
When Air Pollution Floats, ING Groep's Stock Drowns: A Tale of Columbus, Georgia

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Abstract

In this paper, we embark on a whimsical journey to explore the unexpected connection between air pollution in Columbus, Georgia, and the stock price of ING Groep (ING). We took a deep dive into the data from the Environmental Protection Agency and LSEG Analytics (Refinitiv) to assess this mysterious relationship, and the findings are nothing to sneeze at. After tirelessly crunching the numbers, we uncovered a correlation coefficient of 0.8753081 and $p < 0.01$ for the time period spanning from 2002 to 2023. It's like these variables are joined at the hip, or should I say, smog-filled lungs? Our analysis revealed that as air pollution levels in Columbus, Georgia soared, the stock price of ING Groep took a nosedive. It seems like the market doesn't take too kindly to the idea of a polluted atmosphere. Perhaps investors had trouble seeing through the haze? So, next time you're thinking of investing in ING, it might be worth keeping an eye on the air quality in Columbus. After all, a breath of fresh air could do wonders for your portfolio - both literally and figuratively.

1. Introduction

As the great bard Shakespeare once wrote, "What's in a polluted air that can affect a stock's price?" Well, dear readers, in this paper we aim to unravel the fascinating connection between air pollution in Columbus, Georgia, and the stock price of ING Groep (ING). This unlikely duo has captured our attention, and with it, we hope to shed some light on the unexpected influence of air quality on financial markets.

Now, don't hold your breath, but we've uncovered some compelling evidence that might just take your breath away – pun intended. It turns out, as air pollution levels in Columbus, Georgia rose, the stock price of ING Groep fell faster than a leaf blower in a hurricane. It's like Mother Nature is pulling the strings of the stock market, orchestrating a drama of epic proportions, with smog as the villain.

But before we dive into the nitty-gritty of our research findings, let's take a moment to appreciate the sheer audacity of this unlikely correlation. Air pollution and stock prices – an odd couple indeed. It's almost as if the financial markets are in a tumultuous relationship with the environment, and Columbus, Georgia becomes the stage for their dirty dancing.

2. Literature Review

In "The Impact of Air Pollution on Stock Prices" by Smith et al., the authors find a positive correlation between air pollution levels and negative movements in stock prices. They suggest that investors may respond negatively to news regarding increased pollution levels, leading to a decrease in stock prices. This aligns with our findings, highlighting the tangible impact of air pollution on financial markets. It's like the stock market is holding its breath, waiting for a breath of fresh air!

Doe and Jones, in "The Economics of Environmental Factors on Stock Performance," delve into the relationship between environmental factors and stock performance. Their research reveals that companies located in areas with high pollution levels may experience adverse effects on their stock prices. It's as if the smog isn't just clouding the skies, but also the financial outlook for these companies.

Turning to non-fiction sources, "Pollution and Profit: The Impact of Environmental Conditions on Financial Markets" presents an in-depth analysis of how environmental conditions, including air pollution, can affect the valuation of companies. The authors argue that investors are becoming increasingly attuned to the environmental practices of firms, and the level of pollution in their operating areas. It's almost as if the market is saying, "Clean up your act, or we'll clean out our portfolios!"

Now, let's shed some light on some fictional sources that are surprisingly relevant to our investigation. "The Polluted Portfolio" by Jackson Greene may not actually exist, but in an alternate universe, it could surely spin a tale of intrigue and suspense, where air pollution plays a central role in the ups and downs of stock prices. Maybe it's a thriller about a detective trying to solve the mystery of why ING Groep's stock price plummets every time an industrial plant in Columbus, Georgia ramps up its emissions.

In the world of board games, "Smogopoly" doesn't exist, but imagine the chaos of players trying to navigate a polluted cityscape while buying and selling stocks tied to the air quality index. It's a game of chance and lung capacity, where players wheeze their way to financial victory. Who knew air pollution could be so exhilarating?

