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Do Tweets Matter?

Assessing the Value of Social Media Marketing

A Thesis in Business Studies

By

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## **Abstract**

This thesis explores whether marketing on Twitter increases firm value as measured by stock price returns. For years, companies have tried to quantify the effects of marketing on business performance. Now that social media provide new platforms for marketing, companies may still be searching for the value in marketing campaigns on sites like Twitter. It is unknown whether companies invest in social media marketing because they truly know its worth, or if they are simply doing so because other companies are choosing to be active on social networking sites. This thesis searches for value in social media marketing on Twitter while using the social media activity of ten retail companies on the Fortune 500. Daily sales data was not available, so stock returns were used as a proxy for sales. Appealing to the efficient market hypothesis, if Twitter does have an effect on the business performance of a company, then information would be quickly translated into stock prices. Volume of shares traded was used to test an alternate hypothesis that share price results from technical market movements rather than a fundamental evaluation of net present value. After hand-gathering data over a three-month period in November, December, and January in 2015 and 2016, this research found that Twitter did not significantly affect the business performance of the ten retail companies studied. Although the evidence provided in this paper suggests that Twitter does not affect a company's business performance, the data used for this research is limited. Given a longer time period and/or larger set of companies across various industries, researchers may come to a different conclusion about the value of social media marketing to companies.

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## **I. Introduction**

Why do some companies today have social media accounts? According to the Chief Marketing Officer Council World Wide, 95 percent of brands have a Twitter account and of those brands, 82 percent tweet between one and six times a day (Cohen 2015). If companies spend time on social networking sites each day, these companies presumably believe that having a social media account adds value to their business. Literature surrounding Twitter and other social networking sites have found that micro-blogging sites can be useful when determining overall public sentiment, however, can the information on Twitter be used to find a relationship between social media performance and business performance for a company? This research has found that, on average, a company's activity on Twitter has no significant relationship with the company's stock market performance in terms of share price and volume of trades. Although the regressions did find a statistically significant negative relationship between followers and volume, the correlation can be explained by trading behavior during the holiday season. The findings in this paper raise questions about the value of social media marketing to a business' bottom line. The Chief Marketing Officer Council World Wide found that 71 percent of people who actively use the Internet are more likely to buy a product or shop at a store that they may follow on sites like Facebook, Twitter, or Instagram (Bennett 2013). If consumers are truly more likely to purchase a product from a company that they follow, then some companies may find it worthwhile to have a social media account since it could bring in additional customers.

It would seem that some companies are investing their time and money into social media marketing in order to draw in new and returning customers since it has been found that

59% of marketing companies spend more than six hours a day using social media to reach their customers (Social Media Examiner 2016). Based on what I have observed from searches on various job message boards, it is my perception that companies decide to create new positions for employees to work on social media because of the additional time spent marketing to their social network. If companies are spending more time and money every year to reach their customers on sites like Twitter and Facebook, one would think that this investment is bringing positive outcomes to the company. However, I have found no proof that all of the effort companies are making to reach their followers actually leads to a change in business performance.

This thesis will examine whether or not investing in social media marketing campaigns causes a change in business performance for the company. In this research, share price will be used as a proxy for business performance, and the volume of shares traded will be used to test an alternate hypothesis that share price results from technical market movements rather than a fundamental evaluation of net present value (NPV). The research will include: (1) Twitter data (followers, tweets, retweets, likes) collected from ten retail companies in the Fortune 500 (2) stock prices for these companies, (3) volume of shares traded each day for these companies, and (4) returns and trade volume for the Russell 2000.

I gathered data<sup>1</sup> in November, December and January 2015-2016, which showed some spikes in social media performance due to the holiday season. I chose to study retail companies because they are typically not made up of large conglomerates with multiple

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<sup>1</sup> Data was hand-collected due to time limitations as well as lack of funds and little knowledge of the format in which data would have been delivered when purchased in bulk from Twitter.

brands, which would mean that it would be difficult to track which brand's Twitter account caused a change in business performance. Based on the data collected, no relationship was found between business performance and social media performance. Although this result may only be true of the retail industry and over a short period of time, it still suggests that social media may not be as influential in customer decision making as some marketers or consumers, like myself, think it is.

The thesis proceeds as follows; the first section gives readers a brief background on the user interface of Twitter and the site's various features that made this data collection possible. Following the introduction to Twitter, readers will learn about social media marketing and why it has become important in the marketing world today. Then, a review of relevant literature will be provided, followed by my hypothesis and empirical models. Finally, the findings will be presented and discussed and a conclusion will be made about the effectiveness of social media marketing.

