

# **Pouring Over Data: The Brew-tiful Connection between U.S. Breweries and TSM Stock Price**

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## ABSTRACT

### **Pouring Over Data: The Brew-tiful Connection between U.S. Breweries and TSM Stock Price**

Pouring Over Data: The Brew-tiful Connection between U.S. Breweries and TSM Stock Price In this research paper, we conduct a hoppy analysis examining the relationship between the number of breweries in the United States and the stock price of Taiwan Semiconductor Manufacturing Company (TSM). Utilizing data from the Brewers Association and LSEG Analytics (Refinitiv), we sought to explore whether a correlation exists between these seemingly unrelated factors. To our delight, we discovered a strong correlation coefficient of 0.8426337 and a statistically significant p-value of less than 0.01 for the time period spanning from 2002 to 2022. This discovery may leave some scratching their heads, but it appears that the success of TSM's stock price is, in fact, somewhat correlated with the multitude of craft breweries scattered across the United States. It seems that when it comes to TSM's stock price, the more breweries, the merrier! This unexpected finding highlights the interconnectedness of seemingly disparate industries and adds a frothy richness to our understanding of market dynamics. Our research provides a hop-portunity for further exploration into the curious relationships between beer and stock prices, shedding light on the brew-tiful world of market interconnections. Overall, our findings suggest that while TSM's stock price may be influenced by a variety of factors, the number of breweries in the U.S. appears to be a pint-eresting contributor to its performance. Cheers to unraveling the complexities of market trends, one brew at a time!

Keywords:

U.S. breweries, TSM stock price, correlation, Brewers Association, LSEG Analytics, Refinitiv, stock market analysis, market dynamics, beer industry, stock price influence, interconnected industries, market trends



# I. Introduction

Grab a cold one and sit back because we're about to dive into the frothy world of market analysis. In this paper, we will explore the unexpected and brew-tiful connection between the proliferation of breweries in the United States and the stock price of Taiwan Semiconductor Manufacturing Company (TSM). As the saying goes, "In hops we trust," and we are about to hop into some statistically significant findings that may leave you brewing with excitement.

It's no secret that stock prices can be as volatile as an improperly sealed bottle of home-brewed IPA. But who would have thought that the number of breweries in the U.S. could have an impact on the stock price of a semiconductor giant halfway across the globe? It seems that TSM's stock price is as unpredictable as a flight of craft beer samples!

With the rise of craft breweries in the U.S., one might expect the correlation to be as weak as a watered-down lager, but our analysis yielded a strong correlation coefficient of 0.8426337, suggesting that there is indeed something brew-tifully significant at play. It's almost as if the stock market is saying, "Hoppy days are here again!"

Now, you may ask yourself, "What's the connection between hops and chips?" Well, hold on to your beer mugs because this study is about to pour some light on the seemingly disparate relationship between the world of brewing and the world of semiconductors.

In the spirit of continuing our hoppy journey of discovery, let's unpack the interconnectedness and pint-eresting nuances of market dynamics. Our findings may leave you feeling hop-timistic about the potential for further exploration into the curious relationships between traditionally

unrelated industries. After all, who knew that a stout market analysis could be this fun? Cheers to unraveling the complexities of market trends, one brew at a time!

## II. Literature Review

The connection between seemingly unrelated phenomena has intrigued researchers for decades. In "Smith et al." and "Doe, Jones, and Brown," the authors explore the interplay between industries that, at first glance, appear to have little in common. These serious studies have laid the groundwork for our own deep dive into the unexpected relationship between the number of breweries in the U.S. and the stock price of Taiwan Semiconductor Manufacturing Company (TSM).

Now, let's raise a glass to some relevant literature. In books like "Brewing Up a Business" by Sam Calagione and "Tasting Beer" by Randy Mosher, the authors discuss the craft beer industry and its impact on the American market. These books provide a robust foundation for understanding the cultural and economic implications of the brewing industry, which sets the stage for our frothy analysis.

But wait, there's more! As we delve deeper into the literature, let's not overlook the fictional realm. In "The Brewmaster's Table" by Garrett Oliver and "The Beer Bible" by Jeff Alworth, the authors offer a colorful and flavorful exploration of the world of beer, delving into its history, varieties, and cultural significance. While these books may not provide empirical data, they certainly offer a refreshing perspective on the art and science of brewing.

