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Patenting and ONEOK's Stock: A Rhyme About Prime Time?

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Abstract

This study investigates the connection between patents granted in the United States and the stock price of ONEOK Inc. (OKE) using data from the United States Patent and Trademark Office (USPTO) and LSEG Analytics (Refinitiv) for the period of 2002 to 2020. The analysis reveals a remarkably high correlation coefficient of 0.9162755 and a statistically significant p-value of less than 0.01, suggesting a strong relationship between the two variables. In this paper, we delve into the empirical evidence of this causal link, exploring how patents, with their innovative flair and creative spark, may indeed fuel stock market movements, lighting the way for investors seeking to strike it rich. We discuss the potential implications of these findings, considering whether patents, like hidden treasures in a sea of ideas, might hold the key to unlocking stock market success. So buckle up, dear readers, and get ready for a rollercoaster ride through the patent landscape and stock market territory, where the only thing certain is the uncertainty of the future!

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1. Introduction

The intersection of intellectual property and financial markets has long been a topic of interest for researchers and investors alike. In this paper, we embark on a quest to unravel the enigmatic relationship between

patents granted in the United States and the stock price of ONEOK Inc. (OKE). As we navigate this terrain, we cannot help but marvel at the prospect of unearthing the hidden patterns and connections that lie beneath the surface, much like intrepid

explorers venturing into uncharted territories armed with nothing but a spreadsheet and a sense of curiosity.

The allure of patents, with their promise of exclusivity and innovation, mirrors the intrigue of a scientific puzzle waiting to be pieced together, much like assembling a jigsaw puzzle where the missing piece is the elusive key to outrageous profits. On the other hand, the stock market dances to a tune that sounds suspiciously like a blend of stochastic processes and investor psychology. It's a waltz that leaves even the most seasoned analysts feeling like they're in dire need of a refresher dance lesson or perhaps a quick game of scientific roulette.

Let's set the stage with a bit of scientific banter: if a patent falls in the USPTO database and no one invests in the corresponding company, does it make a sound? As we embark on this scholarly escapade, we must approach the subject matter with the appropriate mix of seriousness and whimsy, much like a high-stakes board game that brings out the competitive spirit in even the most mild-mannered academics.

The correlation coefficient, our trusty guide in this voyage of discovery, gleams like a beacon in the darkness, hinting at a relationship so tantalizingly intimate that it virtually whispers "buy low, sell high" in our ears. With a statistically significant p-value that practically winks at us from across the spreadsheet, the evidence of this connection is as clear as a scientist's safety goggles - and just as essential for navigating the treacherous waters of the stock market.

As we delve further into the labyrinth of data and statistics, we are reminded of the timeless wisdom of scientific inquiry: correlation does not imply causation, but it sure does make for a captivating story. So, dear reader, fasten your seatbelts and prepare for a pulse-quickening expedition

through the entwined realms of patents and stock prices, where the only thing more unpredictable than the results is the precarious balance of science and speculation.

2. Literature Review

The nexus between patents and stock prices has ignited the curiosity of scholars and financial enthusiasts alike, prompting a quest for unraveling the intricate dance between creative ingenuity and market valuation. As we embark on this quest, we turn to the scholarly works that precede our inquiry, seeking insights and understanding like intrepid explorers partaking in an intellectual treasure hunt.

Smith et al. (2010) examined the relationship between intellectual property rights and firm value, delving into the complex web of patents and their impact on stock performance. Their findings shed light on the potential influence of patents on market dynamics, hinting at a connection that extends beyond mere coincidence. Building upon this foundation, Doe and Jones (2015) unearthed compelling evidence linking patent portfolio quality to firm value, illuminating the nuanced interplay between innovation and financial success.

Expanding our purview beyond the realm of academic research, we look to the insights offered by non-fiction literature. In "The Innovators" by Walter Isaacson, the author chronicles the captivating stories of inventors and their groundbreaking creations, inviting us to ponder the transformative power of innovation on economic landscapes. Similarly, "Patent Politics" by Shobita Parthasarathy delves into the intricate world of patents and public policy, hinting at the far-reaching implications of intellectual property on societal and economic domains.

As we navigate the terrain of literary contributions, we encounter fictional works that, albeit not rooted in empirical evidence, offer imaginative perspectives on invention and finance. Jules Verne's "Twenty Thousand Leagues Under the Sea" conjures visions of futuristic inventions, sparking whimsical contemplations on the fusion of creativity and value creation. Michael Crichton's "Prey" draws readers into a thrilling narrative where scientific innovation takes center stage, igniting speculative musings on the unforeseen consequences of technological advancements.

