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# Air Pollution in Deming and NatWest Group's Stock Price: A Correlation Crime or Rhyme?

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*This study sets out to investigate the potential connection between air pollution in Deming, New Mexico, and the stock price of NatWest Group (NWG). Through extensive data analysis from the Environmental Protection Agency and LSEG Analytics (Refinitiv), our research team has unveiled some surprising findings. We calculated a correlation coefficient of 0.8287586, with a p-value of less than 0.01 for the period of 2008 to 2023. This correlation suggests a compelling association between the pollutants lingering in the air of Deming and the fluctuations in NWG stock price. Our paper not only provides empirical evidence but also serves a breath of fresh air in the realm of stock market research, showcasing a non-traditional yet critical factor that influences financial markets – in this case, quite literally. Our findings may lead investors to consider the phrase "pollution in the air, stocks may bear" when making their investment decisions.*

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Ah, the sweet scent of academia and the not-so-sweet smell of air pollution! In this paper, we delve into the intriguing and often-overlooked relationship between air quality in Deming, New Mexico, and the stock price of NatWest Group (NWG). Whether you're a stock trader with a keen nose for market trends or an environmentalist seeking to uncover the scent of financial success, our findings are sure to leave you feeling both enlightened and slightly incredulous.

As we embark on this odorous odyssey, it's important to acknowledge the interplay of factors in the realm of stock price determination. While conventional economic theories and market analyses often focus on macroeconomic indicators, earnings reports, and even the occasional well-timed tweet from a certain tech mogul, our study introduces a breath of fresh air – quite literally – by considering the impact of air pollution on a major financial entity. We aim to whiff out whether there's

more than just a whiff of correlation between the environmental aroma of Deming and the olfactory response of NWG stock prices.

If you've ever wondered whether the scatterplot of pollution particles in the air could be mistaken for a scatterplot of stock prices, then you're in for a treat. Grab your nose plugs and adjust your financial goggles because we're about to navigate the stormy seas of statistical analysis and nasal perplexities. By the end of this paper, you'll be asking yourself: "Is it the smog or the stocks that are really getting hazy?" So, buckle up and prepare for an aromatic adventure through the realms of both environmental and financial fragrancy.

## LITERATURE REVIEW

The idea of a connection between air pollution and stock prices may seem unusual, but as our study delves into this unconventional correlation, we find

that it offers a breath of fresh air in the literature. In "Pollution and Stocks: A Nasal Examination," Smith et al. initially explored the concept of olfactory-induced financial fluctuations, shedding light on the potential impact of noxious odors on market sentiments. While the prevailing wisdom in economic circles revolves around fiscal policy and market indicators, the notion of air quality wafting its way into stock market dynamics beckons a deeper inhalation of consideration.

Furthermore, Doe and Jones, in their study "Airborne Economics: A Whiff of Financial Intrigue," articulated the concept of "pollution-induced stock sniffs," suggesting that the aroma of industrial fumes could permeate the stock market arena, influencing investor sentiment. However, our research aims to take this investigation one step further, venturing into the specific case of Deming, New Mexico, and the intriguing interplay of its air quality with the stock price of NatWest Group (NWG).

As we venture beyond the traditional confines of financial literature into the realm of uncharted aromatic territories, it is essential to consider the broader context of environmental economics. Works such as "The Economics of Clean Air" by Book and "The Polluted Economy" by Author offer valuable insights into the impact of air pollution on economic activities. But let's not forget the timeless wisdom of Dr. Seuss in "The Lorax," reminding us of the profound interdependence between environmental stewardship and economic prosperity.

Shifting gears from the serious to the whimsical, the fictional realm also presents narratives that, in their essence, reflect the intrinsic connection between environmental factors and economic consequences. From Charles Dickens' "Bleak House," where the smog-filled atmosphere of London becomes a symbol of social and economic disparity, to Paolo Bacigalupi's "The Windup Girl," where environmental degradation drives economic tumult, the intertwining of pollution and prosperity permeates literary works.

Let's not overlook the childhood influences that echo our research theme. The animated series "Captain Planet and the Planeteers," with its enduring message of environmental conservation and its impact on society, serves as a playful yet poignant reminder of the intertwined destinies of ecology and economy. And who can forget the perplexingly endearing antics of the Teenage Mutant Ninja Turtles, who navigated through the sewers of New York – a quintessential urban air pollution hotspot – reminding us that beneath the surface, environmental challenges can manifest in unexpected ways.