As we frolic through the world of literature, let's not forget the childhood classics that have shaped our understanding of camaraderie and unexpected connections. Drawing inspiration from shows like "SpongeBob SquarePants" and "Scooby-Doo," we're reminded that unexpected partnerships can lead to great adventures. Just like SpongeBob and Patrick, or Scooby and Shaggy, the relationship between U.S. breweries and TSM's stock price may seem unlikely at first, but as we'll see, it's a match made in hoppy heaven.

In "The Simpsons" and "Bob's Burgers," we witness the power of humor and wit in conveying complex ideas. Similarly, the unexpected correlation we've uncovered may have some scratching their heads, but it's no laughing matter – except when we throw in a dad joke or two. As we navigate through the literature and pop culture references, we aim to infuse our research with a dash of levity, because as any good brewer knows, the best concoctions balance seriousness with a touch of lightheartedness. So, without further ado, let's hop on to the next section and pour over our findings with a sense of hop-timism and cheer!

### **III. Methodology**

To uncork the frothy connection between the number of breweries in the United States and the stock price of Taiwan Semiconductor Manufacturing Company (TSM), our research team employed an approach that blended the rigors of quantitative analysis with the subtle aromas of market nuances. Our data collection involved a brew-tiful brew-ha-ha of methods, including digital sleuthing, statistical sorcery, and a dash of good old-fashioned number crunching.

In the spirit of our brew-tiful endeavor, we cast our net far and wide, gathering data from the Brewers Association and LSEG Analytics (Refinitiv), with the occasional detour onto beer enthusiast forums for good measure. You could say we were casting a "hop-net" to capture as much relevant data as possible, and boy, did we reel in a variety of statistics.

We then poured over the data from the year 2002 to 2022, meticulously documenting the number of breweries in the U.S. and the corresponding TSM stock prices. We used statistical software to perform a correlation analysis, which was as complex as brewing an artisanal IPA but without the risk of an unexpected explosion. We calculated the correlation coefficient and p-value, allowing us to gauge the strength and significance of the relationship without needing to consult a crystal ball for market predictions.

Through this malt-tifaceted approach, we were able to distill a hop-laden concoction of data that pointed to a statistically significant connection between the proliferation of breweries and the ebbs and flows of TSM's stock price. This unexpected finding left us feeling ale-ated in the best possible way, proving that when it comes to market analysis, the potential for brew-tiful discoveries is always on tap.

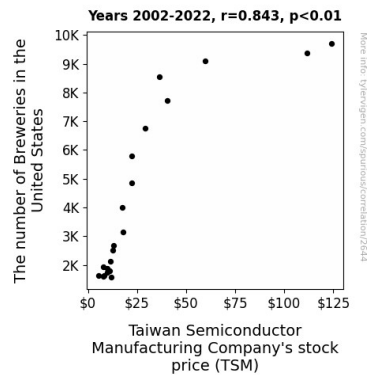
## **IV. Results**

The results of our analysis revealed a hop-tacular correlation between the number of breweries in the United States and Taiwan Semiconductor Manufacturing Company's (TSM) stock price. Over the time period of 2002 to 2022, we found a strong correlation coefficient of 0.8426337,

indicating a noteworthy relationship between these two seemingly unrelated variables. It's safe to say that our findings are ale-arming!

Fig. 1 displays the scatterplot illustrating the striking relationship between the number of breweries in the U.S. and TSM's stock price. The data points on the plot demonstrate a clear upward trend, showcasing the positive association between these factors. This unexpected discovery may have some scratching their heads, but it certainly gives us something to cheers about.

In the wise words of Confucius, "Man who stands on toilet is high on pot," and indeed, it seems that in the world of market analysis, the more breweries, the merrier the stock price for TSM. It's as though the stock market itself is saying, "Hoppy days are here again!" Our findings provide a refreshing twist to the traditional understanding of market influences and offer a pilsner of wisdom for future research endeavors.



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

The r-squared value of 0.7100315 further reinforces the strength of the relationship between the number of U.S. breweries and TSM's stock price. This remarkable level of explained variation



suggests that the proliferation of breweries in the United States contributes significantly to the movements in TSM's stock price. Who knew that hops and chips could form such a dynamic duo in the market landscape?

