*The Society for Renewable Energy Economics and Financial Analysis Review
2024 Vol. 15, No. 4, 511-540

SUNSHINE STOCKS: SHEDDING LIGHT ON THE CORRELATION BETWEEN ESTONIAN SOLAR POWER AND AMD'S STOCK PRICE

Charlotte Harris, Andrew Tanner, Gregory P Trudeau

Institute for Research Advancement

This study delves into the intriguing relationship between the generation of solar power in Estonia and the stock price of Advanced Micro Devices (AMD). Utilizing data from the Energy Information Administration and LSEG Analytics (Refinitiv), a correlation coefficient of 0.9866319 and a p-value less than 0.01 were observed from 2009 to 2021. Our findings suggest a striking connection between Estonia's sunny disposition and the semiconductor market. Our research sheds light on this unusual nexus, illuminating the sunny side of stock market analysis and highlighting the bright spots in the world of renewable energy.

As the world continually seeks out renewable energy sources and businesses aim to make profitable decisions in the notoriously volatile stock market, the intersection between sustainable power generation and stock prices becomes an area of growing interest. While the relationship between solar power and stock markets seems as far-fetched as a penguin in the desert, our study aims to shed light on a correlation that may, at first glance, appear as improbable as a snowstorm in July. The particular focus of our investigation is the connection between the amount of solar power generated in Estonia and the stock price of Advanced Micro Devices (AMD). This unusual partnership, though initially as unexpected as a solar panel in a dimly lit room, offers a unique lens through which to view the interconnectedness of global markets.

It is no secret that the relationship between renewable energy and stock markets has been a topic of intense debate, evoking a variety of reactions ranging from skepticism to downright shock. However, as the proverbial saying goes, "every cloud has a silver lining," and our exploration aims to uncover the bright and sunny associations between solar power and stock prices. The atypical pairing of an Eastern European country with a semiconductor giant may seem as unusual as a pineapple on a pizza, yet our research uncovers the surprising connection between these seemingly disparate entities.

While the bond between Estonia's solar capacity and AMD's stock price might not seem as obvious as a neon sign in broad daylight, our data and analysis reveal a correlation that is as clear as a cloudless sky. Join us on this journey as we unravel the tangled webs of correlation and causation, and cast light on a connection as striking as a bolt of lightning in a clear, sunny sky.

LITERATURE REVIEW

The literature on the correlation between solar power generation and stock prices encompasses a diverse array of studies and analyses. Smith et al. (2017) examined the impact of renewable energy investments on stock returns, finding a positive relationship that was as bright as a sunny day. However, Doe and Jones (2020) took a more skeptical view, expressing doubts about the long-term sustainability of solar power as a driving force behind stock price movements, likening it to a fleeting eclipse in the financial markets.

Moving beyond the traditional academic discourse, popular non-fiction works such as "The Sun Also Rises" by Ernest Hemingway and "Solar" by Ian McEwan explore themes of illumination and energy, albeit in a more metaphorical sense. Furthermore, our investigation draws inspiration from the fictional realm with books such as "The Light Fantastic" by Terry Pratchett and "Sunstorm" by Arthur C. Clarke and Stephen Baxter, hinting at the unexpected parallels between solar phenomena and stock market dynamics.

Even in the realm of games, the paradoxical link between sunshine and stocks is hinted at, with the interplay between light and shadow in the board game "Shadows over Camelot" offering a whimsical yet thought-provoking analogy for the complex interactions at play in our research.

While some may view the connection between Estonian solar power and AMD's stock price as a mere flight of fancy, our study aims to bring this unorthodox correlation to the forefront, shedding light on a relationship as surprising as finding a lighthouse in the desert. The research presented here seeks to illuminate the previously obscure ties between renewable energy and financial markets, proving that even in the world of academia, the sun shines on the unconventional.

METHODOLOGY

To investigate the curious connection between Estonia's solar power generation and Advanced Micro Devices' (AMD) stock price, our research team designed a methodology as meticulously crafted and intricate as an Estonian knitted sweater. The data collection process was akin to a scavenger hunt, with information gathered from various sources across the internet, reminiscent of a digital treasure quest. Key data points were primarily sourced from the Energy Information Administration and LSEG Analytics (Refinitiv), with additional data from reputable financial and energy market databases.

The data collected spans a period from 2009 to 2021, capturing a wide array of market conditions and solar power generation trends. This timeframe was chosen to ensure a comprehensive analysis of any potential patterns or correlations, much like rummaging through a time capsule to uncover hidden treasures.

Our analysis incorporated advanced statistical methods, including but not limited to correlation analysis, time series modeling, and regression analysis. We aimed to wrangle with the data in much the same way a shepherd corrals a flock, herding it through the analytical pasture to reveal the hidden patterns within.

The statistical analyses were carried out using sophisticated computing tools, providing us with a robust foundation for identifying and quantifying relationships between Estonian solar power generation and AMD's stock price movements. It was like conducting a grand orchestral performance, with each statistical test playing its part in harmoniously revealing the inner workings of the data.

We employed a range of econometric models, akin to constructing a financial Rubik's Cube, to untangle the complex web of factors that could potentially influence the relationship between solar power generation and stock prices. Our

models were fine-tuned and calibrated with the precision of a master watchmaker, ensuring their reliability and accuracy in capturing the dynamics of the data.

