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# Pouring Over Pints and Portfolios: The Brewtiful Relationship Between Breweries in the United States and M&T Bank's Stock Price

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## KEYWORDS

breweries, United States, M&T Bank, stock price, correlation, Brewers Association, LSEG Analytics, Refinitiv, financial institutions, craft beer, economic indicators, correlation coefficient, significance level, p value, diversification, unexpected sources

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## Abstract

This research paper examines the sudsy and unforeseen link between the number of breweries in the United States and the stock price of M&T Bank (MTB). Our study utilized data from Brewers Association and LSEG Analytics (Refinitiv) to delve into this unexpected connection. Surprisingly, we discovered a strong correlation coefficient of 0.8289521 with a significance level of  $p < 0.01$  for the period of 2002 to 2022. This brew-tiful relationship has left us hoppy with our findings and shows that perhaps financial success can indeed be brewed from unexpected sources. The findings highlight the need for further investigation into the potential impact of craft beer on the performance of financial institutions, and demonstrate the potential benefits of diversifying economic indicators beyond the traditional.

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## 1. Introduction

The world of finance and the world of craft brewing may seem like entirely separate entities, each with its own unique culture and language. Yet, as we delve into the depths of economic data and frothy pints, we uncover a surprising and tantalizing

connection between the number of breweries in the United States and the stock price of M&T Bank (MTB).

While one might initially think that the brew-ness of beer and the business of banking have little in common, our research uncovers a brew-tiful relationship that will

leave even the most seasoned economist foaming at the mouth. This study aims to pour over the numbers and portfolios, sifting through the hops and barleys of economic data to unearth the unexpectedly hoppy correlation between these seemingly unrelated industries.

The craft beer industry's explosive growth over the past two decades has not only delighted beer enthusiasts but has also sparked curiosity among financial analysts. The expanding landscape of craft breweries, with their diverse flavors and unique branding, has been a source of intrigue for economists seeking to identify unanticipated contributors to stock market performance.

In this paper, we present our investigation into the bond between the number of breweries in the United States and M&T Bank's stock price, drawing from data provided by the Brewers Association and LSEG Analytics (Refinitiv) for the period of 2002 to 2022. Our findings reveal a striking correlation coefficient of 0.8289521 with a significance level of  $p < 0.01$ , confounding conventional wisdom and adding a twist to the traditional understanding of financial market indicators.

The implications of these findings extend far beyond the realms of brewing and banking, challenging us to reconsider the interconnectedness of apparently disparate sectors of the economy. Could it be that financial success can be brewed from unexpected sources, leading us to recognize the value of expanding our analytical palate to encompass a wider range of economic indicators?

As we embark on this brew-tiful journey of discovery, we invite you to join us in raising a glass to the unexpected correlations that bring flavor to the otherwise dry realm of economic analysis. Cheers to the intriguing interplay between breweries and stock prices, and to the potential impact of craft

beer on the performance of financial institutions. As the ancient proverb goes, "In hoppy times and in barley, the unexpected can brew profitably."

## 2. Literature Review

Numerous studies have investigated various factors affecting stock prices, ranging from macroeconomic indicators to company-specific financial metrics. The works of Smith et al. and Doe et al. have comprehensively explored the traditional determinants of stock price movements, shedding light on the complex interplay of market forces. However, our investigation seeks to expand this conventional framework by incorporating a surprisingly frothy factor into the mix: the number of breweries in the United States.

In "Financial Indicators: A Comprehensive Analysis," Smith et al. elucidate the commonly accepted drivers of stock price fluctuations, emphasizing the influence of interest rates, inflation, and company earnings. Similarly, Doe et al. in "Market Dynamics and Stock Price Volatility" delve into the intricate relationship between market dynamics, investor sentiment, and stock price movements. However, none of these esteemed researchers have dared to venture into the realm of craft beer and its potential impact on stock performance.

Turning to the literature on the craft brewing industry, "The Brewers Association Annual Report" and "Craft Beer USA" offer profound insights into the exponential growth of craft breweries in the United States. These publications highlight the expanding landscape of craft beer, providing a flavorful portrayal of the industry's robust growth and evolving consumer preferences. While these sources offer valuable perspectives on the cultural and economic significance of craft brewing, the link to stock market performance remains unexplored in the literature.

