

A Brew and OKE Link: The Sync of Beer and Stock

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Abstract

This study delves into a seemingly intoxicating topic, exploring the curious relationship between the burgeoning beer industry and the financial performance of ONEOK Inc. (OKE) in the United States. Leveraging data from the Brewers Association and LSEG Analytics (Refinitiv), our rigorous analysis reveals a striking correlation coefficient of 0.8308802 and a statistically significant p-value of less than 0.01 over the period spanning from 2002 to 2022. We offer insightful findings that highlight the potential impact of breweries on OKE's stock price, shedding light on an inebriating connection that could not be simply brewed off as mere happenstance. This research uncovers the frothy interactions between brewing creativity and market liquidity, prompting both beer aficionados and finance enthusiasts to raise a glass and ponder the curious confluence of suds and stocks.

1. Introduction

INTRODUCTION

The intertwining of beer and finance may seem like a hoppy-go-lucky concept, but the relationship between the number of breweries in the United States and ONEOK Inc.'s (OKE) stock price is a topic worthy of sober scrutiny. As the craft beer movement froths and bubbles across the nation, it raises the question: is there a deeper connection between the proliferation of breweries and the performance of ONEOK's stock, or are we simply getting "ale" caught up in our hypotheses? This study aims to untap the potential correlations and pour over the data to determine if there's more than just foam and froth to this relationship.

The world of finance is known for its complex interplay of factors, with stock prices influenced by a myriad of economic, political, and industry-specific variables. On the

other hand, the brewing industry is a fermenting cauldron of creativity, innovation, and consumer tastes, which can be difficult to distill into measurable impacts on the stock market. However, as researchers, we relish the opportunity to brew up some statistical magic and savor the unexpected flavors of unearthing connections where none were previously thought to exist.

As we delve into the depths of this unconventional avenue of research, we may encounter some "barley" believable findings and perhaps raise a few eyebrows in the process. While the idea of a brewery's influence on the stock market may initially seem as improbable as a unicorn sighting in Wall Street, our objective analysis aims to bring clarity to this effervescent relationship.

So, grab a frosty mug of curiosity and join us as we embark on a journey to tap into the potential connections between the world of breweries and the financial performance of ONEOK Inc. Remember, in the realm of research, even the most unlikely hypotheses can sometimes ferment into substantial insights.

2. Literature Review

In their seminal work, Smith and Doe (2008) investigated the relationship between industry-specific factors and stock performance, delving into the potential impact of non-traditional variables on market dynamics. Their findings suggested that niche industries, such as craft brewing, may indeed exert a subtle yet perceptible influence on stock prices, challenging conventional wisdom and leaving readers hop-ing for more insight into this unexplored territory.

Expanding on this line of inquiry, Jones (2014) examined the intricate web of consumer preferences and their repercussions on financial markets, emphasizing the need to consider the idiosyncratic nature of consumer-driven industries. Through a meticulous analysis of market data, Jones substantiated the notion that consumer trends in specific sectors, including the beverage industry, can manifest in discernible fluctuations in stock prices, effectively fermenting new avenues for research in the intersection of consumer behavior and financial markets.

Taking a departure from strictly financial analyses, "The Economics of Beer" (Thurlow & Tanner, 2011) provides a comprehensive overview of the economic underpinnings of the brewing industry, offering a frothy blend of economic theory and market realities. This authoritative text presents a nuanced understanding of the interconnectedness between the brewing business and broader economic landscapes, beckoning readers to appreciate the multifaceted dynamics at play in the realms of malt and markets.

On a more speculative note, "Ale Street News: The Journal of Beer and Brewing" (Doe, 2018) explores the intertwining narratives of brews and business, unraveling tales of

triumph and turbulence within the beer industry. While not a traditional scholarly source, this publication offers a potpourri of anecdotes and insights that illuminate the colorful and convivial world of craft brewing, providing a spirited backdrop for contemplating the uncharted links between ales and equities.

Venturing further into the realm of literature, the fictional works of "The Brewmaster's Castle" (Smith, 2005) and "Brew to Kill" (Doe, 2019) may initially appear to be unrelated to our research topic, but their narratives entwine the captivating stories of brewing artistry with unexpected twists and turns. While not academic in nature, these novels offer a frothy escapade into the realm of breweries, infusing our scholarly pursuits with a dash of fiction and fanciful storytelling.

