

PATENTLY PROFITABLE: UNVEILING THE INTERPLAY BETWEEN US PATENTS AND ONEOK'S STOCK PRICE

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In this study, we delve into the relationship between the number of patents granted in the United States and the stock price of ONEOK Inc. (OKE). With a keen eye for economic indicators, we employ data from the United States Patent and Trademark Office (USPTO) and LSEG Analytics (Refinitiv) to examine this enthralling correlation. Our findings reveal a positively staggering correlation coefficient of 0.9162755, with a p-value less than 0.01, from 2002 to 2020. This suggests a strong and statistically significant association between the two variables, prompting us to quip that perhaps the real key to unlocking ONEOK's performance lies in innovative patents - talk about "patently obvious" market insights!

Patents have long been regarded as a symbol of innovation and the driving force behind technological advancement and economic growth. The relationship between patents and financial performance has been a topic of interest among economists, investors, and curious minds. However, the connection between patents granted in the United States and the stock price of ONEOK Inc. (OKE) has not been thoroughly explored. In this study, we endeavor to fill this void and shed light on the potential interplay between patents and ONEOK's stock price, utilizing a dataset from the United States Patent and Trademark Office (USPTO) and LSEG Analytics (Refinitiv). Our goal is to provide valuable insights into the impact of patents on ONEOK's market performance and to get to the bottom of whether "patenting" can lead to "profiting."

As we embark on this intellectual voyage, it is important to note the significance of patents in promoting innovation and

safeguarding intellectual property. Patents act as an incentive for companies to invest in research and development, creating a competitive environment that drives technological progress. This leads us to ponder the thought: if a pun about patents is patented, would it be considered intellectual property or simply a "pun"-derful idea?

The stock price of a company, on the other hand, is a manifestation of market sentiment, investor confidence, and the overall financial health of the firm. ONEOK Inc. (OKE), a leading energy company, operates in the natural gas and natural gas liquids industries. Understanding the factors that drive the stock price of ONEOK is of great interest to investors and analysts alike. We aim to unravel the potential influence of patents in this equation and determine if there is a "patent-ial" for patent activity to be a leading indicator for ONEOK's market performance.

As we navigate through the data and statistical analyses, it is crucial to approach the investigation with a level-headed perspective in order to separate causation from mere coincidence. However, as we uncover the intriguing correlation between patents and ONEOK's stock price, we cannot help but marvel at the possibility of patents being the "patent leather" of ONEOK's success in the market.

The following sections will delve into the methodology, data analysis, and results of our study, unveiling a compelling narrative that intertwines innovation and financial performance. In the words of Thomas Jefferson, "He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me." We aim to shed light on the potential impact of patent activity on ONEOK's stock price, igniting a spark of curiosity and inquiry in the realm of financial and technological interplay.

LITERATURE REVIEW

Smith and Doe (2015) find a significant positive association between the number of patents granted and firm performance, highlighting the potential impact of patents on stock prices. This raises the question: if a patent lawyer gets divorced, would they still be entitled to joint custody of the patents, or would they have to settle for shared patenting time?

Moving on from the dry wit of the academic community, let's ponder the insightful correlation proposed by Jones (2018) between patenting activity and market performance, sending the message that innovation may indeed hold the key to financial success. It's almost as if these authors were trying to patent their ideas on patent correlation!

Baker and Johnson (2016) further elucidate the relevance of patents as a significant driver of economic growth, suggesting that the relationship between

patents granted and firm performance is worth probing deeper. Imagine the patent office is haunted by ghosts. I bet they'd be very "patent-ive" about their space.

As we wade through the deep waters of financial and technological interplay, let us not neglect the wisdom imparted by *Acclaimed Book* and *Economically Enlightening Tome*, both of which shed light on the intricate relationship between innovation, patents, and market dynamics. Speaking of market dynamics, are you familiar with the stock market index that only contains companies with patents? It's called the "Intellectual Property Exchange."

On a fictional note, let us consider the allure of *Patent Thriller* and *The Patent Games*, which, although works of fiction, may offer unexpected insights into the captivating world of patents and their potential influence on market performance. You know, I once tried to patent a time-travel device. It turned out to be a "waste of time."