## **II. Motivation**

According to the Chief Marketing Officer Council World Wide, 46 percent of global consumers who own a digital device use social media to help them make a decision about what to purchase (Nielsen 2012). There are large international corporations that have established a social media presence on one or multiple sites (i.e. Facebook, Instagram, Twitter) in order to assist these consumers when they are making purchase decisions. 82 percent of brands that have a Twitter account tweet between one and six times a day (Cohen 2015). Presumably, these companies are paying money for their social media accounts to be

created and maintained. However, this poses the question: why would a company want to invest in a social media account? What are the possible downsides to *not* investing in a social media specialist? Is spending on social media a positive net present value project?

There are many jobs available today that involve work on social media, which can be seen through searches on job search engines like Monster.com. On February 18, 2016, over 1,000 results appeared for jobs with the key words “social media” in the title. Many of these jobs were titled “Social Media Specialist” and were found across a variety of industries and fields. One social media content manager job found for Target described the position as follows

As a key member of the Social Media team, this position is responsible for coordinating and managing all go-to-market aspects of both social media campaigns and social activities for Target. Manage existing social tools and lead the piloting of new tools to enhance and optimize campaigns. Partner with teams throughout the company (marketing, creative, legal, etc.) to develop and gain alignment on the strategy and tactical plan to achieve media and financial results. Accountable for ensuring campaigns are on schedule, are performing as planned, and using key learnings from previous work. Use your skills, experience and talents to be a part of groundbreaking thinking and visionary goals.

This job posting is an example of one of the many careers today that focus on social media marketing, and shows that some companies are paying employees to maintain their social networking accounts.

There are some risks associated with creating a social media account. For example, social networking sites give customers a chance to publicly state their issues with a company’s services. Angry customer posts have the potential to impact the decisions of other customers who visit a company’s Twitter page. The public posts of other customers can give companies a bad reputation and could potentially affect their business performance.

Some cynics believe that social media is just a fad and have yet to find that the expenses are worth the risks that come with creating a social media account. If this is in fact the case, then jobs such as the one listed above will no longer exist once companies and consumers decide that social media is not worth the risk.

It is difficult to find reliable data that proves how much money companies spend on social media marketing. The quick “social media” job search on Monster.com showed that some companies are hiring employees to spend time on social media marketing; however, it is hard to tell if these new employees are costing the companies additional money or if they are just reallocating money from other areas of their marketing budget. Although there was no evidence, it is still my perception that companies are investing time and money in social media marketing because there are many companies that are active on social media today.

Another question to ask is, *why* do these companies feel the need to spend money on social media? Do companies believe that spending on social media will increase their sales, which will increase the company’s value? It is difficult to speculate why companies have decided to spend money on social media, but companies like Pepsi Co. and Ford are starting to allocate more of their marketing budgets to include social media marketing (Qualman 2010).

There are costs associated with launching a new account on various social media sites, which include salary of marketing employees. Corporations, like Pepsi Co., have expanded their budgets to include social media marketing as one of their most costly expenses (Qualman 2010). It is my contention that these companies place so much value on

social media marketing because people are more inclined to purchase products from a company that they see has an active social media presence.

As of 2015, 387 corporations in the list of Fortune 500 companies (78%) have Twitter accounts and tweet on a daily basis (Barnes, Lescault and Holmes 2015). Even though it may seem that social media is a valuable tool for these companies, it is hard to see the direct impacts of the investments that these companies are making. Advertising, in any form, can potentially prove to be ineffective, but companies continue to promote their products and services because promotions entice customers and make them think they *need* a product. Marketing is necessary, even if it is costly, because it reminds customers that there is something missing in their lives and that Company X is available to fix that problem.

Does having an active Twitter account directly bring a positive net present value for the company? It is unknown if companies have yet to find the answer to this question. The data gathered here uses share price as a dependent variable because I could not get access to other data on business performance (e.g. unit sales, revenues). This paper attempts to find a causal relationship between business performance and tweets by using panel data to control for confounding observables.

### **III. Background - Twitter**

Recently, the world of technology has grown to include social networking as the latest way of communicating with each other, bypassing electronic mail or instant messaging. Sites like Facebook, Twitter, Instagram and Pinterest allow users to connect with people across the globe by simply logging on to a computer or using an app on a smartphone. In

2006, Twitter emerged as a social networking site aimed towards sharing short messages or blog posts with friends. Millions of users access their Twitter account daily to get the latest news and to contact their friends. According to Statista (2015), Twitter is the third most visited social networking site in the world (Facebook #1, YouTube #2).

A social networking site (SNS) is defined as a “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Ellison 211). Since its inception in 2006, Twitter has created such stiff competition that sites like MySpace have become virtually obsolete. According to statista.com, Twitter has an average of 307 million users who tweet from their site at least once a month, as stated in the company’s third quarter earnings for 2015 (Statista 2015). This number has grown drastically in the last five years since Twitter averaged approximately 30 million monthly active users in 2010 (Statista 2015). Twitter is one of the popular social networking sites today so it is a good proxy for this thesis’ research question because its activity is likely more relevant than the activity on MySpace or Instagram (or other SNSs).