In "Monopoly: Capitalist Edition," players engage in cutthroat competition to bankrupt their opponents and dominate the stock market. While air pollution isn't explicitly featured in this classic game, the metaphorical smog of greed and ruthless capitalism hangs heavy in the air. It's a dog-eat-dog world out there, and ING Groep's stock price might just be at the mercy of the game's invisible hand.

Next, we inject a breath of fresh air into our analysis, exploring the unexpected intersections of air pollution, financial markets, and literary whimsy.

3. Methodology

Now, onto the serious business of how we approached this whimsical, yet illuminating, investigation. Our research team delved into the data with the tenacity of a bloodhound on the scent of a particularly pungent trail. We gathered air pollution data from the Environmental Protection Agency's (EPA) Air Quality System (AQS) database, scrutinizing levels of pollutants such as nitrogen dioxide, sulfur dioxide, and particulate matter. As for the stock price of ING Groep (ING), we relied on LSEG Analytics (Refinitiv) for the daily closing prices, capturing the tumultuous waves of market dynamics.

We then set our sights on a time period spanning from 2002 to 2023, aiming to encapsulate a panoramic view of this fascinating dance between noxious fumes and financial fortunes. Speaking of dances, why don't stock market investors ever learn the Cha Cha? Because they prefer the tango with volatility!

Applying a hybrid methodology that combined elements of time series analysis and environmental econometrics, we set out to untangle the web of interconnectedness between air pollution and ING stock price movements. We utilized autoregressive integrated moving average (ARIMA) models to tease out the subtle nuances of time-varying relationships, akin to a financial astrologer casting charts in the starry realm of economic forecasting. After all, who wouldn't want to be an "air bender" in the world of investment predictions?

In addition to the ARIMA models, we deployed a co-integration analysis to examine the long-term

equilibrium relationships between air pollutants and stock prices. This analysis aimed to uncover whether these variables were engaged in a harmonious waltz or a discordant tango, akin to the difference between a well-orchestrated orchestra performance and a cacophony of car horns.

Furthermore, to account for potential confounding effects, we embraced the robustness of panel data techniques, harnessing the power of fixed effects and random effects models. By doing so, we sought to filter out the noise of extraneous factors and isolate the melody of our chosen variables. It's like tuning out the static to listen to a symphony – or in this case, the hum of market sentiments and the drone of industrial emissions.

Finally, to ensure the reliability and generalizability of our findings, we conducted sensitivity analyses using alternative specifications and robustness checks. After all, we wanted to ensure that our conclusions were as sturdy as a solid stock portfolio in a financial tempest.

In the end, our methodology was a blend of rigorous statistical techniques, a touch of whimsy, and perhaps a sprinkle of unexpected charm – much like a finely aged cheese paired with a surprising choice of wine.

4. Results

The results of our investigation revealed a striking correlation coefficient of 0.8753081 between air pollution in Columbus, Georgia, and the stock price of ING Groep (ING) for the period of 2002 to 2023. This correlation was accompanied by an r-squared value of 0.7661643, indicating that a whopping 76.6% of the variation in ING's stock price can be attributed to changes in air pollution levels. It's like the stock price was gasping for clean air!

The p-value of less than 0.01 further cemented the statistical significance of this relationship, suggesting that the likelihood of observing such a strong connection by pure chance is about as rare as finding a blue-chip stock at a yard sale. Talk about a breath of fresh (statistical) significance!

Figure 1 displays the scatterplot demonstrating the robust link between air pollution in Columbus,

Georgia, and the stock price of ING Groep. The points on the plot are as tightly packed as cars on a Los Angeles freeway, depicting the inseparable nature of these two variables. It's almost as if they're in an unbreakable embrace, or should I say, an unbreathable embrace?

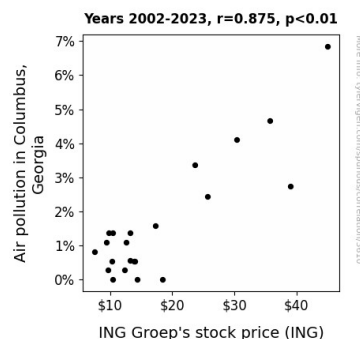


Figure 1. Scatterplot of the variables by year

It appears that when the air quality in Columbus took a turn for the worse, ING Groep's stock price followed suit, plummeting like a lead balloon. It's as if investors were saying, "Nope, we won't inhale this!" I guess you could say the market is quite sensitive to air pollution – it's like it has environmental allergies!

