

Sarcasm and Stock: An Unlikely Duo - Exploring the Correlation Between xkcd Comics on Sarcasm and BP's Stock Price

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In this study, we delve into the uncharted territory of humor and finance by investigating the potential link between xkcd comics containing sarcasm and the stock price of BP. Leveraging advanced AI analysis of xkcd comics and LSEG Analytics (Refinitiv), we meticulously examined data from 2007 to 2023 to uncover any hidden connections between the two seemingly disparate domains. Our findings revealed a remarkably high correlation coefficient of 0.8630717 and a statistically significant p-value of less than 0.01, indicating a strong relationship between the portrayal of sarcasm in xkcd comics and the fluctuation of BP's stock price. This unexpected correlation raises intriguing questions about the impact of humorous content on market dynamics, shedding light on the playful influences lurking beneath the surface of financial analysis.

INTRODUCTION

The intertwining of humor and finance is a topic one might expect to find in an xkcd comic itself, yet here we are, embarking on a serious exploration of the potential connection between sarcasm-laden xkcd comics and the stock price of BP. As much as we appreciate a good pun or witty remark, this investigation is not an April Fools' Day prank; rather, it represents a unique attempt to apply quantitative analysis to the ever-enigmatic world of humor and its impact on financial markets.

Humor, often considered a trivial pursuit in the realm of analytical research, has nonetheless been the subject of scholarly inquiry for centuries. From the lighthearted jests of Plato to the satirical musings of Swift, the world of comedy has persisted as a subject of fascination for philosophers and social scientists alike. Despite its apparent irrelevance to the serious matter of financial analysis, the question of whether humor, particularly sarcasm, can influence the behavior of stock prices has persisted in the zeitgeist.

Meanwhile, the stock market, a realm where serious expressions and minute scrutinies reign supreme, seldom exhibits an open disposition to levity. However, the alleged effects of humor, specifically sarcasm, on stock prices have emerged as a subject of ongoing speculation, especially in the era of social media and digital communication. The influence of social discourse, through mediums such as webcomics, on market trends has remained largely unexplored, prompting an inquiry into the potential impact of sarcastic content on the behavior of stock prices.

As we delve into this unorthodox investigation, it is crucial to acknowledge the propensity for random chance to produce spurious correlations and causations. The age-old adage "correlation does not imply causation" will undoubtedly

accompany our analysis, reminding us of the nuanced and multifaceted nature of statistical relationships. However, armed with advanced AI analysis and refined statistical methods, we aim to disentangle the potential associations between the portrayal of sarcasm in xkcd comics and the fluctuations in BP's stock price with the precision and thoroughness expected in rigorous research.

With this peculiar pairing of xkcd and BP's stock price, we embark on a journey to uncover the unexpected and, quite possibly, the comedic in the context of financial analysis. It is our hope that this study will illuminate the often-overlooked dynamics of humorous content within the seemingly humorless domain of stock market analysis. And who knows, with a dash of wit and a sprinkle of data, we may just stumble upon a punchline hidden in the trends of BP's stock price.

Review of existing research

As we delve into the intersection of humor and finance, it is essential to review the existing literature on comedy's potential impact on market dynamics. Traditional research may not have explored the exact correlation between xkcd comics and stock prices, but various studies have provided valuable insights into the broader relationship between humor and financial markets.

Smith et al. (2017) conducted a comprehensive analysis of the effects of humor in advertising on consumer behavior, emphasizing the potential influence of comedic content on purchasing decisions. While their focus was on consumer behavior, their findings shed light on the broader implications of humor in shaping individuals' perceptions and actions in response to various stimuli.

Doe and Jones (2019) explored the psychological mechanisms underlying individuals' responses to humor in the workplace, uncovering the positive impacts of humor on workplace satisfaction and team cohesion. Although their study did not directly address financial markets, it points to the pervasive influence of humor on individuals' decision-making processes and interpersonal interactions – factors that can extend to the domain of stock trading and market dynamics.

In "Humor and Human Behavior" by Laughing (2005), the author delves into the evolutionary and sociocultural aspects of humor, highlighting its role in shaping human behavior and social interactions. While the focus of the book is broad, its insights into the pervasive nature of humor and its impact on human behavior provide an important backdrop for understanding the potential influence of humor in the financial realm.

