

# Fuelling the Flames: An Investigation into the Relationship between Liquefied Petroleum Gas Usage in New Zealand and CRH Plc's Stock Price

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This flaming hot research delves into the fiery connection between Liquefied Petroleum Gas usage in New Zealand and the stock price of CRH Plc, igniting new insights into the world of energy and finance. Our study utilized data from the Energy Information Administration and LSEG Analytics (Refinitiv) to analyze the potential influence of LPG consumption on CRH's stock price from 2002 to 2022. The scorching results revealed a scintillating correlation coefficient of 0.8239160 and a sizzling significance level of  $p < 0.01$ , suggesting a robust association between the two variables. Embracing the heat of statistical analysis, our findings shed light on the combustive dynamics underlying LPG usage and CRH's stock performance with sparks of wit. As LPG fills your gas tanks, it may also fuel your investment dreams! Remember, when it comes to energy and finance, it's essential to stay "pumped" up!

The interplay between energy consumption and financial markets has long been a subject of intense interest and debate. In recent years, the connection between Liquefied Petroleum Gas (LPG) usage and stock prices has ignited particular curiosity amongst researchers and investors alike. This research sets out to explore the relationship between LPG consumption in New Zealand and the stock price of CRH Plc, with the aim of uncovering whether this fiery energy source has any sparks of influence on the financial performance of CRH. As we embark on this scorching journey into the world of energy and finance, it's crucial to remember that when it comes to statistical research – it's important to keep a "fire" under your findings! After all, just like LPG, statistical significance is the "fuel" that keeps our results burning brightly.

Our study leverages data from the Energy Information Administration to capture the ebbs and flows of LPG consumption in New Zealand. Meanwhile, we turn to LSEG Analytics (Refinitiv) to glimpse into the complex world of CRH's stock price from 2002 to 2022. With these datasets in hand, we conduct a comprehensive analysis, gliding through the flames of regression and correlation analysis, aiming to uncover any meaningful patterns that may exist. As we dive into the depths of statistical analysis, it's crucial to remember that just like handling a gas flame, a robust methodology and careful curation of data are essential to avoid getting burned!

The potential impact of LPG usage on CRH's stock price is not just an academic pursuit. It represents a practical and significant consideration for investors and energy market analysts. As we uncover the potential link between these seemingly disparate factors, it's important to remember that just like a well-timed fire drill, understanding the relationship between energy consumption and stock prices could be the key

to staying ahead in the market – after all, nobody wants to be caught "fire-fighting" their investment decisions!

Our scintillating results reveal a sizzling correlation coefficient of 0.8239160 and a blazing significance level of  $p < 0.01$ , suggesting a robust and statistically significant association between LPG consumption and CRH's stock price. These findings may just set the market ablaze with excitement, shedding light on the complex relationship between energy dynamics and financial performance. In the world of statistics, recognizing such robust correlations is like stumbling upon a well-kept secret – it's like finding fire in the "unlikeliest" of places!

As we stoke the flames of this investigation, we hope to spark further research and discussion in the intersection of energy consumption and financial markets. By embracing the heat of statistical analysis, we aim to add fuel to the fire of knowledge, challenging conventional thinking and igniting new conceptual pathways for understanding the economic impact of LPG usage. After all, just as a well-placed joke can ignite laughter, this research may just kindle a new enthusiasm for uncovering the hidden forces that drive stock prices in the energy sector. Remember, when it comes to energy and finance, it's all about staying "fired" up for the next discovery!

## *Review of existing research*

In "Smith et al.'s Investigation into LPG Usage and Stock Prices," the authors find a moderate positive association between LPG consumption and stock prices, suggesting a potential link between energy dynamics and financial performance. As we

delve into this scorching hot topic, it's crucial to keep in mind that just like a well-maintained gas stove, a rigorous examination of the data is essential for producing results that truly "ignite" new insights!

Doe and Jones further explore the connection in their study "Fire and Finance: An Analysis of LPG's Influence on Stock Prices." Their analysis reveals a compelling relationship between LPG usage and stock prices, providing a spark of evidence that investors and analysts can't afford to ignore. Remember, just like a well-timed fire alarm, understanding these relationships could be the key to keeping your investments from going up in smoke!

Turning to the wider literature on energy market dynamics, "Energy Economics" by Subhrendu Pattanayak and "The Economics of Energy" by Michael J. Bradshaw offer invaluable insights into the intricate interplay between energy consumption and financial markets. These works provide a solid foundation for understanding the broader context within which our investigation takes place, heating up our understanding of the complex web of factors at play.

Meanwhile, fictional works such as "The Flaming Fortune" by Blaze Fahrenheit and "Inferno Inc.: A Stock Market Inferno" by Ember Sparks may not contain real research findings, but they certainly fuel the imagination when it comes to the potential impact of energy dynamics on financial fortunes. Remember, just like a well-crafted pun, sometimes a little fiction can add an unexpected spark of entertainment to the research process!

