



HOME BUILDING INVESTMENT OVERVIEW

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INVESTMENT ANALYSIS REPORT

COMPARISON OF HOME IMPROVEMENT RETAIL INVESTMENT

EXECUTIVE SUMMARY

This investment analysis report aims to evaluate the performance of six selected companies within the automotive industry: CareTrust REIT (CTRE), Home Depot (HD), Lennar Corporation (LEN), Lowe's (LOW), LGI Homes (LGIH), and NVR, Inc. (NVR). The analysis covers the period from December 1, 2021, to September 2, 2022.

INVESTMENT ANALYSIS

As the population in the USA continues to grow, there is a corresponding increase in home purchases by both domestic and international buyers. The influx of immigrants to America, including those seeking refuge from war-torn regions, further contributes to this trend. This surge is not only evident in the increased number of individuals acquiring residential properties but also in the escalating investments made by foreign nationals in the American real estate market. Furthermore, the demand for housing is driving a notable expansion in construction activities, resulting in the development of additional residential properties. Alongside this housing boom, there is a concurrent rise in investments made by individuals in various companies, as evidenced by the increasing acquisition of company shares. These trends collectively underscore the ongoing growth within the real estate and investment sectors, presenting investors with opportunities to capitalize on the home improvement retail market.

PRICE ANALYSIS

Ticker	CTRE	HD	LEN	LGIH	LOW	NVR
count	1427	1427	1427	1427	1427	1427
mean	15.78	215.40	63.39	85.07	124.74	3583.31
std	3.15	69.39	19.79	38.87	51.52	979.65
min	6.44	112.85	27.82	27.40	60.54	1649.99
25%	13.23	159.55	48.15	56.95	83.88	2774.15
50%	15.87	197.69	55.94	73.96	103.36	3468.15
75%	18.63	269.47	77.24	111.91	171.00	4363.70
max	21.24	394.98	112.88	183.36	250.10	5959.33

The statistical data for the prices of different stocks represented by their ticker symbols.

CTRE: The average (mean) price is approximately \$15.78, with a standard deviation of \$3.15. The minimum price observed was about \$6.44, and the maximum was about \$21.24.

HD: The average price is approximately \$215.40, with a standard deviation of \$69.39. The minimum price observed was about \$112.85, and the maximum was about \$394.98.

LEN: The average price is approximately \$63.39, with a standard deviation of \$19.79. The minimum price observed was about \$27.82, and the maximum was about \$112.88.

LGIH: The average price is approximately \$85.07, with a standard deviation of \$38.87. The minimum price observed was about \$27.40, and the maximum was about \$183.36.

LOW: The average price is approximately \$124.74, with a standard deviation of \$51.52. The minimum price observed was about \$60.54, and the maximum was about \$250.10.

NVR: The average price is approximately \$3583.31, with a standard deviation of \$979.65. The minimum price observed was about \$1649.99, and the maximum was about \$5959.33.

The count of 1427 for each ticker symbol indicates that the data was collected over 1427 trading days. The 25%, 50%, and 75% rows represent the 1st quartile (25th percentile), median (50th percentile), and 3rd quartile (75th percentile) prices, respectively. These values give you a sense of the distribution of stock prices for each ticker symbol over the period of observation. For example, for CTRE, 25% of the observed prices were less than or equal to \$13.23, 50% were less than or equal to \$15.87, and 75% were less than or equal to \$18.63. The same interpretation applies to the other ticker symbols.

RETURNS ANALYSIS

	CTRE Return	HD Return	LEN Return	LGIH Return	LOW Return	NVR Return
count	1426	1426	1426	1426	1426	1426
mean	0.0008	0.0008	0.0008	0.0014	0.0010	0.0009
std	0.0267	0.0166	0.0256	0.0327	0.0202	0.0228
min	- 0.3066	- 0.1979	- 0.1961	- 0.2979	-0.2477	- 0.2055
25%	- 0.0085	- 0.0057	- 0.0108	- 0.0132	-0.0075	- 0.0094
50%	0.0011	0.0012	0.0003	0.0016	0.0017	0.0009
75%	0.0105	0.0085	0.0128	0.0178	0.0103	0.0115
max	0.5438	0.1375	0.2129	0.1989	0.1401	0.2108

The statistical data for the returns of different stocks represented by their ticker symbols.