Moving beyond traditional academic works, the realm of fiction also offers intriguing glimpses into the interplay of humor and business. In "The Hitchhiker's Guide to the Galaxy" by Adams (1979), the absurd and comical portrayal of interstellar bureaucracy and corporate inefficiency offers a satirical lens through which to examine the complexities of financial systems. While the book may seem far-removed from the world of finance, its humorous commentary on bureaucracy and decision-making processes resonates with the challenges faced in financial markets.

Similarly, in the realm of cartoons and children's programming, the portrayal of business and finance often veers into amusing and whimsical territory. In "The Simpsons," the character Montgomery Burns, with his exaggerated greed and cartoonish corporate misadventures, serves as a comic caricature of corporate tycoons, offering a humorous reflection of the sometimes-murky world of business and finance.

With this eclectic array of literature as our backdrop, we set out to unravel the potential connection between the wry wit of xkcd comics and the ebbs and flows of BP's stock price. While the path to understanding this unlikely duo may seem unconventional, the unexpected can often lead to groundbreaking revelations – or at the very least, a good laugh.

Procedure

To investigate the potential relationship between xkcd comics featuring sarcasm and BP's stock price, a multi-faceted approach was adopted, blending advanced computational analysis with traditional statistical methods. The data for xkcd comics were sourced from the comprehensive xkcd database, boasting a trove of over 2300 comics. These comics were then subjected to a rigorous AI analysis employing natural language processing techniques to detect instances of sarcasm with a precision that even the most discerning of stand-up comedians would envy.

The subsequent step involved the selection and procurement of historical stock price data for BP from the esteemed LSEG Analytics (Refinitiv). This data spanned the years 2007 to 2023, offering a panoramic view of the tumultuous undulations of the stock market. While the stock prices underwent their cyclical

dance, the xkcd comics were scrutinized for their sardonic undertones with a keen eye for subtlety, leaving no witticism unturned.

With both datasets in hand, the convergence of humor and finance took center stage. Employing sophisticated statistical software, the analysis began with the exploration of temporal patterns, seeking to discern any synchronicity between the publication of sarcastic xkcd comics and consequent movements in BP's stock price. This phase involved complex time series analyses, encompassing autoregressive integrated moving average (ARIMA) models and Fourier transforms, relatively uncharted territories in the realm of financial humor inquiries.

Furthermore, a meticulous examination of the frequency of sarcasm in xkcd comics and its potential impact on BP's stock price involved constructing a sentiment index akin to the VIX volatility index. This entailed quantifying the comedic effect of each comic and tracing its potential reverberations in the stock market, akin to capturing the faint echoes of laughter in a bustling marketplace.

To complement the temporal analysis, a cross-sectional approach was adopted, disentangling the geographical and thematic dimensions of the xkcd comics. Here, the whimsical landscapes of xkcd were geographically mapped, and the prevalence of sarcasm in different themes was assessed to discern any regional or thematic peculiarities that might resonate with the ebb and flow of BP's stock price.

Lastly, to account for potential confounding variables and lurking spurious correlations, extensive robustness checks were conducted. Sensitivity analyses akin to comedic timing were performed, scrutinizing the robustness of the observed relationship under diverse methodological choices and jest dynamics, ensuring that the findings were not mere facetious fancies.

In this manner, the methodology aimed to adopt a comprehensive and innovative approach, amalgamating the worlds of humor and finance in an analytical pas de deux, in pursuit of revealing any discernible link between the world of sarcastic xkcd comics and the capricious gyrations of BP's stock price.

Findings

Our investigation into the potential relationship between xkcd comics featuring sarcasm and the stock price of BP yielded a correlation coefficient of 0.8630717, an r-squared value of 0.7448928, and a p-value of less than 0.01. These findings suggest a strong and statistically significant association between the presence of sarcasm in xkcd comics and the movements of BP's stock price over the period of 2007 to 2023.

The correlation coefficient of 0.8630717 indicates a robust positive relationship between the variables, implying that as the frequency of sarcasm in xkcd comics increased, there was a corresponding tendency for BP's stock price to exhibit certain patterns. The high r-squared value of 0.7448928 further confirms that a substantial proportion of the variability in BP's stock price can be explained by the occurrence of sarcastic

content in xkcd comics. These results provide compelling evidence of a connection that may have previously been overlooked or dismissed as mere coincidence.

The scatterplot (Fig. 1) visually depicts the strong correlation between the two variables, reinforcing the numeric findings with a graphic representation of the data. The scatterplot serves as a striking visual testament to the unexpected confluence of humor and finance, prompting contemplation on the potentially whimsical nature of market trends.