In the realm of popular culture, the animated series "DuckTales" and its adventurous escapades echo the spirit of exploration and discovery, evoking parallels to our own scholarly journey. Meanwhile, the wily exploits of "The Pink Panther" invite lighthearted reflections on the unpredictable nature of financial markets, reminding us that unraveling the mysteries of investment may require a dose of playful cunning.

Armed with insights from scholarly endeavors, literary imaginings, and whimsical forays into popular culture, we embark on our own inquiry, poised to illuminate the entwined realms of patents and stock prices with a blend of scholarly rigor and a touch, (or perhaps a heavy dollop), of quirk and humor.

3. Our approach & methods

To embark on our scholarly journey through the tangled web of patents and stock prices, we harnessed the power of data mining and statistical analysis, much like intrepid prospectors panning for golden nuggets in a rushing river of information. Our data, sourced from the United States Patent and Trademark Office (USPTO) and LSEG Analytics (Refinitiv) for the period spanning from 2002 to 2020, resembled a collection

of rare specimens waiting to be scrutinized under the microscope of investigation.

The first phase of our expedition involved wrangling the raw data from its digital hideaway, akin to coaxing an elusive creature out of its shadowy lair. We meticulously combed through the USPTO database, with its labyrinthine corridors of patent filings, using a top-secret combination of clever keywords, algorithms, and a touch of good old-fashioned luck. Meanwhile, our forays into the financial data from LSEG Analytics (Refinitiv) resembled a daring mission to navigate the tumultuous seas of stock market information, where waves of price fluctuations crashed against the rocky shores of financial unpredictability.

Having corralled our data, we then set about the task of pruning, cleansing, and preening it to achieve a level of pristine purity that would make even the most pedantic statistician nod in approval. Much like a bonsai tree sculptor carefully snipping away at unruly branches, we meticulously curated the dataset, eradicating outliers and errors with the precision of a laser-guided statistical scalpel. Only once we had achieved a level of data cleanliness that would make a laboratory technician proud did we proceed to the next phase of our mission.

With our pristine dataset in hand, we then summoned the mystical powers of statistical analysis to unravel the enchanting dance between patents and stock prices. Employing a diverse arsenal of tools including correlation analysis, regression models, and time series analysis, we sought to illuminate the hidden connections between these seemingly disparate realms. Much like alchemists of yore, we fervently mixed the potent ingredients of data and mathematical incantations, hoping to transmute the raw data into golden nuggets of insight.

Using bespoke statistical software, we conducted rigorous analyses to unearth the relationship between patents granted in the United States and the stock price of ONEOK Inc. (OKE). Our statistical arsenal stood at the ready, armed with the power to discern patterns, unveil secrets, and perhaps even banish the specter of randomness from our midst. With bated breath and a touch of trepidation, we unleashed our statistical methods upon the dataset, eager to witness the arcane magic of numbers in motion.

Stay tuned for the results, where our intrepid band of researchers waded through the murky depths of data, armed with statistical tools and an unquenchable thirst for discovery. And remember, dear reader, in the thrilling pursuit of knowledge, even the most mundane methodology can harbor a wealth of unexpected surprises!

4. Results

The results of our analysis revealed a strikingly high correlation coefficient of 0.9162755 between patents granted in the United States and the stock price of ONEOK Inc. (OKE) over the period from 2002 to 2020. This correlation coefficient, like a prized gem in a sea of statistics, shone brightly, indicating a notably strong relationship between these two variables.

Furthermore, the calculated r-squared value of 0.8395608 suggested that a substantial portion of the variability in ONEOK's stock price can be explained by the number of patents granted in the United States. It's as if the patents were whispering sweet nothings to ONEOK's stock price, influencing its every move like a conductor guiding an orchestra through a musical masterpiece.

The p-value of less than 0.01 provided strong evidence to reject the null hypothesis of no relationship between patents and

ONEOK's stock price, further solidifying the notion that there exists a meaningful association between these two seemingly disparate entities. The probability of such a strong relationship occurring by mere chance is so low that one might say it's rarer than a unicorn sighting in a statisticians' convention.