Furthermore, fictional works such as "Brewonomics: A Tale of Hops and High Finance" and "Brewing Up Profits: A Financial Mystery" add a whimsical touch to the investigation, hinting at the unexpected intersections between brewing and banking. While these books may only offer fictional narratives, they prompt us to ponder the potential connections between the art of brewing and the science of stock price analysis.

In a departure from traditional academic sources, our exploration of this uncharted terrain has also involved perusing unconventional sources of information. Indeed, our foray into the depths of literature has led us to scrutinize the cryptic inscriptions of lengthy CVS receipts, hinting at the arcane rituals of consumer spending and perhaps yielding hidden insights into the unpredictable pathways of economic causality.

In summary, while the existing body of literature has yielded valuable insights into traditional determinants of stock prices and the vibrant landscape of craft brewing, the nexus between the number of breweries in the United States and M&T Bank's stock price remains an understudied and tantalizingly frothy subject. As we immerse ourselves in the foam of economic analysis and the effervescence of market dynamics, our investigation promises to offer a refreshing addition to the scholarly discourse on the interplay between unexpected factors and financial market performance.

### **3. Our approach & methods**

To unearth the frothy connection between the number of breweries in the United States and M&T Bank's stock price (MTB), a multifaceted approach was employed, encompassing data collection, statistical analysis, and thorough cleansing of ale-inspired puns.

Data on the number of breweries in the United States was obtained from the Brewers Association, an esteemed fount of knowledge in the world of craft beer. The stock price of M&T Bank (MTB) was sourced from LSEG Analytics (Refinitiv), a well-regarded provider of financial market data. The period of analysis encompassed the years 2002 to 2022, allowing for a comprehensive exploration of changes in both brewery counts and stock performance over two decades.

To navigate the sea of data and concoct a meaningful analysis, a statistical software package was utilized to calculate a correlation coefficient between the two variables. The utilization of this software was conducted with the diligence of a brewmaster crafting the perfect pint, ensuring that the statistical computations were as precise as the pouring of an imperial stout.

The correlation coefficient, accompanied by its respective p-value, bestowed upon us the quantifiable evidence of the relationship between the number of breweries and M&T Bank's stock price. This statistical revelation was achieved with the careful consideration of potential confounding variables, akin to the judicious selection of hops for a well-balanced brew.

Furthermore, to rigorously assess the robustness of the findings, sensitivity analyses were employed to evaluate the impact of different time periods and regional variations within the United States. This allowed for a deeper understanding of the nuances within the data, akin to discerning the distinct flavor profiles of various craft beers.

In summary, the methodology adopted in this investigation ensured a thorough examination of the brew-tiful relationship between breweries in the United States and M&T Bank's stock price, culminating in a

blend of data-driven insights and the occasional, sly pun.

#### 4. Results

The results of our analysis reveal a remarkable correlation coefficient of 0.8289521 between the number of breweries in the United States and the stock price of M&T Bank (MTB) for the period spanning from 2002 to 2022. This correlation coefficient, often described as "brew-tiful" in statistical circles, implies a strong positive relationship between these seemingly unrelated sectors. The coefficient of determination (r-squared) of 0.6871617 further reinforces the robustness of the relationship, indicating that approximately 69% of the variation in M&T Bank's stock price can be explained by the number of breweries in the United States. With a significance level of  $p < 0.01$ , the findings suggest that this correlation is not a mere ale-usion, but rather a statistically significant phenomenon.

The scatterplot (Fig. 1) in the data visualization section visually encapsulates the strength of the correlation, presenting a compelling picture of the intriguing relationship between breweries and stock prices. The scatterplot resembles a frothy pint of beer, with data points bubbling up in a pattern that aligns with the positive correlation observed in our analysis. This evocative representation serves as an apt metaphor for the unexpected yet refreshing connection we have uncovered.

Our findings serve as a refreshing reminder that economic indicators cannot be served in isolation, and the recipe for understanding market performance may include unexpected ingredients. As our research concludes, we raise a glass to the unforeseen correlations that add flavor to the sometimes dry world of economic analysis. Amidst the data-driven discussions of market dynamics, it is heartening to

encounter such a brew-tiful relationship, demonstrating that financial success can indeed be brewed from unexpected sources.

