

THE STOCK MARKET AND BRAND EQUITY

**A QUANTITATIVE STUDY ON THE SWEDISH STOCK
MARKET'S REACTION TO LONG- AND SHORT-TERM
CHANGES IN BRAND EQUITY**

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The Stock Market and Brand Equity: A Quantitative Study on the Swedish Stock Market's Reaction to Long- and Short-term Changes in Brand Equity

Abstract:

Brand equity is a well-established term within the field of marketing, commonly used to describe the value of a brand name and its associations. Through an analysis of how the changes in brand equity of 15 companies listed on the Swedish stock exchange correlates with their stock prices, along with an event study of different negative company-related incidents, and a survey study of how these incidents are perceived by the Swedish public, the aim of this thesis paper is to answer our proposed research questions (1) “To what extent does the price a stock is traded at adjust in response to long-term changes in brand equity?” and (2) “To what extent do company-related incidents cause a short-term negative reaction in brand equity and, consequently, a negative reaction in stock price and a positive reaction in trading volume?”. Our results indicate that long-term brand equity to some extent influences stock price. We also find that incidents that affected the public's perception negatively, thus damaging brand equity, lead to a negative change in stock price, though only a certain type of incident lead to increased trading volume.

Keywords:

Brand equity, Stock market, Stock price, Trading volume

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1. Introduction

The term brand equity is well known within the marketing world. When discussing marketing, brand equity is often used to describe the value of a brand name and its associations. However, at large, it can often be difficult to pinpoint and define exactly what brand equity is and explain to those who are unfamiliar with marketing how one should apply value to it. Rapid digitalization has made trading on the stock market more accessible than ever before. During the last couple of years there has been an increase in private traders, with a growing percentage of the Swedish public involving themselves in the stock market (Euroclear, 2021). It is possible that how they view publicly listed companies could affect their decision-making on the stock market.

1.1. Background

The purpose of this section is to provide an insight into the key parts of this study. We attempt to explore and explain the terms stock price and brand equity, to provide the baseline for the study.

1.1.1. Brand Equity Background

To understand the concept of brand equity, one must first understand the definition of a brand. *“A brand is a distinguishing name and/or symbol (such as a logo, trade-mark or package design) intended to identify the goods or services of either a seller or a group of sellers, and to differentiate those goods or services from those of competitors”* (Aaker, 1991). The brand equity, in turn, is the set of assets and liabilities connected to the brand, that adds or subtracts value from the product or service. Brand equity provides value in multiple ways. For consumers, it increases recall of the brand and its products or services and affects their confidence in the purchase decision. It can also increase customers’ perceived value of the product or service. For the company, brand equity adds value by making it easier to attain new customers and increase the loyalty of existing ones. It also often allows for higher margins (Aaker, 1991). A corporate or organizational brand is the underlying entity that provides the products or services that consumers purchase (Aaker, 2004). Since this study focuses on the effect of changes in brand equity on individual stocks which are related to the organizations, this concept is of importance.

1.1.2. Stock Market Background

To understand what stock prices are and how they work, some basic knowledge of the stock market is needed. On the stock market, shares of publicly listed companies, known as stocks, are listed, and can be bought and sold by traders. Stocks fluctuate in price depending on different factors, such as the perceived value of the company at

present and in the future. These purchases and sales of the stock affect the stock price. The stock price always reflects the latest price a stock was sold at. One of the factors that might affect what stock traders choose to buy or sell is the traders' own perception of the company. At a large scale, this equates to the general public's opinion of the stock. This public opinion is part of the company's brand equity and, as a result, changes in brand equity could affect both stock price and trading volume, formulating the premise for our study.

1.2. Purpose and Research Questions

The purpose of this thesis paper is to provide an understanding of how, if at all, the Swedish stock market reacts to long- and short-term changes in brand equity. This study attempts to identify how much a stock's price changes because of a long-term change in brand equity and how the stock's price and trading volume changes in response to a short-term negative change in brand equity, caused by a company-related incident. With this purpose in mind, the research questions providing the framework for this study are as follows:

- (1) *To what extent does the price a stock is traded at adjust in response to long-term changes in brand equity?*
- (2) *To what extent do company-related incidents cause a short-term negative reaction in brand equity and, consequently, a negative reaction in stock price and a positive reaction in trading volume?*

1.3. Expected Contributions

With research question (1) in mind, the expectation for this thesis is to provide a contribution into the ongoing discussion regarding brand equity and how to apply value to it. By aiming to find a correlation between the changes in brand equity and the reaction of the corresponding stock's traded price, we aim to give marketers a point of reference to use when motivating why brand equity is important in the long-term.

Regarding research question (2), this thesis also expects to contribute to the understanding of what causes changes in brand equity. By analyzing how different company-related incidents that negatively affect the Swedish public's perception and, consequently, the brand equity of the company, the expectation is to provide an understanding of how incidents can affect brand equity and, in-turn, stock price and trading volume.

In an increasingly digital, fast-moving, and reactive world, the expectation is also for this study to provide value for people within marketing, such as brand managers and marketing directors, by investigating the long- and short-term value of brand equity,

why it matters, why it changes, how those changes affect the company's valuation. Providing an understanding of this would be a valuable contribution to the continuously evolving business of marketing and brand management.

1.4. Delimitations

This study utilizes the data from Kantar Sifo's yearly surveys of public opinion of companies from 2013 to 2020 and needs the companies to be listed on the stock market and be affected by changes in brand equity in Sweden. Thus, the study is limited to observing the public opinion, stock price and trading volume of companies listed on the Swedish stock exchange. For consistency purposes, and to allow for a conclusion regarding both the long- and short-term perspectives, all three studies conducted in this thesis are limited to these restrictions.

2. Theoretical Framework and Literature Review

To communicate our findings, it is important to put our study into context. This section aims to provide insights into previous relevant studies and theories that provide the structure for which this study builds upon. Firstly, the theoretical framework is reviewed, providing an explanation of market conditions and necessary knowledge for understanding the study. Secondly, we provide a literature review which aims to present previous research conducted in relevant research areas. This includes research on the concepts of brand equity along with research on news' effect on the stock market. None of these studies, however, have examined both the long- and short-term effects on changes in brand equity for multiple types of incidents, nor has such research been conducted in Sweden, thus creating the gap of knowledge and the scope our study aims to explore. Thirdly, we introduce our formulated hypotheses which are derived from the presented literature framework.

2.1. Theoretical Framework

2.1.1. Theory of Efficient Markets

The theory of efficient markets (Fama, 1970) states that share prices are directly correlated with all information available, thus, current share prices are based on all available data. This statement does, however, require the assumption that both information and trading costs are always zero. Though this assumption does not hold in practice, issues such as quantifying these costs are avoided because of it (Fama 1991). In his original paper, Fama brought up three different tests for market efficiency, illustrated in table 1 (Fama, 1970).

Table 1. Descriptions of Different Tests for Market Efficiency

Weak form test	This test consists of testing historical prices.
Semi-strong form test	Measures how efficiently the market adjusts to new public information.
Strong form test	Tests for private information, meaning if certain actors on the market have a monopolistic access to some data.

These categories were later revised. The “weak form test” was changed to “tests for return predictability”. It was updated to including future predictions and forecasts, based on variables such as dividend yields and interest rates instead of only historical data (Fama, 1991). This was the most significant change, while the other forms only changed

their names with “semi-strong form test” being called “event study” and “strong form test” becoming “tests for private information” (Fama, 1991).

Criticism of the Theory of Efficient Markets

Though established and often used withing finance research, aspects of the theory of efficient markets have been subject to criticism. Behavioral finance is one field which disagrees with the assumptions that actors are fully rational and that prices always are correct. Research in this field indicates that investors are not always rational, and it is questioned whether prices can be argued to always be correct and based on risk levels or if excess returns are due to mispricing (Thaler, 2016).

2.1.2. The Brand Equity Model

The brand equity model is a concept which is explained in multiple theories by different researchers. For this study, we apply Aaker’s findings, which are arguably the most established on the subject. Aaker’s model consists of five underlying assets which encompass the concept of brand equity. Firstly, “brand loyalty”, which is a measurement of customers’ attachment to a brand and reflects how likely they are to switch to another brand. The second asset is “awareness of the brand name and symbols”, which is a customer’s ability to identify a brand as being part of a specific product category. The third asset is “perceived quality”, being the consumer’s opinion of the overall quality of a product or service in terms of its intended purpose, compared to other alternatives. The fourth asset in Aaker’s model is “a set of associations”, which is described as everything that one memorizes as a link to the brand. The fifth and final asset is “other proprietary brand assets”, which is a broad category that captures trademarks and all other brand assets (Aaker, 1991). Though these categories establish what brand equity is comprised of, an important note in understanding the concept of brand equity is that there does exist interrelations between these different assets, meaning that they also affect each other.

2.1.3. Framework for Incident Categorization

To identify and classify different company-related incidents that can affect the brand equity of companies, this study will use the categorization brought forward in the article “Corporate Brand Reputation and Brand Crisis Management” (Greyser et al., 2009). Their categorization is divided into nine different types of crises, of which we’ve decided to use four due to remaining five being outside the scope of this study. The categories used were “product failure”, referring to incidents directly related to a company’s product such as an injury caused by it, “social responsibility gap”, meaning incidents where the company is connected to CSR-related issues, “corporate misbehavior”, which includes incidents where there is unethical misdemeanor on a corporate level, and “executive misbehavior”, which is incidents where executives in

the company have behaved poorly. These different types of crises provide the framework which established the categorization for our incidents in the event study and survey study.

2.2. Literature Review

2.2.1. Brand Equity's Effect on Company Valuation

Brand equity is, as previously mentioned, the assets and liabilities connected to a brand; it provides value. Since companies' market valuations often are calculated based on future cash flows, brand equity should affect the valuation of a firm. This notion is supported by research which measured Dutch companies' brand equity. It was shown that brand equity had significant impact on firm valuation, proving that it provides shareholder value (Pahud de Mortanges & van Riel, 2003).

It has also been proposed to calculate brand equity using financial market values, further illustrating its connection to company valuation. When calculating it this way, companies operating in consumer-oriented industries had substantially more brand equity compared to those who operate in other ones, such as industrial industries (Simon & Sullivan, 1993). This has been further validated by another study that used an estimate of brand value from a consultancy firm and performed a regression analysis with stock prices. Brand value was found to have a significant role in the stock price. (Kirk & Ray et al., 2013).

Based on the literature above, a hypothesis was set up to examine whether long-term changes in brand equity could be determined to influence the stock price of companies.

H1: *Long-term changes in a company's brand equity influences the company's stock price*

2.2.2. Effect of News on the Stock Market

Research has been conducted on the effect of different types of brand crisis announcements. An event study on white-collar crimes in Malaysia between 1996 and 2013 found results indicating that companies exhibit negative abnormal returns during certain days of their event windows, though not all days showed empirical support (Tay & Puah et al., 2016).