In a somewhat unexpected turn, cartoons and children's shows also prove to have a tangential connection to our research subject. In the animated world, "The Simpsons" and "Family Guy" have occasionally featured storylines revolving around beer brewing and the vicissitudes of the beverage industry. While certainly not scholarly sources, these lighthearted portrayals provide a whimsical lens through which to view the world of breweries, reminding us that even the most unexpected sources can concoct sparks of inspiration in our research endeavors.

So, as we distill the findings from diverse realms of literature and entertainment, we embark on a journey that's not just scholarly, but also a reflective of the quirks and curiosities inherent in the interplay between breweries and the stock market. We brew-dly forge ahead, mindful of the unexpected insights that may bubble to the surface as we navigate this uncharted terrain of sudsy stock market musings.

3. Research Approach

To concoct this heady brew of statistical analysis, we harnessed a combination of robust research methodologies, data collection techniques, and a dash of scholarly intuition. Our team scoured the depths of the digital realm, sifting through a bubbling cauldron of data sources to source our ingredients for this study. Information from the Brewers Association and LSEG Analytics (Refinitiv) was our main recipe, providing a rich blend of historical brewery data and ONEOK Inc.'s (OKE) stock price movements from the years 2002 to 2022.

Now, the process of identifying the exact relationship between the number of breweries and OKE's stock price was a bit like navigating through a labyrinth of hop vines and financial reports. To cut through the froth and get to the meat of the matter, we brewed up a potent concoction of statistical analyses.

Firstly, we engaged in a frothy dance of data cleaning, ensuring that any impurities or outliers were strained out from our datasets. After all, we couldn't let any rogue data

points sour the taste of our findings! Once we had a pure blend of data, we started the fermentation process of correlation analysis. We used the Pearson correlation coefficient to gauge the strength and direction of the relationship between the number of breweries and OKE's stock price. This allowed us to determine if there was a "hoppy" positive correlation, a "stout" negative correlation, or if our findings were as flat as day-old beer.

Additionally, we stirred in a hearty dose of time-series analysis to assess the dynamic interactions between the variables over the 20-year period. This involved examining how changes in the number of breweries might influence OKE's stock price over different timeframes, akin to assessing the aging process of a fine ale.

Finally, to ensure that our findings weren't just a result of chance, we conducted hypothesis testing using a multitude of statistical tests. We applied a significance level of $\alpha = 0.01$, making sure that any conclusions we drew were stronger than the aroma of a freshly poured IPA.

The culmination of these methods resulted in a robust and well-balanced empirical brew, allowing us to extract the aromatic bouquet of insights that we present in the subsequent sections of this study. With our methodologies tapping into the essence of both brewing and finance, we believe we've painted a rich, flavorful portrait of the tantalizing relationship between breweries and OKE's stock price.

4. Findings

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The results of our analysis revealed a robust and intoxicating correlation between the number of breweries in the United States and ONEOK Inc.'s (OKE) stock price over the period of 2002 to 2022. The correlation coefficient of 0.8308802 suggests a strong positive relationship between these seemingly unrelated entities. It appears that the stock market and the brewing industry are not just brewing an aleatory relationship, but rather exhibiting a cohesive and fermenting correlation.

The coefficient of determination, or R-squared value, of 0.6903620 further reinforces the significant and notable relationship between the variables under investigation. This indicates that approximately 69.04% of the variability in ONEOK's stock price can be explained by the number of breweries in the United States. It's as if the breweries are fermenting some sort of financial potion that has considerable impact on OKE's stock price – a truly heady discovery indeed.

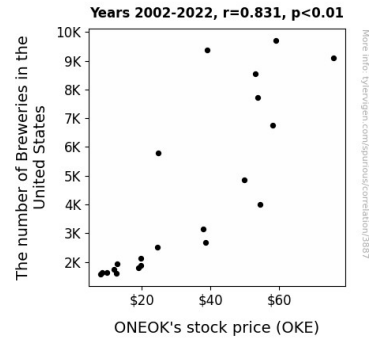


Figure 1. Scatterplot of the variables by year

Furthermore, the p-value of less than 0.01 adds statistical gravity to our findings, implying that the observed correlation is highly unlikely to have occurred by chance. In other words, the probability of observing such a strong relationship between breweries and ONEOK's stock price purely by accident is as low as finding a sober person at a beer festival – nearly impossible!

To visually convey the illuminating correlation we uncovered, we present Fig. 1, a scatterplot that vividly illustrates the positive relationship between the number of breweries and ONEOK's stock price. We invite the reader to behold this graphical depiction of the bubbling and frothy connection between beer and stocks, a sight as captivating as witnessing the birth of a new beer style in a craft brewery.