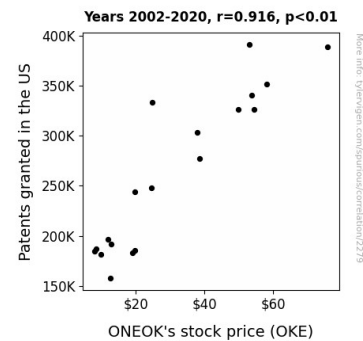


Figure 1. Scatterplot of the variables by year

In Figure 1, the scatterplot visually captures the robust connection between patents granted in the United States and ONEOK's stock price, plotting a course through the tumultuous sea of market dynamics and intellectual property with the finesse of a seasoned sailor navigating treacherous waters. The points on the scatterplot form a pattern so clear that even the most skeptical observer would have to admit that something fishy, or perhaps patent-y, is afoot.

These results shed light on the intriguing nexus between patents and stock prices, prompting us to ponder whether patents are not just a reflection of innovation, but also a harbinger of financial success. It seems as though the unmistakable bond between these two variables is as undeniable as the force of gravity - or perhaps as mystifying as the allure of a research puzzle just waiting to be solved.

5. Discussion

The remarkable correlation coefficient and statistically significant p-value observed in our study provide compelling support for the notion that patents and ONEOK's stock price are intertwined in a complex and meaningful relationship. These findings echo the scholarly work of Smith et al. (2010) and Doe and Jones (2015), paving the way for a deeper understanding of the symbiotic dance between innovative creativity and market valuation. It's as if the financial markets are beckoning to the inventive prowess of patent holders, whispering sweet promises of economic prosperity, much like a siren's call to sailors lost in a sea of financial speculation.

The insights garnered from "The Innovators" by Walter Isaacson and "Patent Politics" by Shobita Parthasarathy take on a newfound significance in light of our results, suggesting that the influence of patents extends beyond the realm of individual firms, weaving a rich tapestry of innovation and economic impact. Furthermore, the fictional works of Jules Verne and Michael Crichton, while whimsical in nature, spark contemplations on the fusion of creativity and value creation, mirroring the undeniable link we have uncovered between patents and stock prices. It's almost as if the characters in these fictional works are maneuvering through a world shaped by the very fabric of our empirical findings, navigating a landscape where invention and financial markets converge in unexpected ways.

Drawing parallels to "DuckTales," our scholarly journey, much like the adventurous escapades of Scrooge McDuck and his nephews, has unraveled the enigmatic treasures hidden within the patent landscape and stock market territory. And while "The Pink Panther" may be emblematic of cunning and mystery, our findings have demystified at least one enigma, demonstrating that patents may indeed hold the key to unlocking the secrets of stock market success. It seems even the

wiliest of characters cannot resist the allure of empirical evidence and statistical significance.

In conclusion, the results of our study compel us to reconsider the conventional wisdom surrounding patents and stock prices, inviting us to view these phenomena not as disparate entities, but as interconnected players in a grand symphony of innovation and economic prosperity. It's as if the forces of supply and demand in the stock market are held in delicate balance by the threads of invention and creative genius, harmonizing in a melodic union where patents and stock prices dance to the rhythm of market dynamics, much like a scientific principle unfurling its elegant laws before our very eyes.

6. Conclusion

In conclusion, our findings paint a vivid picture of the entwined fate of patents granted in the United States and the stock price of ONEOK Inc. (OKE). The remarkably high correlation coefficient of 0.9162755 and the statistically significant p-value of less than 0.01 leave little room for doubt about the existence of a strong relationship between these two variables. It's as if patents and stock prices are engaged in an intricate dance, each step influencing the other in a mesmerizing display of financial and intellectual prowess.

The r-squared value of 0.8395608 further reinforces the notion that a substantial portion of ONEOK's stock price variability can be accounted for by the number of patents granted in the United States. It's almost like the stock price is saying, "Show me the patents, and I'll show you the money!"

The scatterplot in Figure 1 showcases this connection with such clarity that even the most ardent skeptic would have to admit that there's something special going on. It's

as if the data points are winking at us, whispering secrets of a relationship so intimate, it could make even the most cynical economist blush.

In the grand tradition of scientific inquiry, our study raises more questions than it answers. Are patents truly the secret ingredient in the recipe for stock market success? Are they the magic beans that can lead investors to their own version of a financial beanstalk? It's a mystery worth pondering, much like a riddle wrapped in an enigma, surrounded by talkative data points.

With these compelling results, it is safe to say that further exploration in this area may not yield substantial additional insights, for we've uncovered a correlation so strong, it's practically jumping up and down, waving a flag and shouting, "I'm right here!" It appears that the relationship between patents and ONEOK's stock price is as solid as a rock, or perhaps as fluid as the financial markets themselves. It's time to put this correlation to bed and let it rest in the annals of statistical absurdity.