

Theory and Evidence.....  
Sentiment-Based Return:  
The Impact of Fashion Designers on Firm Value  
by

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## **Abstract**

I test the impact of fashion designers on the firm value of fashion companies by measuring sentiment toward events covered by public media sources and corresponding movements in implied investor confidence via stock prices. Assessing the relationship between three measures of sentiment—quality, popularity, and controversy—I find no relationship between sentiment quality and stock price, contrary to expected market behavior. A positive relationship is found, however, between controversy and abnormal returns on the day of significant events in the public media. This analysis indicates that controversy and buzz in the fashion industry really does pay, leading to implications for the effective management of these innovative firms.

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I dedicate this honors thesis to my grandmother, Betty Baker, and to my mother, Sandy Baker—I credit my successes thus far to your constant support and tremendous inspiration. Grandmother, you truly are one of the strongest, most level-headed individuals I know. And I will forever be in gratitude to you, mother, for broadening my perspectives and enabling this and every journey.

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## I. Introduction

Which corporate brands do you associate with Bill Gates? Steve Jobs? While identifying this relationship may be easiest in the case of modern companies and their founders, corporate identities might be just as closely tied to non-founder, non-chief executive employees as it is in these examples. Which brands might you associate with designers John Galliano or Olivier Theyskens? While analyzing this specific relationship is the bulk of my paper, I build a foundation on an already well-accepted relationship between chief executives and their roles—one of many—as the ‘face’ of the company.

Apple Inc. saw its stock price decrease by as much as 6% as result of Steve Jobs’s medical leave.<sup>1</sup> Similar impacts to Apple’s stock price performance have been attributed to rumor: once in October 2008, when rumors circulated of Jobs having suffered a major heart attack (10% decrease in 10 minutes) and again in December 2008, where a 2% decline was attributed to health rumors started .on technology website Gizmodo.<sup>2, 3</sup> This is unsurprising as “both executive management and marketing” at the innovative company “hinged on Steve Jobs’ presence”.<sup>4</sup> While Mr. Jobs may be the strongest representation of the relationship between individuals and a company’s brand or identity, he was not alone. On one hand, change in leadership at Microsoft from Bill Gates to Satya Nadella prompted the business world to

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<sup>1</sup> BBC, "Apple Shares Drop on Jobs' Health, " 18 January 2011, BBC News, 15 March 2014 <http://www.bbc.com/news/technology-12218590>

<sup>2</sup> Steve Hargreaves, "Apple's Stock Hit by Web Rumor," 3 October 2008, Cable News Network, 23 April 2014 <http://money.cnn.com/2008/10/03/technology/apple/?postversion=2008100318>

<sup>3</sup> Doris Frankel, Gabriel Madway, "Apple Shares Turn Negative on Jobs Rumor," 30 December 2008, Thomson Reuters, 23 April 2014 <http://www.reuters.com/article/2008/12/30/us-apple-shares-idUSTRE4BT4IL20081230>

<sup>4</sup> Rob Enderle, "No Magic, No Apple: Cupertino," 10 August 2013, Digital Trends, 24 April 2014, <http://www.digitaltrends.com/opinion/no-magic-no-apple-cupertinos-identity-crisis-in-the-fading-afterglow-of-jobs/#ixzz30EysHvFJ>

consider a brand repositioning. On the other, Walt Disney maintains its founder's influence on the company's identity through employee training.

Burston Marsteller, one of the largest PR firms in the world, quantified the relationship between corporate reputations and their CEOs. They find that 95% of survey respondents decided whether or not to invest in a company based on CEO reputations.<sup>5</sup> While investors are unsure of future leadership at Apple around concerns of Mr. Jobs' health, the role of CEO reputation gives Microsoft the possibility "to position the change [in leadership] as something new" as the new CEO was largely unknown to outsiders.<sup>6</sup> While both are examples of technology companies, Microsoft and Apple are examples of the counteracting influences executive leadership can have on a corporate identity. Apple's tie to Steve Jobs seems to threaten its perceived ability to innovate while Microsoft found itself in a position to break away from tying its brand to its founder by choosing someone unknown to outsiders. Either positive or negative, the flow from reputation to investor's perceptions of value is significant.

#### *A. From Reputation to Sentiment*

While impacts to firm value via stock price performance are shown to be driven by CEO reputation, one might ask, "What drives reputation?". Steve Jobs was presented earlier as playing a key role in the marketing of Apple products. Jobs is well known to many for his signature keynote events used to unveil the latest products from Apple Inc. In addition to instances of strong leadership, these events began to characterize Steve as "the greatest of American

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<sup>5</sup> Tanita Sandhu, "What's Your CEO Brand?," 10 June 2013, Forbes Magazine, 22 April 2014 <http://www.forbes.com/sites/85broads/2013/06/10/whats-your-ceo-brand/>

<sup>6</sup> Ira Kalb, "Microsoft: Brand Facelift Or Real Change?," 13 February 2014, Business Insider Inc., 23 April 2014 <http://www.businessinsider.com/microsoft-brand-facelift-or-real-change-2014-2#ixzz30Un81yvi>

innovators,” as remembered by President Obama.<sup>7</sup> Breaking executive reputations into smaller events, around which sentiment can be measured—such as the moments that exemplify Jobs’ leadership qualities—a quantitative picture of the leader’s reputation and, therefore, anticipated effect on firm performance, can be drawn. Sentiment around individual events is a proxy for whether the reputation of senior business leaders is falling into- or out-of-fashion. That is, sentiment is a short-term expression of longer-term reputation; sentiments express immediate reactions toward a particular event or person. Taken in this context, reputation is a function of a series of expressions of sentiment. However, a natural question follows: is the relationship as strong in other industries or does it exist at all?

### *B. The Fashion Industry Context*

The fashion industry varies from many other industries for three key reasons: first, the lack of stringent intellectual property laws leaves the value of fashion firms in the creative abilities of influential designers; second, those designers are often non-executive employees of large fashion houses; third, the media is perhaps more present in the creation and distribution of sentiment-based reputations in this industry than in any other.

Johanna Blakely, in her talk for TEDxUSC titled “Lessons from Fashion’s Free Culture,” asserts that the industry depends on a “culture of copying” which leads to the establishment of global trends.<sup>8</sup> The responsibility of those trends falls on the work of influential fashion designers. She states, “designers have to struggle to come up with a new idea that the customers

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<sup>7</sup> Kori Schulman, “President Obama on the Passing of Steve Jobs: ‘He Changed the Way Each of Us Sees the World,’” 5 October 2011, The White House, 1 May 2014 <http://www.whitehouse.gov/blog/2011/10/05/president-obama-passing-steve-jobs-he-changed-way-each-us-sees-world>

<sup>8</sup> Johanna Blakely, “Lessons from Fashion's Free Culture,” April 2010, TEDxUSC, Lecture.

will love.” What makes such innovation in the fashion industry different than that of the Apple or Microsofts of the world is that creations rarely become property of the fashion house. That is, Blakely (2010) suggests that the fashion firm depends on the design team to make such innovation pay, rather than a chief executive, the second reason which differentiates the fashion industry from others. We have, so far, seen examples of where sentiment toward CEO’s behavior, over time, develops a reputation which drives investor behavior. In the case of the fashion firm, the relationship between individual designer and the brand seems stronger than that of brand and CEO as in the case of Apple Inc.

The third and final differentiator is the role of media in creating and distributing sentiment-bearing news within the fashion industry. While stories about the leadership styles of Bill Gates and Steve Jobs matriculate through interviews and other sources of business news, media related to fashion designers seems to be much more diverse. News, or gossip, may range from reporting on movements between brands to events in designers’ private lives. Such coverage is then distributed through what I refer to as micro-impressions, or short interactions between consumers and these designers, primarily through social media. Furthermore, coverage flows into and out of trends, an idea related to the points made in Blakely (2010). This is important because media coverage around a designer may intensify on either very positive events or very negative events.

Each of these three differences plays a role in determining whether or not the investor’s perceptions are driven as much by sentiment toward key figures in fashion as they are in other industries.



### C. Hypotheses

Flowing from the relationship between reputation and investor confidence, I propose that investor behavior in the fashion industry is driven more so by sentiment around a designer during a public media event rather than by the chief executive, contrasting existing research. This proposition stems from an idea introduced earlier: that a designer's reputation (which generates investor confidence in their ability to create innovative designs) is a collection of sentiments throughout the designer's presence in popular media. With this general proposition in mind, I generate three testable hypotheses relating sentiment and stock price performance.