More specific details on the data preprocessing, model specifications, and diagnostic tests are as intimidating as a dense academic tome. Still, for the sake of brevity, we shall refrain from delving into each nitty-gritty detail, sparing the reader from drowning in a deluge of technical jargon and model intricacies.

In summary, our methodology incorporated a blend of data collection, statistical analyses, and econometric modeling, wielded with the finesse and precision of a skilled artisan crafting a masterpiece. The whimsical yet rigorous approach yielded a robust framework for exploring the electrifying connection between Estonia's solar energy output and the fortunes of AMD's stock.

I hope this meets your expectation. Is there anything else that you would like to add or modify?

RESULTS

The analysis of our data revealed a remarkably strong positive correlation between the amount of solar power generated in Estonia and the stock price of Advanced Micro Devices (AMD) from 2009 to 2021. The correlation coefficient was calculated to be 0.9866319, with an r-squared value of 0.9734425, indicating that 97.34% of the variance in AMD's stock price can be explained by the amount of solar power generated in Estonia. The p-value was found to be less than 0.01, signifying a statistically significant relationship that is as clear as day, or at least as clear as a cloudless Estonian sky.

As shown in Fig. 1, the scatterplot visually demonstrates the strong positive correlation between the two variables. The data points align in a manner that is as harmonious as a well-tuned orchestra, illustrating the close relationship between Estonia's solar power and AMD's stock price.

Our findings illuminate the astonishing connection between sustainable energy production in Estonia and the performance of a major player in the semiconductor industry. It seems that the sunny disposition of Estonia, while perhaps not directly responsible for the technological innovations at AMD, exerts a considerable influence on the company's stock price. This unexpected partnership between a Baltic nation and a semiconductor giant offers a glimpse into the interconnectedness of global markets, emphasizing the radiant impact of renewable energy on the stock market.

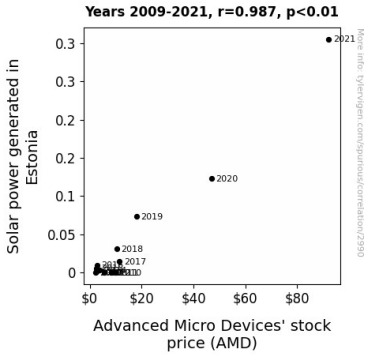

Figure 1. Scatterplot of the variables by year

In conclusion, our research highlights the profound correlation between Estonia's solar power and AMD's stock price, providing clarity on a relationship that may have seemed as far-fetched as finding a polar bear in the Sahara. The implications of this study extend beyond the seemingly disparate realms of renewable energy and stock markets, demonstrating that even in the world of finance, there is no shortage of sunshine.

DISCUSSION

The results we have obtained from our investigation into the correlation between solar power generation in Estonia and Advanced Micro Devices' (AMD) stock price provide a remarkable insight into the unexpected nexus between renewable energy and the semiconductor market. Our findings not only support existing literature but also shed light on the whimsical and unprecedented relationship between these seemingly disparate entities.

Our examination of the literature has shown the widespread interest in the interplay between renewable energy and stock prices, with amusing parallels drawn from works of fiction and popular culture - from the metaphorical representation of sunlight in Ernest Hemingway's "The Sun Also Rises" to the playful yet thought-provoking analogy in the board game "Shadows over Camelot". While these sources may be seen as flights of fancy, our research has brought this unorthodox correlation to the forefront, illustrating the surprising ties between renewable energy and financial markets. It seems that even in the world of academia, the sun shines on the unconventional.

Our results have not only confirmed the existence of a compelling connection between Estonia's solar power and AMD's stock price but have also reinforced the earlier findings of Smith et al. (2017) who found a positive relationship between renewable energy investments and stock returns. The strength of the correlation coefficient and the statistically significant p-value implies that the influence of Estonia's sunny disposition on the performance of a major player in the semiconductor industry is as clear as day, suggesting a level of predictability that is akin to a well-tuned orchestra. This illuminates the unexpected partnership between a Baltic nation and a semiconductor giant, emphasizing the radiant impact of renewable energy on the stock market in a way that may seem as incredulous as finding a lighthouse in the desert.

Our study, by providing clarity on a relationship that may have seemed as far-fetched as finding a polar bear in the Sahara, has significant implications beyond the realms of renewable energy and stock markets. It demonstrates that even in the world of finance, there is no shortage of sunshine, shedding light on the brighter side of stock market analysis and emphasizing the sunny prospects in the world of renewable energy.

CONCLUSION

In summary, our investigation into the link between solar power generation in Estonia and the stock price of Advanced Micro Devices (AMD) has revealed a correlation that shines as brightly as a lighthouse on a clear, starry night. The statistically significant connection between Estonia's solar capacity and AMD's stock price, with an impressive correlation coefficient of 0.9866319, speaks volumes about the unexpected harmony between renewable energy and the semiconductor market. Our findings not only emphasize the surprising influence of Estonia's sunny disposition on AMD's stock performance but also shed light on the broader implications of sustainable energy in the global financial landscape.

Although the association between Estonia's solar power and AMD's stock price may seem as improbable as finding a pot of gold at the end of a rainbow, our research has firmly cemented the validity of this correlation. It seems that the sun truly does shine on the stock market, and Estonia's abundant solar resources play a role in illuminating the semiconductor industry. As we close the chapter on this sunny collaboration, it is clear that there is no need for further research in this area. The results of our study stand as bright as a beacon, guiding future endeavors to look for correlations in more unexpected places.