In the United States, announcements of corporate illegalities, such as bribery and tax evasion, have been shown to result in lower actual returns than what was expected by the market model in an event study observing announcements in the Wall Street Journal. All announcements together gave insignificant results but individually, certain types of crimes were statistically significant (Davidson & Worrell et al., 1994). Furthermore, it has been shown that scandals involving corporations' CEOs have a

short-term negative effect on returns. In an event study, both negative abnormal returns and an increase in stock price volatility was observed, however, the scandals did not affect the stock price's performance long-term (Jory & Ngo et al., 2015). Not only has it been seen that corporate scandals have a negative effect on the stock price, an event study concluded that companies involved in a corporate scandal issued significantly more securities before a scandal was revealed, indicating that it is of interest to also observe the days prior to an event (Bonini & Boraschi, 2010).

The effect that different types of news released by the Wall Street Journal has on institutional and individual investors has also been examined in an event study, using purchase and sales data. The results showed that institutional investors do not buy or sell abnormally on news that do not affect prices, individual investors did not exhibit any abnormal trading on negative news, while institutions exhibited more selling behavior on bad news (Nofsinger, 2001). The effect of attention on investor behavior is also something that has been investigated in behavioral finance. It was found that individual investors are "attention buyers" and purchase stocks on days with high volume, extreme price movement, and when stocks are in the news. Selling was not as attention driven since investors choose from the entire market when they buy, but only choose from the ones they own when they sell (Barber & Odean, 2008).

Regarding news, people have been shown to overreact and overvalue recent news compared to older ones. A study concluded that this also seems to be true for the stock market, where empirical data showed that "loser portfolios" consisting of companies experiencing extreme capital losses ended up outperforming the market (De Bondt & Thaler, 1985).

Based on the literature above, hypothesis H2 was set up to examine whether company-related incidents that were described in a negative manner would lead to the company's stock price showing negative abnormal returns. Hypothesis H3 was set up to examine if those same company-related incidents would lead to positive abnormal trading volume. The observation of incidents that were negatively described in Swedish news motivates why the hypotheses, H2 and H3, are stating a negative effect on brand equity¹. This is further supported by the incidents fitting the framework for incident categorization (Greyser et al., 2009).

H2: *Company-related incidents that negatively affect brand equity in the short-term cause negative abnormal returns*

H3: *Company-related incidents that negatively affect brand equity in the short-term cause positive abnormal trading volume*

¹ As further explained in section 6.3.

3. Method

This section aims to introduce the different methods used to answer how the stock market reacts to changes in brand equity and what incidents cause those changes. Firstly, we present and explain our methodological considerations and choices along with how and why, we limited our methodology. Secondly, we illustrate how our chosen methods relate to our research questions. Lastly, we explain our chosen statistical methods and how they were conducted.

3.1. Methodological Considerations and Limitations

Given the scope our study aims to explore, we found that the optimal approach to answer our research questions was to conduct three studies. This methodology amounts to a quantitative study conducted in three parts, which enabled us to consider both long- and short-term perspectives on brand equity. We also felt that when exploring an elusive term such as brand equity, it was important to ensure objectivity and accuracy, which a quantitative approach enabled more compared to other alternatives, such as a qualitative study. Though a qualitative study could have given valuable understanding of brand equity through interviews, it would not have given the same insight into the connection between brand equity and the stock market as a quantitative study could. It would also not have provided an insight into how brand equity is affected by the broader public. As such, though an argument can be made for a qualitative study, due to the nature of our thesis and research questions, a quantitative study was found to be the most appropriate method.

3.1.1. Correlation and Regression Study

Firstly, we conducted a study of how the dependent variable stock price reacted to long-term changes in the independent variable brand equity by doing an ordinary least square regression and testing for correlation. The analysis was performed in Excel using the data analysis tool, where all observations from 2020 had to be excluded because of the COVID-19 pandemic, along with Eniro in 2014 due to their stock's performance being an extreme outlier that year. By observing long intervals over multiple years, other external factors that affect the individual stock prices were reduced over the sample. It is important to note that a multitude of aspects affect the value of a stock. Thus, a weakness with our chosen method is that the regression model likely will yield a low predictive value, even if results are found to be significant. An alternative to this study would have been to perform an event study, however, since they have been shown to be increasingly ineffective the longer the observation interval is (MacKinlay, 1997), it would not have been appropriate for the dataset used. One could take the approach of attempting to measure the changes in brand value itself, using the market capitalization

of the companies and their annual reports, to remove aspects such as tangible assets to obtain an estimation of the brand value (Simon & Sullivan, 1993). However, doing this for the entire dataset would be immensely time consuming and, as we also wanted to conduct an event study and a survey study, it was not a viable option. Since we observed large changes in a long-term perspective, we felt that our chosen method would be sufficient to still notice potential effects on stock prices.

3.1.2. Event Study

Secondly, we performed a statistical event study on company-related incidents that were mentioned in Swedish news in a negative manner, using the statistical programs Stata and Excel. An event study is a common tool for financial analysis often comprised of observing the performance of a stock on the day an event took place, along with the immediate dates before and after the event. We chose to do an event study due to its usefulness in assessing the impact events have on the value of companies. The event study allowed us to identify abnormal returns and abnormal trading volumes of the companies' stocks by predicting what the return would have been without the incident and comparing it to actual returns and trading volumes. Though doing an event study meant having to limit ourselves to a short time span with daily observations, due to the reliability drastically decreasing when observing longer periods, the value the event study provides justifies using it as our analysis of how company-related incidents affects stock price and trading volume. For the analysis of the entire dataset of incidents, Nordea's incidents on 2015-05-19 and 2018-10-18, H&M's incident on 2015-10-02, Ericsson's incident on 2016-06-17, and Avanza's incident on 2019-02-20 were removed. For the analysis of the different incident categories², only Nordea's incident on 2018-10-18 was removed. The incidents were removed to avoid clustering of the dataset. For overlapping incidents, the method of removal was based on which type of incident was the most common in the dataset, to keep the observed dataset as diverse as possible.

We chose to use the statistical model to estimate normal returns. Though the economic model is a valid alternative, it requires a lot of assumptions, making it somewhat problematic to use. The market model was chosen since it is commonly considered to be the superior model (MacKinlay, 1997). In statistical modeling, the other models considered were the constant mean return and the market return model, however, it was concluded that the adjusted market return model would yield the most precise result for our study based on our dataset. In this model, an event window needs to be established³. The total number of days in the event window was chosen to be 12, to avoid clustering. Additionally, an estimation window is required⁴. A 120-day estimation window is

² The categories being product failure, service failure, social responsibility gap, corporate misbehavior, and executive misbehavior.

³ As further explained in section 3.3.2.

⁴ Ibid.

suggested (MacKinlay, 1997), however, different lengths are common in practice e.g., 60 or 30 days. In our case, we apply a window of 60 days to avoid estimation windows overlapping with event windows. Two incidents (Nordea on 2016-06-21 and H&M on 2018-01-10) had to utilize an estimation window of 42 and 47 days, respectively, to not include other incidents related to the same company, which would have caused problems since the estimation window is used to estimate the normal return of the company's stock. Lastly, since the incidents were identified in newspapers and journals, we treat two consecutive days as the actual day the event happened (MacKinlay, 1997). This is to ensure that the event day is not incorrectly identified, since we cannot guarantee that the incidents had not occurred and affected the stock market prior to being written about in Swedish newspapers.

3.1.3. Survey Study

Lastly, we conducted a survey on whether the Swedish public's perception of a company deteriorates in response to negative company-related incidents. This was done to gain an insight into what incidents have the most effect on brand equity and to explore whether our incidents in the event study had empirical support for likely influencing brand equity. The study was conducted with Qualtrics and was shared on our private social media accounts on Facebook and Instagram. The survey asked for the age and gender of the respondents, as well as if they invest in stocks or not. The questions consisted of 20 different scenarios where a company of some sort was involved in an incident that fits into one of the five categories also used in the event study: product failure, service failure, social responsibility gap, corporate misbehavior, and executive misbehavior. These incidents were based on the ones observed in the event study. The order of the questions was randomized to avoid any bias possibly created from all respondents receiving them in the same order. The respondents were asked to what extent the incident had a negative impact on their perception of the company involved. The respondents answered this question by rating each incident on a seven-point scale, with 1 representing "Not at all, 2 "Very little", 3 "A little", 4 "Somewhat", 5 "To some degree", 6 "To a large degree", and 7 "To a very large degree"⁵. This rating system was based on a seven-point Likert scale using the framework of a unipolar scale. In addition to this, a control question was included, asking the respondent to rate the control-statement a "5" to test their attention.

This quantitative survey was chosen over performing qualitative interviews as it enabled us to collect more answers and get a broader understanding of how the incidents were perceived. While interviews could have potentially provided a deeper insight and allowed us to ask follow-up questions, the analysis would have depended on the views of a select few people, which was not the aim. While conducting a survey has its own

⁵ These are translated versions of the descriptions of the ratings. The respondents were presented with the ratings in Swedish, like the rest of the survey, which is illustrated in Appendix A.

issues, such as the possibility of respondents not answering the questions truthfully, we still feel that the advantages of conducting a survey and obtaining a broad insight was more beneficial for the thesis study.

3.1.4. Limitations

Due to the use of Kantar Sifo's brand reputation index, the scope of our study is confined to the years and companies that Kantar Sifo included in their surveys. This gives our study the timeframe of 2013 to 2020 and a selection of 15 Swedish companies, as listed in section 4.1.1. Our study is limited to Sweden and the Swedish stock exchange because of our interest in the Swedish marketing-landscape, which is reinforced by Kantar Sifo performing their surveys exclusively on the Swedish public. Because of our choice to utilize Kantar Sifo's dataset we are limited in our selection of companies compared to if we had constructed our own dataset, however, the trade-off is beneficial due to Kantar Sifo's surveys consisting of a much larger and more diverse group of respondents than what we would have been able to obtain.

3.1.5. Reliability and Validity

When evaluating the reliability of measures, the stability, internal reliability, and inter-rater reliability is important (Bell & Bryman et al., 2019). In terms of stability, given the statistical nature of the methods used for the analysis of the correlation study and the event study, the results are stable. A repeat of the tests would imply using the same datasets and, as such, would generate congruent results. In terms of the survey study, a stability test would imply repeating the study on the same sample for a second test. In accordance with literature findings from Bell, Bryman et al., such a test of stability was deemed unnecessary.

The concept of internal reliability is relevant when discussing the dataset on companies' reputation, utilized in the correlation and regression analysis. The dataset from Kantar Sifo has its strengths, encompassing a much larger sample than we would have been able to put together on our own. However, due to the nature of the dataset, the question regarding internal reliability and especially potential lack of coherence is still important to consider. With Kantar Sifo's reliability and reputation of providing high quality reports along with the insight into the dataset that we were able to obtain directly from Kantar Sifo⁶, all the items observed can be argued to be related to brand reputation and, as such, an issue with lack of cohesion is deemed unlikely.