First, I hypothesize that stock price performance follows sentiment around an appearance in public media outlets. If sentiment toward a designer within an event window is, on average, *negative*, the investor will experience negative abnormal returns.<sup>9</sup> Conversely, if an event garners positive sentiment, greater confidence in the designers ability to innovate will drive *positive* abnormal returns. This hypothesis is based on the performance of Apple Inc. stock around times of Steve Jobs' questionable health between the years of 2008 and 2011, which is a seemingly negative event.

Second, I hypothesize that the effect on abnormal return of a fashion designer's presence in public media, whether good or bad (Hypothesis I), increases with the number of opinions—sentiments or other reactions—expressed by consumers. This follows from the premise that greater awareness has a multiplier effect on any impact to the stock price.

Third, the greater controversy created by the designer in a given event, the greater the abnormal return. This final hypothesis is based on the innovativeness found within the fashion

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<sup>9</sup> Abnormal returns represent the asset return, adjusted for market performance. The calculation is included under the methodology section, equation 3.1.

industry and the role of trends. Taking statements made in Blakely (2010) as true, a “culture of copying” values those individuals and events which disrupt the status quo and, therefore, create controversy. Within the fashion industry, such events may or may not include the designs themselves.

## II. Theoretical Background

There has been significant literature published on the subject of valuation of intangible assets. Reilly and Schweih's (1999)<sup>10</sup> and Berman (2002)<sup>11</sup> provide three generally accepted approaches to the valuation of intangible assets: cost-based, market-based, and income-based. A cost-based approach supposes that an investor “will pay no more for the subject intangible asset than the price of an intangible property of comparable utility”.<sup>12</sup> Market-based approaches to intangible asset valuation incorporate the availability and demand of the asset and also substitution effects. Income-based approaches analyze future income streams to be expected as result of the intangible asset. Each of these three approaches does not seem to apply to designers as the key intellectual property in the fashion industry: there is little substitutability nor certainty in the future income streams attributed to a designer.

Little literature relates to firm value derived from creativity, particularly with respect to the fashion industry. The industry has historically lacked traditional intellectual property (“IP”) protections, as critics of the role of IP in the industry support the notion that designs (and designers) build on one another. Such a culture of copying drives the proliferation of trends.<sup>13</sup> Valuing intangible assets in the fashion industry seems, then, very different than in the production of other widgets. The costs associated with creating innovative designs and attracting the designers who create them seem to vary. Moreover, with the lack of IP protection for designs, the value created by a particular designer is not entirely captured by the firm for which the

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<sup>10</sup> Robert F. Reilly, Robert P. Schweih's, Valuing Intangible Assets, (New York: McGraw-Hill, 1999)

<sup>11</sup> Bruce M. Berman, From Ideas to Assets: Investing Wisely in Intellectual Property, (New York: Wiley, 2002)

<sup>12</sup> Robert F. Reilly, Robert P. Schweih's, Valuing Intangible Assets

<sup>13</sup> Johanna Blakely, "Lessons from Fashion's Free Culture"

designer works. Yermack (2010), however, provides support for the third general approach to intangible asset valuation: the income-based approach. In exploring increases in market capitalization of retailers and designers related to public appearances of Michelle Obama, firm value becomes a function of a “celebrity factor”.<sup>14</sup> Where Yermack’s celebrity factor is in an endorsement, Blakely (2010) points out the increasingly audacious, inimitable celebrity factor of designers. Future expected income generated as result of the fashion shows or the public events/appearances of a designer could provide the means of measuring the impact on firm value of today’s fashion designers. Public news sources and the role of social media, which differentiate the fashion industry from others, will serve as a catalyst for such a “celebrity factor,” or the positive or negative weight a particular designer holds in the minds of the consuming public.

Whether key executives are in- or out-of-fashion and their impact on the perceived value of the respective company is perhaps best exhibited by Steve Jobs and Apple Inc., a relationship I explored earlier. In a world well-defined by social media and tie between Apple’s success, culture and Mr. Jobs, the Apple stock saw a decrease in price of around 8-10% on European exchanges while the US markets remained closed for the MLK Holiday.<sup>15</sup> An attempt to study the effects of executive death, Johnson et al. (1985) performs an event study correlating deaths with abnormal returns of senior corporate executives.<sup>16</sup> They hypothesize that the direction of movement in the share price reflects quasi-shareholder rents: loss of significant firm-specific knowledge in the incumbent leads reductions in price while the death of a less-than satisfactory

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<sup>14</sup> David Yermack, “The Michelle Markup: The First Lady’s Impact on Stock Prices of Fashion Companies,” Stern School of Business, New York University, 2010

<sup>15</sup> Heather Struck, “Steve Jobs’ Sick Leave Could Sow Down Apple Stock,” 17 January 2011, Forbes Magazine, 22 November 2013

<sup>16</sup> W.B. Johnson, et al., “An Analysis of Stock Price Reaction to Sudden Executive Deaths: Implications for the Managerial Labor Market,” *Journal of Accounting and Finance* 7 (1985): 151-174

manager leads to price increases. Johnson et al. (1985) hypothesize that the transaction costs of renegotiating employment contracts and the skills of replacement managers lead to these effects. Findings indicate “that characteristics of the employment relationship and the labor market for managers produce significant differences between the stream of net benefits which shareholders expect from the incumbent executive and that stream expected from a replacement”.<sup>17</sup>

Considering the fashion industry, a preliminary sample of events include the dismissal of senior designers. So long as such dismissals were not anticipated by the market, I hope to build on the conclusions of Johnson et al. (1985) by examining similar impacts of non-executive designers. While executive turnover in Johnson et al. (1985) is restricted to unexpected deaths, I define turnover in the fashion industry to also include those events which unexpectedly bring designers into- or out-of-fashion. That is, in the minds of consumers, sentiment around designers may drive a “turnover” of who the favorited designers are at any given time. This updated definition of the term turnover remains consistent with the notion that these members of the firm possess some firm-specific knowledge (a designer is to the fashion house as Steve Jobs is to Apple Inc.). Moreover, the celebrity status of fashion designers resembles that of the esteemed CEO, enabling the collection of a sufficient number of events.

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<sup>17</sup> W.B. Johnson, et al., “An Analysis of Stock Price Reaction to Sudden Executive Deaths”

### III. Methodology

In order to test my hypotheses, I wanted to consider designers of publicly traded fashion houses and track the respective performance of stock prices. I did this in three steps. First, I recorded events receiving considerable attention in the public media. Second, I pulled historical Twitter data from within a three day window around the event date. Third, I attributed each event with a sentiment score by mapping Tweet sentiment to each of the events. To examine the relationship between stock price performance and public sentiment toward the respective event, I run a regression of abnormal returns on various measures of the sentiment score - the investor return from a given stock over the return of the market:

$$AR_{it} = R_{it} - R_{mt} \quad (\text{Equation 3.1})$$

Historical stock price data was collected via combinations of Google Finance and Yahoo! Finance. Both platforms offer users access to historical price data for specific equities as well as market indices. The respective index used for each stock is summarized in Appendix Item iv. Where applicable, I used the “adjusted close” price to reflect changes in effective price due to stock splits and/or dividends, although the actual occurrence of these events is quite low. I remained confident in my ability to compare returns between stocks, keeping in mind that some may not reflect adjusted close values, because I was looking strictly day-to-day percent changes.

#### A. Event Identification

The first question I had was, Which designers have created the most controversy in the high-fashion industry in the last ten to fifteen years? The high-fashion industry was chosen as the focus for this study because of the nature of designer and firm: the individual designer’s identity

(reputation, personal life) is closely followed and often tied to the identity of the fashion house. This is particularly true for eponymous fashion labels, or those by the same name as their principal designer/founder. Ralph Lauren is an example of a company whose founder/chief designer remains the company's leader.

While the focus on high-fashion seems to simplify the process of sample collection, the interconnectedness of the fashion industry posed challenges. Labels are often subsidiaries of larger conglomerates and one designer may move between brands frequently or be associated with several brands simultaneously (either through formal contract or informally in the minds of consumers). To compensate for this complexity, I chose to leverage existing fashion media. Blogs, magazine webpages and business news sources maintain a database of historical news on fashion designers and/or related companies. Historical media outlets offered “snapshots of time” around particular events and allowed me to record the designer, the event, and the associated brands and companies at the time.

One significant resource leveraged in the collection of event data was British Vogue ([vogue.co.uk](http://vogue.co.uk)), which maintains a “Today in History” topic page. The page is a database of significant events in the fashion industry dating back to the early 2000s and has been maintained from 2009 to present day. Where applicable, traditional news outlets such as BusinessWeek and the New York Times were leveraged to determine accurate event date and times. This was performed in order to overcome conflicts between time zone differences implicit in reporting times and the trading hours of various exchanges.

