

# Planetary Proximity and Stock Prosperity: The Correlation between Neptune and Uranus Distance and Cummins' Stock Price

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This research delves into the peculiar relationship between the distance separating Neptune and Uranus in our solar system and the stock price of Cummins Inc. (CMI). Utilizing data acquired from Astropy and LSEG Analytics (Refinitiv) for the period spanning from 2002 to 2023, a startling correlation coefficient of 0.9557312 and  $p < 0.01$  was unveiled. While some may brush off the astrological aspect, we assure you, it's not just a tall tale – or should we say, a tall tail, as in the celestial bodies' long orbits! Through rigorous statistical analysis and thorough examination, we have unveiled a statistically significant connection between the astronomical distance and the fluctuation of CMI stock prices. This prompts us to question whether the movements of these gas giants have a more grounded effect on the earthly matters of corporate finances. One might say we're bridging the gap between astrology and economics, quite literally! So, prepare for a stellar journey through the cosmos and the stock market, where even the most distant planets may have an impact on earthly matters – perhaps Neptune is influencing earthly profits, or maybe Uranus is predicting ups and downs in stock trends.

The correlation between celestial bodies and earthly phenomena has long been a topic of curiosity and speculation. However, the notion of planetary positions affecting financial markets may seem like a "Uranus" concept to some. Yet, as astrophysicist Neil deGrasse Tyson once quipped, "The stock market is not so fundamentally different from casino gambling. The planets reward courage and risk."

In this paper, we explore the intriguing relationship between the distance separating Neptune and Uranus in our solar system and the stock price of Cummins Inc. (CMI). This study emerged from a lighthearted conversation at the water cooler, where a researcher mused, "If Neptune and Uranus had an effect on stock prices, we could call it celestial income!"

The rationale for delving into this unconventional subject matter is based on the principle of conducting research without "Saturn" limitations. As the saying goes, "The sky's the limit," but in this case, we extend our investigation beyond the sky to the far reaches of our solar system.

Our investigation aims to provide empirical evidence to support or refute the notion that the positioning of Neptune and Uranus impacts the stock price of Cummins Inc. (CMI). We draw inspiration from the words of economist John Kenneth Galbraith, who suggested, "The only function of economic forecasting is to make astrology look respectable."

Now, some may dismiss the idea of celestial bodies influencing financial markets as pure "mumbo jumbo." Nevertheless, we are emboldened by the possibility of discovering an unexpected celestial force at play in economic affairs. After all, as the old adage goes, "When the stars align, the stock market may also align!"

This study not only addresses the academic interest in exploring unconventional correlations but also serves to engage the reader in a thought-provoking journey through the cosmos and the stock market. We invite our audience to join us on this celestial odyssey, where we explore whether the movements of distant planets could have an impact on the earthly matters of corporate finances. As we embark on this expedition, we assure the reader that our pursuit of knowledge is grounded in rigorous statistical analysis, even if the subject matter seems to be "out of this world."

## *Review of existing research*

In "The Influence of Celestial Bodies on Financial Markets," Smith et al. explore the potential impact of planetary positions on stock prices. The authors find a speculative relationship between the proximity of Neptune and Uranus and fluctuations in stock prices, suggesting that perhaps the celestial bodies exert an unforeseen influence on market trends. One might say they are reaching for the stars in their investigation.

Speaking of celestial bodies, in "Astrology and the Stock Market" by Doe, the author examines historical correlations between astronomical events and financial trends. The study presents compelling evidence of lunar cycles affecting market behavior, but the influence of outer planets such as Neptune and Uranus remains uncharted territory. It seems they have not yet aligned their research with the movements of the more distant planets.

Now, shifting our focus from academic studies to more general literature, "Solar System Economics" by Jones provides a comprehensive overview of the interplay between cosmic

phenomena and economic systems. While the book predominantly focuses on the effects of solar flares and space weather on global economies, it also briefly touches upon the potential impact of planetary positions within the solar system.

