

Reliability of *Mad Money* Stock Recommendations in Comparison with the S&P 500 Index

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### **Abstract**

This paper assesses the credibility of the financial media show *Mad Money* based on the performance and distribution of the stocks recommended during the “Featured” segment of the show. Over 300,000 viewers watch the show every week night because of the possible monetary gains that can come from investing in the stocks recommended. In order to analyze the performance of all of the stocks on the show, a computer program was created to compile and categorize the data as needed. The stocks were analyzed for two years after the initial recommendation date on the show and each stock was compared with the S&P 500 index to further analyze the effectiveness of Jim Cramer when recommending stocks. This was all done in order to discover whether or not the stocks recommended on the show performed well enough to justify the large audience of the show. Ultimately, the findings support the hypothesis that the stocks recommended on the show do not outperform the S&P 500 in a statistically significant way, and investing in the portfolio is much riskier than investing in an exchange traded fund that mirrors the composition of the index. Therefore, the viewership of the show is not justified, and taking action on statements and recommendations made on the show is advised against.

## Introduction

A plethora of information is available for anyone looking to invest their earnings into a public company with the interest of making money. Every tradable security has financial statements, along with thousands of opinions on whether or not it should be bought or sold. Individual investors have the strenuous job of rooting through this information and determining what to do with their money. The financial media has grown significantly in the previous 20 years because of the growth of the internet. *Mad Money* is one of the most popular sources of information for investing, bringing in an average of 380,000 viewers a night. The show first aired on March 14, 2005, and it has aired nearly every weeknight at 6pm ET since then. It is hosted by ex-hedge fund manager Jim Cramer, who recommends stocks in various attention seeking tactics like yelling the statistics of a particular company, or using a soundboard to enunciate the importance of something he just said. There are eight separate segments throughout the show that all have their own twist, most notably is the “Lightning Round” where Cramer takes calls from his viewers, and gives them advice on whether or not to buy a certain stock. This section of the show has no actual previous research done, and it seems questionable as to what he is basing his advice off of. Another prominent part of the show is the “Featured” segment where Cramer gives a detailed report of a single stock that he recommends, this section has the most research put into it. Additionally, the “Featured” segment reflects the investing tendencies of his audience the closest because the strongest buy recommendations from Cramer have a much larger return over the five days after the initial recommendation date (Hinchey, 2007). As classified by thestreet.com, which tracks Cramer’s recommendations, the stocks recommended during the

“Featured” segment are all strong buy recommendations, therefore they are more likely to reflect how the viewers of the show will invest.

A portfolio made up of the stocks recommended on *Mad Money* would seem like a very arbitrary style of investment for a typical person, yet the show still gets hundreds of thousands of viewers a night. It is aired after work hours for most Americans and the enticing nature of the show draws many in to watch it. Overall the show’s exciting and enthusiastic aura are able to attract many young viewers to watch the show and potentially invest in the stocks that are recommended by Cramer, which is why it is the most watched show among 18-54 year olds on CNBC Phelps (2001).

### **Literature Review**

Lots of research regarding the effect that *Mad Money* has on the American stock market has been done. The articles show trends of positive correlation between Cramer’s buy recommendations and growth among the stocks recommended for a short period of time. The majority of the studies were written with the intent of finding results on the short term return of Cramer, and how that growth in the stock price can be explained.

For instance, the researchers Bolster, Trahan and Venkateswaran (2012) found that the short term return of the stocks can mainly be explained by factor analysis methods that show how the main growth is caused by the attention that the stock garners from Cramer and other analysts. This study represents the majority of the studies done on *Mad Money*. The 2012 study was conducted in order to determine the impact of his recommendations on a specified portfolio. The researchers also sought out to examine when Cramer’s predictions were the best, and when they could make an investor the most money. They found that Cramer had a limited but still

impactful effect on the stocks he mentions, and an investor that previously owned the stock he recommended would have made a small profit. The researchers also found that the overall performance of his stocks after a month was average in relation to the market, because the majority of the recommendations he makes are of growth stocks that look promising in the short future.