The issue of inter-rater reliability becomes evident in our collection and categorization of incidents for the event study. The company selection was done by establishing clear criteria prior to the selection process. Incidents were chosen if they received a lot of negative media attention, which we were able to observe with Retriever, and the

⁶ See section 4.1.

categorization was based on already established categories (Greyser et al., 2009). Exactly what category each incident belongs to is somewhat subjective and, as such, the possibility of our selection affecting our results related to the different categories remains a possibility. Though this could be a minor reliability issue for the accuracy of the category-related findings, it has no impact on the analysis of all incidents. The selection process of incidents could also be argued to have subjective elements. To mitigate this, a method for selecting the observations was constructed, where we included all incidents mentioned in Retriever when multiple articles in different Swedish newspapers wrote about the incident in a negative manner. Due to human error, it is also important to be aware of the possibility of there being incidents that occurred but were not included in this study due to not us not finding them. Another aspect of inter-reliability became evident when we had to remove certain incidents, as described in section 3.1.3. When incidents risked causing clustering, our method for removal was based on which incident had the most similar ones in the dataset, to keep it as diverse as possible and to avoid subjective removal.

We find it reasonable to argue that, building upon the measures taken to mitigate the issues, this thesis study achieves reliability and, as such, a discussion of its validity can be held. The validity of measures presumes reliability and builds upon methods validating if one's measurements are accurate representations of a concept. One such measure is the method of face validity (Bell & Bryman et al., 2019). Face validity can be argued to have been obtained with the frequent communication and consultation with our thesis tutor who has given continuous feedback on our measures of the covered concepts.

3.2. Methodological Framework

This methodological framework aims to explain how our study is structured and how it contributes to answering the two research questions, (1) *“To what extent does the price a stock is traded at adjust in response to long-term changes in brand equity?”* and (2) *“To what extent do company-related incidents cause a short-term negative reaction in brand equity and, consequently, a negative reaction in stock price and a positive reaction in trading volume?”*.

To answer question (1), we performed the correlation and regression study of brand equity and stock prices, where “changes in brand equity” is treated as the independent variable and cause of effect. The dependent variable and subject of effect is the changes in stock price. To answer question (2), the variable “changes in brand equity” is treated as the dependent variable and the subject of effect, with the independent variable and cause of effect being the company-related incidents in the event study. The survey study helps provide context for whether the incidents in the event study can be argued to affect brand equity. This allows us to set up company-related incidents as the

independent variable and cause of effect, with two dependent variables, stock price and trading volume, as subjects of effect in the event study. With this framework, we examine if this negative reaction in brand equity, caused by company-related incidents, has a negative effect on stock price and a positive effect on trading volume.

3.3. Statistical Analyses

3.3.1. Correlation and Regression Study

The correlation and regression study of the Kantar Sifo dataset and stock price in the long-term was conducted in three steps. Firstly, the average stock price over the month of March each year was calculated for all firms and OMXSPI⁷ using the following formula, where N represents the number of days, i is the company, P is price and AP is average price:

$$AP_{i,t_1t_2} = \frac{1}{N} \sum_{i=1}^N P_{i,t} \quad (1)$$

Secondly, in the interest of adjusting for external factors affecting the stock price, such as the overall market movement, the OMXSPI return is subtracted from the firms' returns with the formula:

$$AP_{i,t_1t_2} - AP_{pi,t_1t_2} \quad (2)$$

Thirdly, the brand equity change was calculated using the measured reputation scores in the Kantar Sifo dataset using:

$$Reputation_{i,t} - Reputation_{i,-t} \quad (3)$$

In this formula, $Reputation_{i,t}$ is the reputation score for company i at year t and $Reputation_{i,-t}$ is that same company's score the year prior. Lastly, using the above calculations, the correlations and regressions were performed in Excel.

3.3.2. Event Study

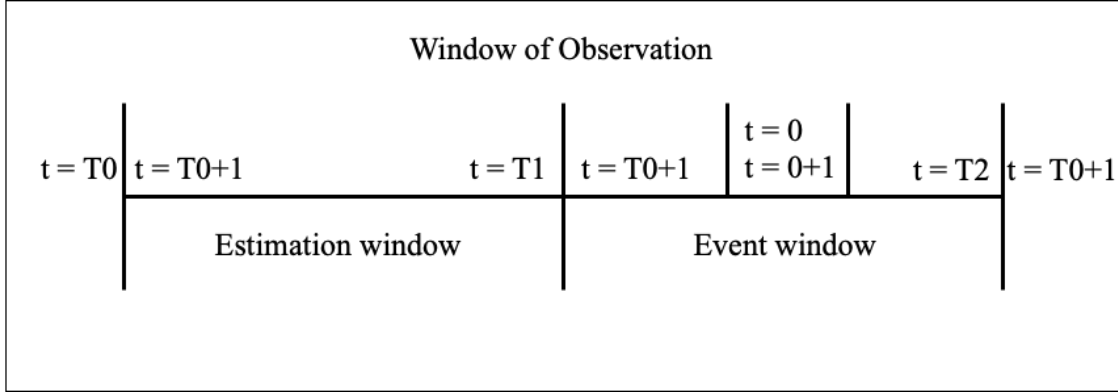
Window of Observation

The observed period for each incident consists of two windows, the event window, and estimation window. The 60-day estimation window refers to the observed days prior to the event window and is used as an estimate for the stocks' regular performance, both for price and trading volume. The estimation window is denoted as $L1 = T1 - T0$, where $T0$ is the day before the estimation window and $T1$ is the last day of the estimation window. The event window consists of two event days denoted as $t =$

⁷ The average of march is used due to it approximating the time of year Kantar Sifo conducted their surveys, as explained in "4.2 Stock Price and Traded Volume".

0 and $t = 0 + 1$. Included in the event window is also the 5 trading days prior to the event day and the 5 days after the event days, making the event window a total of 12 observed trading days. The event window is denoted as $L2 = T2 - T1$, with $T2$ being the last day of the event window.

Figure 1. Illustration of window of observation



Abnormal Returns

To identify the abnormal returns the following function was used:

$$AR_{i,t} = R_{i,t} - E(R_{i,t}|X_t) \quad (4)$$

In this equation, AR = Abnormal return, i = the individual firm, R = actual return of the stock and $E(R_{it}|X_t)$ = normal return during period t , where X is the condition factor, indicating that the normal return is based on the market model. The actual return is calculated as the percental difference from the prior trading day to the next, using the following formula:

$$R_{i,t} = \frac{P_t}{P_{t-1}} - 1 \quad (5)$$

In this event study, the predicted normal return is treated as the expected return of the stock during each day of the event window. Since we apply the framework of the adjusted market model, the normal return will be calculated using the formula of:

$$\hat{R}_{i,t} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (6)$$

In this formula, $E(\varepsilon_{it} = 0)$ and $var(\varepsilon_{it}) = \sigma_{\varepsilon_i}^2$. R_{it} and R_{mt} denote the actual return for company i and the market portfolio (OMXSPI), respectively, while ε is the error term and α_i , and β_i are parameters of the market model that later will be estimated.

To use the market model to calculate expected returns, we first rearrange the market model to:

$$\varepsilon_{it} = R_{i,t} - \alpha_i - \beta_i R_{m,t} \quad (7)$$

Given that the market model is used as the condition factor, this function can now be rewritten as the initial abnormal return formula of:

$$\varepsilon_{it} = AR_{it} \quad (8)$$

To estimate the parameters, an ordinary least square regression was used on each company and OMXSPI during each estimation window, using the following formula:

$$AR_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{m,t} \quad (9)$$

To analyze the abnormal returns during different time periods in the event windows, such as day -5 to 5, and day -3 to 3, cumulative abnormal returns (CAR) were calculated using the following formula, which shows the sum of abnormal returns during the specified time window:

$$CAR_{t_1,t_2} = \sum_{t_1}^{t_2} AR_{i,t} \quad (10)$$

To be able to draw more general conclusions from the event study, average abnormal return (AAR) was calculated with the following formula:

$$AAR_t = \frac{1}{N} \sum_{i=1}^N AR_{i,t} \quad (11)$$

Similarly, cumulative average abnormal return (CAAR) was calculated with the formula below:

$$CAAR_{t_1,t_2} = \frac{1}{N} \sum_{i=1}^N CAR_{t_1,t_2} \quad (12)$$

Calculating the AAR and the CAAR allowed us to observe the effects of certain incident-types as a group.

Abnormal Trading Volume

When conducting the event study on trading volume, a methodology resembling the one for stock price was applied. Abnormal trading volume (ATV) was calculated using the percental difference between the actual trading volume and the expected trading volume. Similar methodology has been applied in previous studies on the stock market (Barber & Odean, 2008), and is calculated using the following formula:

$$ATV_{i,t} = \frac{(TV_{i,t} - ETV_{i,t})}{ETV_{i,t}} \quad (13)$$

The expected trading volume (ETV) was calculated slightly differently from the expected returns (ER). Instead of using the adjusted market model, the average trading volume for a stock over the estimation window was calculated:

$$ETV_{i,t} = \frac{1}{N} \sum_{i=1}^N TV_{i,t} \quad (14)$$

Other than the difference between ER and ETV, the analysis was done in the same way as the abnormal returns, namely, calculating the cumulative abnormal trading volumes (CATV), average trading volumes (ATV) and the average cumulative abnormal trading volumes (ACATV), using the same methodology as for the CAR, AAR, and ACAR illustrated in the “Abnormal Returns” section.

3.3.3. Survey Study

The analysis of the survey study was done by calculating the mean values of the answer to each question (a rank of 1 to 7), which were imported from Qualtrics and calculated in Excel. Mean values were calculated for the entire population’s answers to each individual question. A mean value was also calculated for the entire set of questions, providing an indication of the respondents’ general reaction to the incidents. Lastly, the questions were grouped together based on which category from our incident-framework it belonged to⁸ and a mean value for each category was calculated. In addition to this, a Cronbach’s alpha-test was conducted in Stata to test the internal consistency of the survey.

⁸ Product failure, service failure, social responsibility gap, corporate misbehavior, and executive misbehavior.

4. Data

In this section, we will explain each dataset this study utilizes along with how each set of data was acquired. Firstly, the dataset of companies and their brand reputation in Sweden is presented, followed by a description of what companies were eligible for our study. Secondly, we explain where, and how, the data for the companies' stock price and trading volume was obtained. Thirdly, we explain which stock index we utilized and why. Fourthly, this section also presents our dataset of company-related incidents, including how we defined our criteria for an incident and where we obtained the data. Lastly, the dataset from the survey we conducted is presented.