Overall, the final sample of controversial mentions of fashion designers in the public media numbered 152. Of this number, 112 were attributable to one of 13 global, publicly traded

companies and involves at least one of 40 unique designers<sup>18</sup>. Contained in the sample is controversial movements of designers between labels, speculation of new collaborations, rumor of personal scandal, etc.

### *B. Tweet Collection*

In finding the relationship between firm value and respective fashion designers, my second question was, How do I systematically record public reaction to designers and their behavior? Twitter offers a unique solution to this problem: users publish text “tweets” which are limited to 140 characters. Incorporated in April 2007, Twitter’s users maintain collections of short, real-time expressions of opinion, thought, and news, referred to as microblogs. The site’s 241 million active monthly users produce 500 million tweets per day—making this one of the best proxies to record the impact of the sort of micro-impressions referred to in Section I: Introduction. The decision to use Twitter data as a tool to determine the public’s reaction to events in the fashion industry, however, limited me to only those events occurring after late 2007. This restriction reduces my sample of events from 112 introduced above to 58.

I chose to collect text-based tweet data via the online Topsy database (via [topsy.com](http://topsy.com)). While Twitter does offer developers and researchers access to a small percentage of its tweet data, restrictions limit users of the interface to tweets published within one week. Few online databases containing historical tweet data exist. Via Topsy, I am able to search for keywords and filter for tweets occurring within an event window ( $\pm 1$  day). There remains a limit, however, to the number of tweets I am able to pull; in this case the maximum is 100 per search. After each

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<sup>18</sup> For a list of events and associated designers, brands and exchange ticker symbols, see Appendix.i.





Figure 3.1 - Semantria sentiment classification methodology.

search query, I collect tweet data manually in order to control for “noise,” or tweet data that is irrelevant to the event and/or designer that may have slipped through Topsy filters. This process generates more than 3,500 individual tweets, for an average of 60 tweets per event.<sup>19</sup>

### C. Mapping Tweet Sentiment to Stock Prices

Third, with a set of tweets associated with each event, I ask the question, How do I objectively attach a measurement of quality to each of the reactions described in part B above? With my hypotheses in mind, I had to determine the *anticipated* direction of stock price movement, if any. In answering a similar question as it relates to presidential polls, O’Connor et al. (2010) “find that a relatively simple sentiment detector based on Twitter data replicates consumer confidence and presidential job approval polls”.<sup>20</sup> Applying a similar methodology to public reactions around a fashion designer would similarly indicate whether the designer and/or brand was, in fact, “out of fashion.”

To perform the sentiment analysis, I select Semantria, a cloud-based sentiment analysis tool based on Natural Language Processing<sup>21</sup>. Breaking each tweet into different parts of speech,

<sup>19</sup> This number is with respect to the 58 events that fall within the availability window of Twitter data that are publicly traded firms.

<sup>20</sup> Brendan O’Connor, et al., “From Tweets to Polls: Linking Text Sentiment to Public Opinion Time Series,” Association for the Advancement of Artificial Intelligence (2010): 128.

<sup>21</sup> “Sentiment Analysis,” [semantria.com](https://semantria.com/features/sentiment-analysis) <https://semantria.com/features/sentiment-analysis>

Semantria identifies “sentiment-bearing phrases” and ranks each phrase along a logarithmic scale from -10 to 10. Scores of individual phrases are combined to determine the sentiment of the sentence, or tweet, overall. This score ranges from -2 for negative tweets and +2 for positive tweets. I calculate three measures to summarize sentiment scores on the event level. For each event, I find the average sentiment score, the log of the number of tweets recorded, and the standard deviation of the sentiment score. These measures are proxies for quality of reaction, popularity, and controversy respectively. I regress one-day abnormal return (on the day of the event) on each measure of sentiment individually and as a multivariable regression:

$$y_i = a + bx_i + e_i \quad (\text{Equation 3.2})$$

$$y_i = a + b_1x_i + b_2x_i^2 + b_3x_i^3 + e_i \quad (\text{Equation 3.3})$$

For Hypothesis II, testing whether popularity (via tweet volume) generates greater abnormal returns, I use the absolute value in addition to positive/negative values of abnormal return. Rather than looking at the relationship between tweet volume and sentiment quality (positive or negative), I am more interested in considering whether there is an impact on *absolute* abnormal return, above or below the market, that is attributable to greater popularity.

## IV. Results

Distribution of one-day abnormal returns for all events is shown in Figure 4.1. Average, one-day abnormal return for all events is 0.048%. The average, one-day abnormal return of those with *negative* sentiment classification (eight events) is 0.7021%, while 0.5429% for those with *positive* classification (21 events) and 0.1713% for *neutral* (29 events). These average abnormal returns offer little preliminary support for Hypothesis I: there does not seem to be a positive relationship between sentiment quality and abnormal returns. Regressing one-day abnormal returns ( $t = 0$ ) on average sentiment score, or quality, affirmed this initial rejection. The regression did yield, however, a negative coefficient ( $b_{xi}$ ) (Figure 4.2). Although insignificant ( $t = -0.798$ ,  $p = 0.428$ ), this result would indicate that sentiment quality and abnormal returns are *negatively* related—i.e, the increasingly positive public sentiment, the lower the abnormal return within the respective event window.

To test Hypothesis II—that more popular events generate greater impact (volatility) on the stock price—I regress absolute abnormal returns against the logarithm of tweet count per event.

$$y_i = a + b \log(x_i) + e_i \quad (\text{Equation 4.1})$$

The number of tweets I was able to collect for each event (out of a maximum of 100) serves as a proxy for popularity. Taking the logarithm allows me to run a linear model which explains a non-linear relationship.<sup>22</sup> The logarithmic transformation is also used to transform a skewed variable (as is the case here) into one that is approximately normal. Although the regression generates a positive coefficient and is therefore inline with my Hypothesis II, the result is insignificant ( $t = 0.390$ ,  $p = 0.698$ ) (Figure 4.3).

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<sup>22</sup> Kenneth Benoit, “Linear Regression Models with Logarithmic Transformations,” 17 March 2011, London School of Economics, 1 May 2014 <http://www.kenbenoit.net/courses/ME104/logmodels2.pdf>

There does exist, however, a statistically significant relationship between one-day abnormal returns and the standard deviation of sentiment score, a measure of controversy ( $t = 1.920$ ,  $p = 0.0599$ ) (Figure 4.4). With an estimated coefficient ( $b_{xi}$ ) value of 0.0394, the data do indicate a somewhat surprising positive relationship between polarity and abnormal returns. That is, rather than changes in firm value being driven by either the popularity or quality of public reactions to fashion designers, results seem to suggest that disruptive or controversial behavior of fashion designers leads to increases in stock price. This is in line with the proposition contained in Hypothesis III and background reading on the fashion industry.

A multivariable regression of each of these variables is shown in Figure 4.5. The most significant result is, again, that which supports my Hypothesis III. The results of the multivariable regression do vary slightly from the summary results of individual regressions. This may be due in part to a statistical phenomena called multicollinearity—the exploration of which is beyond the scope of this paper. The relative strengths of each of the regressions remains and indicates the strongest support for Hypothesis III. Also, for the purposes of the multivariable regression, I used the positive/negative values of AR as the dependent variable without compensating for the possible impact on my test for popularity. I feel confident in performing the regression this way because one could interpret an event which does not create buzz but involves negative sentiment as *only* deteriorating the brand, justifying downward pressure on the stock price. The results, however, do not indicate that this interpretation is statistically significant.