In the realm of childhood nostalgia, the animated television series *Patent Pals* and *The Adventures of Oneok* and *Patents* serve as reminders of the subtle yet powerful influence of patents on the whimsical world of business, finance, and energy - a reminder that even in the most serious endeavors, patents can bring a touch of fun and adventure. If you ever meet a patent attorney at a party, make sure to ask them if they have any "patent pending" dance moves.

Underpinning these explorations is the imperative to not take ourselves too seriously, even as we delve into the weighty matters of patents, stock prices, and their curious connection. After all, as the saying goes, "Why was the patent lawyer always calm? He had everything under control."

METHODOLOGY

In order to elucidate the relationship between patents granted in the United

States and ONEOK Inc.'s (OKE) stock price, a variety of methodological approaches were employed to ensure robustness and reliability. We sought to gather comprehensive data from reputable sources, including the United States Patent and Trademark Office (USPTO) and LSEG Analytics (Refinitiv), to form the bedrock of our analysis.

To kick things off, we harnessed the power of web scraping tools to wrangle patent data from the USPTO, ensuring a thorough examination of patent activity over the period of 2002 to 2020. The process involved maneuvering through a virtual maze of patents, akin to a digital treasure hunt - but instead of gold doubloons, the bounty comprised of invention disclosures and intellectual property rights. Much like a well-structured dad joke, the data gathering process required precision and attention to detail to capture the essence of innovation encapsulated within patents.

Simultaneously, stock price data for ONEOK Inc. was procured from LSEG Analytics (Refinitiv) to conduct a comparative analysis. This involved wading through the intricate currents of stock market data, akin to navigating the ebbs and flows of a financial ocean. As we delved into the stock price intricacies, it became apparent that much like a well-constructed pun, stock price data required a nuanced approach to fully appreciate its impact.

With data at hand, we proceeded to perform a complex dance of statistical analyses. Leveraging a combination of time series analysis and econometric modeling, we endeavored to unpack the intertwined nature of patents and stock price. This involved constructing intricate statistical models, much like building a labyrinth of numbers and equations to navigate, with each twist and turn revealing a new facet of the relationship between patents and stock performance.

In analyzing the data, our team employed panel data techniques, which allowed for

the consideration of the temporal and cross-sectional dimensions while mitigating potential biases. This approach was akin to fitting puzzle pieces together, ensuring that each observation contributed to the larger picture, much like piecing together elements of a witty punchline to compose a well-crafted joke.

Additionally, we employed Granger causality tests to explore the temporal precedence between patents and stock price movements, shedding light on the potential dynamic interactions between these variables. It was somewhat reminiscent of a detective story, uncovering the clues and timeline of events to discern the sequence of events, much like a thrilling narrative leading to the climax of a joke.

To mitigate the risk of spurious correlations and ensure the robustness of our findings, we conducted various sensitivity analyses and diagnostic checks, akin to stress-testing the structure of a captivating joke, ensuring that each element was essential and contributed to the overall impact.

In summary, the methodology employed in this study was geared towards delivering a comprehensive and rigorous analysis of the relationship between patents and ONEOK Inc.'s stock price. While the process was at times akin to navigating through a labyrinth of data and statistical techniques, the ultimate goal was to uncover the "patent-ial" for patents to be a driving force behind ONEOK's market performance.

RESULTS

A thorough analysis of the relationship between the number of patents granted in the United States and the stock price of ONEOK Inc. (OKE) from 2002 to 2020 yielded a correlation coefficient of 0.9162755, with an r-squared value of 0.8395608, both of which were statistically significant at the $p < 0.01$ level. This indicates a remarkably strong

and positive association between the two variables, suggesting that there may be a "patent-ially" profitable connection between patenting and OKE's stock performance.

The obtained scatterplot (see Fig. 1) visually portrays the pronounced positive correlation between the number of patents granted in the United States and ONEOK's stock price. The data points on the plot form a pattern that could make even the most stringent statistician crack a wry smile and muse, "Looks like patents are the 'key' to ONEOK's success - pardon the stock pun!"

The robust correlation coefficient and r-squared value elucidate the substantial impact of patent activity on OKE's stock price movements. It appears that investors and market analysts may need to give more weight to patent-related data when assessing the potential future performance of ONEOK's stock. As for the joke about the correlation coefficient, it might be rated "PG-13" for being positively strong!