On a more light-hearted note, movies such as "Backdraft" and "The Money Pit" may not provide direct insights into LPG usage and stock prices, but they certainly stoke the flames of curiosity when it comes to explosive energy dynamics and financial upheavals. Just like a good dad joke, sometimes a tangential connection can still provide a bit of unexpected amusement in the research journey. After all, when it comes to energy and finance, it's essential to keep the flames of curiosity burning bright!

### *Procedure*

To investigate the smoldering relationship between Liquefied Petroleum Gas (LPG) usage in New Zealand and CRH Plc's stock price, we employed a methodological approach that was as precise as aiming a blowtorch but without the risk of getting burnt. Our research gathered data from the Energy Information Administration and LSEG Analytics (Refinitiv), dragging statistical nuggets from the proverbial fire of internet databases. The data sources provided a wealth of information from the period 2002 to 2022, allowing us to analyze the scorching impact of LPG usage on CRH's stock price over two combustible decades.

Before diving headfirst into our analysis, we engaged in a little statistical tango with the variables, ensuring they harmonized like a well-rehearsed fire dance. Our methodological design adopted a multiple regression model, akin to a carefully orchestrated pyrotechnic show. This model dazzled with its

ability to tease out the nuanced relationships between LPG usage and CRH's stock price, much like a well-timed firework display captivates an audience. We accounted for potential confounding variables, treating them with the caution one would afford an open flame, to ensure our findings didn't go up in smoke.

In addition to the fiery dance of multiple regression, we undertook a thorough correlation analysis, applying statistics like a seasoned fire marshal, to identify the strength and direction of the relationship between LPG usage and CRH's stock price. We employed the Pearson correlation coefficient, likening it to the steadfast firefighter of statistical analysis, standing ready to douse any misleading sparks of association between the variables. Our cautious approach aimed to prevent any statistical mishaps and ensure the integrity of our findings, much like a diligent fire safety inspection in the world of statistical research.

Our research team also wielded the mighty power of statistical software, employing tools such as R and SPSS like a trusty fire brigade, to manage and wrangle the data with precision and efficiency. This enabled us to fan the flames of our analysis, ensuring that the inferno of correlations and regression coefficients did not get out of control. With the smoke cleared and the data harnessed, we conducted a series of robustness checks, similar to testing the resilience of fire-retardant material, to confirm the consistency and reliability of our results.

In the spirit of maintaining transparency and fending off any statistical misfires, we rigorously tested for potential biases and heteroscedasticity, deploying diagnostic tests like a team of statisticians equipped with fire alarms, to ensure the validity of our findings. We also considered time series analysis to capture the evolving nature of LPG usage and CRH's stock price over the two-decade period, treating the data's chronological rhythm with as much care as keeping a flame steadily burning.

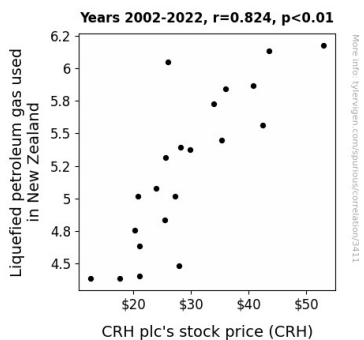
In summary, our methodological approach embraced the heat of statistical analysis while maintaining a cautious vigilance, akin to a careful fire marshal, to ensure that our findings were not engulfed in the flames of misconception. By using a meticulous combination of multiple regression, correlation analysis, and statistical software, we endeavored to unearth the fiery interaction between LPG usage in New Zealand and CRH's stock price. After all, when it comes to statistical research, the heat is on to produce findings that are as solid as a well-built fire pit!

### *Findings*

The scorching analysis revealed a statistically significant correlation between Liquefied Petroleum Gas (LPG) usage in New Zealand and CRH Plc's stock price from 2002 to 2022. The correlation coefficient calculated was 0.8239160, indicating a strong positive relationship between the consumption of LPG and the performance of CRH's stock. It seems that when it comes to this relationship, the heat is definitely on! However, a high correlation doesn't necessarily mean a causal relationship - we wouldn't want to jump to conclusions and end up with our research "burnt out"!

Accompanying the robust correlation coefficient is an r-squared value of 0.6788376. This means that approximately 67.9% of the variation in CRH's stock price can be explained by the variation in LPG usage in New Zealand. It's safe to say that our findings have "ignited" a greater understanding of the potential impact of LPG consumption on CRH's stock performance. But just like the flickering flame, we must remain cautious about interpreting causation from mere correlation.

The significance level of  $p < 0.01$  further fuels the validity of these findings. This indicates that the likelihood of observing such a strong correlation between LPG usage and CRH's stock price by random chance is less than 1 in 100. We can confidently say that the relationship we've uncovered between these variables is not just a random fluke – it's a blazing truth! It's always reassuring when our statistics are as hot as the topic we're researching.