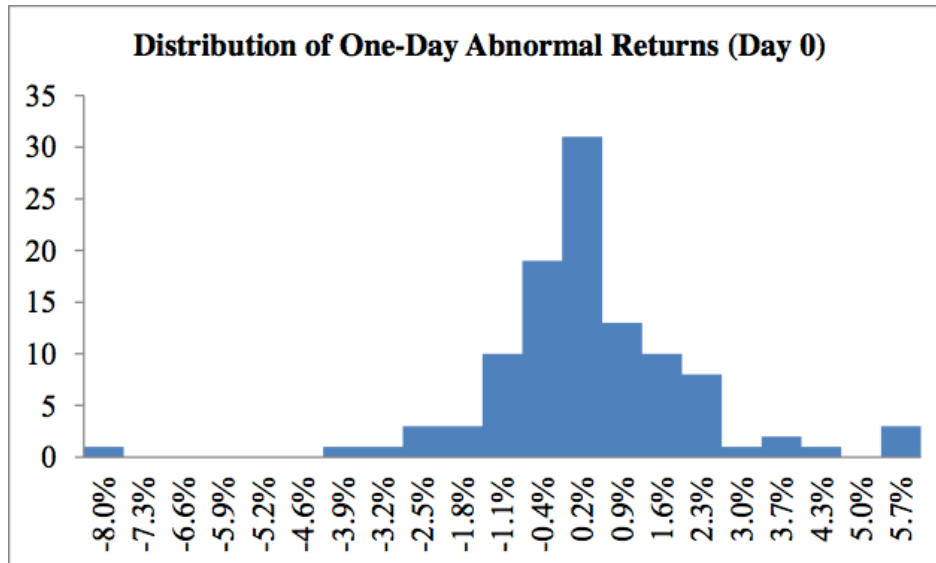


Figure 4.1 - Distribution of abnormal returns of all events.

Summary of Regression Analysis for One-Day Abnormal Return (t = 0) on Quality

Variable	<i>b</i>	SE( <i>b</i> )	<i>t</i>	Sig. ( <i>p</i> )
Intercept	0.00443	0.00274	1.61607	0.11170
Quality	-0.01218	0.01526	-0.79827	0.42809

Notes:  $R^2 = 0.0112$ . n = 58.

Figure 4.2 -Summary results for multiple regression of abnormal returns on three measures of sentiment.

Summary of Regression Analysis for Absolute One-Day Abnormal Return (t = 0) on Popularity

Variable	<i>b</i>	SE( <i>b</i> )	<i>t</i>	Sig. ( <i>p</i> )
Intercept	0.00992	0.00779	1.27413	0.20798
Popularity	0.00179	0.00459	0.39013	0.69794

Notes:  $R^2 = 0.0001$ . n = 58.

Figure 4.3 -Summary results for linear regression of one-day abnormal returns on popularity.

Summary of Regression Analysis for One-Day Abnormal Return (t = 0) on Polarity

Variable	<i>b</i>	SE( <i>b</i> )	<i>t</i>	Sig. ( <i>p</i> )
Intercept	-0.00970	0.00719	-1.34939	0.18274
Polarity	0.03946	0.02055	1.92060	0.05997

Notes:  $R^2 = 0.0628$ . n = 57.

Figure 4.4 -Summary results for linear regression of one-day abnormal returns on controversy.

Summary of Multiple Regression of One-Day Abnormal Return ( $t = 0$ ) on Three Measures of Sentiment

Variable	$b$	SE( $b$ )	$t$	Sig. ( $p$ )
Intercept	-0.00937	0.01084	-0.86480	0.39104
Quality	-0.00008	0.01754	-0.00435	0.99655
Popularity	-0.00031	0.00719	-0.04286	0.96598
Polarity	0.04002	0.02457	1.62896	0.10925

Notes:  $R^2 = 0.0628$ .  $n = 57$ .

*Figure 4.5 -Summary results for multiple regression of abnormal returns on three measures of sentiment.*

## V. Discussion of Results: Case Studies

### A. Azzedine Alaïa

On June 22, 2011, it was reported that designer Azzedine Alaïa made cutting remarks concerning fashion industry icons, Karl Lagerfeld of Chanel and Fendi and Anna Wintour of Vogue. He states, “I don’t like his fashion, his spirit, his attitude. It’s too much caricature. Karl Lagerfeld never touched a pair of scissors in his life.” And continues to criticize Anna Wintour, asking rhetorically, “who will remember Anna Wintour in the history of fashion?” and answering “No one”.<sup>23</sup> Alaïa, himself “a living legend for his ability to transform any mortal female into a modern-day Venus,” has a loyal following of models and industry leaders, including Naomi Campbell.<sup>24</sup> This is perhaps why I record a standard deviation of tweet sentiment during the event window of 0.40467, which is among the highest 25%. Such a high standard deviation reflects the instantaneous controversy, or public disagreement:



Figure 5.1 -Tweet exemplifying negative sentiment around the Azzedine Alaïa event. Sentiment score = -1.20000 on [-2, 2]

<sup>23</sup> Amy O’Dell, “Azzedine Alaïa Doesn’t Like Karl Lagerfeld’s Attitude, Thinks Anna Wintour Has Bad Taste,” 22 June 2011, The Cut, 19 January 2014 <http://nymag.com/thecut/2011/06/azzedine.html>

<sup>24</sup> “Azzedine Alaïa,” Voguepedia, 28 April 2014 [http://www.vogue.com/voguepedia/Azzedine\\_Alaia](http://www.vogue.com/voguepedia/Azzedine_Alaia)



Figure 5.2 - Tweet exemplifying positive sentiment around the Azzedine Alaïa event. Sentiment score = 0.98000 on [-2, 2]

This event is particularly interesting due to the abnormal returns experienced by *both* Compagnie Financiere Richemont (VTX:CFR), the parent company to Alaïa, and LVMH Moët Hennessy Louis Vuitton (EPA:MC), the parent company to one of Karl Lagerfeld’s brands, Fendi. Combined, the two companies experienced a one-day abnormal return of 2.1138%. The data suggest that this abnormal return can be attributed to the volatility around the event: in other words, the greater variety in opinion on Alaïa’s comments, the greater the abnormal return *for both companies involved*. Controversy in the fashion industry really does pay.

### B. John Galliano

Perhaps the most famous example of designer controversy is the series of events involving John Galliano, formerly of Christian Dior (EPA:CDI). Galliano was suspended from Dior on February 25, 2011 after the British designer had been arrested in Paris for assault—which is illegal in France. Raw tweets included “Breaking News: Christin Dior Head designer John Galliano was Arrested in Paris for Assault!” with a sentiment score of -1.224 on the range [-2,2]. Although the average sentiment score for all tweets around the February 25th event date, a standard deviation of 0.36667 indicates a relatively high disagreement, or a high level of controversy. Such controversy is exhibited by the opposing sentiments of two of Mr. Galliano’s



personal contacts, either supporting the designer or publicly criticizing his actions. One example of support came from actress Eva Green, who commented that Galliano is a “creative person with a great sense of humour and he's always been so kind to me. He's very shy. I adore him”.<sup>25</sup> Using the same sentiment analysis tool as before, this comment registered a positive sentiment (+0.5133). Conversely, Natalie Portman, a long time Galliano and Dior fan, shared “I am deeply shocked and disgusted by the video of John Galliano's comments that surfaced today”.<sup>26</sup> In the same comment she declared that she would no longer be associated with the designer in any capacity. Overall, Portman’s comments scored -0.5336 on the same scale, exhibiting the disagreement around the event and polarity of sentiment around the designer. That said, the House of Dior saw an abnormal return on 25 February 2011 of 1.1459%, a significant return considering that the firm’s most influential creative had been suspended after an arrest.

Additional evidence surfaced on 28 February 2011, showing the designer making anti-Semitic remarks a year prior to the incident on 24 February. With this evidence, Dior officially



Figure 5.2 - Screen capture of video evidence released by The Sun on 1 March 2011 confirming a former incident in which Galliano makes anti-semitic remarks

<sup>25</sup> Lauren Milligen, “My Friend John,” 6 June 2011, Vogue UK, 28 April 2014 <http://www.vogue.co.uk/news/2011/06/06/eva-green-on-john-galliano>

<sup>26</sup> Belinda White, “Dior Ambassador Natalie Portman Speaks out on Galliano,” 1 March 2011, Telegraph.co.uk, 28 April 2014 <http://fashion.telegraph.co.uk/news-features/tmg8354428/Dior-ambassador-Natalie-Portman-speaks-out-on-Galliano.html>

fired Mr. Galliano on 1 March 2011.<sup>27</sup> Meanwhile, the companies stock price increased 3.257% over the period beginning 24 February 2011 (Galliano's arrest occurred after trading had closed) and ending 1 March 2011, the day Galliano was officially fired. While this figure is not adjusted for market performance, the story remains as strong: a fashion companies primary source of intellectual property had been arrested, fired, and beat up in the media with no apparent consequences to future expected performance.

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<sup>27</sup> Matthew Sltmarsh, "Dior Designer Fired Over Alleged Anti-Semitic Slurs," 1 March 2011, The New York Time, 28 April 2014 [http://www.nytimes.com/2011/03/02/fashion/02dior.html?pagewanted=all&\\_r=0](http://www.nytimes.com/2011/03/02/fashion/02dior.html?pagewanted=all&_r=0)

## VI. Concluding Remarks

### A. Key Takeaways

My analysis establishes a relationship between sentiment toward a fashion designer and the performance of related stock prices. I find that controversy pays in the fashion industry. This idea is consistent with the major theme of the industry: trends. Taking this as given, fashion designers might be *expected* to fall into and out of favor—the process of which generates buzz around the fashion company. Turnover, then, appears desirable to the fashion company. Here, I use turnover to describe the process of designers falling into and out of favor via the sort of public events I analyze rather than strictly leaving a firm.