In a similar paper by Engelberg, Sasseville, and Williams (2010) the stocks recommended on *Mad Money* were used as a measurement for arbitrage induced by financial media investors. They investigated the spike-reversal pattern related to the quick growth of liquid stocks followed by the slow decline in price of the stocks that are recommended by big figureheads like Jim Cramer. They found that the most significant spike-reversal pattern is present on high viewership nights. It shows that the viewers of the show are assessing and executing their stock picks based on what is mentioned during the show. The paper was also used to prove the retail attention hypothesis created by Barber and Odean (2008). This hypothesis predicts that personal investors buy the majority of their stocks based on how it is represented in the news, so a stock that was recently promoted in the news will be more likely to go up in price in comparison with one that has solid fundamentals, but little to no attention given by the media.

Some other research done about the show has hypothesized the effectiveness of Jim Cramer when influencing the investing strategies of his viewers in relation to another outside source of influence. In a paper assessing the validity and credibility of Cramer, Karniouchina, Moore, and Cooney (2009), created a study designed to answer theories based on an investor's habits of responding to television stock recommendations. The research compares its findings to

the results of how advertisements can affect investors in order to determine which one is more influential. They further elaborate on the variables that are beneficial towards advertisements when focusing on the audience of *Mad Money*. It was used as a comparative study to other findings that have already been made based on the effects of the show. It does not measure the explicit profitability of Jim Cramer, instead it measures his effect on the markets he speaks of, which is a common line of study among researchers interested in explaining how and why *Mad Money* is gaining such great attention.

Another insightful research paper was Dori-Hacohen and White (2013), which provided helpful information about the demographic of people that watch the show. The researchers also identified how the interactions from the audience affected how the majority of audience members made decisions regarding the stocks mentioned in that portion of the show. This information was also used to narrow down the research of this paper to focus on only the “Featured” segment of the show because it had the most bearing on the investing actions taken by the audience. Lastly, this paper compared the recommended stocks from *Mad Money* with a control group, as well as a list of stocks that were advocated for by columnist and investment analyst Kenneth Fisher who writes for *Forbes*. The stocks were compared with the recommendations offered from certain print editions of *Barron's* magazine, the study concluded that the investing style of Cramer is created based on an expectation of positive feedback as a result of having abnormal returns. The results of the paper exemplify the importance of *Mad Money* influencing the investing habits of his viewers, further showing the relationship between Cramer's recommendations, and his viewers' investing habits.

Phelps (2001) was used to determine the characteristics of analysts' recommendations before the creation of *Mad Money* in order to compare the profitability of Jim Cramer before and after the existence of *Mad Money*. This study does not buy the stocks that financial advisors recommend to buy, instead it bets against the market on the stocks that the financial advisors say to sell. It explains the further accuracy of these financial media shows because it finds the effectiveness of them based on their sell recommendations, and not the buy recommendations. This article was researched in hopes of finding more information on how Cramer does in all of his equity recommendations. The researchers found that analysts like Cramer are the most accurate for smaller firms because there is less total market capitalization that can be more easily altered by the investors that are taking action based on the stocks that are recommended by esteemed financial analysts.

Another research paper that does not focus on *Mad Money* specifically is written by Thomas Schuster who is from the Institute for Communication and Media Studies at Leipzig University (2003), the paper focuses on the effects of "Business Media." They use this blanket term to describe how all of the media affects the movement of a stock. The researchers conduct their research with this term because it allows one to understand how the media perceives an action of a company, and not how an investor perceives a recommendation from a television show like *Mad Money*. The paper covers the possibility that investors can have positive results that outperform the market if they are listening to the entirety of "Business Media." The main importance of this paper in this research report was to determine how large media corporations can influence the investment decisions of individual investors, in an attempt to generalize the data found on *Mad Money* to the financial media industry as a whole.

Based off of the previous research done on *Mad Money* it is clear that there is a plentiful amount of data on how Cramer affects the market in the short term. What has not been assessed in detail is the credibility of the show based on the long-term returns of the recommendations in comparison with the S&P 500, (S&P 500 is a stock market index commonly used as a representation of the performance of the market.) the consistency of returns for the stocks based on the sector of the market that they are apart of, and the size of the company that was recommended. This research paper aims to fill this gap in order to assess whether or not the amount of viewers of *Mad Money* are justifiable to the performance of the stocks recommended on the show.

### **Question**

How do the characteristics of stocks recommended on *Mad Money* contribute to the capital gains of the stocks based on market capitalization, volatility, and sector?

