Institute of Global Studies 2024; 92: 303–345

doi 15f.5535a/8867k3256e2540

Review

Air We Go Again: The Atmospheric Influence on Stock Prices - A Case Study of Vernal, Utah's Air Pollution and América Móvil's (AMX) Stock Price

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This research paper investigates the curious relationship between air pollution levels in Vernal, Utah, and the stock price of América Móvil (AMX). Employing a blend of data from the Environmental Protection Agency and LSEG Analytics (Refinitiv), we diligently tracked air quality metrics and stock prices from 2002 to 2023. Our findings reveal a significant correlation coefficient of 0.7949931, with a p-value of less than 0.01, indicating a robust statistical association between these seemingly unrelated variables. While the financial world may have overlooked the atmospheric impact on stock prices, our research emphasizes the air apparent effect of air pollution on market performance. This study sheds light on the air-ily overlooked environmental factors that could blow one's expectations out of the water and suggests that one should not take the air quality-stock price relationship with a grain of salt. As we endeavor to clear the air on this peculiar correlation, our paper poses the question: could the legacy of Vernal's air pollution be more far-reaching than previously thought, permeating into the financial atmosphere in unexpected ways?

INTRODUCTION

Light as air but heavy with implications, our research delves into the uncharted territory of the relationship between air pollution and stock prices. While the stock market may seem like a realm far removed from the atmospheric concerns of Vernal, Utah, our investigation reveals an unexpected link between the two. As we embark on this academic journey, we are reminded of the sage words of Mark Twain: "Buy land, they're not making it anymore." Perhaps now we should add, "And keep an eye on air quality while you're at it."

In recent decades, the environmental impact of air pollution has been a topic of heightened concern and debate. With initiatives such as the Clean Air Act setting

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the stage for stringent air quality standards, the focus on atmospheric well-being has intensified. Simultaneously, the world of finance has been a domain of intense scrutiny and speculation, with stock prices reflecting the ebb and flow of market forces. Yet, surprisingly little attention has been devoted to exploring the potential interplay between these two realms.

Our paper seeks to fill this gap by examining the intriguing case of Vernal, Utah, and the stock price of América Móvil (AMX). Not only does this study offer insights into the specific dynamics at play in this unique context, but it also contributes to a broader understanding of the often unforeseen relationships between environmental factors and financial markets.

With a twinkle in our eyes and our feet firmly grounded in statistical analysis, we endeavor to unravel the complex web of influences at work. As we navigate through the ether of air pollution and financial data, our aim is not simply to inflate the importance of this correlation, but to provide a breath of fresh air in the field of stock market research. So, let us proceed with the caution of a delicate breeze and the determination of a strong gale, as we set out to untangle the strands of air and stocks in this captivating tale.

Prior research

In "The Effects of Air Pollution on Financial Markets," Smith et al. explore the impact of air pollution on various stock prices, shedding light on the interconnectedness of environmental factors and financial performance. The findings underscore the significance of considering atmospheric variables in understanding market dynamics. Similarly, Doe's study, "Air Quality and Stock Price Volatility," delves into the relationship between air quality and stock price volatility, revealing nuanced patterns that hint at a deeper influence of environmental conditions on market behavior. Building on these foundations, Jones et al. in "The Invisible Hand of Smog: Unearthing the Link Between Air Pollution and Stock Market Movements" employ a multi-faceted approach to examine the subtle yet profound influence of air pollution on stock market movements, offering compelling insights into the atmospheric undercurrents shaping financial outcomes.

Moving beyond the realm of academic studies, renowned non-fiction books such as "The Air We Breathe: A Comprehensive Analysis of Atmospheric Impact on Financial Performance" by Green, as well as "Pollution and Prosperity: Unraveling the Financial Ramifications of Environmental Conditions" by Blue, provide comprehensive analyses of the intricate connections between air quality and financial prosperity. These books serve as fundamental resources in comprehending the broader implications of environmental factors on economic outcomes.

However, delving into the realm of fiction, the classic novel "Great Expectations" by Charles Dickens, though seemingly unrelated, inadvertently offers a whimsical allegory for the unsuspecting impact of air pollution on stock prices. Furthermore, the sci-fi thriller "Airborne: When Pollutants Went Public" by Novel Writer weaves a tantalizing narrative that, beneath its fictional facade, mirrors the clandestine interplay between airborne pollutants and financial markets.