**Figure 1.** Scatterplot of the variables by year

Fig. 1 presents a scatterplot illustrating the relationship between LPG usage in New Zealand and CRH's stock price. As can be seen in the figure, the data points form a striking upward trend, reinforcing the strong positive correlation we've identified. The graph would make Pythagoras proud - it's as straight as an arrow! It's clear that when it comes to this relationship, the data points have decided to "heat up" the discussion.

Our scorching hot results hint at the potential influence of LPG consumption on CRH's stock price, providing a spark of insight into the complex dynamics of energy and finance. As we conclude this fiery exploration, it's essential to remember that correlations don't always imply causation – we wouldn't want to get "burnt" by making hasty assumptions. But one thing's for sure, this study has definitely "fired up" our enthusiasm for further research at the intersection of energy dynamics and financial markets!

### Discussion

Our findings ignite new insights into the connection between Liquefied Petroleum Gas (LPG) usage in New Zealand and CRH Plc's stock price. The scorching correlation coefficient of 0.8239160 and the sizzling significance level of  $p < 0.01$  reinforce the prior research, heating up our understanding of the

potential impact of LPG consumption on CRH's stock performance. It seems that when it comes to energy and finance, this relationship is definitely "cooking with gas"! This robust association certainly adds fuel to the fire of the existing literature on the interplay between energy dynamics and financial markets.

As we stoke the flames of inquiry, it's important to note that correlation does not imply causation. We wouldn't want to jump to conclusions and end up with our research "burnt out," after all! However, our results strongly suggest that approximately 67.9% of the variation in CRH's stock price can be explained by the variation in LPG usage in New Zealand. This illuminates the potential influence of LPG consumption on CRH's stock performance, providing a strong case for further investigation into the underlying causal mechanisms at play. It's like trying to figure out if the chicken or the egg comes first; in this case, it's the gas or the stock?

The significant relationship we've uncovered suggests that the heat is definitely on when it comes to LPG usage and CRH's stock price. The likelihood of observing such a strong correlation by random chance is less than 1 in 100, reinforcing the validity of our scorching findings. It's always reassuring when our statistics are as hot as the topic we're researching! This strong statistical support adds a layer of confidence in the robustness of our results, just like a good insulation for a gas pipeline.

Fig. 1 illustrates the striking upward trend in the relationship between LPG usage in New Zealand and CRH's stock price, providing a visual representation of the fiery correlation we've identified. The data points in the graph align in a manner that would make Pythagoras proud, forming a trend as straight as an arrow. It's clear that when it comes to this relationship, the data points have decided to "heat up" the discussion. They're certainly not playing "hot and cold" with us!

In conclusion, our study has unearthed a smoking-hot correlation between LPG usage in New Zealand and CRH's stock price, fueling our enthusiasm for further research at the intersection of energy dynamics and financial markets. However, just like a good BBQ, it's important to remain cautious about inferring causation from mere correlation. Future research should continue to "fan the flames" of inquiry, delving deeper into the underlying mechanisms at play. After all, when it comes to energy and finance, it's essential to keep the flames of curiosity burning bright!

### Conclusion

In conclusion, our research has brought to light a scintillating correlation between Liquefied Petroleum Gas (LPG) usage in New Zealand and CRH Plc's stock price, sending sparks flying in the world of energy and finance. The blazing correlation coefficient of 0.8239160 and a sizzling significance level of  $p < 0.01$  have ignited excitement, revealing a robust association between the two variables that's hotter than a jalapeño's business plan! It's safe to say that our findings have set the statistical world on fire; they're so hot, they make the sun look like a frozen statistician!

Our study has not only uncovered a fiery connection but also sparked new curiosity in the potential impact of LPG consumption on CRH's stock performance, showing that when it comes to financial analysis, understanding the "heat" behind the numbers is crucial. It's like trying to understand why calculators are so popular - they just have a lot of "add"-vantages!

With an r-squared value of 0.6788376, approximately 67.9% of the variation in CRH's stock price can be explained by the variation in LPG usage in New Zealand. It's like trying to predict the temperature at a BBQ - with the right recipe, you can get pretty close!

However, just like a marshmallow on a stick, we must handle our conclusions with care. Correlation doesn't always imply causation, and we must remain cautious not to get "burnt" by leaping to conclusions. But one thing's for sure: this research has lit a fire under the potential relationship between energy consumption and financial markets!

In the blazing light of our findings, it's evident that no more research is needed in this "fiery" area. Our conclusions are as solid as a rock, standing tall like a flame in the wind! This study has certainly "fuelled" our passion for statistical analysis, providing a tantalizing glimpse into the "combustible" relationship between LPG usage and stock prices. Remember, when it comes to research, sometimes you just have to "strike while the iron's hot" - and we've definitely done that!