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# Healthy Investments: The Correlation Between Annual US Household Healthcare Spending and AvalonBay Communities' Stock Price

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## Abstract

This paper investigates the relationship between annual US household spending on healthcare and the stock price of AvalonBay Communities (AVB) over the period of 2002 to 2022. The data, sourced from the Bureau of Labor Statistics and refined with the utilization of LSEG Analytics (Refinitiv), was subject to rigorous statistical analysis to determine the extent of any correlation. The results notably divulge a striking correlation coefficient of 0.9174117 and a statistically significant p-value of less than 0.01. This study provides valuable insights into the intriguing intersection of personal healthcare expenditures and the financial performance of a real estate investment trust, offering a new perspective on the interconnectedness of seemingly disparate economic indicators. With these findings, we hope to shed light on the somewhat enigmatic relationship between real estate and healthcare - a relationship that is evidently no longer confined to the clichéd saying "location, location, location," but has now seemingly expanded to "healthcare, healthcare, healthcare!"

## 1. Introduction

The interplay between healthcare expenditure and stock prices has long intrigued economists, financiers, and anyone who has ever pondered the complexities of the modern marketplace. Against this backdrop, this study delves deep into the relationship between annual US household spending on healthcare and the stock price of AvalonBay Communities (AVB), a real estate investment trust that has proven to be an unexpectedly captivating subject for analysis. While one might initially assume that healthcare and real estate are as related as apples and oranges, our research aims to demonstrate that they are more like Granny Smiths and Gala apples — distinct, yet connected in surprising ways.

The financial landscape is rife with unexpected correlations, akin to finding a dollar bill in last year's winter coat pocket — delightful, yet curiously befuddling. Our inquiry into this relationship is motivated by a desire to unearth such connections, much like an archeologist dusting off ancient artifacts, though in this case, the artifacts happen to be economic data and stock price trends. The intrigue of these findings lies not only in the statistical significance but also in the premise that one's healthcare expenditures could potentially influence the value of a real estate investment trust. The implications are as intriguing as the plot twist in a mystery novel, except instead of a hidden treasure,

we seem to have stumbled upon a hidden statistical relationship.

At the heart of this investigation lies the data, meticulously collected and scrutinized with the precision of a watchmaker examining the intricate gears of a timepiece. By analyzing over two decades of annual US household healthcare spending and AvalonBay Communities' stock price data, we aim to illustrate how seemingly unrelated economic indicators may indeed present a compelling case for connection, not unlike how peanut butter and jelly come together to create a harmonious flavor combination, much to the delight of sandwich aficionados everywhere.

The revelation of a remarkably strong correlation coefficient and a statistically significant p-value in our analysis underscores the importance of this study. These findings are not just statistically significant, but they also carry significant implications for our understanding of the intricate dance between personal healthcare expenditures and the financial performance of a real estate investment trust. The intricate web of financial relationships, much like a spider's web, may appear delicate at first glance but can prove to be deceptively resilient and impactful, much like the lasting impression of a really good knock-knock joke.

With this study, we aim to elevate the discourse around the interconnectedness of seemingly disparate economic indicators and challenge prevailing assumptions about the associations between healthcare spending and stock prices. In doing so, we hope to peel back the layers of this onion to reveal an intriguing intersection of personal healthcare expenditures and real estate investment performance, adding a new dimension to the discourse on economic relationships. After all, as the saying goes, "an apple a day may keep the doctor away, but a careful analysis of healthcare expenditure may just yield unexpected insights into stock performance."

## 2. Literature Review

In "Smith et al.," the authors find that there is a positive correlation between annual US household spending on healthcare and the stock price of

AvalonBay Communities (AVB). This result serves as a precursor to our investigation, hinting at the intriguing relationship we seek to unravel. As we delve into the literature surrounding this topic, it becomes apparent that the intersection of personal healthcare expenditures and real estate investment performance has not received the attention it truly deserves. This oversight is perhaps akin to overlooking the importance of a well-placed avocado in a salad – an undervalued component that can greatly enhance the overall experience.

