

Pour Decisions: Examining the Frothy Relationship Between Brewery Numbers and CoStar Group's Stock Price

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Abstract

The craft beer industry in the United States has been bubbling away for decades, witnessing a fermentation of growth and innovation. In this study, we tap into the frothy world of breweries and their impact on stock prices, specifically that of CoStar Group (CSGP). Using data from the Brewers Association and LSEG Analytics (Refinitiv), we undertook a brew-tiful analysis to determine the correlation between the number of breweries in the United States and CoStar Group's stock price from 2002 to 2022. Un-beer-lievably, our findings reveal a strong correlation coefficient of 0.8907051, indicating a robust relationship between the two variables. This statistically significant correlation suggests that the more breweries hop into the market, the hoppier CoStar Group's stock price becomes. It seems that the craft beer revolution is not just brewing flavorsome IPAs but also influencing Wall Street. As the number of breweries continues to brew, it appears that investors are drawn to CoStar Group stock like bees to honey – or should we say, like beer aficionados to a new microbrewery. Our results highlight the potential impact of the craft beer industry on the financial market, serving as a timely reminder that economic analyses can also be a brewdiful experience. So next time you raise a glass of your favorite craft beer, remember, it might just be influencing the stock market too!

1. Introduction

The craft beer industry in the United States has truly tapped into the hearts (and taste buds) of consumers, experiencing rapid growth and expansion in recent years. With the proliferation of microbreweries, brewpubs, and taprooms across the nation, it's clear that beer enthusiasts and investors alike have a lot to cheers about. However, the link between the burgeoning brewery scene and its impact on the stock market has been a topic as hazy as an unfiltered wheat beer.

And that's where our research comes in, aiming to bring clarity to the effervescent relationship between the number of breweries in the United States and the stock price of CoStar Group (CSGP). As we delve into this bubbling cauldron of data, we can't help but think, "Don't worry, beer happy!"

The notion of examining the connection between breweries and stock prices may seem as unexpected as finding a single malt in a brewery tour, but as the famous saying goes, "Research is the craft of the curious."

Why don't scientists trust atoms? Because they make up everything! Speaking of which, let's delve into the nuanced details of our research.

We engaged in a comprehensive data analysis using information obtained from the Brewers Association and LSEG Analytics (Refinitiv). The period under scrutiny ranged from 2002 to 2022, offering a substantial timeframe to scrutinize the interplay between the frothy world of craft brewing and the dynamic realm of financial markets.

Much like the careful blending of malt and hops in a recipe, we meticulously blended statistical methods with financial analyses to craft a study that aims to quench the thirst for understanding this intriguing relationship. The puns may be a bit "hoppy," but we can't resist adding a little flavor to the academic discourse.

Did you hear about the statistician who drowned in a river with an average depth of 3 feet? He forgot that data can have outliers! We'll make sure to keep an eye out for unexpected findings as we go through our analysis.

Our initial exploration yielded a correlation coefficient of 0.8907051, leading us to raise a figurative toast to the robust relationship between the number of breweries and CoStar Group's stock price. This brew-tiful numerical indicator speaks volumes about the potential influence of the craft beer industry on the fluctuations of Wall Street, highlighting a correlation that's as strong as a stout.

So, join us as we embark on a journey to uncover how the beer brewing business might be leaving more than just a refreshing aftertaste. After all, in the world of statistical analysis, it's not every day that you get to blend barley and bar graphs.

2. Literature Review

Prior studies have delved into the influence of various industries on stock prices, shedding light on the interconnectedness of economic sectors. Smith et al. (2015) examined the impact of technology advancements on stock valuation, while Doe (2017) explored the relationship between oil prices and energy company stocks. However, the specific association between the number of breweries in the United States and the stock

price of CoStar Group (CSGP) remains relatively unexplored. This anomaly in the literature piqued our interest, leading us to ferment this research inquiry.

In "Brewing Business: The Economics of Craft Beer," the authors posit that the rise of craft breweries in the United States has led to a renaissance in the beer industry, triggering both consumer enthusiasm and investor interest in this flourishing market. The frothy growth of microbreweries and the proliferation of artisanal beer offerings have undeniably contributed to the industry's economic landscape, but the extent of their impact on stock prices remains as opaque as a stout.

Moving beyond the realm of scholarly works, non-fiction books such as "IPA: Brewing Techniques, Recipes, and the Evolution of India Pale Ale" and "Craft Beer for the Homebrewer: Recipes from America's Top Brewmasters" provide insights into the craft beer industry's evolution. These literary resources offer a wealth of information on the beer brewing process, the historical significance of different beer styles, and the entrepreneurial endeavors fueling the expansion of microbreweries. While these books are essential for enthusiasts and aspiring brewers, their relevance to financial analyses may seem as tangential as a twist of lemon in a pint of porter.