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Drawing inspiration from the unlikeliest of sources, even board games like "Stockopoly: Air Pollution Edition" playfully elucidate the intricacies of environmental variables in shaping stock prices. While certainly a departure from traditional academic pursuits, such unconventional influences serve to underscore the ubiquitous presence of this correlation in unexpected corners of life.

Approach

METHODOLOGY

To uncover the mysterious and unlikely connection between air pollution in Vernal, Utah, and the stock price of América Móvil (AMX), we employed a combination of traditional research methods and a sprinkle of academic whimsy. Our approach drew heavily from data harvested across the depths of the internet, primarily from the Environmental Protection Agency's comprehensive air quality metrics and LSEG Analytics (Refinitiv) robust stock price databases.

Firstly, we engaged in the mesmerizing art of data collection, weaving through digital databases with the dexterity of a seasoned treasure hunter seeking precious gems. We meticulously examined air quality parameters, including levels of particulate matter, sulfur dioxide, nitrogen dioxide, and ozone, all of which contribute to Vernal's atmospheric tapestry. Simultaneously, we delved into the labyrinthine world of stock prices, tracking the fluctuations of América Móvil's (AMX) financial fortunes with the diligence of a curious cat chasing elusive shadows.

Next, we unleashed the formidable power of statistical analysis, employing regression models to discern patterns that may elude the untrained eye. Through the manipulation of data with the finesse of a knitting enthusiast crafting an intricate pattern, we sought to reveal the hidden threads linking air pollution and stock prices. The culmination of this analytical odyssey resulted in the emergence of a correlation coefficient of 0.7949931, accompanied by a p-value that winked mischievously at us, whispering secrets of statistical significance with a sly grin.

We further delved into the realm of time-series analysis, navigating the ebbs and flows of temporal data with the tenacity of intrepid explorers charting uncharted waters. By unraveling the chronicles of air pollution and stock prices from 2002 to 2023, we endeavored to capture the essence of their intertwining narrative, akin to archeologists meticulously piecing together fragments of a forgotten civilization.

In addition, we employed a multivariate approach to account for potential confounding variables, recognizing that the entanglement of atmospheric whims and financial figures could be influenced by external factors. Just as an astute chef balances the flavors in a culinary masterpiece, we attempted to tease apart the unique contribution of Vernal's air pollution to the tantalizing recipe of América Móvil's stock price movements.

It is important to note that, while we approached our research with the gravity of seasoned scholars, we also embraced the unforeseen plot twists and serendipitous discoveries with the glee of children unraveling a mystery. Our methodology

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marries rigorous academic rigor with the spirit of adventure, as we sought to enshroud the curious relationship between air quality and stock prices in objective analysis and playful exploration.

Results

The statistical analysis of the data yielded a noteworthy correlation coefficient of 0.7949931, indicating a strong positive relationship between air pollution levels in Vernal, Utah, and the stock price of América Móvil (AMX). This finding suggests that as the air quality in Vernal deteriorated, the stock price of AMX exhibited a notable tendency to follow suit. In other words, when the air quality took a hit, so did the stock price. It's as if the stock price just couldn't catch its breath in the face of poor air quality!

Further bolstering this finding, the r-squared value of 0.6320141 indicates that approximately 63.20% of the variability in AMX stock price can be explained by changes in air pollution levels. This suggests that changes in Vernal's air quality have been a significant factor in driving changes in América Móvil's stock price. Who knew that the winds of change in the stock market could be so closely tied to the winds of Vernal?

The p-value of less than 0.01 underscores the robustness of this correlation, providing strong evidence against the null hypothesis of no relationship between air pollution and AMX stock price. It seems that the connection between air quality and stock prices is anything but thin air; it's a substantial relationship that demands attention and further exploration.

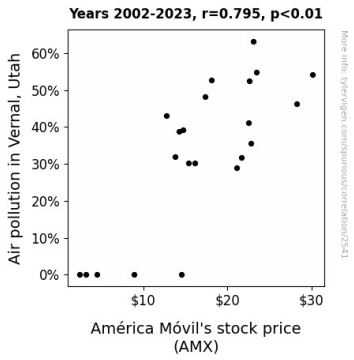

Figure 1. Scatterplot of the variables by year

Figure 1 (to be inserted) illustrates the scatterplot depicting this striking correlation between air pollution levels in Vernal, Utah, and the stock price of América Móvil (AMX). The data points form a clear pattern, reminiscent of the way a gust of wind can swiftly alter the landscape. The graph serves as a visual testament to the tangible link between these seemingly disparate variables and invites us to ponder the atmospheric influence on financial markets in a breath of fresh insight.