4.1. Kantar Sifo's Dataset

Kantar Sifo is a well-established market research company offering services within consultancy, analysis, and market surveys. In addition to this, Kantar Sifo also conducts a variety of surveys on its own initiative, one of these being the annual reputation index-survey used for our study. The survey is web-based, conducted on Swedish residents between the ages of 18 to 79, and provides an insight into how the Swedish public views companies operating in Sweden by having the respondents answer five questions regarding the companies and evaluating the respondents' sentiments towards the company and how they perceive the company to be performing. The five questions asked the respondents about their view of the overall reputation of the companies, their personal perception of them, implicitly how they believe the public views them, how much they trust the companies, as well as how they perceive the quality of the companies' products or services and their success. These questions provide the basis for the reputation score that the companies then receive, with the questions regarding trust and personal perception carrying the most weight. The score ranges from -65 to +135, with the former being the worst possible score and the latter the best. Below +20 and above +80 are considered anomalous values, with below +20 being an extremely poor score and above +80 an outstandingly great score. These scores provide an insight into how the Swedish public views the companies in the survey and due to being an annually conducted survey, enables observations of how the companies' reputations have changed over time⁹.

In accordance with Aaker's studies, brand equity is made up of brand loyalty, name awareness, perceived quality, brand associations, and other proprietary brand assets (Aaker, 1991). There is a substantial overlap in Aaker's presented aspects of brand equity and the examined parameters of Kantar Sifo's survey. This includes perception and perceived quality, along with trust, which arguably is an important factor for brand loyalty, as well as reputation which is highly related to name awareness and brand

⁹ This information was obtained from a representative at Kantar Sifo.

associations (as the reputation of a company depends on what the public associates it with). As such, it can be argued that there is support in the literature framework for our estimation of Kantar Sifo's surveys on brand reputation as a proxy for brand equity.

The dataset we used is a collection of 8 of these reputation surveys conducted by Kantar Sifo, during the years of 2013 to 2020, and is illustrated in table 2. The dataset was obtained from Kantar Sifo's own website where they publish all their reputation surveys (Kantar Sifo, 2020). The total number of observations in the dataset (one observation being one rating) is 109. The mean rating of the entire dataset is 44.67, with a standard deviation of 16.53. The lowest score observed in the entire dataset was found for Nordea in 2018, when they got a -3, while the highest rating was 78 from Volvo in 2020.

Table 2. Kantar Sifo dataset

Companies	Years							
	2013	2014	2015	2016	2017	2018	2019	2020
AB Volvo	73	71	73	77	73	76	73	78
Avanza	-	-	-	-	-	-	65	66
Electrolux	-	55	56	56	56	55	58	59
Eniro	41	37	30	36	32	32	35	32
Ericsson	48	44	41	48	29	22	35	47
Hennes & Mauritz	36	47	42	44	40	25	30	34
Handelsbanken	60	56	61	54	58	54	54	55
ICA Gruppen	64	62	69	66	70	74	71	74
Nordea	25	29	32	32	20	-3	5	15
SAS	-	-	38	45	40	43	41	38
Scandic Hotels Group	-	-	55	52	56	55	51	54
SEB	41	42	42	45	42	43	36	40
Swedbank	36	35	35	27	31	34	7	8
Tele2	32	25	34	34	39	37	34	38
Telia	34	42	42	44	38	37	37	46

Note: Companies not used in our study have been omitted from this table. The content shown is the companies' scores in Kantar Sifo's brand reputation survey. The omitted years are the years a company was not part of Kantar Sifo's survey and/or were not publicly listed on the Swedish stock exchange.

4.1.1. Selection of Companies

As our study observed long-term changes in Swedish companies' brand equity, it was imperative that the companies observed were listed on the Swedish stock exchange to be able to assume that the companies' stock price would be affected by a change in brand equity in Sweden. In 2020, 60.4 percent of share of market value in companies listed on the Swedish stock exchange belonged to Swedish owners (both private individuals and legal entities), with the remaining 39.6 percent of ownership belonging to foreign investors (Euroclear, 2021), further supporting this limitation of companies.

As a result, the companies had to not only be included in Kantar Sifo's dataset, but also needed to be publicly listed on the Swedish stock exchange sometime between 2013 to 2020. These criteria left us with 15 eligible companies: Volvo, ICA Gruppen, Avanza, Electrolux, Handelsbanken, Scandic Hotels Group, Ericsson, Telia, SEB, SAS, Tele2, Hennes & Mauritz, Eniro, Nordea and Swedbank.

4.2. Stock Price and Trading Volume

For the correlation and regression study, a dataset containing the companies' stock prices was obtained. The dataset is comprised of the observed companies' adjusted average stock price over the month of March each year from 2013 to 2020. With the observed changes in brand equity being over the course of a year, an identified month acting as both a starting point and finish line for each year was needed. As the month of March roughly corresponds with when Kantar Sifo conduct their brand reputation survey each year, using March as our point of reference for the adjusted average stock price of the companies each year was appropriate.

For this study, the stocks observed are the "B" version when multiple options such as "A", "B", or "C", were available. When a "B" version of a stock was not available, yet other versions were, the "A" version was chosen. The choice of using adjusted average stock prices stems from its established use when examining historical returns and conducting analysis of past performance (Ganti, 2020). The information regarding stock price and trading volume in this section was obtained from Yahoo Finance.

Table 3. Stock price dataset

Stock Symbol (Company)	Years							
	2013	2014	2015	2016	2017	2018	2019	2020
VOLV B (AB Volvo)	75.36	79.17	82.06	74.09	110.54	135.70	126.97	116.22
AZA (Avanza)	-	-	-	-		-	74.19	80.14
ELUX B (Electrolux)	-	108.70	203.78	165.61	200.14	226.34	212.99	119.31
ENRO (Eniro)	40.67	1042.54	82.98	26.13	11.47	5.57	1.77	0.46
ERIC B (Ericsson)	66.48	69.77	94.75	71.10	55.10	52.44	84.78	71.13
HM B (Hennes & Mauritz)	171.44	218.31	278.20	228.95	199.55	116.44	131.04	138.05
SHB B (Handelsbanken)	71.24	88.86	113.54	99.04	106.57	103.37	95.57	88.16
ICA (ICA Gruppen)	126.44	177.42	232.82	222.57	262.33	268.92	341.82	384.34
NDA SE (Nordea)	71.32	86.63	105.76	82.07	101.48	90.06	80.80	59.79
SAS (SAS)	-	-	16.51	22.57	14.64	20.48	20.58	2.39
SHOT (Scandic Hotels Group)	-	-	-	54.68	80.48	79.89	85.33	35.43
SEB A (SEB)	44.86	61.44	76.85	64.56	83.48	80.24	82.80	68.22
SWED A (Swedbank)	88.67	107.66	138.21	118.89	157.16	155.14	138.21	113.86
TEL2 B (Tele2)	61.23	48.08	63.10	53.57	65.33	82	109.16	123.63
TELIA (Telia)	27.83	31.49	37.15	30.65	29.04	32.81	36.87	33.43
OMXSPI (Index)	376.16	435.60	542.01	483.85	559.54	564.31	590.55	556.15

Note: The content shown in the table is the companies' adjusted average stock price (SEK) over the month of March each year. The omitted years are the years a company was not part of Kantar Sifo's survey and/or were not publicly listed on the Swedish stock exchange.

The data collected for the event study utilized the same underlying data as the correlation and regression study. A dataset was constructed containing the daily adjusted closing price of the companies included in the event study between 2013-03-05 and 2020-03-05, collected from Yahoo Finance. In addition to the stock price, the companies' trading volume over the same timeframe was collected, containing the trading volume of a stock for each day. For ICA and Telia, data was also collected from 2012 to include data for their estimation windows. The data that was then used in the study was the two event days, the five pre- and post-event days and the 60-day estimation window for each incident, except for Nordea (2016-06-21) and H&M (2018-01-10), where a 42- and 47-day estimation window was used to not include another of their incidents in the estimation window.

4.3. Stock Index

The stock index data consists of the OMX Stockholm PI index¹⁰ between 2012-03-05 to 2020-03-05. The index data between 2013-03-05 and 2020-03-05 was collected from Yahoo Finance with certain missing dates complemented from Nasdaq Nordic. The index data between 2012-03-05 and 2013-03-05 was collected from MarketWatch since Yahoo Finance did not have that data. The OMXSPI is an index of all companies listed on the Stockholm stock exchange. The index was used in the market model to estimate

¹⁰ The index illustrated in table 3.

the parameters when calculating normal return. Since all the companies in the study are listed on the Swedish stock exchange, a Swedish stock index was chosen. The OMXSPI was chosen with the size of the observed companies in mind. Since the companies in this study are large, the OMXSPI index was selected to avoid issues stemming from companies in the study having a considerable effect on the index. As such, one might argue that a larger index would have been an even better choice since many of the companies are international. However, an even larger, international index would have brought with it its own issues, such as being too large to accurately represent the Swedish market, and the focus on the Swedish stock exchange would have, consequently, been lost.

4.4. Company-related Incidents

When collecting the data of the incidents, we used Retriever's article database and analytics feature to identify when each company had a lot of articles written about them during the observed years of 2013 to 2020¹¹. We then examined each month that the number of articles published in city press¹² was noticeably large and were able to identify incidents that got a lot of media coverage to the point that it was reasonable to assume that the incident caught the attention of the public and was perceived by the general Swedish population.

The aim of the event study is to identify and observe the incidents related to our companies which, in a scandalous manner, have been noticed by the public and possibly could have affected the brand equity of the company in a negative manner. To define what an incident encompasses in this study, subsequently describing what incidents were included, we define a relevant incident as something that has occurred in direct relation to the company observed, where Swedish newspapers covered the incident in a negative manner to the extent that it is reasonable to assume that the Swedish public's perception was affected.

Next, the incidents were categorized, based upon the framework for incident categorization (Greyser et al., 2009). In this study, the categories product failure, service failure, social responsibility gap, corporate misbehavior, and executive misbehavior are presented as relevant types of incidents.

¹¹ Headlines for each incident are presented in table 11 in appendix B.

¹² City press referring to the newspapers Aftonbladet, Dagens Industri, Dagens Nyheter, Expressen, Göteborgsposten, Kvällsposten, Metro, Svenska Dagbladet, and Sydsvenskan.

