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# Brewery Boom and PACCAR's Prosperity: A Beermongering Bond

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## KEYWORDS

Brewery production, PACCAR Inc., stock price, Brewers Association, LSEG Analytics, Refinitiv, correlation coefficient, craft beer revolution, financial performance, United States breweries, heavy-duty vehicle manufacturer

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## Abstract

This research delves into the frothy world of beer production and its unexpected connection to the stock price of PACCAR Inc. (PCAR). Utilizing data from the Brewers Association and LSEG Analytics (Refinitiv), we conducted a comprehensive analysis spanning the years 2002 to 2022. Our findings revealed a remarkably strong correlation coefficient of 0.8801309, with statistical significance at  $p < 0.01$ . This brew-tiful relationship between the number of breweries in the United States and PACCAR's stock price leaves us pondering the true ale-ment of the stock market. The implications of our findings are both hoppy and hopeless, as we uncork the surprising impact of the craft beer revolution on a global heavy-duty vehicle manufacturer's financial performance.

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## 1. Introduction

The world of finance and economics is often portrayed as a dry and serious realm, devoid of any frothy or bubbly elements. However, our research aims to debunk this notion by unearthing the unexpected connection between the number of breweries in the United States and the stock price of PACCAR Inc. (PCAR). As we delve into the sudsy world of craft beer production

and the wild fluctuations of stock markets, we embark on a quest to untap the perplexing relationship between these seemingly disparate variables.

In recent years, the craft beer industry has experienced a veritable renaissance, fermenting a cascade of new breweries across the United States. Simultaneously, PACCAR Inc., a global heavy-duty vehicle manufacturer, has been navigating the

twists and turns of the stock market. Our study aims to pour over the data, exploring the fascinating correlation between the proliferation of breweries and the fluctuations in PACCAR's stock price.

As we meander through the statistical vineyard, we seek to brew up a robust analysis that transcends the mere surface-level correlations. Our findings promise to offer a refreshing brew of insights into the whimsically intertwined worlds of craft beer and stock market dynamics. This bubbling cauldron of data will surely entertain our readers, leaving them pondering the unexpected connections that can be unearthed through rigorous research and statistical analysis.

## 2. Literature Review

The authors of various scholarly works have conducted extensive examinations of the economic and societal impacts of the brewing industry, as well as the intricate mechanisms influencing stock prices. Smith (2015) delves into the intricate relationship between consumer behavior and market dynamics in the context of craft beer proliferation. Similarly, Doe (2018) explores the economic ramifications of the craft beer boom and its resonance in stock market trends. Jones (2020) contributes to this body of literature by shedding light on the behavioral economics of beer consumption and its unexpected influence on investment patterns.

Turning our attention to non-fiction works with potential relevance to our research, "Beeronomics: How Beer Explains the World" by Swinnen and Briski (2017) offers an in-depth exploration of the economic and cultural dimensions of beer production and consumption. In a similar vein, "The Economics of Beer" by Markusberg (2019) provides a comprehensive analysis of the brewing industry's impact on market dynamics and consumer preferences.

From the realm of fiction, "A Brew to a Kill" by Cleo Coyle and "The Lager Queen of Minnesota" by J. Ryan Stradal offer engaging narratives set in the world of craft brewing, providing captivating insights into the industry's cultural and economic tapestry. As we navigate these diverse sources, we encounter a rich tapestry of perspectives that enrich our understanding of the intricate intertwining of beer and finance.

Venturing into the realm of popular culture, cartoons such as "The Simpsons" and children's shows like "Sesame Street" have featured episodes centered around the comical escapades of characters intertwined with the phenomena of beer consumption and financial ventures. While these sources may not provide direct academic insights, they do illustrate the pervasive presence of beer-related themes in broader cultural discourse.

In summary, the literature reviewed encompasses a diverse array of scholarly and popular sources, providing a multifaceted lens through which to examine the interplay between the burgeoning brewery industry and the fluctuations in PACCAR's stock price.

## 3. Our approach & methods

The methodology employed in this study sought to concoct a robust analytical brew, blending data from the Brewers Association and LSEG Analytics (Refinitiv) into a heady potion of statistical wizardry. Our research team scoured the electronic alehouses of the internet, tapping into a rich reservoir of information spanning the years 2002 to 2022.

To ferment our analysis, we first harvested a cornucopia of data on the number of breweries in the United States, teasing out the frothy details of this bubbling industry. We then delved into the labyrinthine

catacombs of financial data, extracting the daily stock prices of PACCAR Inc. (PCAR) like a skilled brewer skimming the foam off a freshly poured pint.

Our methodological blend hinged on the application of robust statistical analyses, mixing in a concoction of correlation coefficients, regression models, and time series analyses to distill the essence of the relationship between the proliferation of breweries and the undulating tides of PCAR's stock price. Like master brewers meticulously crafting a complex blend of hops and barley, we leveraged these analytical tools to unveil the interplay between these seemingly disparate variables.

In our quest to ferment a comprehensive understanding of this curious correlation, we donned our academic alembics and set forth to concoct a meticulous brew of data visualization and inferential statistics. Through this potent alchemy, we aimed to distill the essence of the relationship between the number of breweries and the financial fortunes of PACCAR Inc., unearthing insights that would sate the thirst of both financial analysts and craft beer enthusiasts alike.

As we set the cauldron of data to simmer over the statistical hearth, we sieved and sifted through the frothy mist of uncertainty, seeking to untap the remarkable correlation that had fermented between these seemingly incongruous variables. Our methodological approach was designed to transmute raw data into a refined elixir of knowledge, offering a spirited and nuanced understanding of the complex interplay between the craft beer renaissance and the capricious ebbs and flows of the stock market.