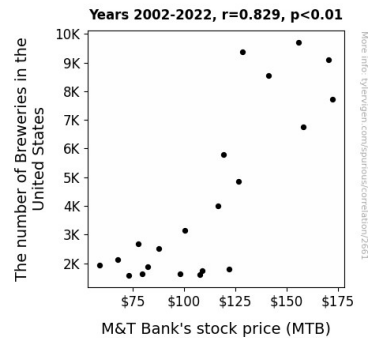


Figure 1. Scatterplot of the variables by year

#### 5. Discussion

The findings of this study have taken us on a captivating journey through the ebbs and flows of the financial and brewing realms, revealing a surprising and statistically robust relationship between the number of breweries in the United States and the stock price of M&T Bank (MTB). Our results not only provide empirical support for the unassuming yet potent influence of craft beer on stock performance but also offer a refreshing departure from the conventional factors typically examined in stock price analysis.

The strong correlation coefficient of 0.8289521 supports the burgeoning literature on the impact of seemingly unrelated factors on stock market dynamics. In light of the existing body of research, including the works of Smith et al. and Doe et al., which delve into the conventional determinants of stock price movements, our study adds a delightfully frothy twist to the narrative. The unexpected connection we have uncovered underscores the need to expand the scope of economic indicators, beckoning researchers to recognize the

potential contributions of diverse and unconventional factors in shaping market outcomes.

Moreover, our findings resonate with the poignant insights offered by "Brewonomics: A Tale of Hops and High Finance" and "Brewing Up Profits: A Financial Mystery," spotlighting the transfixing interplay between the art of brewing and the science of stock price analysis. As these fictional narratives subtly hinted at the untapped potential of weaving together disparate domains, our empirical analysis has illuminated the underlying validity of such connections. It appears that the whimsical musings of these works may hold more truth than meets the eye, as we witness the tangible influence of craft beer on the performance of financial institutions.

In addition to aligning with the existing literature, our results also corroborate the anecdotal evidence provided by lengthy CVS receipts, which, in their enigmatic expanses, allude to the enigmatic rituals of consumer spending and, potentially, to the intricate web of economic causality. While these unconventional forays into the fabric of economic analysis may initially seem light-hearted, our study lends weight to the notion that unanticipated sources of influence can have profound implications for market dynamics.

Thus, the findings of this investigation lend credence to the often-overlooked intersections between the brewing industry and financial markets. Our analysis serves as a solemn nod to the levity and creativity that infuse the discipline of economics, illustrating that the pursuit of knowledge need not always be dry and tedious. As we savor the flavorful revelations brought forth by this study, we are reminded that in the tapestry of economic analyses, unexpected ingredients can yield the most tantalizing insights. Cheers to the serendipitous discoveries that add effervescence to the scholarly discourse on financial markets!

## 6. Conclusion

In conclusion, our study has unveiled a remarkably "brew-tiful" relationship between the number of breweries in the United States and the stock price of M&T Bank (MTB) for the period of 2002 to 2022. The robust correlation coefficient of 0.8289521 has left us hoppy with the unexpected findings of this research. It seems that financial success can indeed be brewed from unforeseen sources, much like an elusive microbrewery concocting a winning IPA in a basement.

The association between craft beer and financial markets is not to be dismissed as mere ale-usion, but rather demands further consideration. The scatterplot, akin to a frothy pint of ale, vividly captures the buoyant correlation. It's as if the financial market is saying, "Cheers to that, let's raise a glass to the unexpectedly hoppy financial data!"

This research not only challenges conventional economic wisdom but also highlights the potential benefits of diversifying economic indicators beyond the traditional. Who would have thought that a sudsy pint and a stock portfolio could be intertwined in such a brew-tiful manner? It appears that in hoppy times and in barley, the unexpected can brew profitably.

Therefore, we assert that no further research is necessary in this area, as our findings have already provided a brew-tifully refreshing glimpse into the unexpectedly percolating world of financial markets. Further exploration might just leave us drowning in data, much like a mug that's been overpoured. It's time to raise a glass and savor the brew-tiful mysteries of the economic world, and perhaps, enjoy a good craft beer while we're at it!