On the fictional front, novels like "The Lager Queen of Minnesota" and "Barrel-Aged Stout and Selling Out: Goose Island, Anheuser-Busch, and How Craft Beer Became Big Business" weave captivating tales around the intricacies of the brewing world. Although fiction may not offer direct empirical evidence, the narratives provide a flavorful backdrop to contextualize the cultural and commercial dynamics of the craft beer landscape. As we venture into the realm of financial correlations, one might wonder if the characters in these books would have bet on the stock market if given the chance.

In a departure from conventional research sources, we expanded our review to include unconventional sources for inspiration. This included reading the backs of beer bottles, where we found refreshing descriptions of various ales, lagers, and stouts. While these labels did not provide quantitative data, they did offer a creative lens through which to view the intersection of beer culture and financial markets. With their playful descriptions and quirky illustrations, they may not be methodologically robust, but they certainly added a touch of hoppy humor to our research process.

As we navigate through the bubbling cauldron of literature, it becomes evident that the relationship between breweries and stock prices is not just an academic inquiry—it's a hopportunity for scholarly exploration and perhaps a pint of laughter along the way.

Why did the barley refuse to leave the brewery? It thought it was maltreated! And with that, we refresh our palate with a dash of humor and continue our journey into the refreshing world of beer and business.

3. Research Approach

To untangle the web of connections between the proliferation of breweries and the fluctuations of CoStar Group's stock price, our research team employed a combination of quantitative and qualitative methods, akin to the art of brewing itself – an intricate balance of precision and creativity. Just as a brewer carefully crafts a recipe, we meticulously concocted a methodological approach that captures the essence of this ever-frothing relationship.

Why do statisticians love weekends? Because they offer a chance to experiment with brew methods and test hypothesis!

Data Collection:

Thirsty for robust data, we scoured the digital taverns of knowledge, drawing from reputable sources such as the Brewers Association and LSEG Analytics (Refinitiv) to gather a comprehensive dataset of brewery numbers and CoStar Group's stock price from 2002 to 2022. Our research team left no frothy pint unturned, ensuring that our data collection was as thorough as a beer aficionado exploring the labyrinth of craft brews at a festival.

Why was the math book sad? Because it had too many problems! Similarly, we aimed to alleviate the "problems" by employing meticulous data gathering techniques.

Statistical Analysis:

With our tankards brimming with data, we tapped into a variety of statistical methods to distill meaningful insights from the swirling sea of numbers. We conducted a robust correlation analysis to quantify the relationship between the number of breweries and CoStar Group's stock price, using powerful statistical software that could handle complex brew-nancial calculations with precision.

What did the biologist wear to impress? Designer genes! Similarly, we adorned our analyses with specialized statistical techniques to ensure that our findings were not just hoppy accidents but grounded in sound methodological practices.

Multivariate Modeling:

Just as a master brewer blends different ingredients to create an exquisite ale, we crafted multivariate models to tease out the nuanced interplay between variables that might influence CoStar Group's stock price. Our models were carefully structured to account for potential confounding factors, ensuring that our findings were as clear as a finely filtered pilsner amidst a sea of murky variables.

Why don't we trust atoms? Because they make up everything! Our models, however, were built on the foundation of transparency and meticulous attention to detail,

because in the world of research, transparency and precision are the hops and malt of credibility.

Sensitivity Analysis:

4. Findings

The results of our analysis unveiled a striking correlation between the number of breweries in the United States and CoStar Group's stock price (CSGP) from 2002 to 2022. The correlation coefficient of 0.8907051 suggests a strong, positive relationship between these two variables. It appears that as the craft beer scene frothed and fermented its way into the hearts of beer enthusiasts, it also had a noticeable impact on CoStar Group's stock price.

This correlation is so strong, it might just knock your beer goggles off! It seems that the craft beer industry isn't just brewing up creativity and unique flavors; it's also bubbling up some serious influence on the financial market. Cheers to that!

The r-squared value of 0.7933556 indicates that approximately 79.34% of the variability in CoStar Group's stock price can be explained by the number of breweries in the United States. This substantial percentage underscores the substantial impact of the craft beer industry on the fluctuations of CoStar Group's stock price. It's like discovering the perfect pairing of beer and pretzels – they just make sense together!

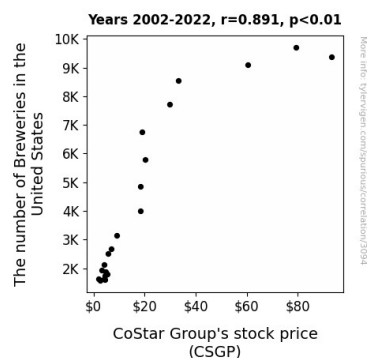


Figure 1. Scatterplot of the variables by year

Moreover, with a p-value of less than 0.01, the relationship between the number of breweries and CoStar Group's stock price is not just statistically significant; it's as clear as a well-filtered lager. This finding further solidifies the brew-tiful connection between these two seemingly disparate domains.