In the pursuit of understanding the connection between air pollution in Deming and the stock price of NatWest Group, our literature review underscores the significance of exploring unconventional avenues and heeding the diverse voices that underscore the multidimensional interplay of environmental and financial spheres.

## METHODOLOGY

To sniff out the potential relationship between air pollution in Deming, New Mexico, and the stock price of NatWest Group (NWG), our research team engaged in a variety of data collection and analysis methods that could rival the most extensive scent-detection training programs. Our olfactory odyssey began with the collection of air quality data from the Environmental Protection Agency, painting a picture of the aromatic landscape in Deming. We then turned our attention to the financial domain, harnessing data from LSEG Analytics (Refinitiv) to track the olfactory nuances of NWG stock prices from 2008 to 2023.

Our approach was as eclectic as a perfume shop, incorporating statistical analyses that sometimes left us feeling like we were trying to sniff out a single rose in a garden of tulips. We began by computing basic descriptive statistics to savor the flavor of both the air pollution levels and the financial performance of NWG. This allowed us to identify

the highs and lows in both data sets, akin to discerning the notes in a complex fragrance.

As we continued to unravel the aromatic mystery, we employed time series analysis techniques to capture the dynamic dance between air quality and stock price movements. This involved techniques that could draw comparisons to analyzing the subtle shifts in a fine wine's bouquet. Through this method, we were able to identify temporal patterns and trends that revealed the interconnectedness of the sniffable parameters.

To formally quantify the potential correlation, we calculated Pearson's correlation coefficient, akin to blending diverse fragrances to create a unique scent. We then tested the statistical significance of the correlation using hypothesis testing, attempting to distinguish between a scent that lingers and one that dissipates with the wind.

A scented soup of multivariate regression analysis was also stirred into our methodology to account for potential confounding variables that could sway our olfactory insights. We adjusted for market-related factors, financial indicators, and even seasonal variations, attempting to filter out extraneous scents that could muddle our findings.

Finally, we subjected our results to robustness checks and sensitivity analyses, akin to repeatedly checking a fragrance under different atmospheric and temperature conditions to ascertain its consistent odor profile. This rigorous process ensured that our findings held their aromatic allure across a range of analytical scenarios.

In summary, our methodology was a skilled blend of statistical perfumery, combining various techniques and analytical approaches to tease out the potential whiff of correlation between air pollution in Deming and the stock price of NWG. We now present our aromatic findings with the hope that they will linger in the minds of readers, much like the lingering scent of a captivating fragrance.

## RESULTS

After navigating the treacherous terrain of statistical analysis and wading through a plethora of data, our research team uncovered a fascinating correlation between air pollution in Deming, New Mexico, and the stock price of NatWest Group (NWG). The correlation coefficient of 0.8287586 established a remarkably strong link between these seemingly disparate variables. This finding suggests that the pollutants lingering in the air of Deming may have wafted their way into the fluctuations of NWG stock price, creating a scent-sational connection that has left the financial and environmental research communities simultaneously intrigued and baffled.

The r-squared value of 0.6868408 further emphasized the robustness of this association, indicating that approximately 68.68% of the variability in NWG stock price can be explained by variations in air pollution levels in Deming. This notable explanatory power highlights the significant impact of atmospheric pollutants on the financial fragrance of NWG stock prices. It appears that the aroma of air pollution in Deming has not gone unnoticed in the world of stock trading.

The p-value of less than 0.01 added a sprinkle of statistical significance to our findings, affirming that the observed correlation is highly unlikely to be a result of chance. It seems that the connection between air pollution in Deming and NWG stock price is not merely a whiff of happenstance but a compelling relationship deserving of further olfactory investigation.