CTRE Return: The average (mean) return is 0.0008, with a standard deviation of 0.0267. The minimum return observed was -0.3066, and the maximum was 0.5438.

HD Return: The average return is 0.0008, with a standard deviation of 0.0166. The minimum return observed was -0.1979, and the maximum was 0.1375.

LEN Return: The average return is 0.0008, with a standard deviation of 0.0256. The minimum return observed was -0.1961, and the maximum was 0.2129.

LGIH Return: The average return is 0.0014, with a standard deviation of 0.0327. The minimum return observed was -0.2979, and the maximum was 0.1989.

LOW Return: The average return is 0.0010, with a standard deviation of 0.0202. The minimum return observed was -0.2477, and the maximum was 0.1401.

NVR Return: The average return is 0.0009, with a standard deviation of 0.0228. The minimum return observed was -0.2055, and the maximum was 0.2108.

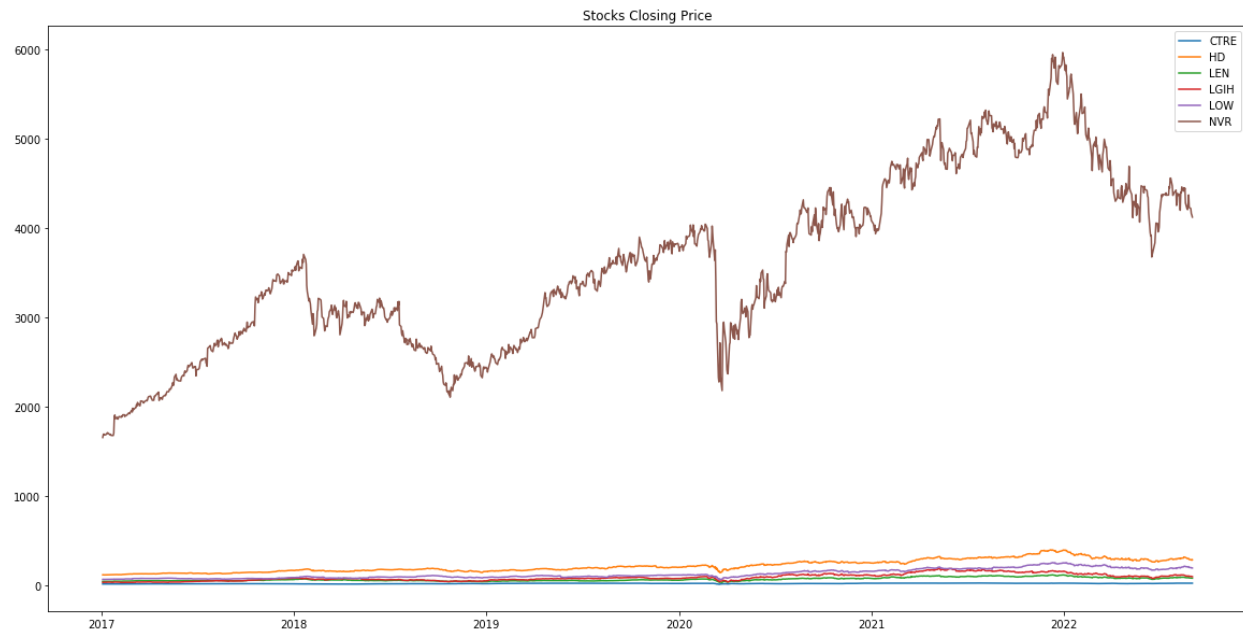
The count of 1426 for each ticker symbol indicates that the data was collected over 1426 trading days. The 25%, 50%, and 75% rows represent the 1st quartile (25th percentile), median (50th percentile), and 3rd quartile (75th percentile) returns, respectively. These values give you a sense of the distribution of stock returns for each ticker symbol over the period of observation. For example, for CTRE Return, 25% of the observed returns were less than or equal to -0.0085, 50% were less than or equal to 0.0011, and 75% were less than or equal to 0.0105. The same interpretation applies to the other ticker symbols.