Table 4. Company-related incidents dataset

STOCK SYMBOL (Company)	Date	Incident Type
TELIA (Telia)	2013-01-04	Corporate Misbehavior
ICA (ICA Gruppen)*	2013-02-09	Product Failure
ERIC B (Ericsson)	2013-05-22	Corporate Misbehavior
ERIC B (Ericsson)	2014-01-03	Corporate Misbehavior
ICA (ICA Gruppen)	2014-03-08	Product Failure
ENRO (Eniro)	2014-09-06	Corporate Misbehavior
TEL2 B (Tele2)	2014-10-18	Corporate Misbehavior
VOLV B (Volvo)	2014-11-20	Corporate Misbehavior
ICA (ICA Gruppen)	2015-01-21	Product Failure
TELIA (Telia)	2015-04-29	Service Failure
NDA SE (Nordea)	2015-05-19	Corporate Misbehavior
SWED A (Swedbank)	2015-05-19	Service Failure
TELIA (Telia)*	2015-05-27	Corporate Misbehavior
ENRO (Eniro)	2015-06-11	Executive Misbehavior
SWED A (Swedbank)	2015-09-29	Executive Misbehavior
HM B (Hennes & Mauritz)	2015-10-02	Social Responsibility Gap
NDA SE (Nordea)	2016-04-04	Corporate Misbehavior
ERIC B (Ericsson)	2016-06-17	Corporate Misbehavior
NDA SE (Nordea)	2016-06-21	Service Failure
VOLV B (Volvo)	2016-07-20	Corporate Misbehavior
ERIC B (Ericsson)	2016-12-19	Corporate Misbehavior
NDA SE (Nordea)	2017-03-20	Corporate Misbehavior
SAS (SAS)	2017-04-27	Social Responsibility Gap
HM B (Hennes & Mauritz)	2017-10-16	Social Responsibility Gap
HM B (Hennes & Mauritz)	2018-01-10	Social Responsibility Gap
NDA SE (Nordea)	2018-05-24	Executive Misbehavior
SHB B (Handelsbanken)	2018-10-04	Executive Misbehavior
SEB A (SEB)	2018-10-18	Corporate Misbehavior
NDA SE (Nordea)	2018-10-18	Corporate Misbehavior
AZA (Avanza)	2019-02-20	Service Failure
SWED A (Swedbank)	2019-02-20	Corporate Misbehavior
NDA SE (Nordea)	2019-03-04	Corporate Misbehavior
TEL2 B (Tele2)	2019-03-22	Service Failure
SEB A (SEB)	2019-11-16	Corporate Misbehavior
TEL2 B (Tele2)	2019-12-11	Product Failure
SAS (SAS)	2020-02-10	Social Responsibility Gap

Note: The incidents marked with * were completely removed before the statistical analyses due to being substantially affected by other outside occurrences.

4.5. Incidents Survey Data

The survey provided us with a total of 191 respondents, of which 161 both completed the entire survey and answered the control question correctly, indicating that the respondents had paid attention to the survey. This left us with 30 invalid responses due to either being incomplete or not fulfilling the criteria of the control question. The sample consisted of 81 respondents that identified as male, with 79 respondents

identifying as female and 1 respondent electing not to share their gender. 88 of the respondents claimed to invest in stocks while the remaining 73 claimed to not invest in stocks. The age demographic of the respondents ranged from the oldest respondent being born in 1937 to the youngest being born in 2002, with a mean birthyear of 1979.

5. Empirical Results

In this section, the empirical results from the studies are presented. The results include a correlation and regression analysis of the companies' stock price and their scores in Kantar Sifo's dataset, an event study of company-related incidents and stock price and trading volume, along with a survey study of how the Swedish public's perception of companies is affected by different incidents. This section also outlines the hypotheses and presents whether they had empirical support or not. Some of the data from the survey was omitted from this section in the interest of keeping the section precise and cohesive.

5.1. Correlation and Regression Study

The correlation and regression analysis of the dataset obtained from Kantar Sifo provided findings of a correlation between the independent variable, change in brand equity, and the dependent variable, stock price. The analysis also provided insight into the explanatory value of R-squared. The findings are presented for the entire dataset obtained from Kantar Sifo, for a dataset made up of only the instances where a change in index points was 5 or greater, and for a dataset made up of only the instances where a change in index points was 10 or greater. Empirical support is found for the entire dataset when multiple R is 26.9 percent and adjusted R-squared is 6 percent.

Table 5. Correlation study of Kantar Sifo dataset and stock price

The table shows the correlation coefficient (Multiple R), the explanatory value (Adjusted R-squared), and the standard deviation from the correlation of the Kantar Sifo dataset and Stock Price data.			
	Entire Dataset	When change ≥ 5	When change ≥ 10
Multiple R	0.269	0.351	0.720
Adjusted R-squared	0.060	0.087	0.423
Standard Error	0.267	0.324	0.261
t-value (p-value)	2.437 (0.017)*	1.838 (0.079)	2.322 (0.068)
N	78	26	7

Note: Multiple R denotes the correlation coefficient, Adjusted R-squared denotes the explanatory value.

*indicates a p-value of 0.05 or lower.

5.2. Event Study

The event study provided findings of the abnormal return (AR) and the cumulative abnormal return (CAR) of the companies prior to, during, and after, the event date. Results for the abnormal return in percentage points for five days and one day prior to the event, the days of the event, and one, two, and five days after the event are presented below along with the CAR for different intervals of the observed event window. Table 6

provides findings regarding AR and CAR of stock price, while table 7 illustrates the abnormal trading volume (ATV) and cumulative abnormal trading volume (CATV) of the companies' stocks for all incidents and the different incident categories.

In Table 6, empirical support for a negative effect on AR is found on both event days (0 and 0+1), day one and day two, along with all intervals of CAR, when observing all incidents. Each incident category showed empirical support for a negative effect on AR on one of the two event days (0 and 0+1), except for service failure where empirical support instead was found on day two, and social responsibility gap where there instead was empirical support for both event days together in CAR (0, 0+1). In Table 7, empirical support was found for an increase in ATV for all incidents and the corporate misbehavior category on the event day 0+1 along with all observed intervals for CATV.

Table 6. T-tests of AR and CAR of the stock price in the incident categories

The table shows the mean AR and CAR in percentage points for the presented days in the event study. The table also shows the t-value of each mean in the format of "mean value (t-value)".						
	AI	PF	SF	SRG	CM	EM
AR (-5)	0.001 (0.286)	0.001 (0.878)	-0.004 (-1.064)	0.003 (0.382)	0.001 (0.380)	0.007 (0.515)
AR (-1)	0.004 (1.561)	-0.007 (-0.926)	-0.007 (-2.121)	-0.001 (-0.132)	0.009 (2.126)	0.016 (1.663)
AR (0)	-0.018 (-1.753)*	-0.010 (-1.355)	-0.002 (-0.590)	-0.008 (-1.779)	-0.028 (-1.494)	-0.005 (-2.461)*
AR (0+1)	-0.011 (-2.139)*	-0.003 (-3.656)*	0.001 (-0.267)	-0.004 (-0.851)	-0.020 (-2.163)*	0.000 (0.068)
AR (1)	-0.007 (-1.609)*	-0.013 (-1.714)	-0.001 (-0.218)	0.000 (-0.053)	-0.011 (-1.479)	-0.001 (-0.197)
AR (2)	-0.005 (-1.516)*	-0.001 (-0.536)	-0.003 (-2.165)*	-0.000 (-0.036)	-0.001 (-0.204)	-0.012 (-1.796)
AR (5)	-0.003 (-0.892)	-0.013 (-0.821)	-0.007 (-0.983)	-0.001 (-0.215)	0.004 (1.086)	-0.005 (-1.487)
CAR (-5,5)	-0.028 (-2.341)*	-0.031 (-3.043)*	-0.003 (-0.164)	-0.037 (-5.132)*	-0.018 (-0.779)	-0.009 (-0.907)
CAR (-4,4)	-0.026 (-2.319)*	-0.020 (-1.509)	0.007 (0.396)	-0.038 (-3.332)*	-0.024 (-1.169)	-0.011 (-1.280)
CAR (-3,3)	-0.037 (-2.280)*	-0.027 (-1.835)	0.006 (0.333)	-0.0038 (-3.774)*	-0.040 (-1.352)	-0.018 (-6.424)*
CAR (-2,2)	-0.038 (-2.353)*	-0.030 (-2.212)	-0.009 (-0.461)	-0.021 (-5.129)*	-0.047 (-1.627)	-0.006 (-1.092)
CAR (-1,1)	-0.032 (-2.099)*	-0.032 (-2.692)	-0.001 (-0.176)	-0.014 (-3.525)*	-0.049 (-1.797)*	0.010 (0.889)
CAR (0,0+1)	-0.030 (-2.355)*	-0.013 (-1.724)	-0.004 (-0.410)	-0.013 (-6.881)*	-0.047 (-2.163)*	-0.005 (-1.526)
N	29	3	5	5	17	4

Note: AI=All Incidents, PF=Product Failure, SF=Service Failure, SRG=Social Responsibility Gap, CM=Corporate Misbehavior, EM=Executive Misbehavior, * indicates a p-value of 0.05 or lower.

Table 7. T-tests of ATV and CATV of the trading volume in the incident categories

The table shows the mean ATV and CATV in percentage points for the presented days in the event study. The table also shows the t-value of each mean in the format of “mean value (t-value)”.

	AI	PF	SF	SRG	CM	EM
ATV (-5)	-0.008 (-0.159)	-0.175 (-2.059)	-0.111 (-1.244)	0.251 (0.683)	-0.014 (-0.171)	0.327 (1.989)
ATV (-1)	-0.007 (-0.105)	-0.006 (-0.019)	-0.023 (0.153)	-0.084 (-0.475)	0.122 (1.115)	-0.073 (-0.769)
ATV (0)	0.927 (1.384)	-0.052 (-0.576)	-0.182 (-1.399)	-0.053 (-0.250)	1.713 (1.443)	0.183 (0.368)
ATV (0+1)	0.600 (1.684)*	-0.146 (-0.994)	0.439 (1.280)	-0.191 (-0.795)	1.145 (1.886)*	0.004 (0.017)
ATV (1)	0.527 (1.639)	0.083 (0.362)	-0.250 (-2.123)	-0.122 (-0.762)	1.012 (1.825)*	0.075 (0.346)
ATV (2)	0.402 (1.796)*	0.0733 (0.531)	0.371 (0.615)	-0.154 (-1.850)	0.859 (2.036)*	0.071 (0.202)
ATV (5)	0.328 (2.018)*	0.459 (0.703)	0.070 (0.326)	-0.047 (-0.196)	0.467 (1.907)*	0.163 (0.394)
CATV (-5,5)	3.208 (1.914)*	-0.721 (-0.981)	1.160 (0.486)	-1.273 (-0.887)	6.277 (2.343)*	0.688 (0.234)
CATV (-4,4)	2.888 (1.838)*	-1.005 (6.431)	0.201 (0.522)	-1.571 (-1.287)	5.824 (2.318)*	0.197 (0.081)
CATV (-3,3)	2.657 (1.961)*	-0.784 (-3.821)	1.296 (0.657)	-1.203 (-1.070)	5.300 (2.456)*	0.337 (0.167)
CATV (-2,2)	2.430 (1.948)*	-0.258 (-0.720)	0.730 (0.557)	-0.743 (-0.865)	4.803 (2.324)*	0.418 (0.261)
CATV (-1,1)	2.048 (1.900)*	-0.121 (-0.674)	0.030 (0.044)	-0.451 (-0.610)	3.991 (2.207)*	0.190 (0.205)
CATV (0,0+1)	1.528 (1.784)*	-0.198 (-1.342)	0.257 (0.569)	-0.245 (-0.570)	2.858 (1.942)*	0.187 (0.253)
N	29	3	5	5	17	4

Note: AI=All Incidents, PF=Product Failure, SF=Service Failure, SRG=Social Responsibility Gap, CM=Corporate Misbehavior, EM=Executive Misbehavior, * indicates a p-value of 0.05 or lower.

