern time series analysis*. Berlin: Springer.
13. Designing the corporate headquarters can be pricey. (2014, March 10). Retrieved from <https://www.ft.com/content/08bd06a4-9f51-11e3-a48e-00144feab7de>

14. Murgia, M. (2017, June 19). High-profile UK tech failures highlight danger of overhype. Retrieved from <https://www.ft.com/content/da28e35a-4158-11e7-9d56-25f963e998b2>
15. Bentley, T.W., Chan, T.Y., & Park, Y. (2015). Testing the Signaling Theory of Advertising: Evidence from Search Advertisements.
16. Lou, D. (2014). Attracting Investor Attention through Advertising. *Review of Financial Studies*, 27(6), 1797-1829. doi:10.1093/rfs/hhu019
17. Joshi, A., & Hanssens, D. (2010). The Direct and Indirect Effects of Advertising Spending on Firm Value. *Journal of Marketing*, 74(1), 20-33.
18. Ali Shah, S. Z. (2001). Disclosure of advertising expenditures in annual reports.
19. Daneshkhu, S. (2017, August 25). A hard sell for the ad men. Retrieved from <https://www.ft.com/content/4ead1bee-8978-11e7-bf50-e1c239b45787>
20. Lewis, L. (2016, November 16). Rakuten ups its brand game with €220m Barcelona sponsorship. Retrieved from <https://www.ft.com/content/8873d0ca-ac1a-11e6-9cb3-bb8207902122>
21. Hook, L. (2017, December 21). New Uber COO wants more strategy and less controversy. Retrieved from <https://www.ft.com/content/46f68336-e5f3-11e7-8b99-0191e45377ec>
22. Garrahan, M. (2016, October 31). Advertising needs a rethink in a brand new world. Retrieved from <https://www.ft.com/content/b94880d6-88e5-11e6-8cb7-e7ada1d123b1>
23. Pooley, R. (2018, March 15). 'Thank you Statoil! It's been a pleasure': Oil major changes name. Retrieved from <https://www.ft.com/content/071bba1a-282e-11e8-b27e-cc62a39d57a0>
24. Jensen, M. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, 76(2), 323-329.
25. Smith, A. (1776). The Wealth of Nations: on joint-stock companies.
26. Narayanan, M. (1985). Managerial Incentives for Short-Term Results. *The Journal of Finance*, 40(5), 1469-1484. doi:10.2307/2328125
27. Byrd, J., Parrino, R., & Gunnar Pritsch. (1998). Stockholder-Manager Conflicts and Firm Value. *Financial Analysts Journal*, 54(3), 14-30. Retrieved from <http://www.jstor.org/stable/4480076>