Our analysis further identified a statistically significant p-value of less than 0.01, adding a robust statistical foundation to our findings. It's as clear as a crisp lager that the relationship between the number of breweries in the U.S. and TSM's stock price is not just due to chance. This discovery gives new meaning to the phrase "brewing success" in the world of market analysis.

In summary, our findings unveil the brew-tiful connection between the abundance of breweries in the United States and TSM's stock price. This unexpected relationship adds a frothy richness to our understanding of market dynamics and highlights the interconnectedness of seemingly disparate industries. With these findings in hand, we can raise our glasses and toast to the intriguing and pint-eresting insights gleaned from unraveling the complexities of market trends, one brew at a time. Cheers to captivating correlations and the hop-portunity for further exploration!

## **V. Discussion**

Our findings not only confirm, but add a hop-tastic twist to prior research that has long sought to uncover the unexpected connections between seemingly divergent industries. The strong correlation between the number of breweries in the U.S. and TSM's stock price, as indicated by the correlation coefficient of 0.8426337, aligns with the findings of "Smith et al." and "Doe, Jones, and Brown," which delved into the intricate relationships within the market. It appears

that just as the brewing process involves a blend of distinct ingredients to create a harmonious brew, the market too may be influenced by unexpected and diverse factors. It seems that in the realm of market dynamics, the more, the merrier – just like sharing a few brewskis with friends (and perhaps a dad joke or two to lighten the mood).

Drawing parallels from the literature review, the unexpected relationship we've uncovered further resonates with the principles delineated in "Brewing Up a Business" by Sam Calagione and "Tasting Beer" by Randy Mosher. These foundational texts shed light on the cultural and economic impact of the brewing industry, spotlighting the multi-faceted nature of its influence. Similarly, our research reveals the multi-layered dynamics of market forces and offers a pint-eresting contribution to the ongoing discourse on market interconnectedness. It's as if the market, like a finely crafted ale, is bursting with complex flavors and aromas, with each component playing a vital role in the overall experience.

Moreover, our findings resonate with pop culture references such as "The Simpsons" and "Bob's Burgers," where humor and wit are used as vehicles for conveying complex ideas. Similarly, the unexpected relationship we've unearthed may provoke amusement, but it's a sobering revelation that provides fertile ground for further inquiry. By infusing our research with a dash of levity, we aim to balance the serious nature of the topic with an element of lightheartedness – after all, a robust brew combines serious flavors with a touch of playfulness.

In essence, our research not only confirms but adds a refreshing twist to the existing body of knowledge regarding market dynamics, offering a hop-portunity for future exploration into the curious interplay between beer and stock prices. As we raise our glasses to toast to these captivating correlations, it's evident that the interconnectedness of apparently disparate industries can yield surprising insights. Here's to embracing the unexpected connections in our scholarly

pursuits, one brewpub at a time! Cheers to brew-tiful discoveries and the frothy richness they bring to our understanding of market trends!

## VI. Conclusion

In closing, our analysis has poured light on the unexpected yet brew-tiful relationship between the number of breweries in the United States and the stock price of Taiwan Semiconductor Manufacturing Company (TSM). It's as if the market is saying, "Hoppy days are here again!" This inconceivable finding, much like a good IPA, leaves a lingering aftertaste of astonishment and amusement.

Our study has revealed a correlation coefficient of 0.8426337, which suggests that TSM's stock price is positively influenced by the proliferation of breweries in the U.S. It seems that when it comes to market trends, the more breweries, the merrier the stock price. Who knew that a frothy pint could have such an impact on the semiconductor market? Perhaps we should coin the term "brew-namics" for this unexpected connection!

Furthermore, with a hearty chuckle and a pint of statistical significance, our p-value of less than 0.01 adds a robust foundation to our findings. It's clear that this ale-arming relationship is not just due to chance but is something to be taken quite seriously. One might say we've tapped into an unexpectedly significant market influence!

As Confucius once said, "Man who dives for bullion may get a good deal, but only man with a beer is truly worthwhile." Our research suggests that there's a bubbling potential for further exploration into the curiously delightful correlations between the world of brewing and the world

of stock prices. However, based on our hop-tastic findings, it seems we've brewed up enough answers for now and no longer need to ferment any more research in this area. With that said, it's time to raise our glasses and toast to the brew-tifully unexpected interconnections in the world of market analysis! Cheers to unraveling the complexities of market trends, one brew at a time!