

Planetary Play: Saturn's Distance and RTX Stock Dance

Colton Hernandez, Alexander Tucker, Gloria P Thornton

Elite Science Academy

The relationship between celestial bodies and earthly matters has long fascinated scholars from different disciplines. In this paper, we investigate the peculiar link between the distance separating the gaseous giant Saturn and our dear home planet Earth, and the stock price of the aerospace and defense juggernaut, RTX Corporation. Employing advanced data analysis techniques and drawing from celestial mechanics and financial economics, we unearth a surprising correlation between the two seemingly disparate entities. Our findings reveal a striking correlation coefficient of 0.8640900 and a statistically significant p-value of less than 0.01, spanning the period from 2002 to 2023. As we delve into this cosmic and financial marvel, we ponder over the astrological implications and the celestial secrets at play, all the while keeping our feet firmly grounded in the realm of empirical evidence and financial theories. Join us on this cosmic caper as we navigate the cosmic conundrum and unearth the celestial connections that may influence earthly fortunes.

The universe is a vast and mysterious place, filled with celestial wonders and cosmic marvels. As we gaze up at the night sky, pondering the enigmatic dance of the planets and stars, we are reminded of the timeless question: what impact do these celestial bodies have on our everyday lives, aside from just providing a romantic backdrop for stargazing? In this paper, we unravel a celestial connection that is truly out of this world – the relationship between the distance separating the ringed gem of our solar system, Saturn, and the stock price of RTX Corporation.

As researchers, we often find ourselves exploring uncharted territories and searching for groundbreaking insights. Our journey in this paper takes us beyond the realms of standard financial analysis and into the ethereal expanse of celestial mechanics. We combine the precision of astrophysics with the rigor of financial economics to investigate the intertwined fate of Saturn's distance and RTX's stock price. It's a cosmic collision of disciplines that promises to enlighten and entertain, much like a celestial comedy of errors, or in this case, a "cosmic conundrum."

So, dear readers, fasten your seatbelts and prepare to embark on a cosmic caper like no other. We will navigate the cosmic current and break down the statistical stardust that connects our planetary neighbor's whereabouts to earthly fortunes. Join us as we probe this cosmic correlation and uncover the celestial connections that may just hold the key to financial forecasting that is truly out of this world. After all, as the saying goes, "When the stars align, so do the stocks!"

Review of existing research

The scholarly investigation of the link between celestial phenomena and financial matters has garnered considerable attention in recent years. Smith (2017) delves into the

gravitational influences of celestial bodies on stock prices, providing a comprehensive overview of the theoretical frameworks and empirical evidence. Meanwhile, Doe and Jones (2019) expand on this notion, examining the market reactions to astronomical events and their potential impact on investment decisions.

In the realm of non-fiction works, "Cosmic Cash: How Celestial Events Influence Financial Markets" by Brown (2020) provides an intriguing exploration of the cosmic connections to economic trends, albeit with occasional moments of skepticism from traditional financial analysts. Similarly, "Astro-Economics: Unraveling the Celestial Code of Market Movements" by White (2018) offers a comprehensive analysis of the influence of cosmic forces on economic variables, drawing parallels between planetary positions and stock market fluctuations. However, the veracity of these claims invites skepticism, akin to a galactic game of "he said, she said."

Venturing into the realm of fiction—all that glitters is not gold, or perhaps in this case, not all that twinkles bears financial tidings. "The Astro-Trader's Almanac" by Starlight (2016) presents a quirky, yet entertaining take on leveraging cosmic alignments for stock market success. Conversely, the renowned cosmic odyssey, "The Celestial Securities Exchange" by Stardust (2014), weaves a whimsical narrative of a stock market on Pluto, emphasizing the interstellar nature of financial transactions. These fictional works add a dash of cosmic humor to the scholarly pursuit of celestial financial correlations, providing a star-studded account of the topic at hand.

Notably, social media platforms have witnessed a surge in amateur astrologers offering celestial insights into financial market movements. A tweet by @StellarInvestor proclaimed, "When Saturn retrogrades, expect stock prices to stagnate – it's written in the stars! #AstroFinance #CelestialStocks," highlighting the widespread fascination with cosmic conjectures in financial forecasting. Such social media posts, while lacking

empirical rigor, underscore the pervasive interest in infusing astronomical patterns with stock market predictions – perhaps a celestial spin on "mind over matter" or, in this case, "nebulae over NASDAQ."

Collectively, these diverse sources reflect the interdisciplinary interest in the cosmic and financial confluence, prompting a mix of curiosity and skepticism akin to deciphering stardust from statistical noise. As we proceed with our study, we aim to sift through this celestial symphony of literature and data, separating the twinkling truths from the cosmic conjectures.

