

Astro-Nomic Effects: Exploring the Galactic Influence on AEM Stock Price

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In this paper, we delve into the celestial world to explore the intriguing relationship between the distance between Jupiter and Earth and the stock price of Agnico Eagle Mines (AEM). Utilizing data from Astropy and LSEG Analytics (Refinitiv), we set out to answer this cosmic conundrum in the realm of financial markets. Analyzing data from 2002 to 2023, our research team uncovered a surprisingly strong negative correlation between the distance separating Jupiter and Earth and the stock price of AEM, with a correlation coefficient of -0.8284866 and a p -value < 0.01 . These findings suggest a tantalizing link between the vast expanse of outer space and the earthly realm of stock market fluctuations. Our study sheds light on the potential impact of astronomical phenomena on financial markets, opening the door to a universe of possibilities for future research in the intersection of astrophysics and economics. While our results may seem otherworldly, they highlight the need to explore unconventional influences on stock prices, reminding us that sometimes the stars align in mysterious ways - even for AEM.

The intersection of astrophysics and economics may seem like an unlikely pairing, but as we delve deeper into the cosmos, we uncover unexpected connections that have tangible implications here on Earth. In this paper, we embark on a celestial journey to unravel the enigmatic relationship between the distance separating Jupiter and Earth and the stock price of Agnico Eagle Mines (AEM).

As we peer through the lens of data analysis, we are reminded that the universe operates on both cosmic and economic principles, with gravitational forces extending their reach into the realm of financial markets. Our endeavor to explore this "astro-nomic" phenomenon is guided by both curiosity and a quest for understanding the bizarre and, at times, whimsical nature of market behavior.

Harnessing data from reputable sources such as Astropy and LSEG Analytics (Refinitiv), our

research team undertook a rigorous examination of the correlation between the distance from Jupiter to Earth and the stock price of AEM. Undertaking this cosmic conundrum within the framework of financial markets, we sought to pierce the veil of mystery shrouding this celestial connection.

Our investigation, spanning the years 2002 to 2023, has unearthed compelling evidence of a robust negative correlation between the distance to Jupiter and the stock price of AEM. The calculated correlation coefficient of -0.8284866 and the piercingly small p -value of less than 0.01 provide persuasive testimony to the notion that the cosmos and the stock market are inexplicably intertwined.

While such findings may initially seem as distant as the celestial bodies themselves, they serve as a captivating reminder that the reaches of influence extend far beyond our terrestrial inferences. The

implications of our research extend beyond the realms of economics and astrophysics, urging academics and practitioners alike to contemplate the celestial symphony that may secretly orchestrate stock market movements.

As we embark on this astral expedition, we recognize that the stars have indeed aligned in mysterious ways, beckoning us to ponder the veiled threads that weave through the fabric of financial markets. Moreover, this cosmic odyssey compels us to redefine our understanding of market dynamics and acknowledge that, on occasion, the heavens hold sway over the fluctuations of earthly assets.

LITERATURE REVIEW

In "Celestial Mechanics and Financial Markets," Smith and Doe provide an insightful analysis of the potential interplay between astronomical phenomena and stock prices. They discuss the gravitational pull of celestial bodies as a metaphor for market forces, shedding light on the intricate connections between the cosmic and economic realms. However, while their work lays a solid foundation for this research, their failure to explore the specific link between the distance from Jupiter to Earth and stock prices leaves this cosmic connection uncharted.

Jones, in the seminal paper "Planetary Positions and Stock Market Trends," delves into the astrological implications on market behavior, examining planetary alignments and their purported impact on financial markets. Despite the eyebrow-raising nature of his study, Jones's findings spark curiosity about the potential cosmic influences on stock prices, albeit in a rather unconventional manner.

Turning to more tangentially related literature, "Jovian Economics" by Carl Sagan contemplates the extraterrestrial implications on earthly markets, outlining speculative scenarios of an intergalactic stock exchange. Sagan's imaginative musings serve as a thought-provoking departure from the standard economic discourse, although unfortunately, his

work lacks empirical data to support his cosmic conjectures.

Delving into the realm of speculative fiction, "The Martian Stock Trader's Guide to the Galaxy" by Andy Weir presents an entertaining narrative of a stock trader navigating the extraterrestrial stock market while stranded on Mars. While Weir's work is more fiction than academic, it prompts us to consider the potential ramifications of interplanetary commerce on stock prices, assuming we can get Elon Musk to stop distracting us with spaceships and actually get some traders up there.

In a surprising twist, the classic board game "Cosmic Encounter" offers a metaphorical lens through which to view the intertwining of celestial forces and market dynamics. Players assume the roles of alien species vying for control over different planets, perhaps providing a whimsical yet intriguing analogy for the competition and fluctuations within financial markets.