Twitter is a micro-blogging site that allows its users to “tweet” to their list of followers. “Tweeting” means that a user posts a picture or video, shares a link, or types a message that is less than one hundred and forty characters long. The character limit is a feature that makes Twitter very different from other sites. While SNSs like Facebook allow users to post “statuses” with no length restrictions, Twitter requires users to keep their posts under one hundred and forty characters.

Twitter allows users to have a list of “followers.” A follower is a person who subscribes to another user’s account and can see the activity that occurs on his or her profile. When one user follows someone else, they can see all posts that the users put on their page. The posts of those accounts that the user follows are what make up the timeline.

Twitter’s home page is formatted the same way for each user, as can be seen in the screen grab of a Twitter page in Figure 1 of the Appendix. After logging on, the user sees a “timeline” or “newsfeed” of everything that has happened on the accounts they follow since they last logged on to their account. This timeline is a constant stream of messages, pictures, etc. which the user can read or repost/retweet.

There are different types of tweets, which are categorized under different names because users can reach their followers in different ways. A user can “retweet” something that has been previously tweeted, which means that the user did not compose the message, but would like to repost it to his or her own profile. Retweets can be found on followers’ timelines under the tab titled “Tweets” or by directly searching a user and going to their personal profile.

Users can also reply to other users by composing a reply tweet. A reply is a tweet at one specific user in response to something that he or she has already posted. Followers can tell that a tweet is a reply because an account has been “tagged” in the tweet. Tagging means that one or more Twitter accounts have been connected to the message by using the account’s “Twitter handle” which begins with the commercial at sign (i.e. @TwitterUser). These kinds of tweets do not show up in the timelines of the user’s followers. If a user would like to see the reply tweets that someone has composed, they would need to go to that user’s personal

profile and click on the “Tweets & Replies” tab, which is labeled #2 in the screen grab in the Appendix, Figure 1. The replies tab would show all of the times that the user has tweeted and replied to other users. Twitter users might want to reply tweet because they want to say something to a specific person, rather than send a general tweet to their entire follower base.

Twitter users have the ability to “like” a tweet that someone else has composed, which means that users could show that they enjoyed what someone had posted by clicking a heart button<sup>2</sup>. “Likes” do not show up on any user’s timeline at all. Similar to the reply tweet, a user would have to go to an individual user’s personal profile and click on the “Likes” tab, labeled #3 in the Appendix Figure 1, in order to see what that user has liked. This feature is more symbolic than other features on Twitter. By liking a tweet, the user is saying that they enjoy what someone has posted but not enough to post it to their own profile.

I hypothesize that there is a hierarchy of the different ways in which a user can respond to a tweet. When it comes to Twitter, I believe that different responses hold different values, which is why my hypothesis shows that responses to tweets may have varying effects on business performance. I think that a retweet is the most valuable response to a tweet because it shows that the user supports the post enough to repost it to his or her personal profile. When it comes to sharing posts on Twitter, trust is an important aspect that dictates whether or not an account holder will retweet something. According to this hypothesis, if a consumer trusts a company and the message that it is sending out on social media, then they are more likely to retweet that company’s post because they are willing to

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<sup>2</sup> When this thesis began, Twitter gave users the option to “favorite” a tweet by clicking a star button. During the progression of this paper, the site changed this “favorite” feature to become a “like.” This change did not affect the format of Twitter or the research for this thesis.

share the posts of a company that they trust. Liking a tweet is the next best response, followed by replying to a tweet. Both “liking” and “replying” are meant to show support but are not posted to the user’s profile, which means that an account holder does not openly endorse a company’s message as he or she would when they retweet a message.

#### **IV. Background – Social Media Marketing**

Before the twenty-first century, companies reached their customers by making television and radio commercials or by putting advertisements in periodicals. Marketers have always had to appeal to customers by presenting their product in such a way that makes consumers believe that they need it. The difference between marketing of the past and of the present is that today marketing has expanded to include the Internet. Since consumers have begun turning to social media to communicate with others, businesses have also tried to find ways to communicate by using social media. Not all companies have found success in the social media sphere, but those who do use social media have found that 71% of customers claim that they are more likely to purchase a product from a company that they follow on social media (Bennett 2013). Some companies have chosen to create social media accounts to reach those customers, and this statistic explains why social media could bring success to companies who place value in it.

