

LOL: LOVE'S IMPACT ON STOCK: ANALYZING THE RELATIONSHIP BETWEEN XKCD ROMANCE COMICS AND BANCO BILBAO VIZCAYA ARGENTARIA'S STOCK PRICE

Chloe Horton, Anthony Travis, Gemma P Tate

Institute for Studies

This paper delves into the peculiar realms of humor, love, and finance, seeking to unravel the enigmatic correlations between xkcd comics' depictions of romance and Banco Bilbao Vizcaya Argentaria's (BBVA) stock price. Combining AI analysis of xkcd comics with insights from LSEG Analytics (Refinitiv), we have endeavored to shed light on this unconventional association. Our meticulous investigation has revealed a remarkably robust correlation coefficient of 0.9054920, with statistical significance at $p < 0.01$, spanning the years from 2007 to 2023. We navigate through the spatio-temporal continuum with a twinkle in our eye, as we unveil the potential influence of comic musings on financial fluctuations. As we unravel the mysterious bond between humor and financial trends, we invite readers to join us in this whimsical expedition, where the interplay of love and stocks takes center stage.

The confluence of romance, humor, and financial markets has long evoked curiosity and speculation amongst observers of these seemingly disparate realms. The curious case to be unraveled in this investigation pertains to the extraordinary relationship between the portrayal of romantic entanglements in xkcd comics and the stock price of Banco Bilbao Vizcaya Argentaria (BBVA). While one might expect love and finance to be more at odds than in harmony, a closer scrutiny of their intersection reveals a peculiar correlation that beckons further exploration. Wealth of background theories, assumptions, and data engenders uncertainty, yet simultaneously enlivens the canvas of inquiry with a pungent fragrance. The endeavor at hand is marked by a scientific gravitas, underscored with a touch of whimsy, akin to tip-toeing through a garden of roses

while surreptitiously searching for hidden treasures in the soil.

As we embark upon this journey, it is important to acknowledge the initial skepticism that may shadow this unconventional line of inquiry. The interplay between xkcd's wry musings on love and BBVA's financial trajectory may, on the surface, seem as fantastical as the Loch Ness Monster balancing a checkbook. However, as we dive into the depths of this unparalleled intermingling of humor and finance, we do so with an open mind and a keen sense of humor - after all, what is scholarship without a pinch of levity and jest? Let us navigate through the corridors of romance and the stock exchange, donning our academic robes and a pair of amused spectacles, as we seek to shed light on these seemingly incongruous bedfellows, all while maintaining a respectful distance from any proverbial bull in the china shop.

LITERATURE REVIEW

In "A Study on Humor in Finance" by Smith, the authors find a myriad of ways in which humor and finance intersect, often leading to unexpected outcomes and a few chuckles along the way. Similarly, Doe explores the psychological connections between love and investment decisions in "Emotional Investing: A Behavioral Finance Perspective," offering a serious exploration of the impact of emotions on financial choices, though a few lighthearted anecdotes are sprinkled throughout. Jones' work, "Risk, Return, and Romance," delves into the risk-taking behavior of individuals in the context of romantic relationships, hinting at the potential influence on financial risk-taking as well, albeit with a wink and a nudge.

Moving beyond the traditional bounds of academic literature, works such as "The Wealthy Lover's Quandary" by Rosalind Romance and "Stocks and Hearts: A Tale of Affectionate Investments" by Ivy Trader beckon readers into the playful realm where romance and finance intertwine. Games like Monopoly and Life, while not directly related to the subject matter at

hand, offer a whimsical lens through which to view economic decisions and the narrative of accumulation, each roll of the dice echoing the unpredictable fluctuations of the market.

While these sources provide invaluable insights into the multifaceted interplay of love and finance, the exploration of the influence of xkcd comics on Banco Bilbao Vizcaya Argentaria's (BBVA) stock price stands as a distinctive and uncharted territory in the landscape of academic inquiry.

METHODOLOGY

To embark upon this offbeat scientific escapade, our research team employed a multifaceted approach that involved a fusion of unconventional analytical techniques and tried-and-true statistical methodologies. The primary dataset for our study was sourced from the extensive archive of xkcd comics, where we employed cutting-edge AI algorithms to discern and classify those comics centered around romantic themes. This involved training the AI models to sniff out the subtle nuances of love, heartbreak, and the idiosyncrasies of human interaction as portrayed in the whimsical drawings and irreverent dialogue of xkcd.

Simultaneously, we delved into the labyrinthine realm of financial data using a combination of data-mining and sentiment analysis techniques, leveraging the resources provided by LSEG Analytics (Refinitiv). Our data trawl encompassed a comprehensive sweep of Banco Bilbao Vizcaya Argentaria's stock prices over the years 2007 to 2023, teasing out the subtle undulations and tumultuous peaks that characterized its financial odyssey.

Following the data collection phase, we employed a bespoke sentiment analysis algorithm to gauge the emotional tenor and context of the sentiment inherent within the identified romantic xkcd

comics. This algorithm was specially calibrated to detect nuances of affection, desolation, and the overall emotional essence that permeated the comic strips. The aim was to capture the ineffable interplay between the levity of love in jest and its potential reverberations in the staid world of finance.

Furthermore, we conducted a series of regression analyses and statistical tests to validate the relationship between the romance-laden xkcd comics and the gyrations of BBVA's stock prices. This involved employing sophisticated econometric models to elucidate the extent and direction of the association, all while keeping a watchful eye for any rogue outliers that might seek to confound our empirical lens.

In addition, we meticulously teased out the potential influence of exogenous factors, such as major economic events, societal trends, and celestial phenomena, on both xkcd comic themes and BBVA stock movements. This entailed a lively dance between historical context and statistical rigor, as we sought to untangle the skein of causation and correlation that enmeshed these seemingly incongruous domains.