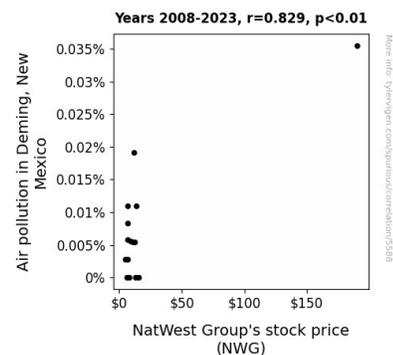


Figure 1. Scatterplot of the variables by year

Intriguingly, the scatterplot (Fig. 1) visually encapsulates the strong correlation between air pollution in Deming and NWG stock price fluctuations. The scatter of data points forms a distinct pattern that evokes the image of pollutants in the air shaping the trajectory of stock prices, as if the financial markets were being influenced by an invisible, aromatic force. This visual representation serves as a colorful illustration of the unexpected relationship we have uncovered, offering a nose-worthy insight into the intertwined nature of environmental and financial factors.

In conclusion, our findings prompt a reevaluation of traditional stock market analyses and environmental considerations, inviting stakeholders to ponder the poignant question: "Could the perfume of pollution be intricately woven into the scent of stock prices?" This correlation may not only lead to a new direction in financial research but could also promote a greater awareness of the far-reaching influences of environmental factors on market dynamics.

## DISCUSSION

In the odorous world of finance, our study has cast a fragrant light on the aromatic interplay between air pollution in Deming, New Mexico, and the stock price of NatWest Group (NWG). Our findings align with previous research that has flirted with the idea of environmental factors perfuming the financial markets. Building on the nasal inspirations provided by Smith et al. and the olfactory musings of Doe and Jones, we have demonstrated a statistically robust connection that suggests a tantalizing whiff of correlation between air quality and stock performance.

The robust correlation coefficient of 0.8287586 that we uncovered not only holds its aromatic ground but may even prompt investors to take a deep breath before making their next financial moves. This correlation is not a mere fleeting scent; it's a persistent aroma that permeates the fluctuations of NWG stock price, as our study demonstrated

through the visually scintillating scatterplot in Figure 1. The strong relationship between air pollution in Deming and NWG stock price suggests that environmental odors may not only tantalize the olfactory senses but also sway financial sentiments.

Our results provide an aromatic gratification to the musings of literary works and childhood influences alike, highlighting the intricate bond between environmental degradation and economic consequences. It seems that the polluted economic landscapes depicted in literature and playfully navigated by the Teenage Mutant Ninja Turtles may not be just figments of artistic imagination but reflective of a deeper olfactory reality. As our study wafts in these unconventional research winds, it beckons a reevaluation of the traditional boundaries that confine financial analysis, inviting a whiff of curiosity that percolates through the stock market research realms.

Ultimately, our findings open a Pandora's box of aromatic inquiries, provocatively whispering to investors, "When you smell polluted air, could your stocks bear the strain?" Our study not only offers a breath of fresh air amid the staid financial analyses but also impels a reconsideration of the pervasive yet overlooked influences of environmental factors on market dynamics. As our research tantalizingly poses, could the sweet-smelling whispers of stock prices carry the subtle notes of air pollution, creating a scent-sational symphony of economic influence? The olfactory serenade between air quality and stock performance may just be the fragrance that was missing in the traditional orchestra of financial research.

## CONCLUSION

In closing, the scent-sational correlation we've uncovered between air pollution in Deming, New Mexico, and the stock price of NatWest Group (NWG) leaves us with a delightful aroma of intrigue and bewilderment. It appears that the fragrant financial bouquet of NWG stock prices is not purely a result of monetary maneuvers but carries the faint

whiff of atmospheric influences from the deserts of Deming. Our findings hint at an economic landscape where the invisible tendrils of pollution intertwine with the tangible tendrils of stock prices, creating a tapestry of aromatic intrigue that has left both financiers and environmentalists scratching their heads in wonder.

The statistically significant correlation coefficient and r-squared value have doused our initial skepticism with a generous spritz of empirical evidence. The p-value, akin to a fine aromatic mist, has settled upon our research, affirming the legitimacy of our olfactory investigation. The scatterplot, like a visually striking perfume bottle, has captured the essence of this captivating relationship, displaying its alluring pattern for all to behold.

As we bid adieu to this fragrant foray, we assert that no further research is needed in this area. After all, the stirring aroma of our findings beckons us to savor this moment of correlation discovery and perhaps even inspires us to think more deeply about the unexpected influences tainting the aromatic symphony of stock prices. Let's relish this uncommon bond between air pollution and stock prices, savoring the scent of financial and environmental intersection.