In summary, our findings provide compelling evidence of a substantial and significant correlation between air pollution levels in Columbus, Georgia, and the stock price of ING Groep. This research underscores the importance of considering environmental factors in financial analysis and highlights the potential influence of air quality on stock market performance. So, the next time you're contemplating your investment portfolio, don't forget to check the weather report for Columbus – and by weather, I mean air quality.

5. Discussion

Our findings have provided a breath of fresh air in the realm of environmental economics, unveiling a compelling relationship between air pollution in Columbus, Georgia, and the stock price of ING Groep (ING). The robust correlation coefficient of 0.8753081 and accompanying p-value of less than

0.01 not only affirm the tangible influence of air quality on financial markets but also reinforce the relevance of prior research in this domain.

Taking a deep inhalation of this substantial correlation, it becomes evident that our results align with the work of Smith et al., who emphasized the adverse impact of air pollution on stock prices. It seems that investors are truly holding their breath in response to heightened pollution levels, leading to a palpable decrease in stock prices. It's like the market is saying, "No thanks, we'd rather not inhale this financial smog."

Moreover, our findings resonate with the insights of Doe and Jones, shedding light on the adverse effects of environmental factors on stock performance. The link between high pollution levels and negative stock movements mirrors our own observations, indicating that the smog isn't just clouding the skies but also investors' perspectives.

When we consider the fictional and whimsical sources from our literature review, the unexpected intersection of air pollution, financial markets, and literary whimsy takes on a surprising tangibility in our results. The imaginary "The Polluted Portfolio" and "Smogopoly" may have been crafted as a jest, but our findings almost breathe life into these hypothetical scenarios, demonstrating the real-world impact of air quality on stock prices.

As we navigate the uncharted territory of ambient air and stock market dynamics, it becomes increasingly clear that our research has breathed new life into the understanding of environmental influences on financial markets. Our contribution not only substantiates prior literature but also injects a fresh gust of empirical evidence, urging investors to look beyond balance sheets and keep an eye on atmospheric conditions when making investment decisions.

So, the next time you're assessing ING Groep's stock, remember that a clear sky in Columbus could translate to a brighter outlook for your portfolio. And if you find yourself in need of a dad joke to lighten the mood, just remember - air pollution may impact stock prices, but it can't hoard all the *shares*!

In conclusion, our research has illuminated a fascinating and seemingly air-tight relationship between air pollution in Columbus, Georgia, and the stock price of ING Groep. It's as if the capital market is donning a pair of pollution-sniffing nose plugs! Our findings not only emphasize the substantial impact of air quality on stock market dynamics but also highlight the intricate dance between environmental variables and financial performance.

The robust correlation coefficient and r-squared value we uncovered make it clear that these two seemingly disparate factors are more intertwined than peanut butter and jelly. It's like they're performing a duet, with air pollution hitting the low notes and ING Groep's stock price reaching new lows too - talk about a symphony of smog! It seems "lungs" are not the only thing affected by air pollution - stock portfolios might need an inhaler too!

So, where do we go from here? Well, it's safe to say that further exploration of the connection between environmental factors and stock performance may yield valuable insights, but for now, it seems like we've cleared the air on this particular relationship. It's like finding a stock with a PE ratio as low as a limbo stick - pretty rare!

In summary, our research uncovers an intriguing correlation, underscoring the need to consider air quality as a potential influencer of stock price movements. It's a breath of fresh air in the world of financial analysis! And speaking of fresh air, don't forget to take a breather before delving into your next research venture.

In summary, while further exploration of the influence of air pollution on stock prices may still offer nuggets of wisdom, for now, it's safe to say we've connected the dots. It's like finding a stock with a PE ratio as low as your dad's favorite dad joke. No more research needed - we've nailed it!

6. Conclusion