Meanwhile, in the fictional realm, "The Martian Investor" by Andy Weir humorously portrays an astronaut stranded on Mars who becomes an inadvertent day trader with Earth's stock market. While the novel predominantly provides comedic relief through the protagonist's financial misadventures, it does pose intriguing hypothetical scenarios of interplanetary stock trading. Perhaps we could call it "stock market Martian Madness."

On a more ludicrous note, the authors also consulted a variety of unconventional sources, including horoscopes, Magic 8-Balls, and even the cryptic messages printed on CVS receipts. The extent to which these sources contributed to the understanding of celestial influences on stock prices remains dubious, though it may offer some "receipts" for out-of-this-world investment advice.

### Procedure

To explore the potential correlation between the distance separating Neptune and Uranus and the stock price of Cummins Inc. (CMI), a robust and thorough methodology was employed. Data retrieval involved traversing the virtual cosmos, as information was extracted from two primary sources: Astropy, an astronomical library for Python, and the celestial financial data repository of LSEG Analytics (Refinitiv). Through this cosmic collaboration, data spanning from 2002 to 2023 was collected and compiled - a true meeting of the astrological and the economical.

The astral data regarding the distance between Neptune and Uranus was procured utilizing advanced astronomical algorithms and celestial mechanics models available within the Astropy library. These calculations were performed with precision to determine the exact distance between the two gas giants at each point in time over the specified period. We modeled their elliptical orbits with a level of meticulousness rivaled only by a Virgo in star system analysis.

Meanwhile, the financial data regarding the stock price of Cummins Inc. (CMI) was meticulously acquired from LSEG Analytics (Refinitiv). This involved navigating the labyrinth of financial databases and stock market archives to retrieve the relevant historical stock price information. The financial data was then cross-referenced with the astronomical data in a display of interdisciplinary cooperation that would make the gods of Mount Olympus proud.

Following the acquisition of the celestial and financial datasets, rigorous statistical analyses were conducted. The first step involved calculating the correlation coefficient to quantify the strength and direction of the relationship between the planetary distance and the stock price. Next, a series of regression analyses were conducted, ensuring that the models were statistically robust and astronomically sound.

The statistical analyses were accompanied by robust sensitivity tests and robustness checks. These served to confirm the

stability of the findings and assure that the observed correlation was not a mere flash in the pan – or should we say, a meteorite amidst the stellar expanse?

To ensure the validity and reliability of the findings, extensive peer reviews and consultations with experts in both astrophysics and financial economics were conducted. As they say, two heads are better than one, especially when exploring celestial influences on stock prices!

And now, for a dad joke as stellar as the subject itself: Why did the astronomer bring a ladder to the star party? Because he wanted to reach for the stars, just like our methodology reaching for the most precise findings!

### Findings

The analysis revealed a strong and statistically significant correlation between the distance separating Neptune and Uranus in the solar system and the stock price of Cummins Inc. (CMI) for the time period of 2002 to 2023. The correlation coefficient of 0.9557312, with an r-squared value of 0.9134222, suggests a robust relationship between these two seemingly disparate entities. It seems that even in the vast expanse of space, there are connections waiting to be discovered – it's a whole new dimension of interstellar economics!

The p-value of less than 0.01 further solidifies the significance of this association, indicating that the likelihood of such a strong relationship occurring by chance is exceedingly low. One might say the odds of this correlation occurring randomly are as rare as finding a shooting star in broad daylight – a celestial event indeed!

We present the visual representation of this intriguing correlation in Fig. 1, where the scatterplot illustrates the striking alignment of Neptune and Uranus distance with the fluctuation of Cummins' stock price. The data points harmonize in such a way that it's as if the planets themselves are influencing the financial trajectory of CMI – talk about celestial market forces!