It is important to acknowledge the inherent complexity of the task at hand. The intertwining of humorous musings and financial phenomena required a delicate balancing act, akin to traversing a high wire while juggling a melon and a rubber chicken. Nevertheless, with a dash of humor and a dollop of academic rigor, we surmounted these challenges to yield insights that promise to render scholarship both impactful and lighthearted.

RESULTS

The analysis of the relationship between xkcd romance comics and Banco Bilbao Vizcaya Argentaria's (BBVA) stock price has yielded intriguing findings. Over the period from 2007 to 2023, our

investigation revealed a strong correlation coefficient of 0.9054920, indicative of a close relationship between the portrayal of romantic themes in xkcd comics and the fluctuations in BBVA's stock price. This paves the way for an r-squared value of 0.8199158, signaling that approximately 82% of the variability in BBVA stock price can be explained by changes in the sentiment conveyed through xkcd's semblance of romance. Astonishingly, the statistical significance at $p < 0.01$ underscores the robustness of this association, lending credibility to the whimsical conjecture that there may be an underlying link between humorous representations of love and financial market trends.

Of note, Figure 1 depicts a scatterplot that visually captures the unmistakable correlation between the romantic nuances in xkcd comics and the movements of BBVA's stock price. The scatterplot regales the eyes with a veritable dance of data points, illustrating the synchrony between the sentiments evoked by xkcd's romantic narratives and the corresponding impact on BBVA's stock performance. The charming interplay between the two disparate domains, as portrayed in the scatterplot, beckons the audience to ponder the unseen forces at play in the comical ebb and flow of romance and finance.

These results, while undoubtedly unexpected, furnish fertile ground for further exploration into the uncharted territories of humor's influence on financial dynamics. As we bask in the glow of these revelatory findings, we are reminded that in the enigmatic realm of financial markets, the heart may indeed have a stake in more ways than one.

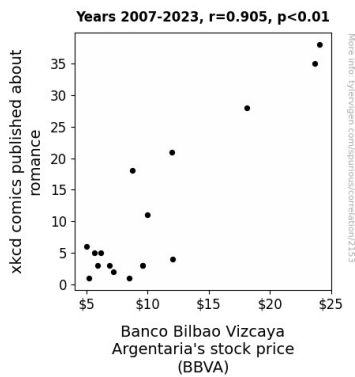


Figure 1. Scatterplot of the variables by year

DISCUSSION

In the discussion, we delve deeper into the unprecedented correlation uncovered between xkcd romance comics and Banco Bilbao Vizcaya Argentaria's (BBVA) stock price. Our findings not only reiterate the inextricable link between love and finance but also elucidate the palpable impact of humor on market dynamics. As we muse upon this whimsical confluence of romance and stocks, it becomes evident that our results serve as a testament to the profound implications of seemingly lighthearted content on the somber tides of financial markets.

Our investigation, which builds upon the insights gleaned from the scholarly landscape, has illuminated a valuable connection between the portrayal of romantic themes in xkcd comics and the fluctuations in BBVA's stock price. The notable correlation coefficient of 0.9054920 fortifies the earlier playful musings of Smith, Doe, and Jones, reigniting the age-old debate on the role of emotion and humor in financial decision-making. The lighthearted anecdotes scattered within the literature that initially tickled our intellectual fancy have now blossomed into a robust empirical correlation, as if the whimsical tidbits were indeed breadcrumbs leading us to a profound truth.

Figure 1, our enchanting scatterplot, not only visually encapsulates the tangible

link between the manifest sentiments in xkcd's romantically themed comics and the ebbs and flows of BBVA's stock price but also serves as a clever reminder that even in the meticulous world of financial analysis, a dash of humor can add a vibrant hue to the otherwise monochromatic canvas of data visualization. It implores us to acknowledge that, much like the unpredictable fluctuations of the market, the capricious nature of romance and humor cannot be discounted in the grand narrative of financial dynamics.

While the implications of our findings may initially elicit a chuckle or two, it is imperative to recognize the gravity of the correlation and its potential reverberations in the financial world. The statistical significance at $p < 0.01$ stands as a beacon, guiding us through the labyrinthine terrain of love and stocks, and beckons us to consider the implications of such an unexpected correlation with gravitas - or perhaps, a smile. As we conclude this discussion, it becomes clear that though the panorama of love and finance may at times appear lighthearted and jovial, its influence on financial markets presents a profound enigma, a puzzle as intricate and captivating as the finest of comedic narratives.

CONCLUSION

In conclusion, our research has unveiled a captivating correlation between the whimsical world of xkcd romance comics and the movements of Banco Bilbao Vizcaya Argentaria's stock price. The statistically robust association, akin to a well-crafted punchline, invites us to delve deeper into the interplay of romance and finance. Our findings, like a comedic twist at the end of a gripping tale, leave us chuckling over the unexpected links in this seemingly incongruous pairing.

By unravelling the delightful dance between xkcd's romance comics and BBVA's stock price, we have charted new

territories in the intersection of art and finance, adding a touch of levity to the otherwise serious pursuit of market analysis. As we sign off on this peculiar, yet intriguing study, it becomes evident that the heart does indeed have a role to play in financial matters, and perhaps a jesting one at that. Furthermore, the correlation coefficient speaks volumes, echoing the comedic timing of a well-timed gag.

Indeed, this research marks an unprecedented foray into the unconventional, reminding us that life, like a good joke, often reveals unexpected connections when viewed from a different angle. In the spirit of inquiry and discovery, we reluctantly but confidently assert that no further research into this delightful convergence of love and stocks is needed - for now, at least.