This research offers a possible explanation for why fashion houses can continue to thrive even after the death (or other departure) of key designers. That is, turnover of fashion designers presents executive management with an opportunity to generate buzz around the brand *rather than* significant “designer risk”—or the notion that firm value depends on whether or not the designer is favored. Said more plainly, buzz pays in the fashion industry, no matter whether it is positive or negative. Perhaps this is because the product itself is already anticipated by the market to change dramatically over time.

This is an interesting point considering the change in the fashion industry. Historically, boutique, eponymous labels dominated the industry. Over the last couple decades we have seen the large fashion conglomerate rise to prominence, even in the luxury space. This change occurs along side increased attention on celebrity designers via the media. Might the conglomerate structure, then, offer the fashion industry greater flexibility in dealing with “designer risk”?

## *B. Limitations*

Robustness of these results are limited by two factors relating to sample collection: first, the number of relevant events, fashion designers, and publicly traded companies and second, the availability of Twitter data.

First, I refer to a relevant event as an event that involves a prominent fashion designer and is covered in industry media outlets. As many “rumor” events as there are in the dataset, detecting the start-date, proliferation, or even presence of these events is difficult. Industry insiders may be aware of events concerning fashion designers that the public media has not yet released. Therefore, I must depend solely on those events with large-enough media presence to detect a “start date,” or the first time the majority of the market becomes aware of the event. These restrictions admittedly limited my ability to increase the size of my sample size beyond the 112 recorded.

Moreover, the number of prominent fashion designers is limited. This limitation is related to that above: only a subset of all fashion designers have significant clout. This clout is important as it is related to the degree to which the company’s identity is tied to the designer. That is, Karl Lagerfeld may be more frequently responded to by the public and media than Thomas Maier, although both may be similarly respected by industry insiders. There are, however, a number of prominent fashion designers for brands that are privately held. Perhaps most significantly, there are few publicly traded eponymous firms—or firms founded by their current designer such as Roberto Cavalli or Giogio Armani. The fact that many high-fashion firms, with notable fashion designers, remain private further reduced the sample size of events. This reduction is taken into consideration in the 112 number noted above.

Second, and very simply, the accuracy of sentiment analysis depends on the availability of Twitter data. As described my study uses Twitter data to determine sentiment. By using Twitter, which was founded in late 2007, reduced the number of events associated with measures of sentiment from 112 to 58—or only those occurring after 2007. That said, earlier events have fewer tweets collected than those occurring in the last few years. This is expected as the popularity of Twitter has increased over time. The number of tweets per event is as important in terms of statistical significance as the number of relevant events included in the sample, the limitations of which are described above.

### *C. Further Analysis*

As noted above, my analysis was somewhat limited in terms of further hypotheses by sample sizes on both ends: events and sentiment. One question which arises from this research is, How might the results vary on a firm-level basis?—a question alluded to in “Key Takeaways.” That is, do public reactions to fashion designers have a greater impact on some companies than others? This question arose early in my analysis as I began to see the companies represented in the sample. Some were eponymous labels—or companies named after their founder/current designer—while others were conglomerates of huge brand legacies. A helpful comparison here might be Ralph Lauren Corporation, whose founder remains the creative lead, to LVMH, the largest fashion and luxury conglomerates in the world. A testable hypotheses derived from the three questions I ask might be, “Designers of eponymous labels are more closely tied to corporate identities and their behavior, therefore, will have a greater impact on stock price performance.” Testing this hypothesis, however, would require a higher, and more consistent,

number of events per designer-company combination. Perhaps performing a similar type of analysis for a defined sample of companies over time would yield significant results. This is in contrast to my retrospective analysis.

One additional question for further work arose in testing my Hypothesis 2, that abnormal return is driven, at least in part, by popularity. As already described above, I take the log of tweet volume and regress against abnormal return and absolute value of abnormal returns. One could also consider impacts of popularity on the volatility of stock prices rather than abnormal returns. Moreover, a relative measure could serve as the proxy for popularity in lieu of taking the log of tweet volume. For example, with greater access to Twitter data (i.e., without any restriction to Twitter's live feed), one could record the number of tweets related specifically to the event as a percentage of all tweets related to that designer. Or, perhaps, the number of tweets regarding a designer as a percentage of overall fashion tweets. A proxy using relativity may yield stronger results.

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## Appendix

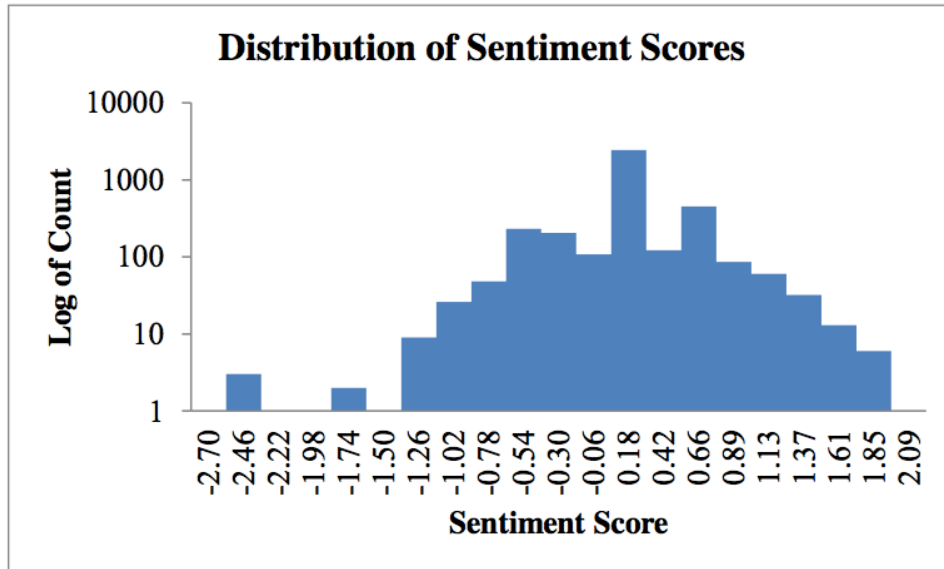
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i. Event List (n = 152)