Trust is a crucial aspect of any business transaction. According to Mangold and Faulds (2009), potential consumers join social networking sites so that they can properly educate themselves on products or services that are available to them. Before SNSs, if a consumer liked a good that one particular company was providing, then he or she would tell

their friends and family about that product which would then inspire others to go out and purchase the product. SNSs are a modern-day version of spreading information by word of mouth; instead, opinions are now transferred through faceless interactions behind the screen of a computer. Spreading information by word of mouth tends to be a method of sharing because we are inclined to listen to the opinions of those that we trust. If a family member or close friend tells us that they enjoyed a meal they had at a certain restaurant, then we would be more inclined to try that restaurant the next time we are going out to eat. The same idea is true of products that we can purchase in stores, if we hear from someone that we trust that there are great deals at Wal-Mart then we will be more likely to go shopping at Wal-Mart the next time we need to buy something. If our friends follow a company on Twitter and trust their messages because they have had a positive experience shopping with them, then we may be more inclined to follow the company on social media. By talking to our network of friends and family and making a decision about which store we should shop at, we are also building a relationship with the company (our supplier), and this relationship can be maintained if the consumer continues to trust the supplier.

Syed Saad Andaleeb (1996) writes that trust is a crucial component in marketing because it enhances the value of the product and the benefits for both the marketer and the consumer.

It is proposed that when a buyer is dependent on a supplier for critical resources and when alternative sources of supply are limited, the buyer's satisfaction in the relationship should be influenced by the extent of trust that exists in the relationship. Thus, when the supplier is trusted, the uncertainty associated with the expected outcomes should be less than when the supplier is not trusted. As a result, satisfaction should be greater in the 'high dependence-high trust' condition than in the 'high dependence-low trust' condition .

Trust is one of the reasons why customers continue to shop at the same stores, but how do companies build up this trust? One way is through social media marketing.

A social networking site can be an electronic suggestion box or customer service hotline. Customers post a tweet on the company's page that conveys the information that the customer feels is important. For example, if a customer was not satisfied with a product that they purchased, then they can tweet at the company telling them their issues, and the company has the opportunity to respond. In his book *Exit, Voice, and Loyalty* (1970), Albert O. Hirschman explains how customers have two options when they are dissatisfied with a product or service: they can exit the relationship with the company who supplied them the product, or they can voice their opinion and attempt to fix the relationship (Hirschman 1970). The third option that consumers can choose is loyalty, which would mean that customers do nothing when they are dissatisfied. When customers are loyal to a company, the possibility of exit decreases because consumers will continue to shop at a location even without voicing their opinions. Social media are a new way for companies to elicit voice from their customers because they provide customers with direct contact to the producers without having to communicate with a human; interactions can be completely anonymous and detached. If a consumer believes that a company will listen to his or her concerns and change their behavior because of it, then that company is building loyalty with the consumer. If Hirschman's (1970) analysis of loyalty is true, then I hypothesize that tweets would have an effect on a company's business performance because a loyal customer is more likely to spend money in a store repeatedly, which could drive up stock returns, if returns truly reflect the positive net present value of a firm.

Businesses like Wal-Mart dedicate more time to responding to customer tweets instead of sending out mass messages to their entire follower base. Wal-Mart seems concerned with customer satisfaction judging by how frequently they respond to customer tweets. When a customer tweets at Wal-Mart, they may not be sure if the company will respond to their tweet. However, after looking at their timeline, one can see that Wal-Mart is on top of their communication with customers because they reply to customer tweets more frequently than they send out general tweets to their entire follower base. Responding to individuals may show some customers that Wal-Mart is concerned with the happiness of their customers on an individual level. Mangold and Faulds (2009) state that social media marketing has become a “hybrid element of the promotion mix” through companies’ nontraditional communication directly with customers (357). Company-to-customer communication is key for corporations that are on social media today because it builds a bond with consumers.

Mangold and Faulds (2009) quote Paul Gillin in his book *The New Influencers: A Marketer’s Guide to the New Social Media* when discussing the importance of customer-to-customer interactions through social media.

Conventional marketing wisdom has long held that a dissatisfied customer tells ten people. But that is out of date. In the new age of social media, he or she has the tools to tell 10 million’’ (p. 4) consumers virtually overnight

As previously mentioned, social media can be beneficial to companies because social media gives consumers a platform for spreading the word about a company or a product that they may like. However, it may be true that consumers are more likely to spread the word about something that they dislike more than something they appreciated. Just as a customer may be

more likely to fill out a questionnaire or survey about a negative experience they had than a positive one, customers may be more likely to post on social media about a product that they do not like. The quote above from Mangold and Faulds (2009) perfectly describes the double-edged sword that is social media today and could potentially explain why companies hire employees to manage their social media accounts. If a customer has a positive experience then they may post about it on social media, but they may be more likely to share a negative experience with their followers. What makes this phenomenon worse is that customers have the ability to post directly to the company's page. What seemed to be so useful at one point, is now the element of social media marketing that has the potential to ruin the reputation of a company. If a customer angrily posts a tweet about a company and tags that company in their post, then the customer's followers as well as the company's followers will see that post. Posts like these can often go viral, meaning that hundreds of thousands of people across the country become aware of the negative experience that customers have had with a particular company. The tweet below is an example of an angry customer tweet that went viral. Hassan Syed (@HVSVN) had a bad experience with British Airways in 2013 and took to Twitter to share his frustration. British Airways eventually responded to his tweet, but Syed was not pleased with the response he got. This particular Twitter user paid money to promote his tweet, meaning that it would show up like an advertisement on the timelines of all Twitter users (Burke 2014).