In table 8, empirical support is found for a negative effect on AR on event day 0 as well as for CAR over the entire event window when observing all categories except corporate misbehavior. No empirical support is found for the same observations for ATV or CATV.

Table 8. T-tests of AR, CAR, ATV, and CATV for entire dataset but CM

The table shows the AR and ATV for the AI category observed in table 7 and 8 but excludes the CM incidents. The table also shows the t-value of each mean in the format of “mean value (t-value)”.

	Entire Dataset but CM (Stock Price)	Entire Dataset but CM (Traded Volume)
AR/ATV (0)	-0.005 (-2.024)*	-0.019 (-0.133)
AR/ATV (0+1)	-0.003 (-0.999)	-0.007 (-0.042)
CAR/CATV (-5,5)	-0.022 (-3.217)*	-0.050 (-0.044)
N	15	15

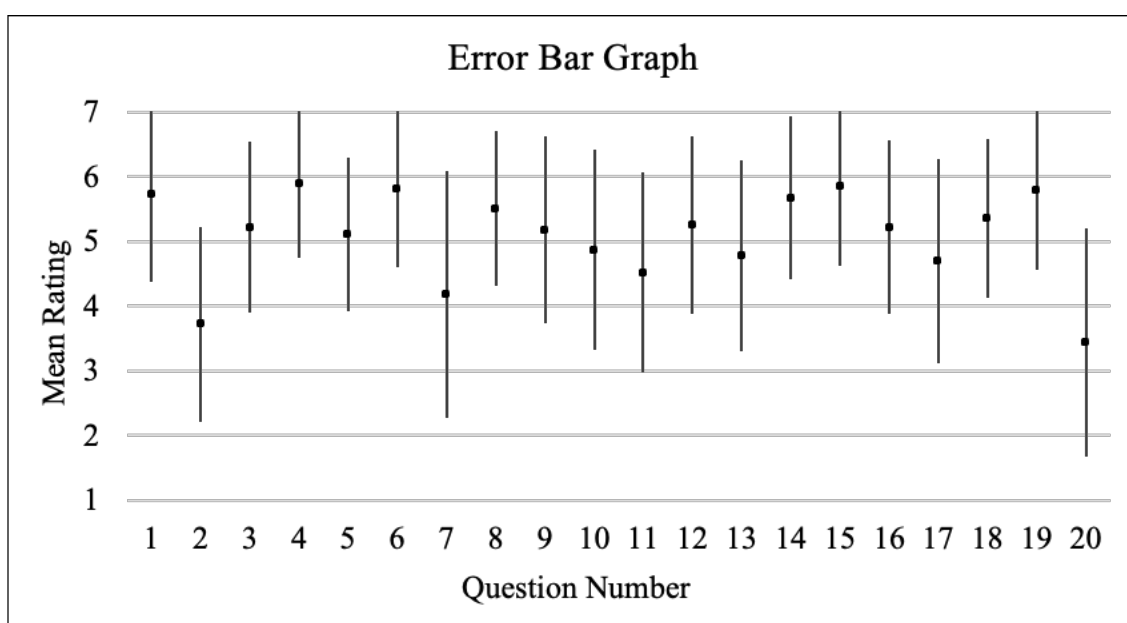
Note: AI=All Incident, PF=Product Failure, SF=Service Failure, SRG=Social Responsibility Gap, CM=Corporate Misbehavior, EM=Executive Misbehavior, * indicates a p-value of 0.05 or lower.

5.3. Survey Study

Below, the results from the survey are shown. We present results for the mean rating for each incident along with the mean rating for the entire set of questions. This section also presents the mean rating for each category included in the survey. The mean rating refers to the average rating of each question, where the respondents were asked to rate each incident on a scale from 1 to 7. The mean rating for the entire set of questions was 5.09, the lowest mean rating was found for Q20, which was 3.44, while the highest mean rating was found for Q4, with 5.90¹³. Service failure was the category with the highest mean rating of 5.51, while product failure had the lowest mean rating of 4.73, as illustrated in table 9. Outlined in figure 2 is the graph describing the error bars for the questions in the survey study. The dot on each line shows the mean rating, while the line indicates what interval the rating for each question is within when taking standard deviation into account.

¹³ See table 12 and table 13 in appendix C for the information about the questions and all mean ratings.

Figure 2. Illustration of mean rating for each survey question



Note: See table 13 for the data this error bar graph is based on and table 12 for the incidents that the question numbers correspond to, both in appendix C.

Table 9. Mean rating of the categories included in the survey.

The table shows the average rating each question was given in the survey and the standard deviation of each question's mean value. Each question had 161 respondents.

Incident Type	Mean Rating	Standard Deviation	Questions in Category
Product Failure	4.73	1.42	Q1-Q2
Service Failure	5.51	0.41	Q3-Q6
Social Responsibility Gap	4.85	0.53	Q7-Q11
Corporate Misbehavior	5.35	0.42	Q12-Q16
Executive Misbehavior	4.82	1.02	Q17-Q20

Note: The question numbers correspond to the question order illustrated in the table 12 in Appendix C.

In addition to the above presented tests, a Cronbach's alpha-test was conducted to measure the internal consistency of the survey study. The Cronbach's alpha-test observed the entire sample from the study, making N=161. The observed alpha for each question ranged from 0.880 to 0.889, meaning that all questions had an alpha of above 0.80, which indicates that there is a strong reliability throughout the survey study¹⁴.

5.4. Hypothesis Overview

When examining the hypotheses set up for the study, a conclusion can be drawn that H1 (which relates to the correlation and regression study) had partial empirical support, H2

¹⁴ See table 14 in appendix C for the presentation of the results from the Cronbach's alpha-test.

had empirical support, and H3 had partial empirical support, (both relating to the event study and survey study) as seen in Table 10. However, a more nuanced approach to the examination of the results is required to adequately explain the full context of the findings and why H1 and H3 are considered to have partial empirical support. This discussion is provided in the discussion and conclusions section below.

Table 10. Hypothesis overview

H1	Changes in a company's brand equity influences the company's stock price	(Partially) empirically supported
H2	Company-related incidents that negatively affect brand equity cause negative abnormal returns	Empirically supported
H3	Company-related incidents that negatively affect brand equity cause positive abnormal trading volume	(Partially) empirically supported

6. Discussion and Conclusions

In the following section, we will review the empirical results and explore what implications they might have in line with the purpose of this thesis paper, which is to provide an understanding of how, if at all, the stock market reacts to long- and short-term changes in brand equity. Firstly, we examine the results of the correlation and regression study, the event study, and the survey study, relating the results to the literature review. This is presented by structuring the findings into two areas, long-term changes to brand equity and short-term changes to brand equity, in line with our research questions and hypotheses. Secondly, we present conclusions from the study. Lastly, we discuss the limitations of our study and its implications on future research.

6.1. Discussion of Results and Correspondence with Literature Review

6.1.1. Long-term Changes in Brand Equity

In this section, the aim is to answer research question (1) “*To what extent does the price a stock is traded at adjust in response to long-term changes in brand equity?*”. As such, hypothesis H1 becomes of relevance. Thus, the study of interest is the correlation and regression study of the Kantar Sifo dataset and stock price.

H1: *Long-term changes in a company’s brand equity influences the company’s stock price*

The results of the correlation and regression study showed empirical support for a correlation of 0.269 between change in a company’s score in the Kantar Sifo dataset and its stock price when observing the entire dataset, as seen in the “multiple R”-term. However, it is of importance to note that the “adjusted R-squared”-term was 0.060, meaning that only 6 percent of the change in stock price over the years observed can be concluded to stem from a change in brand equity. This conclusion of there being a change in brand equity when a change in score is observed finds support in the studies of Aaker, whose description of the underlying aspects of brand equity (Aaker, 1991), shows a substantial overlap with the parameters of Kantar Sifo’s survey, as presented in section 4.1. As such, with support from the literature framework, long-term changes in brand equity have empirical support to be correlated with changes in stock price by 26.9 percent. The small explanatory value of 6 percent can be argued to raise questions regarding the actual magnitude of this finding and the actual impact this finding has on research question (1). Nevertheless, the result indicates a connection between the variables in line with previous research (Pahud de Mortanges & van Riel, 2003). As such, the findings can be summarized as showing partial empirical support for hypothesis H1.

6.1.2. Short-term Changes in Brand Equity

In this section, the aim is to answer research question (2) “*To what extent do company-related incidents cause a short-term negative reaction in brand equity and, consequently, a negative reaction in stock price and a positive reaction in trading volume?*”. Thus, hypothesis H2 and H3 are of interest and, as a result, the main study of interest for this section is the event study, but also the survey study due to the context it adds to the event study and its relevance for the hypotheses.

H2: *Company-related incidents that negatively affect brand equity in the short-term cause negative abnormal returns*

H3: *Company-related incidents that negatively affect brand equity in the short-term cause positive abnormal trading volume*

The results from the event study showed empirical support for the all incidents-dataset having a negative effect on AR of 1.8 and 1.1 percent on the days of the event (day 0 and 0+1). On a category-level, each type of incident also had empirical support for a negative effect on AR on the event days, except service failure, which showed support for such a negative effect on day 2 and social responsibility gap, which had empirical support when observing both event days together (CAR of day 0 and 0+1). This finding proves to be significant when examining hypothesis H2, which as a result can be deemed to have empirical support in the aspect of company-related incidents causing negative AR of the stock. These results are in line with previous research showing that these types of incidents have a negative effect on returns (Tay & Puah et al., 2016; Davidson & Worrell et al., 1994; Jory & Ngo et al., 2015).

With this established, the findings of the survey study prove to be relevant. The results from the survey showed a mean rating for all questions of 5.09, which, along with the mean ratings of the different categories in Table 9, indicate that the different incidents likely influenced the respondents’ perception of the companies negatively to some degree. As the incidents in the survey were designed to represent the incidents included in the event study, the incidents in the event study can thus be argued to have affected the Swedish public’s perception of the companies in a negative way. In accordance with the literature and reasoning presented in section 2.2.2. regarding the negative nature of the incidents’ portrayal in the news and the incident-category framework (Greyser et al., 2009), the incidents observed in the event study can be argued to have a negative effect on brand equity. This provides further support for the statements in hypothesis H2 and H3, stating that the incidents have a negative effect on brand equity in the short-term¹⁵.