RISK VS RETURNS ANALYSIS



The stock symbol LGIH shows the highest risk but also offers a higher expected return, indicating a more volatile investment that could potentially yield significant profits. On the other hand, HD has the lowest risk and expected return, suggesting a more stable investment with modest gains. CTRE and LEN are clustered together, indicating similar levels of risk and expected returns, while NVR and LOW also share comparable risk-return profiles but are less risky than CTRF and LEN.

CLOSING PRICE ANALYSIS

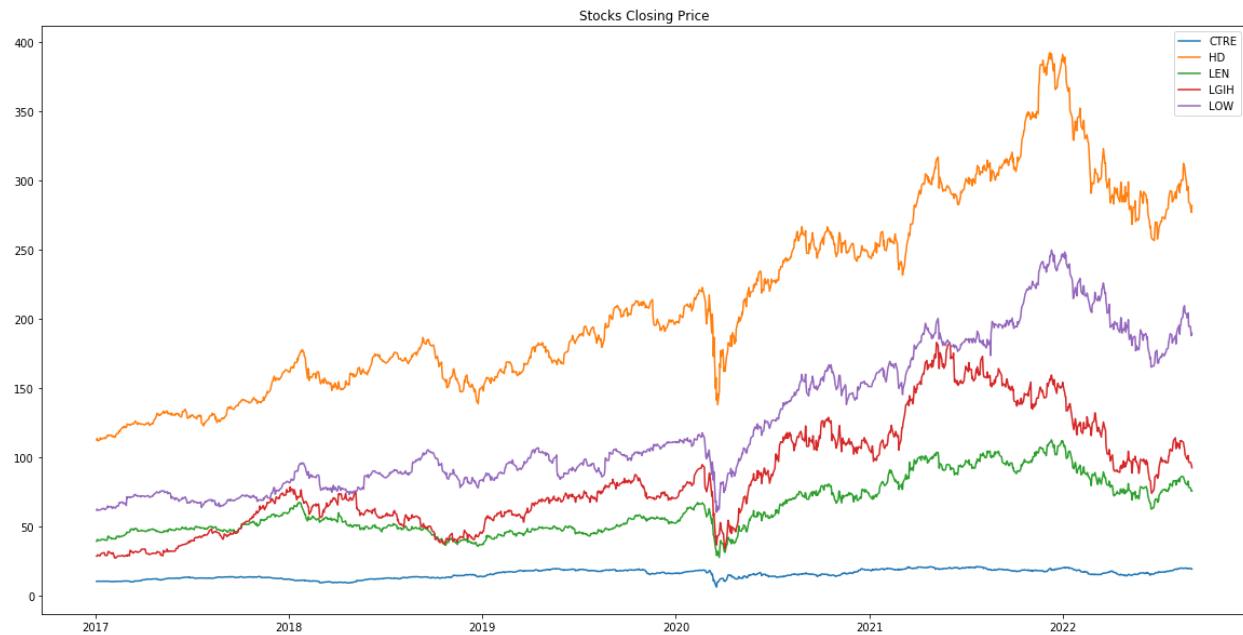


The brown line representing NVR shows a significant increase in its closing price over this period, starting around the 1000 mark in 2017 and peaking above 5000 in early 2021 before experiencing a decline. This suggests that NVR has been a high-performing asset during this period, potentially yielding substantial returns for investors.

The other five symbols (CTRE, HD, LEN, LGIH, LOW), while showing an overall increase in their closing prices, have remained relatively stable with minor fluctuations. These symbols might represent more conservative investments compared to NVR.

However, it's important to note that all symbols experienced a decline in their closing prices post-2021. This downturn underscores the inherent risks associated with stock market investments and highlights the necessity for diversified portfolios to mitigate potential losses.