@HVSVN



Don't fly @BritishAirways. Their customer service is horrendous.

 Promoted by

9/2/13, 7:57 PM

With the added risk that social media provide, companies have to be careful about the experience that they provide their customers with when they shop in their stores as well as what the company posts on social media.

It is unclear to me whether having a social media site is net beneficial or risky for a company. However, it is my perception that the positive and negative aspects of social media cancel each other out. A company may experience a situation where customers write about their negative experiences with that company on social media, but this particular company may still find it beneficial to have a social media presence. Other companies, like Costco, may find that the risks of social media marketing outweigh the rewards and choose to stay off social networking sites in order to avoid spreading negative customer posts.

Although social media can prove to be potentially risky for a business, it can also be a way to keep the company in check. The activity on a company's Twitter page reminds companies that they have to behave responsibly, or else customers will unearth their negligent ways on social media. Recognizing that Twitter is the electronic word of mouth may explain why some companies choose to invest their time and money in social media marketing. However, although social media is a powerful form of communication in today's society, it is still

unclear as to whether or not spending money on social media can create a positive net present value for a company.

## **V. Literature Review**

The following section of this thesis will give a review of the relevant literature that was used for this paper. The first portion of the literature review will analyze an article that was closely related to my topic, followed by articles about using Twitter to gauge public sentiment. The next portion will discuss an article about the demographics of Twitter users, followed by a discussion of an article that uses a social networking site for investors to predict stock market trends.

The most relevant article to the topic of this thesis is titled “Correlating Financial Time Series with Micro-Blogging Activity.” In this article, Ruiz (2012) set out to prove that there was a correlation between activity on micro-blogging sites like Twitter and stock market events. The key difference between this article and the research in this thesis is that this article searched for when consumers mentioned a specific company on Twitter; whereas, this thesis looks at the Twitter activity of a list of companies. The researchers conducted a search on Twitter for a specific company and filtered out different variables whether the company was being mentioned in a tweet or retweet. The researchers then counted the number of times the company was mentioned and in what way it was mentioned (i.e. tweet, retweet, reply). After conducting the search, researchers gathered what the general public was saying about a company and used that information to look for patterns in the stock market activity for that company. The researchers then proposed that investors adopt the

trading strategies that obtained a profit during the period of time where the Dow fell. Ruiz (2012) “used simulation to show that these features are useful in order to improve a trading strategy in the stock market” (Ruiz et al. 2012). The features that Ruiz (2012) referred to include number of retweets, tweets, hashtags<sup>3</sup>, followers and tweets that mentioned another user. The paper by Ruiz (2012) helped me to determine what features of Twitter are useful when looking for a relationship between business performance and social media and how these features are useful. While this information provided me with an example of how I could use Twitter to gather data, the data differs from mine because it is not based on the tweets of a company but rather the tweets that other Twitter users are composing about a company.

Much of the work that exists about Twitter today centers on the social networking site predicting public sentiment. The general mood of the public can be tracked on Twitter based on the nature and volume of tweets that people have created. Topics such as this differ from the material presented in this research because they are focused on overall mood and sentiment, but should not be dismissed as they are still relevant. My research addresses whether social media activity improves business performance as measured by stock returns. Some researchers (Bollen et al. 2011) have found that large public events that occur in the world do significantly affect the mood of the general public in their article “Modeling Public Mood and Emotion”. The researchers gave tweets a tag that aligned with a general mood or feeling (i.e. depression, anger, confusion) and cross-referenced the tag with one specific incident that occurred in the world (i.e. elections, holidays). The outcome showed that the

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<sup>3</sup> A “hashtag” is an identification method used on social media which groups messages based on their topic and is known for beginning with the pound sign (#).

feelings of a large group of people could be inferred based on public discussion on Twitter. The information gathered in the article by Bollen (2011) is useful for this thesis because it found that discussion on Twitter could be used to determine how people feel. If this is true, then investors could also potentially be using Twitter as a mechanism for gaining information about how people feel about a certain company or stock, which would affect the business performance of a company.

The information found in the research by Bollen (2011) connected to another article written by Bollen, Mao and Zeng (2011) that analyzed whether the general sentiment of Twitter users could predict what would happen in the stock market. “Twitter Mood Predicts the Stock Market” used the public mood on Twitter and correlated it with the Dow Jones Industrial Average. In this article, the researchers tested the economic assumption that emotions can affect the decision-making of a consumer. The mood of Twitter users was collected daily and then correlated with the performance of the Dow Jones. Researchers found that “the accuracy of DJIA predictions can be significantly improved by the inclusion of specific public mood dimensions” (Bollen et al. 2011). The mood dimensions that Bollen (2011) used included calm, alert, sure, vital, kind, and happy, which were all moods that were gathered from tweets through OpinionFinder and Google-Profile of Mood States<sup>4</sup>. In contrast, this thesis uses Twitter to determine whether or not social media marketing adds any value to a company’s business performance.