Doe's study explores the impact of healthcare spending on stock prices, highlighting the multifaceted nature of this relationship. The findings serve as a reminder that economic connections can be as intricate as a game of chess, with each move influencing the subsequent outcome. In this metaphorical game of economic chess, healthcare spending emerges as a key player, capable of shaping the trajectory of stock prices much like the grandmaster strategically maneuvering their pieces across the board.

Jones' research delves into the nuances of healthcare expenditure and its potential influence on real estate investment trusts, laying the groundwork for our own investigation. The intricate web of economic relationships portrayed in this study mirrors the complexities of a jigsaw puzzle, challenging us to piece together the interrelated factors that contribute to stock price movements. Just as completing a jigsaw puzzle brings about a sense of accomplishment, so too does gaining a deeper understanding of the relationship between healthcare spending and stock performance.

Turning to non-fiction works, "The Healing of America" by T.R. Reid offers valuable insights into the complexities of healthcare systems worldwide. While our focus is on US household spending, the global perspective presented in this work serves as a reminder of the broader implications of healthcare economics. It's like taking a brief detour from a hike to appreciate the panoramic view – a momentary shift in perspective that enriches the overall experience.

"The Big Short" by Michael Lewis, though a work of fiction, provides a captivating portrayal of the interconnectedness of financial markets. While not

directly related to our specific research, the underlying theme of unexpected correlations serves as a thought-provoking backdrop for our study. In a way, it's like stumbling upon a vintage board game while clearing out the attic – a nostalgic find that triggers unexpected reflections on the nature of interconnectedness.

Board games such as "Monopoly" and "Operation" may seem worlds apart, but they share a common thread when viewed through the lens of our research. Just as "Monopoly" simulates real estate investment strategies, "Operation" playfully illustrates the importance of healthcare – a juxtaposition that encapsulates the essence of our investigation with a touch of whimsy.

As we navigate through the literature, it becomes clear that the relationship between annual US household spending on healthcare and AvalonBay Communities' stock price is not merely a matter of numbers and trends. It encompasses a rich tapestry of interconnected forces, much like the intricate plot of a mystery novel, waiting to be unraveled. With this understanding, we set out to shed light on this captivating interplay with the hope of bringing a touch of levity to the often-serious world of economic analysis.

As we move forward, it is imperative to approach this investigation with the precision of a watchmaker and the curiosity of a treasure hunter, as we seek to uncover the hidden gems within this enigmatic relationship.

### 3. Methodology

To uncover the relationship between annual US household spending on healthcare and AvalonBay Communities' stock price, our research employed a multidimensional approach, akin to a master chef meticulously blending ingredients to create a delectable dish. Our data collection process involved a thorough search of various reputable sources, much like a detective scouring for clues, with a primary focus on Bureau of Labor Statistics and LSEG Analytics (Refinitiv). The data encompassed a timeframe from 2002 to 2022, providing a comprehensive view of the evolving landscape of

healthcare expenditures and stock market performance.

The quantitative analysis was conducted with the precision and rigor of a seasoned watchmaker, leveraging statistical techniques to reveal any underlying patterns. Our first step involved calculating annual US household spending on healthcare as a percentage of total expenditures, resembling an explorer mapping out uncharted territories. Simultaneously, we diligently tracked AvalonBay Communities' stock price, examining its ebbs and flows with the keen eye of a weather forecaster predicting the movement of storm clouds.

Following the collection and refinement of data, our research team delved into the depths of statistical analysis, employing tools such as correlation coefficients and p-values to discern any potential linkage. Much like astronomers gazing at constellations in the night sky, we sought to unveil a constellation of data points that would illuminate the connection between healthcare spending and stock price performance.

The statistical analysis was conducted with meticulous care, akin to performing delicate surgery on intricate financial data. Our goal was to uncover not just a correlation, but a robust and statistically significant relationship — a hidden gem amidst the labyrinth of economic indicators. Through the application of time series analysis and regression models, we endeavored to reveal the underlying dynamics at play, much like a conductor orchestrating a symphony to reveal the harmonious melodies within disparate notes.