NORMALIZE CLOSING PRICE ANALYSIS PART I



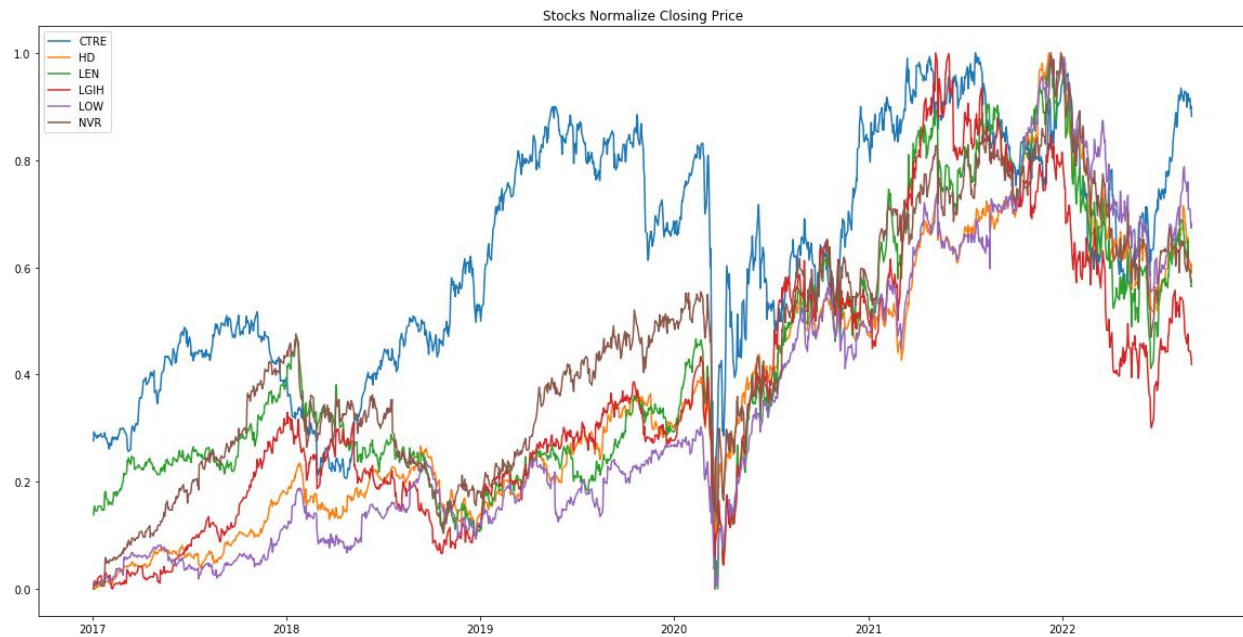
The orange line representing CTRE shows a significant increase in its closing price over this period, peaking around early 2022 before experiencing a slight decline. This suggests that CTRE has been a high-performing asset during this period, potentially yielding substantial returns for investors.

The blue line (HD) and green line (LOW) depict relatively stable trends with minor fluctuations. These symbols might represent more conservative investments compared to CTR.

The purple (LEN) and red lines (LGIH) indicate an initial rise followed by a decline starting around late 2019 or early 2020. This could suggest that these investments may have been affected by certain market events during this period.

However, it's important to note that all symbols experienced a decline in their closing prices post-2021. This downturn underscores the inherent risks associated with stock market investments and highlights the necessity for diversified portfolios to mitigate potential losses.