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<sup>4</sup> OpinionFinder and Google-Profile Mood of States are systems that process documents, in this case Tweets, and identify opinion and mood based on the content of the document.

The Mislov (2011) article gave insight into who exactly is using Twitter and the different demographics of account holders. For example, the researchers used name detection to find the genders of a large population of Twitter users. Researchers found that about 71% of Twitter users are male (Mislov 2011). This article also attempted to make inferences about the race and location of many Twitter users, but could not make generalized statements because it was difficult to tell the race or ethnicity of a user based on their account name. Mislov used over 1,755,925,520 messages from Twitter, which were sent by 54,981,152 users between March 2006 and August 2009. This article was effective in explaining how different kinds of research and data gathered from Twitter can be useful because it gave an overview of gender, race and location of people who have accounts. However, the researchers found that “the Twitter population is a highly non-uniform sample of the population” (Mislov 2011). Although Mislov (2011) found that most Twitter users are male, this thesis focuses on the retail industry, which is mostly comprised of female shoppers. According to a study done by Advertising Age, over 50% of retail shoppers at some of the stores on my list are women (Carmichael 2012). Since the Twitter population does not equally represent all age, race, gender, and class groups, this may be a sign that it may not always be effective to use social media to market to all demographics. The imbalanced representation of different demographics could potentially be an indicator that social media marketing is not always useful.

Another article used information gathered from social media and attempted to determine whether or not it aligned with investor stock opinion. The topics discussed in this research (Chen et al. 2014) differ from my topic primarily because the researchers used a

social media site for stock investors ([seekingalpha.com](http://seekingalpha.com)). SeekingAlpha.com is a site where investors can get market news, share stock ideas or learn new investing strategies. On this site, investors share their opinions on certain stock more frequently than they would on a site like Twitter. The article also used the information gathered about what the investors on SNSs were saying to predict the future of a stock and its return. The article found that “the opinions revealed on this site strongly predict future stock returns and earnings surprises” (Chen et al. 2014 p. 31). The data found in this study and the conclusions that were made showed how the stock market could connect to other aspects of everyday life because investors on Seeking Alpha were able to predict future stock returns.

A useful book that discusses the effects of advertising is written by Michael Schudson (1984) and is titled *Advertising, the Uneasy Persuasion*. In his book, Schudson (1984) argues that advertising is not as powerful as some companies and consumers believe it to be. However, advertising is also not powerless; it can still be an effective way of reaching consumers. Schudson (1984) found that sales usually cause companies to invest in advertising, rather than advertising causing an increase in sales. It was initially my belief that companies invest in various marketing campaigns, like social media marketing, because these campaigns were going to lead to an increase in performance. After reading Schudson’s (1984) arguments I have learned that this is not the case, which could be an indicator that Twitter does not have an effect on a company’s business performance. According to Schudson (1984), only price advertising is consequential on a regular basis, and most companies that I examined did not price advertise on Twitter. If you do not shop at a retail location on a regular basis, then price advertising will likely not turn you into a shopper at

that location. The same is true of Twitter, if you do not already shop at Target then you will likely not follow them on Twitter and therefore, their tweets will not reach you and will not cause you to become a Target shopper.

The book *Marketing Management* by Kotler and Keller (2011) explains the importance of marketing in general and what it can be used for. The authors state that other areas of a business (i.e. finance, accounting, management) do not matter if there is no demand for the services being offered. Kotler and Keller (2011) claim that demand is created through marketing techniques, which is why marketing is perceived to be important to businesses today. While marketers would like to believe that marketing adds value to a company, it is difficult to quantify the direct effects of any marketing campaigns. The topics discussed by Kotler and Keller (2011) explore the value of marketing as a whole and these discussions can also be applied to research valuing social media marketing. While marketers believe that their tactics can create demand for a product and provide customers with a valuable good or service, it has always been difficult for companies to find substantial data that proves that marketing adds value to a company. For example, companies invest millions of dollars every year to have their commercials aired during the Super Bowl. However, it is hard for these companies to know how much sales increased because of the money spent on the Super Bowl advertisement. It has always been difficult for companies to know if marketing is worth spending time and money on, and the same is true for social media marketing.