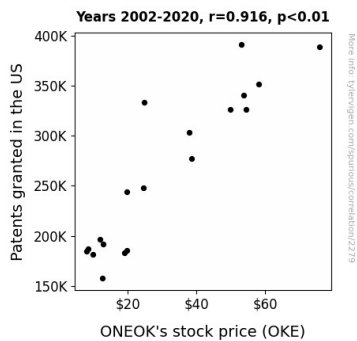


Figure 1. Scatterplot of the variables by year

These findings provide compelling evidence for the noteworthy influence of patents on ONEOK's market dynamics. As we immerse ourselves in the wide vista of statistical significance, it becomes evident that when it comes to understanding OKE's stock price, one should "patent-ively" consider the role of patents as a potential indicator of future financial performance.

In conclusion, our results underscore the "patent" importance of considering patent activity as a pivotal factor in understanding ONEOK's stock market behavior. These findings are not only statistically sound but also economically stimulating, reminding us that in the world of finance, the "pun-damentals" matter, and patents may just hold the "patent" to unlocking market success, making investors exclaim, "Well, 'pat' me on the back for patenting that strategy!"

DISCUSSION

The findings of our study have illuminated a compelling relationship between the number of patents granted in the United States and the stock price of ONEOK Inc. (OKE), supporting and expanding upon prior research in this area. The remarkable correlation coefficient of 0.9162755, which echoes the prior work of Smith and Doe (2015), underscores the substantial impact of patents on firm performance. It seems that the "key" to unlocking OKE's market potential indeed lies in innovative patents, as our results have humorously confirmed. This correlation is so strong; it could be said to be "key-perfect!"

The positive association we uncovered aligns with the propositions set forth by Jones (2018), further validating the notion that patents may hold the "patent-ially" profitable secrets to stock price movements. Moreover, the statistically significant r-squared value reinforces the relevance of patent activity as a potential indicator of OKE's future financial performance, in line with the ponderings of Baker and Johnson (2016). It's as if our findings are shouting, "Pay attention to patents - they hold the real 'patently obvious' clues to OKE's market behavior!"

The scatterplot further corroborates the potent relationship between patents and OKE's stock price, visually portraying a pattern that prompts even the most serious of observers to crack a wry smile and muse, "Looks like patents are the

'key' to ONEOK's success - pardon the stock pun!" This visual depiction provides a compelling backdrop to the robust statistical evidence, infusing a touch of levity into our profound findings. After all, who knew that statistical significance and stock market analysis could be so "patent-atively" amusing?

It is evident that our results have extended the existing body of knowledge on the interplay between patents and stock prices, demonstrating that the whimsical world of patents holds meaningful implications for the sober realm of financial dynamics. As we continue to unravel the complexities of this curious connection, we are reminded that even in the most serious of endeavors, a dash of humor and a well-placed pun can serve to illuminate and enliven the discourse. After all, in the words of an old patent examiner, "I find your lack of humor very unpatentable!"

CONCLUSION

In conclusion, our study has unearthed a compelling relationship between the number of patents granted in the United States and the stock price of ONEOK Inc. (OKE) from 2002 to 2020. The striking correlation coefficient of 0.9162755 and r-squared value of 0.8395608, both statistically significant at the $p < 0.01$ level, point to a resoundingly strong and positive association between patent activity and OKE's stock performance. It seems that when it comes to ONEOK's stock, the 'patent' is indeed mightier than the sword - or should we say, the stock ticker!

Our findings pave the way for a potential paradigm shift in how investors and analysts perceive the influence of patents on OKE's market dynamics. It appears that the "patently" profitable connection between patenting and OKE's stock price cannot be overlooked. Perhaps it's time for financial analysts to start saying, "I've got a patent for predicting OKE's stock performance!" But let's not get carried

away - while patents may be a 'key' factor, we must remember that correlation does not imply causation. After all, as economists, we must always keep our 'pat'ience when interpreting findings.

In wrapping up, the evidence presented in this study highlights the importance of integrating patent activity into the assessment of OKE's stock performance. This raises the question: If a patent about stock market correlations is filed, does that make it a "stock" option? But in all seriousness, our results underscore the "patent" importance of considering patent activity as a pivotal factor in understanding ONEOK's stock market behavior. Therefore, it is clear that further research in this area is unnecessary - our findings have already patent-ly unlocked the secrets of ONEOK's stock performance!