NORMALIZE CLOSING PRICE ANALYSIS PART II

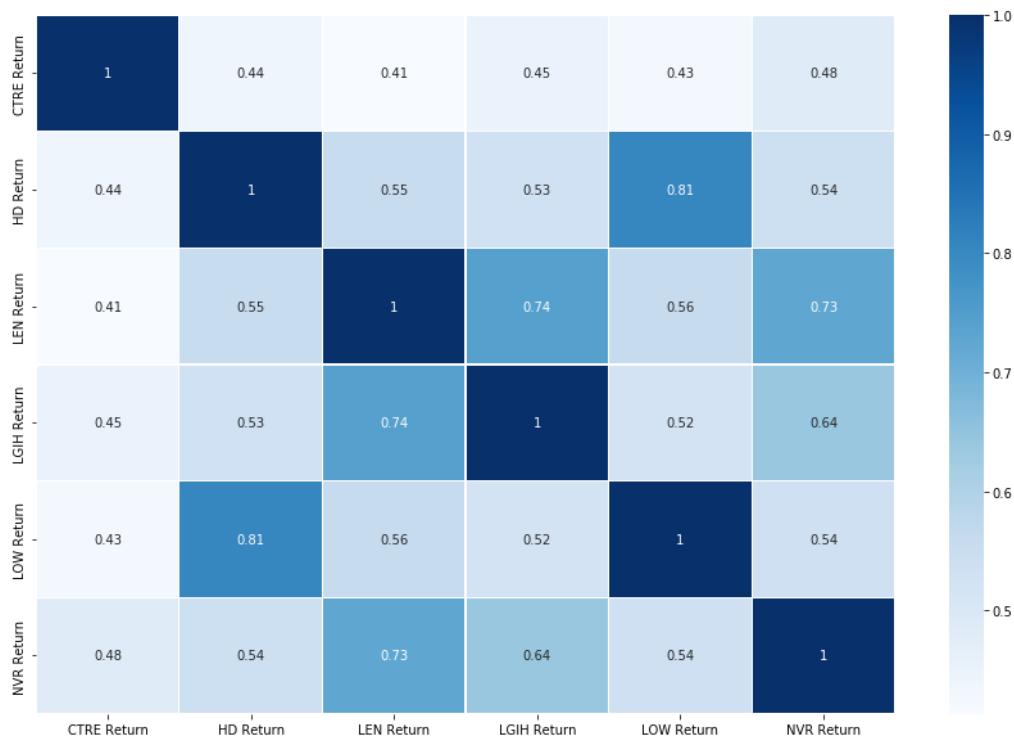


The chart of “Stocks Normalize Closing Price,” displaying the normalized closing prices of six different companies from 2017 to 2022. Each company is represented by a different colored line on the graph. There is a significant increase in all stocks around late 2019, with HD showing the most prominent rise. All stocks experience fluctuations, with noticeable volatility starting from 2020 onwards. The y-axis represents the normalized closing price ranging from 0 to 1, while the x-axis represents years.

The blue line representing CTRE and the red line representing LGIH show a pronounced upward trend until early 2021, indicating robust performance and potential profitability for investors who held these assets during this period. The green (LEN), purple (LOW), and orange (HD) lines also show an appreciation in value, albeit with more volatility and less overall growth.

However, all symbols experienced a decline in their normalized closing prices post-2021. This downturn underscores the inherent risks associated with stock market investments and highlights the necessity for diversified portfolios to mitigate potential losses.