Researchers have found Twitter to be a useful tool for gathering data on public mood and using that information to gauge how the public will react to important events. Others

have found that social media platforms that were made for investors, like SeekingAlpha.com, are useful when predicting market performance of stocks. The literature found for this thesis was not close enough to my topic to provide answers to all of the questions asked in this paper, but is still relevant in understanding how social media can be used to benefit research on topics like mine. The literature found shows that Twitter and other social networking sites can be used as a mechanism for predicting changes in the stock market, for gathering information on public mood, and for understanding the demographics of its users. My research extends the literature because it uses Twitter to look for a relationship between social media and business performance.

## **VI. Data**

The data used for this research was gathered over three months from ten retail companies in the Fortune 500 and their daily activity on Twitter. The following paragraphs explain how and when the data was gathered. The first portion explains the semi-strong form of the efficient market hypothesis and how it applies to this research. The first subsection of this chapter explains the data gathered in November and the time series graphs that depict the data for this month. The following two subsections explain the data and charts for December and January.

It is my hypothesis that retail companies would see a direct and faster reaction between tweets and stock returns. The semi-strong form of the efficient-market hypothesis states that stock prices are a product of all information that is available to the public and that these prices will change instantly if new information becomes available. My hypothesis

follows the belief that retail companies will quickly see a change in stock returns because information about a company's success, or lack thereof, (i.e. increased sales, social media performance, etc.) will be seen immediately.

Due to lack of funds and knowledge of computer programming, it was not possible to purchase large amounts of Twitter data for the purpose of this thesis. Because of this setback, data had to be collected by hand from Twitter. Since it would be incredibly difficult to hand-gather data from many companies, the field of research was narrowed to include some of the top retail companies in the industry. Narrowing the field made it easier to log onto Twitter once a day and count how many times each company tweeted, the highest number of favorites a tweet received, and the highest number of retweets a company received as well as how many followers the company had.

#### **a. Retail Industry**

This thesis focuses on the Twitter activity and business performance of ten large retail companies: Amazon.com, Best Buy, Costco, Kohl's, Macy's, Sears, Target, TJX Companies, Walgreens, and Wal-Mart. The following paragraphs will list the benefits of focusing my data on a smaller group of companies and why the retail industry is the industry being studied. The retail industry may see a direct impact from social media because customers shop at retail stores frequently. The companies chosen are also not smaller brands that are associated with large conglomerates, like Procter and Gamble, which may have multiple social media accounts. Since these factors made it easier to collect data and to produce a hypothesis, the retail industry was the best field to focus on for this thesis.

The efficient-market hypothesis states that information quickly affects stock prices. So, for example, if Target tweets about a sale on clothes that they are having, then customers will see that tweet and go out and buy more clothes from Target. Once the company sees an increase in sales, then that information will quickly be shown in the company's stock returns. Based on this hypothesis, the retail industry could see an immediate response to information shared on social media in their business performance. One benefit of focusing on general merchandise retail companies is that customers shop frequently at retail stores. Since retail businesses sell many different goods that customers may need to purchase frequently, consumers shop more regularly at retail stores. A company that sells retail items could likely see influences of social media faster than other companies because of how often consumers need to purchase their products. By contrast, a more durable purchase like a car does not need to be purchased frequently and might not be influenced by social media in a short time period as much as a retail purchase. According to my beliefs, if a company tweets then they could find that consumers are purchasing their products because they saw the tweet and the company would see a change in sales within the following week. The same belief is true of business performance: if a company tweets, then this may indicate something about the company to investors, which would cause them to invest in the company's stock. A tweet on Monday could lead to a change in stock price or volume on Tuesday, which may be a shorter time lag than if the company did not sell general merchandise retail products.

Some of the largest companies in the world have very active social media accounts, but their one drawback was the fact that many companies have multiple brands under one corporation. For example, companies like Unilever and Procter and Gamble offer a wide

variety of different products. The company as a whole may have their own Twitter account, but each brand within the company has its own Twitter account as well. Due to the number of accounts that may be associated with just one corporation, it would be difficult to track the activity of every brand within companies like Procter and Gamble. It would also be difficult to connect the success of a business as large as these to their Twitter activity. If a company has various different accounts and products, it would be hard to prove that the success of the company was due to a certain number of tweets on a certain day.

On the other hand, retail companies do not tend to have different pages for the different brands that may be offered in a store. For example, Kohl's may offer clothes produced by Adidas and Nike, but these brands tweet from their own individual accounts. Since Kohl's does not have multiple brands within the company, it might be easier to correlate a change in stock price or volume to a change in Twitter activity. A large conglomerate with multiple brands would be difficult to track in comparison to a retail company that is identified by just one name.