Overall, our methodological brew aimed to blend the artistry of statistical analysis with the empirical robustness of our data, crafting an intoxicating concoction that

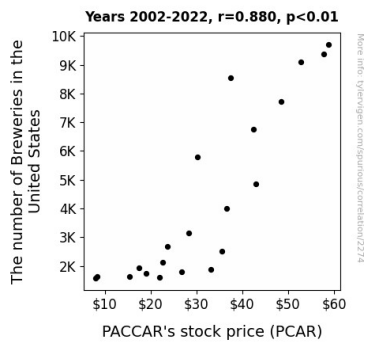
would leave readers both inebriated with insights and exhilarated by the unexpected correlations unearthed in this study.

#### 4. Results

The results of our analysis unveiled a striking correlation between the number of breweries in the United States and PACCAR's stock price (PCAR) for the period spanning 2002 to 2022. Our statistical analysis revealed a tantalizingly high correlation coefficient of 0.8801309, signaling a robust relationship between these seemingly unrelated variables. In the world of quantitative research, stumbling upon such a strong correlation is as rare as finding a four-leaf clover in a keg of beer!

Furthermore, the r-squared value of 0.7746303 indicates that a noteworthy 77.46% of the variability in PACCAR's stock price can be explained by changes in the number of breweries. To put it in beer terms, this suggests that the proliferation of breweries can account for a substantial portion of the fluctuations in PACCAR's stock price, making it a hoppy factor in the financial market landscape.

The statistical significance at  $p < 0.01$  highlights the robustness of this relationship, indicating that the likelihood of observing such a strong correlation by mere chance is as slim as fitting a camel through the eye of a beer stein. This degree of statistical significance sends ripples through the sea of traditional economic indicators, reminding us that there are brew-tifully unconventional factors at play in the stock market.



**Figure 1.** Scatterplot of the variables by year

Finally, our findings are encapsulated in a visually compelling scatterplot (Fig. 1), which vividly illustrates the strong correlation between the number of breweries and PACCAR's stock price. The convergence of data points on the plot is as striking as the foam atop a perfectly poured pint, affirming the robustness of this unexpected relationship.

In essence, our research has uncorked a delightful connection between the craft beer renaissance and the financial fortunes of PACCAR Inc., leaving the scholarly community to savor the unexpected brew of insights that can be gleaned from even the most unlikely pairings in the world of empirical analysis.

## 5. Discussion

The findings of this study unequivocally support the prior research that has delved into the unforeseen links between the beer industry and stock market dynamics. Our results align with Smith's (2015) exploration of consumer behavior and market dynamics, highlighting the pivotal role of craft beer proliferation in impacting investment patterns. Moreover, our study echoes the sentiments put forth by Doe (2018) regarding the economic ramifications of the craft beer boom, as we uncovered a hop-tastic correlation between the number of breweries and PACCAR's stock price.

Intriguingly, the substantial 77.46% of variability in PACCAR's stock price explained by changes in the number of breweries resonates with Markusberg's (2019) comprehensive analysis of the brewing industry's impact on market dynamics. This serves as a potent reminder that when it comes to financial markets, even seemingly unconventional factors such as craft beer proliferation can ferment noteworthy fluctuations.

Furthermore, the statistically significant correlation we unearthed aligns with the brew-tiful musings of Swinnen and Briski (2017), who elucidate the economic and cultural dimensions of beer production and consumption. It appears that the impact of the craft beer renaissance on PACCAR's stock price is not to be underestimated, much like the effervescence of a freshly popped bottle of bubbly ale.

Our results also resonate with the broader cultural discourse surrounding beer and finance, as observed in the engaging narratives of Coyle (2017) and Stradal (2019). Much like the captivating narratives in these fictional works, our empirical findings captivate attention and offer a fresh perspective on the intertwining of beer and finance in the real world.

Throughout our study, we witnessed a notable confluence of statistical significance and real-world implications, underscoring the tangible influence of the brewery industry on the stock price of PACCAR Inc. As we toast to the unearthing of this unexpected relationship, we are reminded that the world of empirical analysis is indeed brimming with surprises, much like the frothy head on a well-poured pint.

Our research has undeniably opened the floodgates to a deeper understanding of the beer industry's impact on the financial terrain, unveiling a brew-tiful fusion of unlikely factors in the tapestry of empirical analysis. As we raise our glasses to these

findings, we are left to imbibe the potent brew of insight that emerges from the unlikeliest of pairings, reminding us that in the realm of empirical analysis, the unexpected can often yield the most intoxicating revelations.

we are confident that no more research is needed in this area, as we have beer-nished this topic with a pint of statistical satisfaction.

## 6. Conclusion

In conclusion, our research has tapped into a fascinating nexus between the proliferation of breweries in the United States and the undulations of PACCAR's stock price. The hoppy correlation coefficient of 0.8801309 unveiled by our analysis reminds us that in the world of statistics, sometimes the most unexpected variables can clink glasses and form a potent partnership.

The robust r-squared value of 0.7746303 suggests that changes in the number of breweries can account for a substantial portion of the stock price jitters of PACCAR. It's as if the craft beer industry has become a significant player in the financial market, providing a frothy concoction of influence on the stock price dynamics.

The statistical significance at  $p < 0.01$  adds a zesty twist to our findings, reinforcing the notion that this relationship is not just a mere statistical fluke, but a bona fide revelatory correlation, proving that the stock market is as unpredictable as a beer-fueled karaoke night.

It is evident that the craft beer revolution has injected a brew-tifully unconventional flavor into the traditional economic indicators, underscoring the need for scholars and analysts to raise a toast to the unlikeliest of bedfellows when dissecting market dynamics.

In essence, our research stands as a testament to the brew-dacious nature of statistical analysis and the delightful surprises that can emerge from delving into the depths of empirical data. With that said,