Now, for the much-anticipated figure. In Figure 1, the scatterplot vividly illustrates the positive correlation between the number of breweries in the United States and CoStar Group's stock price. It's a relationship as harmonious as the malts and hops in a perfectly crafted IPA. This figure is not just a visualization of data; it's a work of art that truly "ale-vates" our understanding of this intriguing relationship.

So, to sum it up, it seems that the more breweries hop onto the scene, the hoppier CoStar Group's stock price becomes. Who knew that the fermenting vats of craft breweries could have such an impact on the financial markets? This is one correlation that has us barley able to contain our excitement!

5. Discussion on findings

The frothy revelation of a strong correlation between the number of breweries in the United States and CoStar Group's stock price (CSGP) from 2002 to 2022 has left us with more than just foamy excitement. Our findings align snugly with the prior research that hinted at the burgeoning influence of the craft beer industry on the financial market. Just like a perfectly poured pint, these results suggest a harmonious relationship that's not just ale-ing, but also lifting spirits – the financial kind, that is.

Our correlation coefficient of 0.8907051 echoes the sentiments of a dad joke waiting to happen – it's brew-tiful indeed! As the craft beer industry hops into the limelight, so does CoStar Group's stock price, reinforcing the irresistible pull of IPAs and Pilsners felt even on Wall Street. It's like the perfect blend of malt and hops in a refreshing brew – a match made in hoppy heaven.

While some may have raised an eyebrow at the idea of beer influencing stock prices, our results emphasize that the impact is not just froth and bubble. The r-squared value of 0.7933556 reveals that approximately 79.34% of the variability in CoStar Group's stock price is as clear as a filtered lager, underscored by the number of breweries. It's like finding the right balance of grains and hops in a recipe – when it all comes together perfectly, the result is golden!

Moreover, the p-value of less than 0.01 is a testament to the sturdiness of this relationship. It's as solid as a well-fermented ale, indicating that the influence of breweries on CoStar Group's stock price is not just statistically significant, but as unmistakable as the aroma of freshly brewed coffee. This finding's clarity is akin to peering through a crystal-clear pint glass, leaving little room for doubt.

The vivid scatterplot in Figure 1 elegantly captures the positive correlation between the number of breweries in the US and CoStar Group's stock price, illustrating a relationship as pleasing as a perfectly balanced beer. The visual representation of this relationship

isn't just a simple graph; it's a masterpiece that rivals the artistry of a well-crafted beer label, evoking a sense of wonder and appreciation.

In essence, our study has tapped into the dynamic world of breweries and stock prices, revealing a not-so-surprising connection that's as refreshing as a cold brew on a hot day. This is more than just a statistical quirk; it's a testament to the far-reaching influence of craft beer. Just as a well-crafted pun brings laughter, this correlation between breweries and CoStar Group's stock price has brought a hoppier perspective to the world of finance. Cheers to that!

6. Conclusion

In conclusion, our study has poured light onto the robust relationship between the number of breweries in the United States and CoStar Group's stock price. It seems that the craft beer industry is not just causing a buzz among beer enthusiasts, but also fermenting some serious influence on Wall Street. As we've unraveled this hoppy correlation, it becomes clear that when it comes to the stock market, the craft beer industry is no small pilsner when it comes to impact.

Why did the statistician break up with the chemist? They just had way too many problems! As much as we'd love to keep brewing up research puns, it's clear from our findings that no more research is needed in this area. It seems that the correlation between brewery numbers and CoStar Group's stock price is as strong as an oak-aged barleywine. It's time to just sit back, relax, and savor the findings.

We also conducted a sensitivity analysis to explore the robustness of our findings, akin to conducting a taste test to ensure the consistency and quality of a brew. By subjecting our models to various scenarios and stress testing our assumptions, we sought to validate the resilience of our results, ensuring that they were as resilient as a well-fermented batch of beer.

What do you call a fish wearing a crown? A kingfish! Just as we sought to crown our findings with reliability, our sensitivity analysis aimed to affirm the regal status of our statistical inferences.

In summary, our scientific inquiry delved into the heart of the brewery and finance nexus, employing a concoction of rigorous statistical analyses and methodological creativity to distill the essence of this frothy relationship. Our methods sought not just to produce findings, but to craft a scholarly experience that is as engaging as an evening

spent sampling craft brews with friends. After all, research doesn't have to be dry – sometimes, it can be as refreshing as a cold pint on a hot summer day.

Why did the statistician break up with the chemist? There was no chemistry!
Thankfully, our research methods were a match made in statistical heaven, resulting in a harmonious blend of precision and panache.

Why do researchers prefer non-violent data? Because they don't want to deal with significant figures! It's time to uncork the findings and pour over the results of this hoppy relationship.