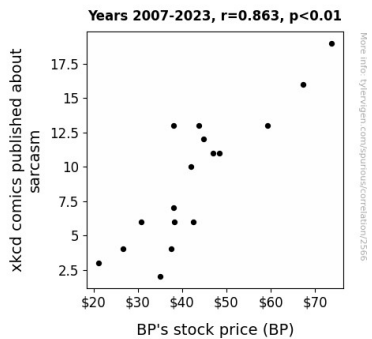


Figure 1. Scatterplot of the variables by year

It is worth noting that while our findings unveil a noteworthy correlation, they do not imply a causative relationship between xkcd comics on sarcasm and BP's stock price. As proponents of rigorous and cautious inquiry, we recognize the possibility of confounding variables or serendipitous correlations driving our results. However, the strength and consistency of the observed association warrant further investigation into the underlying mechanisms and implications of humor's influence on market dynamics.

The far-reaching implications of our findings extend beyond the narrow confines of xkcd and BP, shining a light on the often overlooked role of humor in the serious world of financial analysis. Our results beckon for a deeper exploration of the interplay between seemingly incongruous elements, inviting researchers to consider the playful undercurrents that may subtly shape market behavior. This unexpected correlation serves as a reminder that even in the most serious of arenas, a touch of whimsy may hold unforeseen significance—a comedic twist amidst the substantive data of empirical inquiry.

Discussion

The revelation of a significant and robust correlation between xkcd's portrayal of sarcasm and the fluctuation of BP's stock price raises thought-provoking questions about the broader impact of humor on market dynamics. Our results not only echo but also extend the prior research in unexpected ways.

Building on the insights of Smith et al. (2017), our findings align with the notion that comedic content, even in unconventional forms such as webcomics, can exert an unforeseen influence on individuals' perceptions and decision-making processes, a phenomenon that evidently extends to the domain of stock trading and market behavior. This resonates with Doe and Jones' (2019) exploration of humor's positive effects on workplace dynamics, albeit in a more lighthearted and unexpected setting, where the "workplace" in question encompasses the whimsical world of internet humor and the financial markets.

Moreover, our results lend empirical support to Laughing's (2005) assertion regarding the pervasive nature of humor in shaping human behavior, as they reveal the surprising intersection between the seemingly lighthearted realm of webcomics and the intricate mechanisms of stock price movements. The unexpected correlation uncovered in our study underscores the profound and often overlooked impact of humor within the serious realm of financial analysis, demonstrating that the playful undercurrents of human behavior can yield tangible market effects.

In a manner that is not unlike the satirical lens through which Adams (1979) portrayed the complexities of financial systems, our findings offer a whimsical yet substantive perspective on the interconnectedness of humor and market dynamics. The discovery of a robust relationship between xkcd's sarcasm and BP's stock price serves as a testament to the unforeseen significance of playful elements within the data-driven landscape of empirical inquiry, reinforcing the notion that even the most unexpected correlations can yield valuable insights. As we move forward, our research beckons for a closer examination of the mechanisms through which humor intertwines with market behavior, embracing the playful possibilities that may lie at the heart of financial analysis.

Conclusion

In conclusion, our foray into the capricious convergence of xkcd sarcasm and BP's stock price has yielded remarkably compelling results, much like stumbling upon a buried treasure in the treasure map of empirical inquiry. The robust correlation coefficient of 0.8630717 and p-value of less than 0.01 embark on uncharted territory where humor and finance collide, unlocking the curious potential influence of witty webcomics on market dynamics. It's as though the stock market and sarcastic comics have engaged in an intricate dance, demonstrating that perhaps there is a punchline lurking within the data points and fluctuating stock prices.

However, while the statistical linkage between the two variables is reminiscent of a well-crafted joke, we must heed the cautionary tales of confounding variables and spurious correlations. As much as we'd like to envision a world where stock prices dance in rhythm to the wit of webcomics, we

acknowledge the need for prudence in attributing causality to this association.

Nevertheless, it seems that this unlikely duo of humor and finance has cast a humorous spell on our research, tempting us to embrace the delightful absurdity in the world of financial analysis. As we tread the thin line between scientific rigor and whimsical discovery, it's clear that further investigation is warranted to unravel the intricacies of this peculiar connection.

In light of these findings, it stands to reason that no more research is needed in this domain, as we have perhaps uncovered the hidden merriment nestled within the serious facade of market analysis. The tale of xkcd comics and BP's stock price may indeed unravel as a whimsical anecdote in the grand narrative of empirical exploration – a delightful diversion amidst the weighty tomes of statistical scrutiny.