### **Hypotheses**

*Null ( $H_0$ ):* *Mad Money* performs statistically significantly better than the S&P 500 (^GSPC) index.

*Alternate ( $H_a$ ):* The difference in growth between the portfolio and the index is not significant, the portfolio is more erratic than the index, and it is a representative sample of the market.

### **Methods**

As mentioned earlier, the stocks recommended during the “Featured” segment are the only stocks assessed because they more accurately reflect the investing habits of the viewers on the show (Bolster & Trahan, 2009, p.2). The initial list of stocks recommended during the



“Featured” segment of the show comes from [thestreet.com](http://thestreet.com), which lists the date a stock was recommended, the segment of the show that the stock was recommended during, and the symbol of the stock. While [thestreet.com](http://thestreet.com) is owned by Cramer, the recommendation data is impartial because it is solely based off of the information that Cramer says in the show, and does not go into any further analysis. The oldest stock recommendations provided from this website came from the third quarter of 2016, but since the amount of stocks recommended during this quarter was not very large the stocks recommended during the fourth quarter were also used to fill the portfolio assessed in this paper. Occasionally, Cramer will recommend the same stock more than once, and when this happens the repeated stocks are treated as if another share of that stock was purchased at a later date. By doing this, it assures that the portfolio will show the true performance of Cramer’s recommendations taking into consideration how he continues to recommend a certain stock.

In order to gather the necessary data needed to analyze the credibility of *Mad Money*, the programming language Python was used with great assistance from the Pandas library and the Yahoo Finance API, which allows the Python program access to daily stock price data. The computer program outputs the percent change of all of the stocks in comparison with the S&P 500 (^GSPC) index, and also categorizes the stocks in the portfolio by market capitalization and sector. All of this data accounts for both the payment of dividends, and stock splits. By adjusting the returns of the stocks in the portfolio for dividends the true capital gains for all of the stocks can truly be represented, and therefore the results more accurately show how the stocks recommended on the show perform for the viewers watching the show. Since the stocks are compared against each other they all need to have a symmetrical date range to compare them by.

For this reason one year is defined as 251 business days, by doing this it allows for all of the stocks to have the same amount of time to progress before the final percent change is calculated.

In order to collect the data, the list from thestreet.com was filtered between the dates 07/01/2016 — 12/31/2016, which is the last two quarters of 2016, for a total of 88 stocks. To calculate the needed data from the list created by thestreet.com the Python script downloads the list as a comma separated values (csv) file which is interpreted by the computer program that then does various actions to calculate the capital gain of every stock daily.

More specifically, the script takes the start date of the stock from the csv file, and it uses the Yahoo Finance API to get daily adjusted close stock price data for exactly the next two years (502 business days) as well as the dividend data from the same date range for each stock. Then the dividend data is summed with the stock price data in order to assist in calculating the actual capital gain of each stock based on the fact that one share of every recommended stock was bought, and the dividends paid out were kept and not reinvested. The dividends are correctly incorporated into the capital gain of the stock from the Yahoo Finance API by summing them to the stock price based on the actual dates that the dividends were given out. By doing this, it ensures that the daily percent return will be as accurate as possible, in order to more accurately represent the capital gain over time. If this was not done then the overall percent return for all of the stocks would spike at the end of every quarter because that is the most commonly believed time that dividends are given out, when in reality the dividends are paid out at different times for different companies.

Once the dividends are correctly added to the stock price of each stock, the Python script went back to the Yahoo Finance API and found the daily adjusted close price for the S&P 500

index during the same date range as each stock recommended. A more accurate return in association with the index can be calculated for each stock, as opposed to having a more general return for the S&P during this period when the index is analyzed in this way. As soon as all of the index data was calculated it was then possible to find the percent change data for every stock, and for every instance of the S&P. These calculations were made with the most common percent change formula:

$$((V_2 - V_1) / V_1) * 100\%$$

This formula allows the script to interpret every stock the same by giving a negative number for stocks that lost value from the date they were recommended, and a positive value if the stocks grew in value. In this instance  $V_2$  is the price of the stock on any given day after the recommendation.  $V_1$  is the price of the stock on the date that it is initially recommended on, so every stock's percent growth will be based on the initial price as opposed to the previous day. This was done in order to make it possible to more easily calculate the average percent growth for the entire portfolio.