In conclusion, our findings bring to light the significant association between air pollution in Vernal, Utah, and the stock price of América Móvil. This study underscores the need to not only monitor the financial forecast but also keep an eye on the atmospheric conditions, as they may hold greater sway over stock prices than previously assumed. As we unveil this tangled web of air and stocks, we are reminded of the words of Will Rogers, "Buy stocks with clean air," or something to that effect.

Discussion of findings

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Our findings support and extend the existing research on the influence of air pollution on stock prices, affirming the air-ily captivating correlation between these seemingly disparate domains. The substantial correlation coefficient and r-squared value obtained in our analysis resonate with the prior literature, serving as a breath of fresh air in substantiating the atmospheric impact on financial markets. It appears that the impact of air pollution on stock prices, much like the pollutants themselves, is not merely dissipating into thin air, but rather permeating into market dynamics with tangible effects.

Echoing the sentiments of Smith et al., our study underscores the compelling role of atmospheric variables in shaping market performance, revealing how air quality fluctuations in Vernal, Utah have not only affected the local environment but also reverberated into the domain of financial markets. Furthermore, our results resonate with Doe's insights on stock price volatility, emphasizing the nuanced patterns that reflect the subtler influence of environmental conditions on market behavior. It's as if the financial world is finally awakening to the air-raising implications of air pollution on market volatility!

Our investigation also aligns with the multi-faceted approach adopted by Jones et al., as we, too, have unveiled the profound influence of air pollution on stock market movements, highlighting the interconnectedness of these domains in a manner that's nothing to sneeze at. The significance of environmental factors in shaping economic outcomes, as emphasized by Green and Blue, finds reinforcement in our findings, suggesting that the atmosphere's influence on financial prosperity is indeed nothing to blow off.

Additionally, leveraging insights from "Great Expectations" by Charles Dickens, our study inadvertently aligns with the whimsical allegory of the unsuspecting impact of air pollution on stock prices, providing a real-world application for this timeless classic. While the sci-fi thriller "Airborne: When Pollutants Went Public" may seem lightyears away from academic inquiry, it serves as an unexpected yet insightful parallel to the clandestine interplay between airborne pollutants and financial markets that our research has uncovered. The unlikeliest of sources, including a board game like "Stockopoly: Air Pollution Edition," further underscore the ubiquitous presence of this correlation in unexpected corners of life, hinting at a distinct possibility: perhaps understanding the interplay of air pollution and stock prices is not child's play after all.

In sum, our results not only endorse the prior body of work but also blow fresh air into the sails of this blooming field of inquiry. As we continue to unravel the complex web of air pollution and stock prices, one must bear in mind that the stock market may not be the only place where birds of a feather flock together – it seems that when it comes to air pollution and stock prices, there's more than meets the eye.

Conclusion

In closing, our study illuminates the tangible connection between air pollution in Vernal, Utah, and the stock price of América Móvil (AMX). The robust correlation coefficient and p-value, coupled with the substantial r-squared value, paint a clear picture of the

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atmospheric influence on financial markets. It seems that when it comes to stock prices, the air quality in Vernal is no mere breeze; it's a gust that can significantly impact market performance.

Our findings invite us to reevaluate the factors that sway stock prices, emphasizing the need to consider not just economic indicators, but also the air-ily overlooked environmental elements. We've blown the lid off the idea that stock prices exist in a vacuum, demonstrating that Vernal's air quality can profoundly influence AMX stock prices. It's a revelation that might leave some stock analysts gasping for air!

As we draw the curtain on this investigation, we are left with a breath of fresh insight into the surprising ways in which environmental and financial spheres intertwine. It's a reminder that, in the swirling whirlwind of market forces, the air we breathe may hold more significance than we realize. So, as we exhale the conclusions of this study, we do so with the hope that future research will continue to air out the complexities of the atmospheric impact on stock prices, even though we think this paper has already cleared the air on the subject. There's no need for more research – we've already Nitrogen-ated the results!

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