Event #	First	Last	Event	Date	Brand	Company	Ticker	Exchange
1001	Karl	Lagerfeld	Strippers/Pornstars featured in runway; Anna Wintour	10/7/1993	Fendi	LVMH	MC	EPA
1002	Julien	MacDonald	It was announced that Julien Macdonald would replace	3/15/2001	Givenchy	LVMH	MC	EPA
1003	Tom	Ford	in conversation with American Vogue's editor-at-large	6/5/2001	Gucci	PPR	KER	EPA
1004	Karl	Lagerfeld	PETA Protest: paint was thrown at Annual American F	6/15/2001	Fendi	LVMH	MC	EPA
1005	Donatella	Versace	door staff nearly committed a serious fashion faux pas	7/11/2001	Versace	Gianni Versace S.p.A.	Private	
1006	Tommy	Hilfiger	Tommy Hilfiger announced that he had decided to spe	8/6/2001	Tommy Hilfiger	PHILLIPS VAN HEUSEN	PVH	NYSE
1007	Yves	Saint Laurent	Yves Saint Laurent retires	1/7/2002	YSL	Kering	KER	EPA
1008	Tom	Ford	GUCCI designer Tom Ford has nothing but praise for A	1/16/2002	Gucci	PPR	KER	EPA
1009	Tom	Ford	employed a butler who once worked in Buckingham Pa	2/6/2002	Gucci	PPR	KER	EPA
1010	Karl	Lagerfeld	Karl Lagerfeld branded retrospectives of the work of hi	4/10/2002	Fendi	LVMH	MC	EPA
1011	Karl	Lagerfeld	Karl Lagerfeld, who had recently shed a lot of weight h	10/11/2002	Fendi	LVMH	MC	EPA
1012	Christian	Lacroix	following in the footsteps of Christian Dior and Nina R	12/4/2002	Christian Lacroix / Em	LVMH	MC	EPA
1013	Domenico	Dolce	P Diddy threw Domenico Dolce out of his own party at	11/4/2002	Dolce & Gabbana	Dolce & Gabbana Luxembou	Private	
1014	Tom	Ford	Ford cashes out stock options	5/28/2003	Gucci	PPR	KER	EPA
1015	John	Galliano	John Galliano collapsed on the French Riviera.	7/28/2003	Dior	Christian Dior Couture SA	CDI	EPA
1016	Julien	MacDonald	Fashion designer Julien Macdonald was escorted by po	10/14/2003	Givenchy	LVMH	MC	EPA
1017	Tom	Ford	the fashion world reeled from the previous day's r	11/4/2003	Gucci	PPR	KER	EPA
1018	Tom	Ford	Pierre Berge on Tom Ford: "But he didn't manage to c	11/6/2003	Gucci	PPR	KER	EPA
1019	Julien	MacDonald	Details of the relationship between Julien and Karl Lag	11/20/2003	Givenchy	LVMH	MC	EPA
1020	Giorgio	Armani	Giorgio Armani said that he had no plans to retire, but	12/8/2003	Armani	Giorgio Armani S.p.A.	Private	
1021	Stella	McCartney	Speculation began to mount that Stella McCartney wou	1/5/2004	Gucci	PPR	KER	EPA
1022	Alexander	McQueen	"I don't believe that a fashion designer turns into a star,	1/6/2004	Alexander McQueen	Kering	KER	EPA
1023	Julien	MacDonald	MacDonald has confirmed the rumours that have ripple	1/23/2004	Givenchy	LVMH	MC	EPA
1024	Karl	Lagerfeld	Karl Lagerfeld caused a commotion when he forced his	2/27/2004	Fendi	LVMH	MC	EPA
1025	Tom	Ford	Yves Saint Laurent revealed that he never thought Tom	3/1/2004	Gucci	PPR	KER	EPA
1026	Linda	Bennet	Linda Bennett, the founder of LK Bennett, was named	4/30/2004	LK Bennett	Linda Bennett/Private Equity	Private	
1027	Tom	Ford	Tom Ford made it known to Italian newspaper La Rept	7/5/2004	Tom Ford	Gucci Group	KER	EPA
1028	Donatella	Versace	it was revealed that Donatella Versace was in rehab for	7/28/2004	Versace	Gianni Versace S.p.A.	Private	
1029	Tom	Ford	Tom Ford admitted that his time at Gucci was not all s	10/19/2004	Gucci	PPR	KER	EPA
1030	Karl	Lagerfeld	"The incomprehensible decisions of the management ir	11/18/2004	Lagerfeld for H&M	H&M	HM-B	STO
1031	Karl	Lagerfeld	Tommy Hilfiger acquired the trademarks of Karl Lager	12/13/2004	Fendi	LVMH	MC	EPA
1032	Marc	Jacobs	"Marc is so shrewd," a source told PAGESIX.COM. "I	2/1/2005	Louis Vuitton	LVMH	MC	EPA
1033		Gabbana	The designer duo end their romantic relationship." The	2/18/2005	Dolce & Gabbana	Dolce & Gabbana Luxembou	Private	
1034	Marc	Jacobs	The fire brigade were called to Marc Jacobs' party held	3/22/2005	Louis Vuitton	LVMH	MC	EPA
1035	Karl	Lagerfeld	Much previously-unknown information about Karl Lag	9/19/2007	Fendi	LVMH	MC	EPA
1035	Karl	Lagerfeld	Much previously-unknown information about Karl Lag	10/25/2007	Fendi	LVMH	MC	EPA
1036	Tom	Ford	Tom Ford revealed that he had been injured by his hors	10/11/2005	Tom Ford	Tom Ford International, LCC	Private	
1037	Phoebe	Philo	Word has it that the British designer, who joined the hc	11/22/2005	Chloé	Compagnie Financière Riche	CFR	VTX
1038	Roland	Mouret	rumours were swirling that Roland Mouret was se	12/6/2005	Chloé	Compagnie Financière Riche	CFR	VTX
1039	Phoebe	Philo	Phoebe Philo resigned as creative director of Chloé.	1/5/2006	Chloé	Compagnie Financière Riche	CFR	VTX
1040	Tom	Ford	Rumours of Tom Ford's diva behaviour at Estée Laude	1/6/2006	Tom Ford Fragrances	Estée Lauder	EL	NYSE
1041	Tommy	Hilfiger	it was announced that Tommy Hilfiger had a guarantee	1/18/2006	Tommy Hilfiger	Apax Partners	Private	
1042	Julien	Macdonald	When posing with Paris Hilton at the Cuckoo Club in N	2/19/2006	Givenchy	LVMH	MC	EPA
1043	Hedi	Slimane	It was revealed how Hedi Slimane maintained his super	3/15/2006	Dior Homme	Christian Dior Couture SA	CDI	EPA
1044	Roberto	Cavalli	Roberto Cavalli was sentenced to 14 months in prison i	3/24/2006	Roberto Cavalli	Roberto Cavalli S.p.A.	Private	
1045	Tom	Ford	"I'm famous for not wearing any underwear."	11/7/2006	Tom Ford	Tom Ford International, LLC	Private	
1046	Stefano	Gabbana	it was reported that, Dolce & Gabbana designer, Stefan	12/15/2006	Dolce & Gabbana	Dolce & Gabbana Luxembou	Private	
1047	Stefano	Gabbana	Stefano Gabbana accused the Roman Catholic Church	1/30/2007	Dolce & Gabbana	Dolce & Gabbana Luxembou	Private	
1048	Julien	Macdonald	People who don't like fur can p*ss off. I love fur. It's a	2/14/2007				
1049	Marc	Jacobs	Marc Jacobs' business partner Robert Duffy confirmed	3/13/2007	Louis Vuitton	LVMH	MC	EPA
1050	John	Galliano	John Galliano was ordered to pay £140,000 in damages	4/20/2007	Dior	LVMH	MC	EPA
1051	Karl	Lagerfeld	a convicted terrorist, who had just been released from p	4/24/2007	Fendi	LVMH	MC	EPA
1052	Oscar	de la Renta	in an unprecedented fashion moment, designers Jack M	6/4/2007	Oscar de la Renta	Oscar de la Renta, LLC	Private	
1053	Stella	McCartney	Responds to weekend press allegations of collaborator	8/26/2007	Stella McCartney	Stella McCartney Ltd (Kering	KER	EPA
1054	Karl	Lagerfeld	Karl Lagerfeld dismissed the idea of retiring. "All my c	10/5/2007	Fendi	LVMH	MC	EPA
1055	Tom	Ford	t was revealed that fashion's golden boy Tom Ford had	10/29/2007	Tom Ford	Tom Ford International, LLC	Private	
1056	Stella	McCartney	Stella McCartney was brought into her father's divorce	11/2/2007	Stella McCartney	Stella McCartney Ltd (Kering	KER	EPA
1057	Alber	Elbaz	Alber Elbaz was given the seal of approval by Lanvin's	11/27/2007	Lanvin	Jeanne Lanvin S.A.	Private	
1058	Katie	Grand	Katie Grand relinquished her status as creative director	11/28/2007	Mulberry	Mulberry	MUL	LON
1059	Valentino	Valentino	Valentino was immortalised on the big screen. Matt Ty	1/18/2008	Valentino	Perrira/Mayhoola for Invest	Private	
1060	Peaches	Geldof	PPQ announced that Peaches Geldof was to design a c	3/20/2008	PPQ			
1061	Tom	Ford	Tom Ford revealed that he used to have a novel way of	4/3/2008	Tom Ford	Tom Ford International, LLC	Private	
1062	Alice	Temperley	formidable British designer Alice Temperley revealed i	5/2/2008	Temperley London	Temperley London	Private	
1063	Yves	Saint Laurent	Yves Saint Laurent dies	6/2/2008	YSL	Kering	KER	EPA
1064	Karl	Lagerfeld	Karl Lagerfeld was chosen as the face of a road safety	6/19/2008	Fendi	LVMH	MC	EPA
1065	Naomi	Campbell	Naomi Campbell pleaded guilty to charges of assaultin	6/20/2008	model			
1066	Ralph	Lauren	RALPH LAUREN swatted off speculation that he will	8/7/2008	Ralph Lauren	Ralph Lauren Corp	RL	NYSE
1067	Stella	McCartney	Stella McCartney was furious after fur brand Hockley r	8/11/2008	Stella McCartney	Stella McCartney Ltd (Kering	KER	EPA
1068	Matthew	Williamson	Emilio Pucci confirmed that Matthew Williamson was	9/19/2008	Emilio Pucci	LVMH	MC	EPA
1069	Alessandra	Facchinetti	Alessandra Facchinetti spoke out about being dropped	10/6/2008	Valentino	Perrira/Mayhoola for Invest	Private	
1070	Tom	Ford	Tom Ford denied that he was difficult to work with. "I	10/27/2008	Tom Ford	Tom Ford International, LCC	Private	
1071	Vivienne	Westwood	Vivienne Westwood gave her verdict on the credit crur	11/19/2008	Vivienne Westwood	Vivienne Westwood Ltd.	Private	
1072	Roberto	Cavalli	Roberto Cavalli was cleared of tax evasion indictments	12/1/2008	Roberto Cavalli	Roberto Cavalli S.p.A.	Private	
1073	Henry	Holland	Henry Holland spoke about the criticism that he is not	1/29/2009	Henry Holland	House of Holland	Private	
1074	Karl	Lagerfeld	"I don't know Heidi Klum. She was never known in Fr	4/17/2009	Fendi	LVMH	MC	EPA
1075	Karl	Lagerfeld	Reuters confirmed that Chanel's creative director Karl	6/4/2009	Fendi	LVMH	MC	EPA
1076	Marc	Jacobs	Marc Jacobs turned his attention to a rather different fa	8/21/2009	Louis Vuitton	LVMH	MC	EPA
1077	Martin	Margiela	after months of whispers surrounding his future within	10/3/2009	Maison Martin Margiel	Only the Brave	Private	
1078	Karl	Lagerfeld	"No one wants to see curvy women"	10/11/2009	Fendi	LVMH	MC	EPA
1079	Lindsay	Lohan	Lindsay Lohan ran into criticism following her artistic	11/12/2009	Emanuel Ungaro	Emanuel Ungaro S.A.S.	Private	
1080	Erdem	Moralioğlu	Erdem announced he was to showcase a selection of hi	11/26/2009	Erdem	Erdem	Private	
1081	Marc	Jacobs	It appeared that Marc Jacobs had married his long-ter	1/5/2010	Louis Vuitton	LVMH	MC	EPA
1082	Hussein	Chalayan	Hussein Chalayan regained control of his eponymous li	1/8/2010	Hussein Chalayan	Kering (via Puma)	KER	EPA
1083	Alexander	McQueen	Suicide	2/11/2010	Alexander McQueen	Kering	KER	EPA
1084	Marc	Jacobs	Marc Jacobs and Robert Duffy banned celebrities from	2/11/2010	Louis Vuitton, Marc Ja	LVMH	MC	EPA
1085	Karl	Lagerfeld	Karl Lagerfeld revealed that he admired porn.	3/19/2010	Fendi	LVMH	MC	EPA
1086	Olivier	Theyskens	Olivier Theyskens admitted that he had always wished	4/12/2010	Theory	Fast Retailing	9983	TYO
1087	Ralph	Lauren	Ralph Lauren was awarded the Chevalier de la Legion	2/18/2010	Ralph Lauren	Ralph Lauren Corp	RL	NYSE
1088	Julien	MacDonald	Julien Macdonald attacks plus-size models, branding th	6/6/2010				
1089	Tom	Ford	Tom Ford returned to womenswear after a six-year bre	9/14/2010	Tom Ford	Tom Ford International, LCC	Private	