Once the percent change for all of the stocks was found the portfolio was then organized by sector and by market capitalization, very similar to the pre-performance stock analytics done by Emery Trahan and Paul Bolster (2009) when analyzing the stocks for a short period of time to illustrate the show's affect on the market. Market capitalization is a common measurement of a publicly traded company's size, it is calculated by multiplying the stock's share price by the number of shares outstanding. It represents a company's total dollar market value of a company's outstanding shares, which is used in order to compare all of the stocks on a common scale. The pre-performance analysis of the stocks varies from the strategy employed by Paul

Bolster when refining the data based on the market capitalization because the stocks were categorized by market capitalization into five commonly used classes, instead of just finding the mean of market capitalization within the portfolio. Specifically, the stocks fell into either the Mega capitalization range which is anything above \$300 billion, Large cap (capitalization) which is \$10 to \$300 billion, Mid cap which is \$2 to \$10 billion, Small Cap which is \$300 million to \$2 billion, and Micro Cap which is anything from \$50 to \$300 million (Seth, 2019)

Another necessary change that was made off of the research model was the categorization of all of the stocks into their sector of the market as opposed to their industry mainly because there were less stocks recommended during the “Featured” segment of the show so the true dispersion of stocks would not be clearly seen if categorized by industry.

To further compare the movement of the S&P 500 index with the stocks recommended by Cramer the variance is calculated in order to show how consistent the growth is when compared with the S&P 500. Additionally, a beta coefficient is calculated because it shows how the movement of a stock is similar to that of the market during the same time period. In this instance the beta coefficient is calculated based on the mean of the percent change of all of the stocks when compared to the mean of the percent change of the S&P 500 for each stock. The average percent change of the S&P 500 is necessary to calculate because almost every stock is recommended on a different day so to compare all of the stocks to the S&P, the index has to be resampled over the same date ranges as all of the stocks were recommended and analyzed on. Ultimately, the beta coefficient calculation used here deviates from the typical beta calculation because it is comparing the average percent change of the Cramer portfolio with the average

percent return of the S&P 500, instead of a rigid time frame for the index. The value of a beta coefficient is able to explain a portfolio's volatility in comparison with the S&P 500 index.

As a way to find the influence of certain sectors of the market on Cramer's total return a calculation was adapted from Bolster, Trahan and Venkateswaran (2012) by multiplying the percent change of all of the stocks in each sector with the percentage of that sector in Cramer's portfolio. Once this value was found it was then divided by the total growth of Cramer's portfolio overall to show the distribution of percent change of the stocks based on sector, this process was then repeated with the stocks categorized by market capitalization as well.

### Results and Discussion:

The credibility of Cramer will be derived from how the stocks in the portfolio are distributed by both market capitalization and sector, and how the categorization of these stocks plays into the total percent change of the portfolio. Overall the distribution of the stocks by market capitalization and sector are as follows:

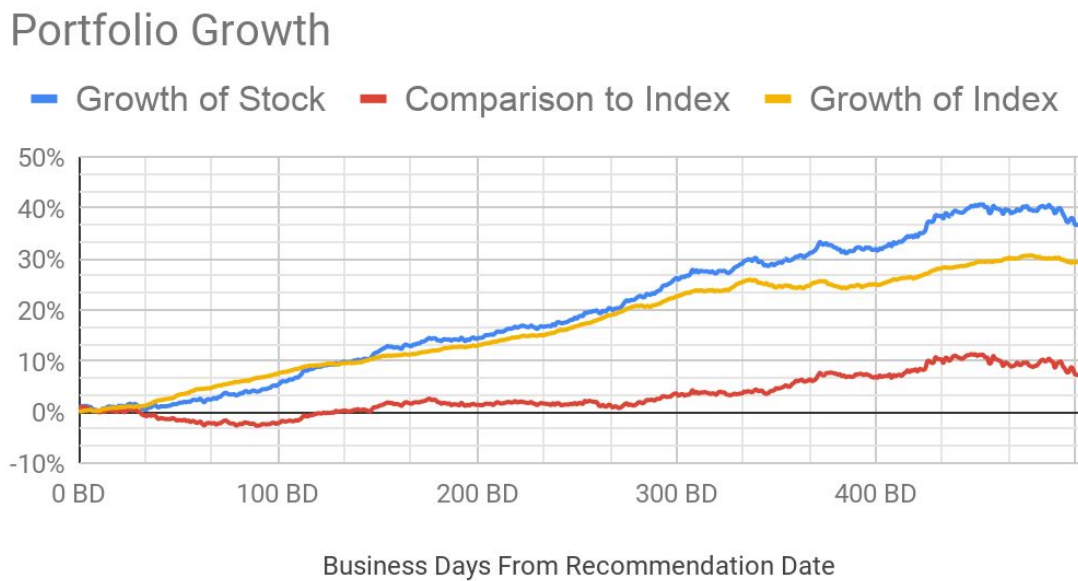
Sector	% of Total	Market Capitalization	% of Total
Technology	27.27%	Large Capitalization	60.23%
Consumer Cyclical	21.59%	Mega Capitalization	20.45%
Consumer Defensive	11.36%	Small Capitalization	10.23%
Industrials	10.23%	Mid Capitalization	7.95%
Energy	10.23%	Micro Capitalization	0.00%
Healthcare	6.82%		
Financial Services	6.82%		
Materials	3.41%		
Communication Services	2.27%		
Utilities	0.00%		
Real Estate	0.00%		

**Figure 1**

The data in figure 1 suggests how Cramer favored larger companies, with over 80% of his portfolio being filled with either Large or Mega Capitalization stocks, which are much more stable than their smaller counterparts. Additionally, the lack of any Real Estate or Utility stocks also suggests how the market situation of the time caused Cramer to pull away from stocks that were previously stable and capable of giving adequate dividends to their shareholders.

The main data outputted by the Python script comes in the form of the following graph:

**Figure 2**



The yellow line in Figure 2 represents the average movement of the S&P 500 for every stock in the portfolio and it shows a clear bullish trend, ending the two year period at +29.4% growth. This growth is unusually large when compared to the mean annual growth of the market since the 1950s which has been at 7.0% when adjusted for inflation. (Hamm, 1). The stocks recommended by Mr. Cramer were ultimately able to benefit from this growth because of how well the market was able to perform over the same time period that Cramer recommended his stocks.

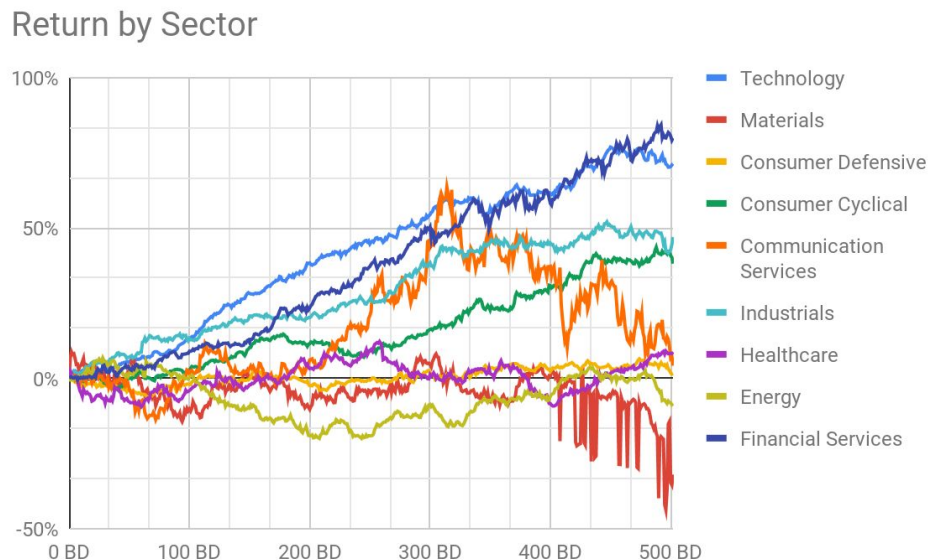
As can be shown by Figure 2, the growth of the portfolio ends up being greater than the growth of the S&P 500 index by +7.23%. While this information is often flaunted by Cramer, it is unable to show the reliability of the stocks in the portfolio because it does not exhibit the true movement of the stocks in the portfolio during the entire time period in which they are assessed. The movement of the portfolio is not statistically significantly different than the daily movement of the S&P 500 over the same time period as supported by the p-value of 0.14, which supports the alternate hypothesis because the p-value is larger than the maximum threshold of 0.05 to prove statistical significance. For the investors watching *Mad Money*, this shows how the stocks recommended during the show do not perform better than the general market, despite the fact that from the surface it seems that the movement is more profitable.