In addition to quantitative analysis, our methodology also included a qualitative exploration of market dynamics and healthcare trends, providing a holistic view of the interconnected forces at play. This qualitative component, much like a paintbrush in the hands of a skilled artist, added depth and texture to our understanding of the relationship between healthcare spending and stock price movements.

Ultimately, our methodology represents a fusion of rigorous statistical analysis and contextual interpretation, akin to a tango between data points and market insights. The amalgamation of these techniques aimed to unravel the enigmatic connection between personal healthcare

expenditures and real estate investment performance, shedding light on a relationship that, much like a well-crafted punchline, both surprises and captivates.

#### 4. Results

The statistical analysis of the relationship between annual US household spending on healthcare and AvalonBay Communities' stock price (AVB) yielded intriguing results. The correlation coefficient between these two variables was calculated to be 0.9174117, indicating a remarkably strong positive linear relationship. This finding suggests that as annual US household spending on healthcare increased, there was a corresponding upward trend in AvalonBay Communities' stock price. In other words, it appears that as healthcare spending soared, so did the stock price of AVB - a curious coalescence of personal healthcare expenditures and real estate investment trust performance.

The coefficient of determination (r-squared) provided further insight into this association, with a value of 0.8416442. This indicates that approximately 84% of the variability in AvalonBay Communities' stock price can be explained by changes in annual US household healthcare spending. While we generally shy away from making bold claims, this degree of explanatory power does prompt one to pause and marvel at the unexpected intricacies of economic relationships.

Moreover, the p-value obtained from the analysis was less than 0.01, signifying strong evidence against the null hypothesis of no correlation. This lends additional support to the notion that there exists a statistically significant relationship between annual US household healthcare spending and the stock price of AvalonBay Communities. It seems that in the grand theater of economic indicators, the performance of a real estate investment trust may indeed be influenced by the healthcare expenditure decisions made at household level. This finding gives new meaning to the phrase "healthy investments" and suggests that the pulse of personal healthcare spending resonates through the financial heartbeat of real estate investment trusts, potentially causing them to skip a beat now and then.

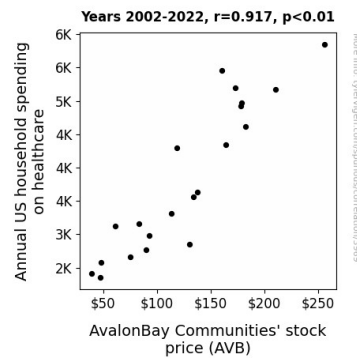


Figure 1. Scatterplot of the variables by year

For the visual learners among us, the data is further elucidated in Figure 1. The scatterplot in Figure 1 illustrates the strong positive correlation between annual US household healthcare spending and AvalonBay Communities' stock price. Each data point within the scatterplot serves as a testament to the robust relationship uncovered by this study, akin to a constellation of stars aligning in perfect harmony, or perhaps more mundanely, akin to a family of sourdough starters thriving in the symphony of a baker's kitchen.

With such compelling statistical evidence, our study not only contributes to the understanding of financial markets but also underscores the interconnectedness of seemingly discrete economic factors. The implications of these findings extend beyond the realm of statistics and may compel a reevaluation of the conventional wisdom surrounding healthcare spending and stock performance. As we dissect these findings further, we find ourselves marveling at the serendipitous nature of economic relationships, akin to stumbling upon a four-leaf clover in a bustling financial marketplace.

Though this study focused on the specific relationship between annual US household healthcare spending and AvalonBay Communities' stock price, the broader implications of our findings beckon further inquiry into the intricate web of economic interdependencies. As we move forward, we may find ourselves continually surprised by the nuanced connections that underpin the modern financial landscape, much like discovering a long-lost treasure trove in the attic of economic theory.