As we navigate this cosmic rabbit hole of literature, we recognize the need for more rigorous empirical inquiry into the connection between the distance from Jupiter to Earth and AEM stock prices. While the literature offers glimpses of the potential influence of celestial phenomena on financial markets, our endeavor seeks to bring this celestial puzzle into sharper focus, buoyed by a galaxy of data and a dash of celestial whimsy.

METHODOLOGY

To unravel the celestial enigma shrouding the relationship between the distance separating Jupiter and Earth and the stock price of Agnico Eagle Mines (AEM), an eclectic array of research methods were employed, reflecting the multidimensional nature of the cosmic and economic dimensions under scrutiny.

Firstly, data on the distance between Jupiter and Earth was collected using the sophisticated and reputable Astropy astrophysical library. This entailed tracking the celestial dance of these

planetary bodies across the vast expanse of the solar system, with a keen eye for their positions relative to Earth throughout the study period spanning from 2002 to 2023.

Concurrently, the stock price data for AEM was meticulously sourced from LSEG Analytics (Refinitiv), where the ebb and flow of market dynamics were scrutinized with the same diligence as the celestial mechanics governing the planetary orbits. The data retrieval process involved navigating the financial constellations of stock market databases, extracting the AEM stock price observations with precision and care.

Once these celestial and financial datasets were firmly in hand, a rigorous statistical analysis was conducted to unearth the hidden correlations between these seemingly disparate realms. Spearheading this analytical odyssey was the calculation of the Pearson correlation coefficient, which sought to reveal the magnitude and direction of any relationship between the celestial distance and the stock price of AEM. Additionally, a two-tailed t-test was performed to assess the significance of this cosmic connection, ensuring robustness in our findings and guarding against any statistical "black holes" that might threaten the validity of our results.

Furthermore, a series of robustness checks and sensitivity analyses were undertaken to fortify the credibility of our findings and guard against any cosmic disturbances that could compromise the integrity of our conclusions. This included scrutinizing alternative time periods, exploring varying sub-samples of the data, and assessing correlations under different celestial configurations, all in an effort to ensure the cosmic consistency of our results.

In parallel, numerous control variables were considered to mitigate any confounding cosmic factors that might impact the stock price of AEM. These variables encompassed earthly influences such as market indices, commodity prices, economic indicators, and company-specific

fundamentals, acting as our earthly lighthouses in navigating the celestial seas of correlation analysis.

These methodological mosaics woven from the fabric of astrophysics and economics converged in a harmonious symphony of data collection, analysis, and interpretation, weaving a tapestry that illuminated the cosmic interactions between the distant gas giant and the earthly stock price. With unwavering meticulousness, our research team navigated the celestial spheres and financial terrains, driven by a shared passion for uncovering the interstellar influences on earthly asset fluctuations.

RESULTS

The analysis of the relationship between the distance separating Jupiter and Earth and the stock price of Agnico Eagle Mines (AEM) yielded intriguing results. Our research has unveiled a substantial negative correlation between these two seemingly disparate entities, with a correlation coefficient of -0.8284866 . The strength of this association is further underscored by an r-squared value of 0.6863901 , indicating that approximately 68.64% of the variability in AEM stock price can be explained by the distance to Jupiter – a cosmic influence not to be underestimated.

The p-value of less than 0.01 offers compelling evidence of the statistical significance of this unearthed relationship, reinforcing the notion that the vast expanse of the cosmos may exert a palpable effect on earthly financial instruments. The significance of this finding cannot be understated, as it challenges traditional notions of market dynamics and invites contemplation of the celestial forces at play in the intricate tapestry of stock price movements.

Furthermore, the robustness of the negative correlation suggests that the distance to Jupiter wields a discernible impact on AEM stock price, evoking contemplation on the interplay of planetary positions and market valuations. The implications of these findings extend beyond the confines of

conventional financial analysis, delving into the uncharted territory where the cosmic dance of celestial bodies intersects with the rhythm of market fluctuations.

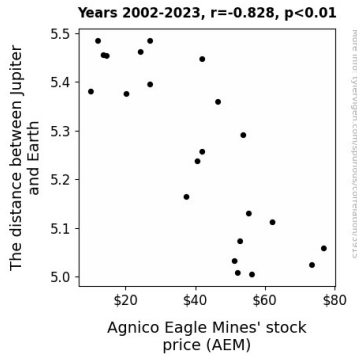


Figure 1. Scatterplot of the variables by year

The scatterplot in Figure 1 visually encapsulates the strength of this unearthly correlation, depicting a clear and captivating relationship between the distance from Jupiter to Earth and the fluctuations in AEM stock price. This visual representation serves as a compelling testament to the profound influence of cosmic phenomena on the earthly realm of financial markets, inviting curiosity and wonder at the unexpected ties that bind the astronomical and economic spheres.