As for the results of the event study focused on ATV, which relates to the testing of H3, there is empirical support for an increase in ATV of 60 percent when observing the all incidents-dataset on event day 0+1 along with all intervals for the CATV. However, the

¹⁵ See section 2.2.2 for the previous discussion regarding this assumption in hypothesis H2 and H3.

only individual category that had empirical support is corporate misbehavior, which showed significant increases in ATV on event day 0+1 of 114.5 percent, along with all following days and all intervals for the CATV. As a result, another test was conducted where the corporate misbehavior incidents were removed from the all incidents-dataset. For this dataset, no observations regarding trading volume found empirical support. This indicates that corporate misbehavior likely is the underlying reason for all incidents finding empirical support in the event study of trading volume. As such, corporate misbehavior is the only category that can be argued to show empirical support for H3 and, thus, there is only partial empirical support for the hypothesis H3.

As for why only incidents that were categorized as corporate misbehavior showed empirical support could be because of these incidents often being related to mischief and dishonesty rather than honest mistakes like some of the other categories. This could lead to more sensational headlines in the news, drawing a lot of attention to the incidents. This reasoning finds support in the literature framework, as trading volume increases when visible news is released (Nofsinger, 2001) and, consequently, more attention is directed towards the company. Furthermore, as attention affects what stocks one decides to purchase, trading volume increases of stocks with heightened attention (Barber & Odean, 2008).

The connection between the long- and short-term changes in brand equity can be discussed in an exploratory manner. Certain incidents observed in the event study seem to have affected the ratings observed in the correlation study. In 2016, Ericsson had two bribery incidents and, consequently, their 2017 score in Kantar Sifo's survey decreased by 19 points. After decreasing further in 2018, Ericsson's score began to recover during 2019 and 2020. A similar case can be observed with Nordea's score decreasing in 2017 and 2018, after money laundering incidents in 2016, but then recuperating in 2019 and 2020¹⁶. This could be explained by an initial overreaction by the public, in line with the literature framework (De Bondt & Thaler, 1985; Jory & Ngo et al., 2015), possibly indicating that short-term losses in brand equity in Sweden often can be recovered in the long-term, provided no other incidents occur during the recovery period.

6.2. Conclusions

- (1) *To what extent does the price a stock is traded at adjust in response to long-term changes in brand equity?*
- (2) *To what extent do company-related incidents cause a short-term negative reaction in brand equity and, consequently, a negative reaction in stock price and a positive reaction in trading volume?*

¹⁶ See also H&M's decrease in 2018 due to incidents in 2017 and 2018, followed by a recovery in 2019 and 2020.

In summary, support was found for a correlation between the reputation index and corresponding stock price development, while the regression yielded a low adjusted R-squared value, showing that it has a low explanatory value and is not suitable as a predictive model. Thus, a conclusion can be made that the price a stock trades at is affected by long-term changes in brand equity in Sweden, though to a minor extent.

Next, the event study found empirical support for all incidents causing negative abnormal returns, with each category also finding support at certain points in the event window. Empirical support was found for corporate misbehavior causing positive abnormal trading volume, but not for any other category. The findings in the survey study reinforced that the incidents observed likely did affect brand equity in Sweden. As a result, it can also be concluded that company-related incidents have a slight negative effect on abnormal returns, while only certain incidents influence abnormal trading volumes.

6.3. Limitations and Implications for Future Research

Though results in the event study were statistically significant and provided empirical support for the hypotheses, the limited number of observations likely affected the outcome of the analysis. It also prevented us from large-scale conclusions, especially in categories with particularly few observations. This issue could have been solved by not including the dataset from Kantar Sifo and solely performing an event study without any restrictions on the sample. This, however, would have led to a study on exclusively the short-term changes in brand equity and the long-term perspective, which was valuable for our study, would have been lost.

As the survey was shared on Facebook and Instagram, the sample in the survey study likely cannot be considered a representative sample of the Swedish population, as it is skewed by the fact that the respondents are connected to us in some capacity. Considering the scope of this study and the role of the survey, we feel that the sample of respondents does not make the findings trivial in the context of providing an insight into the Swedish public's reaction to the incidents and to the survey's importance as a complement to the event study. Nevertheless, this should be addressed in future studies, where a larger sample with a better spread of respondents should be used.

The survey could be argued to be slightly leading, with the questions asking the respondents if their perception would be negatively impacted. However, this structure allowed us to direct our study towards a single item of observation, the negative impact an incident has on brand equity. As the observed incident-categories were established with the conception that they were negative in nature (Greyser et al., 2009), and as the incidents in the survey were based on real-life incidents which were perceived as negative in the Swedish news, the survey can be argued to examine incidents which are inherently negative. Thus, it is reasonable to argue the survey's format was justified.

The length of the estimation windows was different for two incidents compared to the rest in the event study. This was a needed measure to avoid having to remove the incidents entirely. Due to the nature of an estimation window, the actual effect this difference has is negligible for the implication of the results and should, as such, not be of concern for the study.

Final words:

The term brand equity is well known within the marketing world, and changes in it evidently affect the entire business. In the modern company, the long- and short-term changes in brand equity should be a topic of discussion even beyond the walls of the marketing department.

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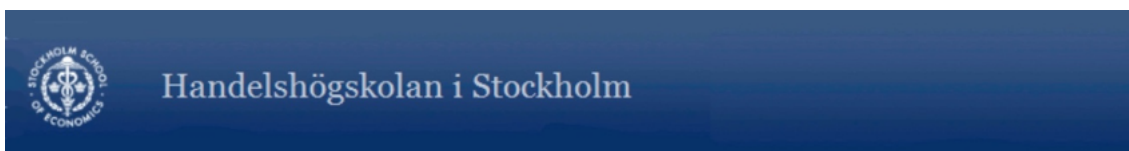
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8. Appendix

Appendix A – Structure of the Survey

Below, the entirety of the survey is illustrated in the same format that all respondents were presented with.



Enkät om vilka typer av incidenter som påverkar hur företag uppfattas.

Välkommen! Syftet med denna enkät är att undersöka hur individer uppfattar olika typer av företagshändelser.

Enkäten tar mindre än 5 minuter att besvara. Du kommer att presenteras för ett antal företagshändelser. För varje händelse ombeds du utvärdera hur du uppfattar dessa.

Enkätens resultat kommer att presenteras i en kandidatuppsats. Om du har några frågor kring enkäten eller vår studie i sin helhet kan du kontakta oss på: 24474@student.hhs.se.

Tack för din medverkan!

Lukas Floding, BSc student, Handelshögskolan i Stockholm

Alfred Sjunnesson, BSc student, Handelshögskolan i Stockholm

Innan vi börjar, vänligen ta del av följande information angående GDPR.

1. Information om GDPR

Studenternas projekt. Som en betydelsefull del av utbildningsprogrammet vid Handelshögskolan i Stockholm skriver studenterna en individuell avhandling. Detta arbete bygger ibland på enkäter och intervjuer med anknytning till ämnet. Deltagande är naturligtvis helt frivilligt och denna text är avsedd att ge dig nödvändig information om det som kan gälla ditt deltagande i enkäten eller intervjun. Du kan när som helst återkalla ditt samtycke varpå dina uppgifter därefter permanent raderas.

Sekretess. Allt du säger eller anger i enkäten eller i intervjun kommer hållas strikt konfidentiellt och kommer endast att vara tillgängligt för handledare och kursledningen.

Säker lagring av data. All data lagras och behandlas säkert av HHS och kommer att raderas permanent när kandidatuppsatsen är färdig.

Inga personuppgifter kommer att publiceras.

Examensarbetet skrivet av studenterna kommer inte innehålla någon information som kan identifiera dig som deltagare i enkäten eller intervjun.

Dina rättigheter enligt GDPR. Du är välkommen att besöka <https://www.hhs.se/en/about-us/data-protection/> för att läsa mer och få information om dina rättigheter relaterade till personuppgifter.

2. Information om enkäten

Projekt: Kandidatuppsats i Marknadsföring

År och termin: 2021, Vårtermin

Studenter ansvariga för studien: Lukas Floding, BSc student (24474@student.hhs.se);

Alfred Sjunnesson, BSc student (24339@student.hhs.se)

Handledare och avdelning vid HHS: Patric Andersson, Associate Professor; Department of Marketing and Strategy.

Handledares e-postadress: patric.andersson@hhs.se

Typ av personuppgifter om dig som behandlas: ålder, kön, bosättningsland

Jag har tagit del av informationen ovan och samtycker till att delta i denna studie:

Ja

☐

Nej (avsluta enkäten)

☐

Vänligen skriv under med dina initialer ifall du valde alternativet "Ja" på frågan ovan.

Kön: Hur identifierar du dig?

Man

☐

Kvinna

☐

Icke-binär

☐

Föredrar att inte säga

☐

Vilket år föddes du? (ex. 1999)

Investerar du i aktier?

Ja

☐

Nej

☐

(1/2) Nedan följer ett antal händelser som företag kan råka ut för. I vilken omfattning kommer din uppfattning om företaget att förändras till det sämrre, givet att respektive händelse inträffar?

(Vänligen välj det alternativ som bäst representerar din åsikt genom att klicka i cirkeln som hänger ihop med alternativet)

	1 - Inte alls	2 - Mycket lite	3 - Lite	4 - I någon mån	5 - I viss omfattning	6 - I hög grad	7 - I extremt hög grad
"Ett telefonföretag har problem i sin säkerhet kopplat till tjänster företaget erbjuder och känslig information om kunder har läckt ut."	☐	☐	☐	☐	☐	☐	☐
"En reklamkampanj från ett klädföretag uppfattas som stötande mot en utsatt minoritetsgrupp."	☐	☐	☐	☐	☐	☐	☐
"En omttyckt tv-kanal i ett telekomföretags utbud tas bort, trots stora protester."	☐	☐	☐	☐	☐	☐	☐
"Trots löfte har en bank inte aktivt förvaltat sina fonder, men har ändå tagit ut en hög avgift för aktiv förvaltning."	☐	☐	☐	☐	☐	☐	☐
"Ett klädföretag har gjort sig av med osäljbara klädesplagg på ett sätt som förstör miljön."	☐	☐	☐	☐	☐	☐	☐
"Ett klädföretag har avslöjats tillverka sina klädesplagg i fabriker med dåliga arbetsförhållanden."	☐	☐	☐	☐	☐	☐	☐
"En person har nekats jobb på ett flygbolag på grund av hur denne, enligt sin religion, vill klä sig."	☐	☐	☐	☐	☐	☐	☐
"En bank har missbedömt hur riskfyllda deras företagslån är, vilket ökat oron kring bankens finansiella stabilitet."	☐	☐	☐	☐	☐	☐	☐
"En bank får kritik för att den erbjuder en sparform som inte följer regelverket för finansiella tjänster."	☐	☐	☐	☐	☐	☐	☐
"En matvara från en matvarubutik visar sig innehålla annat kött än vad som påstås på förpackningen."	☐	☐	☐	☐	☐	☐	☐

(2/2) Nedan följer ytterligare ett antal händelser som företag kan råka ut för. I vilken omfattning kommer din uppfattning om företaget att förändras till det sämre, givet att respektive händelse inträffar?