1090	Marc	Jacobs	Marc Jacobs compared his relationship with Bernard A	10/5/2010	Louis Vuitton	LVMH	MC	EPA
1091	Olivier	Theyskens	it was announced that Olivier Theyskens was to take ov	10/25/2010	Theory	Fast Retailing		9983 TYO
1092	Sarah	Burton	Michelle Obama criticized for wearing European desig	1/19/2011	Alexander McQueen	Kering	KER	EPA
1093	Diane	Von Furstenberg	Diane von Furstenberg was recovering from a skiing ac	1/25/2011	DVF	Diane von Furstenberg Studi	Private	
1094	Kenneth	Cole	Tweet which jokes about situation in Egypt: ""Millions	2/3/2011	Kenneth Cole	Kenneth Cole Productions, In	KCP	NYSE
1095	John	Galliano	John Galliano suspended by Dior following arrest over	2/25/2011	Dior	Christian Dior Couture SA	CDI	EPA
1096	John	Galliano	the autumn/winter 2011-12 John Galliano collection w	3/6/2011	John Galliano	Christian Dior Couture SA	CDI	EPA
1097	Sarah	Burton	First speculation/rumor of responsibility for Kate Midd	3/5/2011	Alexander McQueen	Kering	KER	EPA
1098	Ricardo	Tisci	Riccardo Tisci revealed he nearly said no when he was	3/21/2011	Givenchy	LVMH	MC	EPA
1099	Kate	Moss	Kate Moss' then soon-to-be husband, Jamie Hince, def	4/4/2011	Model			
1100	Sarah	Burton	Official announcement of Middleton dress announcem	4/29/2011	Alexander McQueen	Kering	KER	EPA
1101	Hannah	MacGibbon	Exit from the brand is announced via Twitter after mon	5/9/2011	Chloé	Compagnie Financière Riche	CFR	VTX
1102	Ralph	Lauren	Ralph invites Oprah to his Double RL Ranch	5/18/2011	Ralph Lauren	Ralph Lauren Corp	RL	NYSE
1103	Azzedine	Alaia	Azzedine Alaia announced that he has taken a small ir	10/8/2007	Alaia	Compagnie Financiere Riche	CFR	VTX
1104	Karl	Lagerfeld	Azzedine Alaia criticised the work of Karl Lagerfeld, r	6/22/2011	Fendi	LVMH	MC	EPA
1105	Ricardo	Tisci	Riccardo Tisci's album artwork for Jay-Z and Kanye W	8/15/2011	Givenchy	LVMH	MC	EPA
1106	Karl	Lagerfeld	Karl Lagerfeld announced he was to launch a new, affo	10/24/2011	Fendi	LVMH	MC	EPA
1107	Ralph	Lauren	"An Evening with Ralph Lauren" at Lincoln Center (O	10/24/2011	Ralph Lauren	Ralph Lauren Corp	RL	NYSE
1108	Tom	Ford	TOM FORD maybe the next designer to team up with.)	11/15/2011	H&M	H&M	HM-B	STO
1109	Karl	Lagerfeld	Calling Adele fat	2/6/2012	Fendi	LVMH	MC	EPA
1110	Jil	Sander	Jil Sander is returning to her eponymous label, a spoke	2/24/2012	Jil Sander	Onward Holdings Co., Ltd.		8016 TYO
1111		Gabbana	Domenico Dolce and Stefano Gabbana revealed they h	2/27/2012	Dolce & Gabbana	Dolce & Gabbana Luxembou	Private	
1112	Raf	Simons	"Unceremoniously dumped" as the brand's founder retu	2/28/2012	Jill Sander	Onward Holdings Co., Ltd.		8016 TYO
1113	Margherita	Missoni	Margherita Missoni revealed admitted to embarrassing	3/6/2012	Missoni	Kering	KER	EPA
1114	Stella	McCartney	Design of GB Olympic uniforms referred to as a disgra	3/22/2012	Stella McCartney	Stella McCartney Ltd (Kering	KER	EPA
1115	Tom	Ford	Tom Ford revealed that he harboured ambitions to be a	4/10/2012	Tom Ford	Tom Ford International, LCC	Private	
1116	Kenneth	Cole	Posts billboard with criticizing message toward teacher	4/27/2012	Kenneth Cole	Kenneth Cole Productions, In	KCP	NYSE
1117	Karl	Lagerfeld	Cutting verdict on Pippa Middleton's looks	7/31/2012	Fendi	LVMH	MC	EPA
1118	Rosie	Huntington-Whiteley	Rosie Huntington-Whiteley designed her first lingerie c	8/13/2012	Marks & Spencer	Marks and Spencer plc	MKS	LON
1119	Phoebe	Philo	Following a two-year break from the fashion front line,	9/4/2008	Celine	LVMH	MC	EPA
1120	Hedi	Slimane	Respected fashion editors purposely seated in second, t	10/2/2012	Saint Laurent Paris	Kering	KER	EPA
1121	Nicolas	Ghesquière	Leaving position at Balenciaga; surprise to industry	11/5/2012	Balenciaga	Kering	KER	EPA
1122	Kate and Laura Mulleav	Mulleavy	"Clothing is transformative for a woman, so they are bi	4/19/2013	Rodarte			
1123	Emma	Hill	Split from Mulberry after six incredibly successful year	6/10/2013	Mulberry	Mulberry	MUL	LON
1124	Roberto	Cavalli	Roberto Cavalli revealed what he thought made a wom	8/8/2013	Roberto Cavalli	Roberto Cavalli S.p.A	Private	
1125	Kenneth	Cole	Tweet which makes light of Syria situation: ""Boots on	9/5/2013	Kenneth Cole	Kenneth Cole Productions, In	Private	
1126	Victoria	Beckham				Beckham Ventures Limited		
1127	Karl	Lagerfeld	H&M collaboration announced	4/28/2004	Fendi		HM-B	STO
1128	Stella	McCartney	H&M collaboration announced	5/11/2005	Stella McCartney		HM-B	STO
1129			H&M collaboration announced	5/11/2006	Viktor & Rolf	Only the Brave	HM-B	STO
1130	Roberto	Cavalli	H&M collaboration announced	6/20/2005	Roberto Cavalli		HM-B	STO
1131	Minna	Kemell-Kutvonen	H&M collaboration announced	11/20/2007	Marimekko		HM-B	STO
1132	Rei	Kawakubo	H&M collaboration announced	4/3/2008	Comme des Garçons		HM-B	STO
1133	Matthew	Williamson	H&M collaboration announced	11/25/2008	Matthew Williamson		HM-B	STO
1134	Sandra	Choi	H&M collaboration announced	6/17/2009	Jimmy Choo		HM-B	STO
1135	Alber	Elbaz	H&M collaboration announced	9/2/2010	Lanvin		HM-B	STO
1136	Donatella	Versace	H&M collaboration announced	6/21/2011	Versace		HM-B	STO
1137	Consuelo	Castiglioni	H&M collaboration announced	11/29/2011	Marni		HM-B	STO
1138	Martin	Margiela	H&M collaboration announced	6/11/2012	Maison Martin Margiela		HM-B	STO
1139	Isabel	Marant	H&M collaboration announced	6/11/2013	Isabel Marant		HM-B	STO
1140	Karl	Lagerfeld	Rumored to have not renewed Chanel Contract	6/4/2009	Various	LVMH	MC	EPA
1141	Martin	Margiela	Rumors first begin to circulate of Martin's departure	8/20/2009	Maison Martin Margiel	Private	Private	
1142	Olivier	Theyskens	Discovered that Theyskens would design a women's ca	5/26/2010	Theory	Fast Retailing		9983 TYO
1143	Lili	Caneças	Lili Caneças rumored to be new creative director of Di	3/1/2011	Dior	Christian Dior Couture SA	CDI	EPA
1144	Ricardo	Tisci	Ricardo Tisci rumored to be new creative director of D	3/8/2011	Dior	Christian Dior Couture SA	CDI	EPA
1145	Azzedine	Alaia	Azzedine Alaia was called to take the open creative dir	6/20/2011	Dior	Christian Dior Couture SA	CDI	EPA
1146	Azzedine	Alaia	Alaia has asked them not to wear the dresses - so	5/4/2009	Alaia	Compagnie Financiere Riche	CFR	VTX
1147	Azzedine	Alaia	Disses Anna Wintour (Again): "When I see how she is	6/22/2011	Alaia	Compagnie Financiere Riche	CFR	VTX
1148	Tom	Ford	First rumors of H&M Collaboration	11/24/2010	H&M	H&M	HM-B	STO
1149	Ralph	Lauren	Lauren signs new 5 year employment contract, through	7/4/2012	Ralph Lauren	Ralph Lauren Corp	RL	NYSE
2082	Hussein	Chalayan	Hussein Chalayan regained control of his eponymous li	1/8/2010	Hussein Chalayan	Kering (via Puma)	PUM	ETR
2145	Azzedine	Alaia	Azzedine Alaia was called to take the open creative dir	6/20/2011	Alaia	Compagnie Financiere Riche	CFR	VTX