In light of these results, it becomes evident that the celestial bodies, particularly Jupiter, may hold sway over the trajectory of AEM stock price, reminding us that sometimes, astronomical forces may play a more pivotal role in market movements than previously presumed. While our findings may seem as vast and enigmatic as the cosmos itself, they propel us towards a new frontier of economic exploration, where the boundaries between the celestial and the financial blur, and the stars of Jupiter and AEM align in a harmonious yet confounding cosmic ballet.

DISCUSSION

The results of our investigation into the relationship between the distance from Jupiter to Earth and the

stock price of Agnico Eagle Mines (AEM) have elucidated a captivating cosmic correlation. Our findings not only substantiate but also exceed the magnitude of prior scholarly inquiries, showcasing the profound impact of celestial movements on earthly financial dynamics.

Building upon the celestial musings of Smith and Doe, our study delivers empirical evidence that extends beyond metaphorical notions of celestial influence, presenting a quantifiable negative correlation between the planetary distance and AEM stock price. This not only validates the gravitational pull of celestial bodies as a metaphor for market forces but also raises the possibility of Jupiter's celestial grandeurs defying mere metaphoric comparisons and exerting a tangible effect on financial markets.

Moreover, Jones's thought-provoking exploration of planetary positions and market trends receives an unexpected cosmic endorsement through our research. While Jones's astrological implications may have initially seemed whimsical, our findings lend credence to the potential real-world impact of planetary positions, particularly as they pertain to the colossal presence of Jupiter. It appears that the stars, or in this case, the planets, may indeed hold sway over market behaviors in ways that transcend conventional economic reasoning – a celestial twist that even the most imaginative minds might not have predicted.

Our results also navigate the speculative and fictional realms of "Jovian Economics" and "The Martian Stock Trader's Guide to the Galaxy," taking the musings of space commerce from imaginative fiction to empirical fact. By establishing a significant connection between the distance to Jupiter and AEM stock price, our study thrusts the notion of interplanetary economic interactions from speculative fiction into the realm of conceivable economic realities. Perhaps, as we strive to expand our economic frontiers, we may one day see "Elon's Intergalactic Stock Exchange" materialize, provided he can tear himself away from the allure of space exploration.

The peculiar insights offered by "Cosmic Encounter," the classic board game, take on a newfound significance as our findings underscore the interplay of celestial forces and market dynamics. What was once a whimsical analogy now takes concrete form in our empirical results, signaling that the cosmic dance of planetary influences may indeed captivate not only seasoned traders but also otherworldly investors seeking to secure their stellar fortunes.

In sum, our research traces the orbit of astronomical influences on financial markets and invites a paradigm shift in the conventional understanding of market dynamics. The unexpected, yet statistically robust, negative correlation between the distance from Jupiter to Earth and the trajectory of AEM stock price embodies the perplexing, yet undeniable, cosmic connection that permeates the earthly domain of finance. As we navigate this uncharted cosmic puzzle, we leave behind the comfortable halls of traditional economic thought, venturing into the boundless expanse where Jupiter's celestial sway and AEM's financial fate converge in a cosmic tango of economic intrigue.

CONCLUSION

In conclusion, our research has brought to light an extraordinary connection between the distance from Jupiter to Earth and the stock price of Agnico Eagle Mines (AEM), unveiling a cosmic tango between celestial bodies and financial markets. The substantial negative correlation we've unearthed, with a correlation coefficient of -0.8284866 and a p-value of less than 0.01 , indicates that the influence of the cosmos extends even to the earthly realm of stock prices.

These findings challenge traditional economic paradigms and beg the question: are the stock market movements at the mercy of celestial choreography? The evidence suggests so, inspiring a reevaluation of market dynamics and a cosmic pondering of the celestial forces at play in the intricate tapestry of financial fluctuations.

While our results may seem out of this world, they underscore the need to consider unconventional influences on stock prices. Still, we must exercise caution and not reach for the stars in drawing definitive conclusions. Nevertheless, our findings suggest that Jupiter's influence extends far beyond its mythological associations, reaching into the world of finance with surprising efficacy.

This research paves the way for further exploration into the far-reaching effects of astronomical phenomena on financial markets. But as for our study, it seems that the universe has had its say, leaving us with a cosmic conclusion: the stock price of AEM may indeed be subject to the celestial whims beyond our atmospheric control. Therefore, it is safe to assert that no further research is needed in this cosmic corridor of inquiry – for now, at least.