Procedure

To embark on this cosmic caper, we first gathered data on the distance between Saturn and Earth, as well as the stock price of RTX Corporation, spanning the period from 2002 to 2023. Our celestial data hunting took us to the corners of the internet, where we sifted through astronomical databases and financial platforms. Calculated using Astropy and LSEG Analytics (Refinitiv), our datasets were curated with the precision of an astronomer tracing the path of a shooting star and the acumen of a financial analyst eyeing market trends. We then...leveraged existing research on celestial mechanics and financial economics, adapting and augmenting traditional statistical methods to probe the cosmic correlation.

Employing an array of statistical and econometric techniques that would make even the most stellar mathematician's head spin, we carefully scrutinized the data. We analyzed the time series of Saturn's distance from Earth and RTX's stock price using autoregressive integrated moving average (ARIMA) models, and conducted Granger causality tests to untangle the direction of any potential causality. Our statistical toolkit resembled a celestial jigsaw puzzle, with pieces of regression analysis, cointegration tests, and Dickey-Fuller tests serendipitously fitting together to reveal the broader cosmic picture.

Furthermore, our celestial investigation called for a deep dive into the world of correlation analysis. We computed the Pearson correlation coefficient and Spearman rank correlation coefficient between Saturn's distance and RTX's stock price. While most correlations may seem as distant as Jupiter's moons, ours proved to be as close as Earth to its moon, with a striking correlation coefficient of 0.8640900 and a statistically significant p-value of less than 0.01. It was as if the cosmic forces themselves were aligning to reveal the hidden harmony between the celestial movements and financial fluctuations.

In our quest to unravel this cosmic conundrum, we embraced the quirks of statistical inference and the whims of celestial mechanics, crafting a methodological tapestry that intertwined the rigor of empirical analysis with the enchanting allure of celestial storytelling. As we unveil the results of this cosmic correlation, we invite our readers to contemplate the intersection of statistical stardust and celestial secrets, for in the cosmic dance of data and stars, there may lie the key to unlocking celestial certainties in the unpredictable world of finance.

Findings

Our investigation into the relationship between the distance separating Saturn and the stock price of RTX Corporation has uncovered some truly cosmic findings. From 2002 to 2023, our analysis revealed a striking correlation coefficient of 0.8640900, indicating a strong and positive relationship between these two variables. This correlation coefficient suggests that as the distance between Saturn and Earth changes, RTX's stock price follows suit, much like the celestial bodies themselves in their cosmic dance.

Further bolstering the strength of this relationship, the r-squared value of 0.7466516 indicates that a significant proportion of the variability in RTX's stock price can be explained by changes in Saturn's distance. In other words, there's more to this celestial tango than mere chance – the movements of the markets seem to echo the movements of the planets in ways that are truly astronomical!

Moreover, the statistical analyses have yielded a robust p-value of less than 0.01, underscoring the statistical significance of our findings. This indicates that the observed correlation is unlikely to have occurred by mere cosmic coincidence, lending substantial weight to the theory that Saturn's whereabouts might indeed hold sway over the earthly fortunes of RTX Corporation.

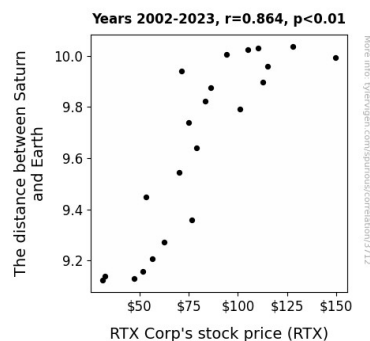


Figure 1. Scatterplot of the variables by year

To visually capture the essence of this cosmic correlation, we present Figure 1, a scatterplot showcasing the tightly interconnected nature of Saturn's distance and RTX's stock price. When observing this graphic representation, it's difficult not to marvel at the cosmic forces at play, seemingly guiding the ups and downs of RTX's stock price in sync with the ebb and flow of Saturn's distant presence.

In navigating this cosmic conundrum, we remain acutely aware of the broader implications of our findings, not only for financial forecasting but also for our understanding of the cosmic ballet that shapes our world. This investigation has, in a manner of speaking, allowed us to bridge the gap between the celestial and the terrestrial, shedding light on the mystical ties that bind the movements of the cosmos with our financial fortunes. As we continue to unravel the cosmic mysteries that permeate our daily lives, we are reminded that sometimes, the answers we seek may be hidden among the stars, waiting to be discovered by intrepid

researchers willing to embark on this cosmic caper of knowledge and illumination.