The hypotheses can be further supported by the calculation of the beta coefficient in order to show the overall volatility of the portfolio with the S&P 500 index. The beta coefficient is 0.84 which is very close to 1, which shows how the movement of the portfolio is overall very similar to the movement of the market as a whole. This further supports the alternate hypothesis on the suspicion that the portfolio is a representative sample of the market simply because of how large it is. Therefore, it is not justifiable to invest in the stocks recommended on *Mad Money* because of the sheer size of an investment necessary to get the same returns as the index. Additionally, the consistency of the growth of the portfolio was compared with that of the S&P 500 index in order to show the daily volatility difference between the two entities. The variance ( $\sigma^2$ ) was calculated to prove this point, for the index  $\sigma^2 = 0.016$  and for the portfolio  $\sigma^2 = 0.107$ . The variance of the portfolio on a daily return basis is ten times that of the index, further supporting the alternate hypothesis because the movement of the portfolio is more erratic than

that of the market, therefore investing in the stocks recommended on *Mad Money* is not wise because of the larger risk related to the investment. Looking solely at the range of the analyzed portfolio (-83.28% to +146.16%) continues to support the alternate hypothesis that more viewers are watching the show than would ultimately benefit since there is more risk in the investment, and it does not consistently perform better than the index.

To further show the credibility of Cramer the computer program categorized the percent returns of the stocks in the portfolio by market capitalization and sector. The distribution by sector is as follows:

**Figure 3**



The range of movement between the stocks in certain sectors of the market is extremely variant, which gives clues to the concept that the returns by sector are not proportional to the percent of the portfolio that they are apart of. The calculation done by Bolster, Trahan and Venkateswaran (2012) was used to discover the dispersion of the returns of the stocks based off of the percent of the portfolio they filled. The stocks recommended from the Technology and