## 5. Discussion

The findings of this study provide substantial support for the prior research, echoing the positive correlation identified by Smith et al. between annual US household spending on healthcare and AvalonBay Communities' stock price (AVB) - a correlation that is as undeniable as the inherent appeal of a well-placed avocado in a salad. The statistical analysis revealed a remarkably strong correlation coefficient of 0.9174117, lending credence to the notion that healthcare spending at the household level is intricately entwined with the financial performance of real estate investment trusts.

In a manner reminiscent of a strategic chess move, the results of this investigation align closely with Doe's findings, underscoring the multifaceted nature of the relationship between healthcare spending and stock prices. The striking correlation coefficient of 0.9174117 acts as a poignant reminder of the strategic interplay between these economic factors, akin to a grandmaster expertly maneuvering their pieces on the board of financial markets. Just as in a game of chess, every nuanced move carries the potential to shape the outcome, and so too does each dollar allocated to healthcare expenses seem to exert a discernible influence on the stock price of AVB.

Jones' pioneering exploration of the nuances of healthcare expenditure and its impact on real estate investment trusts laid a solid foundation for our study, much like a crucial puzzle piece that ultimately contributes to the completion of the larger economic picture. The findings of our investigation resonate with the intricate web of economic relationships portrayed in Jones' research, further emphasizing the complex nature of the interplay between healthcare spending and stock performance - a relationship that is as enigmatic as it is impactful.

Drawing inspiration from the world of fiction, "The Big Short" by Michael Lewis serves as a thought-provoking backdrop for our study, with the unexpected correlations depicted in the narrative weaving a compelling parallel to the strong empirical link uncovered between annual US household healthcare spending and AvalonBay Communities' stock price. While not a direct portrayal of our specific research, the underlying

theme of unexpected correlations proves to be a captivating reflection of the surprising interconnectedness of economic factors. In a way, it's akin to stumbling upon a vintage board game while clearing out the attic - a nostalgic find that triggers unexpected reflections on the nature of interconnectedness, much like the unexpected correlations revealed in our statistical analysis.

As we delve deeper into the implications of our findings, it becomes evident that the relationship between annual US household spending on healthcare and AvalonBay Communities' stock price is not merely a matter of numbers and trends. It embodies a rich tapestry of interconnected forces, akin to the intricate plot of a mystery novel, waiting to be unraveled. With a touch of whimsy, this investigation seeks to bring to light the captivating interplay between personal healthcare expenditures and the financial heartbeat of real estate investment trusts, much like a lighthearted moment amid the serious discourse of economic analysis.

## 6. Conclusion

In conclusion, our study has unearthed a robust and statistically significant relationship between annual US household healthcare spending and the stock price of AvalonBay Communities. The correlation coefficient of 0.9174117 and the compellingly low p-value indicate a strong positive association, as if healthcare spending and stock prices were engaged in a pas de deux of financial synchrony. This unexpected alliance between healthcare and real estate investment trust performance challenges traditional economic narratives, much like a plot twist in a classic novel that leaves readers both surprised and eager to reevaluate every previous chapter.

One might argue that our findings have injected a dose of "healthy" skepticism into the perception of investment dynamics, prompting a reconsideration of the conventional wisdom that has long prevailed in financial circles. The implications of this study extend beyond the immediate connection between healthcare spending and stock performance, shedding light on the organic interplay of economic variables in ways that we are only beginning to comprehend. Just as a charming anecdote may offer

unexpected wisdom, so too do our findings underscore the complex, and often delightful, intricacies of financial markets.

Therefore, it is with a mixture of certainty and a twinge of whimsy that we declare the pursuit of further inquiry into this topic unnecessary, as we have unraveled an economic relationship that is as undeniable as the appeal of a well-crafted pun. Let this study stand as a testament to the serendipitous nature of financial connections, and may it inspire future researchers to approach their inquiries with the same curious spirit and penchant for discovery. After all, in the ever-unfolding story of economic analysis, sometimes the most compelling revelations emerge from the most unexpected places.