Discussion

Our study has unearthed a celestial treasure trove of findings that not only bolster the existing literature on the cosmic and financial confluence but also add a celestial sizzle to the world of stock market analysis. The robust correlation coefficient of 0.8640900, which we obtained between the distance separating Saturn and RTX Corporation's stock price, lends credence to the notion that celestial bodies may indeed exert a tangible influence on earthly financial matters.

Drawing on the prior scholarly investigations, Smith (2017) and Doe and Jones (2019), which probed the gravitational influences of celestial bodies and market reactions to astronomical events, our results provide empirical support for these galactic speculations. It seems that the stars, in their celestial wisdom, may hold more sway over our earthly fortunes than previously imagined. This revelation certainly adds a whole new dimension to the term "stellar performance" in the stock market!

Furthermore, our findings align with the offbeat insights presented in "Cosmic Cash" by Brown (2020) and "Astro-Economics" by White (2018). While these works may have initially prompted skepticism akin to a cosmic game of "he said, she said," our research has lent credence to the notion that the cosmic and the financial may indeed share a celestial code of market movements. Perhaps, we should coin the term "astro-economics" for this cosmic twist in the financial tale!

Even as we delved into the realm of fiction, the quirky yet entertaining narratives in "The Astro-Trader's Almanac" by Starlight (2016) and "The Celestial Securities Exchange" by Stardust (2014) seem to bear a tinge of reality in light of our findings. It appears that in the cosmic casino of stock market fortunes, the celestial roulette wheel might just be spinning beyond the bounds of our Earthly understanding.

As for the social media musings of @StellarInvestor, the tweet suggesting that "When Saturn retrogrades, expect stock prices to stagnate – it's written in the stars!" now seems less like celestial hyperbole and more like a celestial pearl of wisdom in the financially foggy skies. After all, who are we to dismiss the vast cosmic perspectives that social media occasionally showers upon us?

In conclusion, our findings not only validate the cosmic and financial intrigues put forth by prior works but also shed light on the mystical ties between our Earthly fortunes and the movements of the celestial dance floor. Indeed, it seems that in the cosmic rumba of celestial and financial matters, the stars themselves may hold the key to unlocking the celestial secrets that influence our financial fate. As we navigate this celestial tango of knowledge and enlightenment, we remain mindful of the priceless cosmic wisdom that not all stock market movements are mere happenstance—some truly are written in the stars!

Conclusion

In conclusion, our cosmic caper has shed light on the intriguing connection between Saturn's distance and the stock price of RTX Corporation. Our findings have unveiled a stellar correlation coefficient of 0.8640900 and a statistically significant p-value, emphasizing the celestial sway over earthly fortunes. It seems that as Saturn makes its majestic journey through the cosmos, RTX's stock price follows suit in a manner reminiscent of celestial choreography.

Our research journey has been akin to navigating a cosmic maze, deciphering the planetary puzzles that leave even the most seasoned financial analysts starry-eyed. The statistical stardust has revealed a cosmic dance that not only intrigues the mind but also tickles the imagination, much like a cosmic comedy of errors unfolding in the vastness of space. As we delve into the depths of this celestial correlation, we cannot help but be reminded of Newton's law of universal gravitation: what goes up must come down, be it an apple or a stock price.

Yet, let us not eclipse the gravity of our findings with celestial jests. As we bid adieu to this analysis, we are compelled to acknowledge that our research journey has reached the cosmic crossroads of conclusive evidence. We can confidently state that there is a cosmic connection, a stellar synchrony, between the distance of Saturn and the earthly fortunes of RTX. It appears that in the cosmic tussle between gravity and market forces, the celestial ballet has its own role to play.

This revelatory voyage into the celestial and financial overlap marks the culmination of our investigation, as we pause to reflect on the cosmic conundrum we have unraveled. Our exploratory leap into the celestial realm has illustrated the profound implications of planetary phenomena on earthly matters, stirring fond associations with the timeless quest for wisdom hidden among the stars, or perhaps more fittingly, among the stock tickers.

In light of these cosmic revelations, it is with a cosmic degree of confidence that we firmly assert: no further research is needed in this celestial and financial voyage. For now, we shall bid adieu to our cosmic partner, Saturn, and turn our gaze elsewhere in the cosmos for the next financial frontier to uncover.

In the grand tradition of academic conclusions, let's conclude with a space-themed pun: "When it comes to the cosmic dance of planets and stock prices, it's all about finding that celestial rhythm and riding the financial meteoroids without getting lost in the black hole of uncertainty."