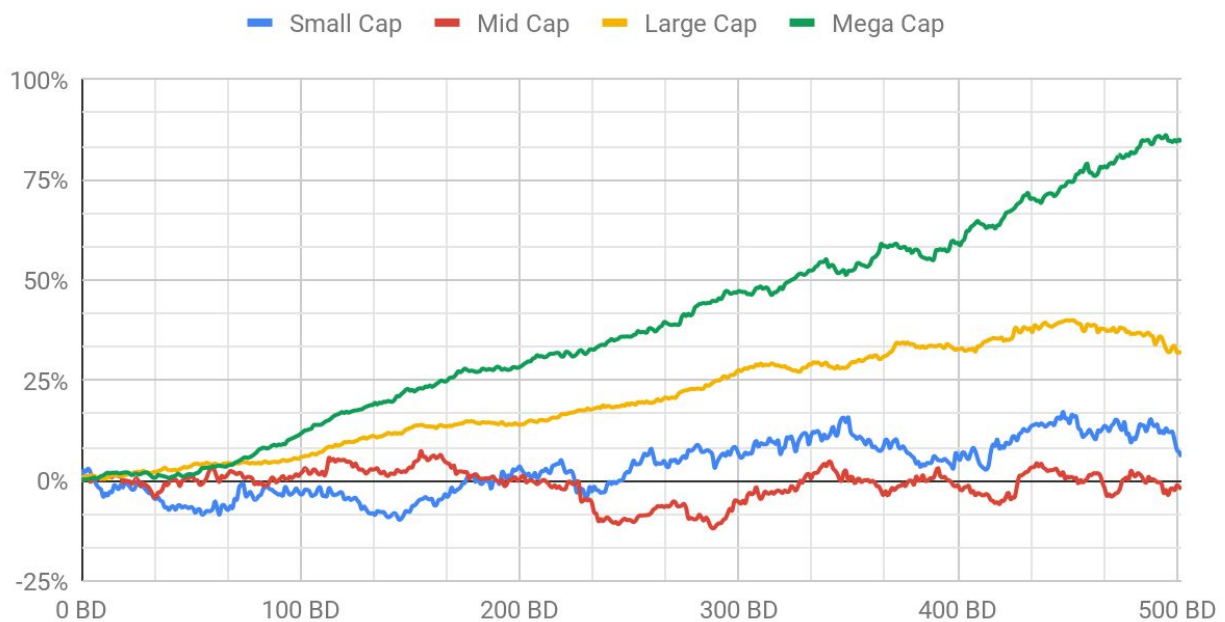


Consumer Cyclical sectors fill 48.9% of all of the stocks in the portfolio, but they account for +75.05% of the returns of the portfolio. The dispersion of the stocks in the portfolio by sector shows the unreliability of the recommendations made on the show, and since the growth of the portfolio is not statistically different than the growth of the index it is best for any investors watching the show to shy away from taking action because of the recommendations made on the show.

The dispersion of the stocks by market capitalization are as follows:

**Figure 4**

### Return by Market Capitalization



As can be seen by Figure 4 the distribution of the returns of the stocks by market capitalization is variant, similarly to the dispersion by sector. The Small and Mid Capitalization companies (\$300 million to \$10 billion) perform worse than the market over the two year period

that they were assessed, while Large and Mega Capitalization companies (>\$10 billion) are able to outperform the market and ultimately carry the portfolio towards positive returns. Replicating the calculation adopted from Bolster, Trahan and Venkateswaran (2012) 98.3% of the positive returns of the portfolio come from the stocks categorized in the Large and Mega capitalizations, while they are only 80.68% of the total portfolio. This gap between returns of the categorization of the stocks by market capitalization contributing toward the total return of the portfolio is able to more strongly indicate the reasons for not investing in the stocks recommended on *Mad Money*. The reliance on only one category of stocks for the well-being of the entire portfolio increases the risk associated with the investment for the viewers watching the show because of how much capital is necessary to invest in the portfolio. Since the alternate hypothesis has already been proven to show that the logic behind listening to Cramer is false, the dispersion of the returns further supports the risk involved when listening to the recommendations. For these reasons it would be more intelligent to avoid taking action on what Cramer says because the size of the portfolio is large, the stocks themselves provide varied returns, and the portfolio is statistically no different than the index.

## **Conclusion**

The performance of the portfolio compiled of stocks recommended on *Mad Money* when compared with the S&P 500 index is not indicative of positive endorsement related to taking action on the stocks recommended by Cramer. The 380,000 potential investors that watch the show should be wary of any investment advice from *Mad Money* because of the large variance of the daily percent return from the portfolio. On a daily basis the portfolio is ten times as volatile as the index which provides additional support towards the argument that the similarity of the

portfolio to the index, the increased risk related to investments in the portfolio, and the grand amount of stocks in the portfolio explain why it is not a wise decision to invest in the stocks recommended on *Mad Money*. Investors would be better off putting their money in an exchange traded fund that mirrors the S&P 500.

The portfolio is a representative sample of the market because of its statistical insignificant difference from the movement of the index as shown by the p-value of 0.14 and its beta coefficient of  $\beta = 0.84$ , indicating how similar the portfolio moved over the two year period that it was assessed in relation to the index. Ultimately, *Mad Money* should not be used as a guide to investments, and instead should be enjoyed because of the entertaining nature of the show.

### **Limitations**

The majority of previous research papers focusing on *Mad Money* used yourmoneywatch.com as a resource to collect a list of all of the recommendations made by Cramer. Unfortunately, this website did not exist when this project was carried out so thestreet.com was used to collect data on the recommendations made, but the oldest recommendation history on this website went back only two years, as opposed to yourmoneywatch.com which had all of the recommendations since the show's existence. Therefore the data was not as detailed as it could have been if older recommendation data could have been acquired.

### **Future Directions**

To discover more findings on the credibility of Cramer it would be useful to compare how the performance of his stocks has changed over time. The research would be able to

conclude how Cramer has performed during different states of the stock market, instead of just the bull market scenario that was analyzed in this paper. The research would be most effective multiple years from now when there would be a longer list of the stocks recommended on the show because the current data on the stocks recommended only goes two years into the past, somewhat limiting the amount of calculations that can be done with the portfolio.

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