ii. *Distribution of Sentiment Scores*



iii. Complete Events and Sentiment (n = 58)

Event #	Day 0 AR	Avg. of Sentiment Score	Tweet Count	Log of Tweet Count	Std. Dev. of Sentiment Score
1053	-0.2532%	0.00000	3	0.47712	0.00000
1063	0.3899%	0.06217	59	1.77085	0.42518
1064	-1.1025%	0.19700	13	1.11394	0.43196
1067	2.0355%	-0.01719	13	1.11394	0.38660
1068	-3.4631%	0.00000	6	0.77815	0.00000
1075	-2.3866%	-0.06556	30	1.47712	0.31933
1076	-1.3466%	0.07256	11	1.04139	0.16739
1078	-0.5353%	-0.10126	75	1.87506	0.37217
1081	-0.4444%	0.09802	60	1.77815	0.32666
1083	-0.0410%	-0.15661	77	1.88649	0.41452
1084	0.2106%	0.07209	24	1.38021	0.33440
1086	-1.9759%	-0.00276	24	1.38021	0.22316
1087	-0.3233%	0.23729	12	1.07918	0.32442
1090	-0.2715%	0.00000	43	1.63347	0.00000
1091	1.9724%	0.32920	99	1.99564	0.41532
1092	-1.2192%	0.20500	19	1.27875	0.35319
1094	1.5974%	-0.12599	100	2.00000	0.45837
1095	1.1459%	-0.33082	100	2.00000	0.36667
1096	1.5185%	0.04165	50	1.69897	0.29557
1097	1.1090%	0.05812	100	2.00000	0.47252
1100	-0.0945%	0.10858	100	2.00000	0.27792
1101	-0.5197%	-0.00279	100	2.00000	0.28859
1102	1.1406%	0.12175	70	1.84510	0.34404
1104	1.5570%	-0.07881	109	2.03743	0.40231
1105	-0.2595%	0.10301	23	1.36173	0.54587
1106	0.5809%	0.16158	62	1.79239	0.27065
1107	3.2254%	0.10831	90	1.95424	0.30114
1108	0.8675%	0.06949	35	1.54407	0.30272
1109	0.1586%	-0.07861	99	1.99564	0.32450
1110	0.2119%	0.19921	39	1.59106	0.40392
1112	-0.7652%	0.04946	80	1.90309	0.34133
1114	-0.3331%	-0.00211	100	2.00000	0.26416
1116	-0.3037%	-0.21844	29	1.46240	0.43136
1117	-0.6510%	-0.12608	90	1.95424	0.31527
1119	0.6164%	0.31362	9	0.95424	0.25631
1120	0.7764%	-0.22764	25	1.39794	0.29946
1121	-0.7005%	-0.00951	99	1.99564	0.42719
1123	-7.9747%	0.05675	101	2.00432	0.30300
1131	1.7732%	0.21200	2	0.30103	0.29981
1132	-0.3841%	0.05833	18	1.25527	0.22750
1133	5.3918%	0.12085	100	2.00000	0.35035
1134	1.9298%	0.06874	86	1.93450	0.48470
1135	-0.1006%	0.36476	23	1.36173	0.33680
1136	-0.4247%	0.18800	100	2.00000	0.43604
1137	0.7140%	0.25186	44	1.64345	0.34788
1138	-0.0581%	0.19172	90	1.95424	0.33278
1139	0.1129%	0.08389	98	1.99123	0.26893
1142	3.6843%	-0.05594	80	1.90309	0.63404
1143	1.2472%	0.41650	8	0.90309	0.13610
1144	0.0905%	0.48881	51	1.70757	0.45709
1145	1.6838%	0.03995	100	2.00000	0.37026
1146	5.7076%	-0.06686	76	1.88081	0.37929
1147	0.5568%	-0.07749	208	2.31806	0.40703
1148	0.6246%	0.04084	106	2.02531	0.38189
1149	2.2898%	0.00000	8	0.90309	0.00000
2082	-1.5372%	0.09834	56	1.74819	0.25693
2145	0.9055%	0.03995	100	2.00000	0.37026

iv. *Stocks and Respective Indices*

Company	Ticker Symbol	Index
Compagnie Financière Richemont	CFR	^SMI
Kering Group	KER	^CAC40
LVMH	MC	^CAC40
Christian Dior	CDI	^CAC40
Puma	PUM	^GDAXI
Estee Lauder	EL	^S&P500
Kenneth Cole Productions	KCP	^S&P500
Ralph Lauren Corp.	RL	^S&P500
Phillips Van Heusen	PVH	^S&P500
Mulberry	MUL	^FTSE100
Onward Holdings Co., Ltd	8016.TO	^Nikkei 225
Fast Retailing Co., Ltd	9983.TO	^Nikkei 225
Hennes & Mauritz	HM-B	^OMXS30

Note: n = 13

v. *One-Day Abnormal Return (t = 0) versus Standard Deviation of Sentiment Score*