(Vänligen välj det alternativ som bäst representerar din åsikt genom att klicka i cirkeln som hänger ihop med alternativet)

	1 - Inte alls	2 - Mycket lite	3 - Lite	4 - I någon mån	5 - I viss omfattning	6 - I hög grad	7 - I extremt hög grad
"En chef på ett kommunikationsföretag har ljutit i bokföringen för att förbättra sina kommande resultat."	☐	☐	☐	☐	☐	☐	☐
"En bank har använts för penningtvätt men trots vetskap om detta har banken inte agerat."	☐	☐	☐	☐	☐	☐	☐
"Ett kommunikationsföretag anklagas för att på företagsnivå ha agerat vilseledande och oärligt i sin bokföring."	☐	☐	☐	☐	☐	☐	☐
"En bank avslöjas ha hjälpt vissa av sina kunder att skattefuska."	☐	☐	☐	☐	☐	☐	☐
"Högt uppsatta chefer på en bank har utnyttjat sina positioner genom att göra affärer med bankens kunder, vid sidan av sin tjänst, för egen vinning."	☐	☐	☐	☐	☐	☐	☐
"En mobiloperatör anklagas för att ha använt mutor för att etablera sitt företag i nya länder."	☐	☐	☐	☐	☐	☐	☐
"En bank avslöjas ha en kultur av kränkande behandling på arbetsplatsen och som följd av detta sägs en chef upp."	☐	☐	☐	☐	☐	☐	☐
"En högt uppsatt chef på en bank åker fast för rattfylleri och döms till böter."	☐	☐	☐	☐	☐	☐	☐
"För att visa att du tagit del av alla scenarion, vänligen ge detta påstående rankingen 5."	☐	☐	☐	☐	☐	☐	☐
"En stor fordonstillverkare har varit delaktig i kartellbildning för att öka sin dominans på marknaden."	☐	☐	☐	☐	☐	☐	☐
"Budskapet i ett flygbolags reklam framstår som förminskande av ett lands kultur."	☐	☐	☐	☐	☐	☐	☐

Appendix B – Table of Incidents in the News

Table 11. Headlines of the Incidents in Swedish News

Company	Date	Headline	Newspaper
Telia	2013-01-04	"Mejl avslöjar Telia"	Dagens Industri
ICA*	2013-02-09	"Larm om hästkött fryser försäljning"	Dagens Industri
Ericsson	2013-05-22	"Upplägget är klassiskt"	Dagens Nyheter
Ericsson	2014-01-03	"Ericsson pekas ut i mutskandal"	Svenska Dagbladet
ICA	2014-03-08	"Två ton oxfile innehöll buffelkött"	Dagens Nyheter
Eniro	2014-09-06	"Uppblåsta siffror tar luften ur Eniro"	Dagens Industri
Tele2	2014-10-18	"Tele2-ägare oroas av misstänkt korruption"	Svenska Dagbladet
Volvo	2014-11-20	"Kartellspåren går djupt"	Dagens Industri
ICA	2015-01-21	"Svenskt bacon från Holland"	Expressen
Telia	2015-04-29	"Telia erkänner slarv med okrypterade lösenord"	Dagens Nyheter
Nordea	2015-05-19	"Nordea hade noll koll på penningtvätt"	Göteborgs-Posten
Swedbank	2015-05-19	"Swedbank medgav fondlureri"	SVT Nyheter
Telia*	2015-05-27	"Telia pekas ut i en historisk mutskandal"	Aftonbladet
Eniro	2015-06-11	"Skandalbolaget Eniro fifflar med siffror igen"	Svenska Dagbladet
Swedbank	2015-09-29	"Bankchefer har fastighetsfeber"	Dagens Industri
H&M	2015-10-02	"H&M-fabriker är fortfarande dödsfällor"	Svenska Dagbladet
Nordea	2016-04-04	"Nordea hjälpte rika kunder slippa skatt"	Svenska Dagbladet
Ericsson	2016-06-17	"Granskas för affärer i Kina"	Svenska Dagbladet
Nordea	2016-06-21	"Hemligt PM: Nordea saknar 80 miljoner"	Svenska Dagbladet
Volvo	2016-07-20	"Kartellsmäll på stark rapportdag"	Dagens Nyheter
Ericsson	2016-12-19	"Ericsson misstänks för mutor i Sydafrika"	Svenska Dagbladet
Nordea	2017-03-20	"Nordea i stor dansk penningtvättshärva"	Dagens Nyheter
SAS	2017-04-27	"Fick inte jobb på grund av slöjan"	Aftonbladet
H&M	2017-10-16	"H&M bränner nya kläder"	Dagens Industri
H&M	2018-01-10	"Klädjätten får stark kritik för tröjmiss"	Svenska Dagbladet
Nordea	2018-05-24	"Nordeatopp döms till höga böter för rattfylleri"	Aftonbladet
Handelsbanken	2018-10-04	"Storbanken: Kultur av kränkande behandling"	Svenska Dagbladet
SEB	2018-10-18	"SEB dras in i den enorma skattesvindeln"	Sydsvenskan
Nordea	2018-10-18	"Källa: Svenska bolag i penningtvättshärva"	Svenska Dagbladet
Avanza	2019-02-20	"Avanza straffas hårt av finansinspektionen"	Dagens Industri
Swedbank	2019-02-20	"Swedbank kan vara inblandade i penningtvätt"	Sydsvenskan
Nordea	2019-03-04	"Flera miljarder misstänks tvättats via Nordea"	Sydsvenskan
Tele2	2019-03-22	"Röstmeddelanden kunde avlyssnas utan kod"	Aftonbladet
SEB	2019-11-16	"Misstänkt penningtvätt får SEB att rasa"	Dagens Nyheter
Tele2	2019-12-11	"TV4 släcks ner för vart tredje hushåll"	Dagens Nyheter
SAS	2020-02-10	"SAS plockar bort nya reklamfilmen"	Svenska Dagbladet

Note: The incidents marked with "*" were completely removed before the statistical analyses due to being substantially affected by other outside occurrences.

Appendix C – Tables from the Survey Study

Table 12. Incidents presented in the Survey Study

The table shows the incidents presented to the respondents in the survey when asking them to rate each incident on a scale from 1 to 7 based on how much the incidents affects their perception of the company involved in a negative way.

Question Number	Incident Scenario
Q1	“A food item from a grocery store contains meat other than what is stated on the packaging.”
Q2	“A popular TV channel in a telecom company’s package is removed, despite major protests.”
Q3	“A bank is criticized for offering a form of savings that does not comply with the regulations for financial services.”
Q4	“A telephone company has problems in its security and sensitive information about customers has been leaked.”
Q5	“A bank has misjudged how risky their corporate loans are, causing concerns regarding the bank's financial stability.”
Q6	“Despite promises, a bank has not actively managed its funds, but has still charged a high fee for active management.”
Q7	“A person has been denied a job at an airline because of how they, according to their religion, want to dress.”
Q8	“A clothing company has been revealed to manufacture its clothes in factories with poor working conditions.”
Q9	“A clothing company has got rid of unsaleable clothing in a way that harms the environment.”
Q10	“An advertising campaign from a clothing company is perceived as offensive to a minority group.”
Q11	“The message in an airline's advertisement is diminishing of a country's culture.”
Q12	“A large vehicle manufacturer has been involved in cartel formation to increase its dominance on the market.”
Q13	“A mobile operator is accused of using bribes to establish its business in new countries.”
Q14	“A bank is revealed to have helped some of its customers commit tax fraud.”
Q15	“A bank has been used for money laundering, but despite knowledge of this, has not taken action against this.”
Q16	“A communications company is accused of having acted misleadingly and dishonestly in its accounting at company level.”
Q17	“A bank is revealed to have a culture of harassment in the workplace and, as a result, a manager is fired.”
Q18	“A manager at a communications company has fabricated results in an accounting report to improve future results.”
Q19	“Senior executives at a bank have taken advantage of their positions by doing unrelated business with the bank's customers, for their own gain.”
Q20	“A high-ranking manager at a bank gets arrested for a DUI and is fined as a result.”

Note: The actual survey and all its contents were presented to the respondents in Swedish, the incidents above are translations of the original scenarios. For a presentation of the actual survey see Appendix A.

Table 13. Mean values of the questions asked in the survey.

The table shows the average rating each question was given in the survey and the standard deviation of each question's mean value. Each question had 161 respondents.

Question Number	Incident Type	Mean Rating	Standard Deviation
Q1	PF	5.73	1.35
Q2	PF	3.72	1.51
Q3	SF	5.22	1.32
Q4	SF	5.90	1.15
Q5	SF	5.11	1.18
Q6	SF	5.82	1.22
Q7	SRG	4.18	1.90
Q8	SRG	5.51	1.20
Q9	SRG	5.18	1.44
Q10	SRG	4.87	1.55
Q11	SRG	4.52	1.55
Q12	CM	5.25	1.37
Q13	CM	4.78	1.48
Q14	CM	5.67	1.26
Q15	CM	5.85	1.23
Q16	CM	5.22	1.23
Q17	EM	4.70	1.58
Q18	EM	5.36	1.23
Q19	EM	5.79	1.23
Q20	EM	3.44	1.77
Total	AI	5.09	0.70

Note: The question numbers correspond to the questions asked in the survey, illustrated in table 12 in Appendix C. AI=All Incidents, PF=Product Failure, SF=Service Failure, SRG=Social Responsibility Gap, CM=Corporate Misbehavior, EM=Executive Misbehavior, indicating which category the incident in the question belongs to.

Table 14. Cronbach's alpha-test of the questions asked in the survey.

The table shows the item-test correlation, inter-item covariance, and the alpha for each question. Each question had 161 respondents.

Question Number	Item-test Correlation	Inter-Item Covariance	Alpha
Q1	0.465	0.593	0.889
Q2	0.439	0.592	0.890
Q3	0.527	0.586	0.887
Q4	0.524	0.592	0.887
Q5	0.407	0.604	0.890
Q6	0.465	0.597	0.889
Q7	0.480	0.577	0.892
Q8	0.626	0.579	0.884
Q9	0.616	0.570	0.884
Q10	0.656	0.560	0.883
Q11	0.712	0.551	0.881
Q12	0.612	0.573	0.884
Q13	0.725	0.553	0.880
Q14	0.643	0.574	0.883
Q15	0.610	0.580	0.885
Q16	0.605	0.576	0.885
Q17	0.586	0.569	0.885
Q18	0.542	0.588	0.886
Q19	0.660	0.574	0.883
Q20	0.595	0.561	0.886

Note: The question numbers correspond to the questions asked in the survey, illustrated in table 12 in Appendix C.