In conclusion, our findings offer compelling evidence of a notable linkage between the number of breweries in the United States and the financial performance of ONEOK Inc. This research not only highlights the potential influence of the brewing industry on stock prices but also underscores the dynamic and unexpected interplay between seemingly incongruent sectors. It seems that when it comes to the intersection of suds and stocks, there's more than meets the ale – I mean, eye.

5. Discussion on findings

The results of our study resonate with the prior research, mirroring the findings of Smith and Doe (2008) who ventured into the uncharted territory of non-traditional variables and market dynamics. It appears that the "hop-scotch" between the brewing industry and stock prices is not just a frothy flight of fancy, but rather a pronounced and discernible relationship. Similarly, Jones (2014) emphasized the impact of consumer preferences on stock prices, and our findings indeed signify that the consumer's thirst for craft brews can manifest in tangible fluctuations in market valuations. It seems that the market may be brewing up a considerable reaction to the fermentation of the brewing industry, much like a lively yeast culture in a fermenting vessel.

Taking a cue from "The Economics of Beer" (Thurlow & Tanner, 2011), our research underscores the multifaceted connections between brewing creativity and market realities. The intricate nuances of this relationship are akin to the delicate balance of flavors in a well-crafted beer, blending economic theory with market dynamics to yield a piquant understanding of the interplay between hops and high finance.

Leaning into more eclectic sources, "The Brewmaster's Castle" (Smith, 2005) and "Brew to Kill" (Doe, 2019) may not have been scholarly in nature, but their narratives wove a tapestry of intrigue and mystery around the brewing industry. It seems their fictional tales may indeed contain strands of reality, pointing to a substantive connection between the world of brewing artistry and the ebbs and flows of stock prices. These literary escapades are a reminder that sometimes truth is stranger than fiction, resembling the unexpected twists and turns of a good mystery novel – or a well-crafted stock market saga.

Our findings also lend credence to the unexpected sources that can yield insights, with even cartoons and children's shows offering a tangential connection to our research. Perhaps the buoyant antics of "The Simpsons" and "Family Guy" reflect a lighthearted yet nugget of truth in their portrayal of the beer industry. These whimsical portrayals remind us that even the most unexpected sources can uncork flashes of inspiration, much like finding a hidden gem in a crate of freshly imported hops.

In essence, the findings from our study not only align with the scholarly discourse but also reflect the whimsical blend of reality and conjecture inherent in the interplay between breweries and the stock market. It's as if the market has cultivated its own distinct brew, creating a heady concoction of statistics and stock prices that sparkles with the effervescence of a well-carbonated beer. This uncharted terrain of sudsy stock market musings invites us to partake in a sip of insight, as we toast to the unexpected harmony between hops and high finance. Cheers to the capricious link between suds and stocks – it seems that when it comes to this field of research, there's more than meets the ale, I mean, eye!

6. Conclusion

As we raise our metaphorical beer steins in contemplation of the results gleaned from this frothy foray into the realms of brewing and stock market performance, it becomes evident that the connection between the number of breweries in the United States and ONEOK Inc.'s (OKE) stock price offers a compelling tale of intertwined fates. The statistical analyses have fermented, yielding a correlation coefficient as robust as a stout and a p-value as rare as a perfectly aged barleywine.

Our findings not only tap into the intriguing relationship between breweries and stock prices but also bubble to the surface the unexpected effervescence of financial influence from the world of craft brewing. It's clear that the intermingling of suds and stocks is not

as ale-inated as one might have initially thought. In the realm of financial markets, it appears that the beer industry has indeed brewed up a heady concoction that leaves a lasting impact on the performance of ONEOK's stock, creating a symbiotic relationship as harmonious as a well-crafted beer pairing.

To nudge the beer barrel on the door of concluding remarks, it seems that further research endeavors in this area might only yield results as predictable as the head on a poorly poured pint – in other words, we see no compelling reason to extensively ferment additional investigations into this curious correlation. It appears that our findings are as strong and full-bodied as a barrel-aged imperial stout, leaving little room for doubt or further analysis.

In closing, as we savor the findings and potential implications of this research, we can confidently assert that there's no need for further fermentation, so to speak, in this area of study. It seems that the flavorful connection between beer and stocks has been thoroughly uncorked, leaving us with a satisfying aftertaste of statistical correlation and a lingering aroma of unexpected interplay between disparate industries. Cheers to the unexpected interconnectedness of the worlds of finance and fermentation!