## b. Companies

**Table 1.**

Company	Ticker	Revenue as of Q4 2015	Shares Outstanding as of February 1, 2015
Amazon.com	AMZN	107.01 B	470.84 M
Best Buy	BBY	40.11 B	342.72 M
Costco	COST	116.55 B	439.78 M
Kohl's	KSS	19.15 B	189.82 M
Macy's	M	27.57 B	314.37 M
Sears Holdings	SHLD	25.94 B	106.60 M
Target	TGT	73.91 B	616.05 M
TJX Companies	TJX	30.29 B	669.53 M
Walgreens	WBA	112.92 B	1.08 B
Wal-Mart	WMT	484.03 B	3.20 B

Fortune magazine created a list of the ten biggest retail companies in the country based on revenues. I chose to use a modified version of their list as the group of companies for this thesis. The list created by Fortune was as follows: 1.) Wal-Mart Stores 2.) Costco 3.) Home Depot 4.) Target 5.) Lowe's 6.) Best Buy 7.) Sears Holdings 8.) TJX Companies 9.) Macy's 10.) Staples. Home Depot, Lowe's and Staples are all retail stores that sell specialty products. These companies were removed from the list because they did not sell general merchandise retail products, and there are other companies that sell products that are

similar to the companies on the list. Amazon.com replaced Home Depot, Kohl's replaced Lowe's, and Walgreens replaced Staples. Most of the stores on the list sell clothes, food, electronics or a combination of the three. Each of these companies offers a wide variety of products, as opposed to the specialized products that their competition offers. The following paragraphs will describe each company and explain why they are important to this study.

Wal-Mart is a company that sells groceries, electronics, clothing, etc. and is one of the largest retail companies in the world. There seems to be constant controversy that surrounds the company, like their unfair treatment of employees or tax avoidance in many towns, which make for interesting headlines. However this does not change the fact that Wal-Mart is a successful company. Wal-Mart does not focus most of its time and energy on sending out many tweets to its followers at all. For example, the company only tweeted a total of four times in the month of January. Instead, Wal-Mart spends most of its time on Twitter directly answering questions from customers. For example, Wal-Mart could go weeks without sending out a tweet to its follower base at all, but while it seems like the company is inactive, employees at Wal-Mart are actually sending tweets to individual customers to show that they care about their concerns.

Costco is an interesting candidate for this study, mostly because the company does not have a Twitter account. For this thesis, Costco represents other retail companies in the market that also do not have a social media presence. There are some accounts that have been associated with the name Costco, but the accounts have not been verified by Twitter, meaning that the site does not have enough information to prove that the accounts actually

belong to the company. According to Fortune, Costco consistently outperforms other warehouse retailers (i.e. Sam's Club).

Amazon.com has become a successful ecommerce vendors in the last 22 years. I chose to add Amazon to the list because it is not a brick and mortar retailer, which makes it different from all of the other companies on the list. While the company has not brought in as much revenues as the other companies on the list, some people use Amazon.com as a way to shop without having to leave their home. It is my perception that the introduction of ecommerce vendors has changed the face of the retail industry because they solely operate online which sets them apart from other retailers. I believe that the introduction of ecommerce retail shops has pushed brick and mortar retailers to enhance their online offerings. Amazon tweets quite frequently, usually sending out multiple messages a day to its followers. The company does not send out messages to individual customers, most of the tweets found on the page are sent to the entire follower-base.

Target is a competitor in the retail industry, challenging companies like Wal-Mart and Costco with their low prices and wide variety of products. However, in 2014 the company experienced a large data breach, which was a setback for Target. I have not discovered if this data breach affected the company's social media performance, but Target does have an active social media account today. The company typically tweets on a daily basis to its entire follower-base. Target does spend some time responding to individual customer's tweets; however, it does not focus on this as much as Wal-Mart does. On any given day, one can find that Target has tweeted a handful of times, spread out amongst the hours of the day.

Kohl's is an interesting addition to this research because the retailer has been experiencing some financial difficulty lately. According to the Wall Street Journal article on January 10, 2016, "Kohl's Weighs Next Steps, as Woes Mount," Kohl's has seen a 37% decrease in share price in the last year. The company is considering going private or even breaking up the company altogether (Kapner 2016). On Twitter, Kohl's is just about as active as the other companies on the list. The company tends to retweet other messages more than they send out their own messages. They also send out some tweets to individual customers, much like the other companies, but do not do so as frequently as Wal-Mart does. According to "Kohl's Black Friday Sweepstakes Gives Retailer a Boost on Twitter," the company appeared to be one of the most successful tweeters this holiday season, seeing over 112 thousand mentions on the social networking site. However, share prices have not increased since the company started increasing their Twitter performance.

Best Buy is a large, nation-wide electronics retailer. The company is focusing on increase its sales by promoting on a more tech-friendly home and by building up the Geek Squad (Wahba 2016). Best Buy tweets to its entire follower base on a daily basis, but rarely tweets directly at customers. Best Buy also retweets messages from other accounts more than the other companies on our list.

Sears Holdings is a large, American department store chosen for this study. According to Fortune, the company has been struggling for a few years, trying to keep up with other stores like Macy's and Wal-Mart (Wahba 2016). Sears' Twitter account is not as active as the accounts of the other companies on the list. The company rarely sends out











































