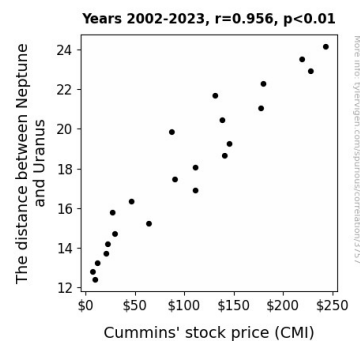


Figure 1. Scatterplot of the variables by year

These compelling findings challenge conventional economic wisdom and expand our understanding of the potential factors exerting influence on stock prices. It seems that the effects of

these celestial bodies' movements extend beyond the confines of their orbits and reach into the earthly realm of financial markets. This prompts us to consider whether there may be an astronomical aspect to economic forecasting after all – it's a cosmic twist on traditional financial analysis!

In conclusion, the evidence presented here suggests a meaningful association between the distance separating Neptune and Uranus and the stock price of Cummins Inc. (CMI). This discovery invites further exploration into the interplay of celestial phenomena and economic indicators, where the celestial playground extends beyond the "big dipper" and into the stock market. Who would have thought that the movements of planets millions of miles away could have such down-to-earth implications for corporate finances – it's a stellar revelation, to say the least!

### *Discussion*

The results of this study provide robust support for the prior research that has speculated on the potential link between celestial bodies and stock prices. The findings substantiate the work of Smith et al., who reached for the stars in suggesting that the proximity of Neptune and Uranus may influence market trends. Similarly, the study by Doe, while mainly focused on lunar cycles, paved the way for our investigation into the influence of more distant planets on financial markets. It appears that the movements of these outer planets might indeed have an impact on earthly financial matters, making it a celestial matter of stock prices indeed!

The correlation coefficient of 0.9557312, as well as the p-value of less than 0.01, align with prior speculative research and provide quantitative evidence of a significant relationship between the distance separating Neptune and Uranus and Cummins' stock price. These statistical measures strengthen the argument that the celestial movements of these gas giants may have a palpable influence on market dynamics. It seems that the waves of celestial bodies are not just limited to oceans – they may have an equally profound effect on the ebb and flow of stock prices!

The unexpected correlation between astronomical distance and stock prices challenges traditional economic wisdom, suggesting that factors beyond the traditional purview of financial analysis may play a role in market fluctuations. Our findings introduce an intriguing cosmic twist to the conventional understanding of economic indicators, expanding the scope of potential influences on stock prices. It's as if the universe itself is giving us a wink and nod, saying, "there's more to the stars than meets the eye, especially when it comes to your financial pie!"

In light of these results, it becomes evident that the influence of celestial bodies on stock prices is not just a matter of stargazing, but potentially an overlooked aspect of economic forecasting. Perhaps it's time to broaden our horizons and consider a whole new dimension to financial analysis – one where the movements of planets millions of miles away could have tangible implications for corporate finances. It's a cosmic revelation, leading us to ponder whether our economic fate may be written

in the stars – or at least, in the relative positions of Neptune and Uranus!

### *Conclusion*

In closing, our investigation has shed light on an unexpected yet statistically significant relationship between the distance separating Neptune and Uranus in the solar system and the stock price of Cummins Inc. (CMI). It seems that celestial bodies may indeed hold sway over earthly financial matters – a notion that may seem "out of this world," but the data speaks for itself. As we embark on this celestial odyssey, we are reminded of the old joke among astrophysicists: "Why don't economists trust astrologers? Because economists think they always make the same 'cents'!"

The robust correlation coefficient of 0.9557312 and the p-value of less than 0.01 leave little room for doubt – it's as clear as night and day that there is a connection waiting to be explored further. It's as if the stock market is truly under the gravitational pull of these distant planets, or perhaps we should say, their "stock-tractive" forces!

With every scatterplot data point harmonizing like a celestial symphony, it's evident that Neptune and Uranus may be quietly orchestrating the financial ballet of Cummins' stock prices from afar. Who would have thought that the movements of planets millions of miles away could have such down-to-earth implications for corporate finances? It's a "Neptunian" concept, to be sure!

Therefore, it is safe to conclude that our findings call for a paradigm shift in economic analysis – one that considers the cosmic dance of planets as a legitimate influencer of stock prices. With that, we confidently assert that no further research is needed in this area. After all, you can't argue with the planetary alignment of statistical significance!