HEATMAP ANALYSIS



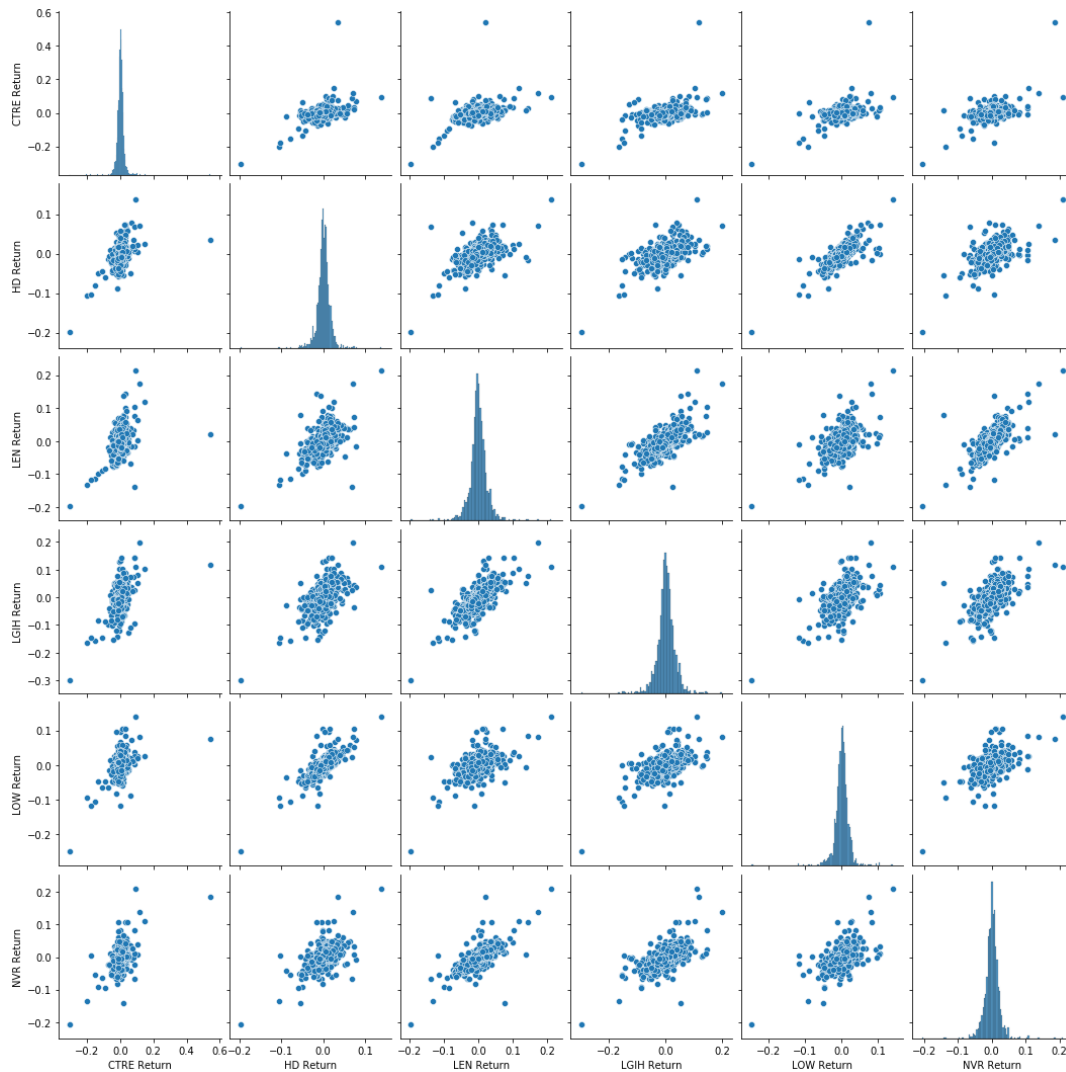
The heatmap chart you've shared represents the correlation coefficients between the returns of different investment symbols: CTRE, HD, LEN, LGIH, LOW, and NVR. Each cell in the grid represents the correlation coefficient between two corresponding investment symbols, with the cells color-coded from light blue (low correlation) to dark blue (high correlation).

For instance, LOW and HD have a strong positive correlation of 0.81, suggesting that when LOW's return increases, HD's return is likely to increase as well. If one's return increases, the other is likely to increase as well. Conversely, a lower correlation indicates that the returns of the two stocks are less synchronized. This information is crucial for investors as it helps them understand the relationships between different investments.

The lowest correlation is 0.41 between CTRE Return and LGIH Return, suggesting a weaker positive relationship. While both investments tend to move in the same direction, the strength of their movement together is not as pronounced. This could indicate less synergy if paired in a portfolio, and might be of interest to investors looking for diversification.

The lowest correlation is 0.41 between CTRE Return and LGIH Return, suggesting a weaker positive relationship. While both investments tend to move in the same direction, the strength of their movement together is not as pronounced. This could indicate less synergy if paired in a portfolio, and might be of interest to investors looking for diversification.

PAIRPLOT ANALYSIS

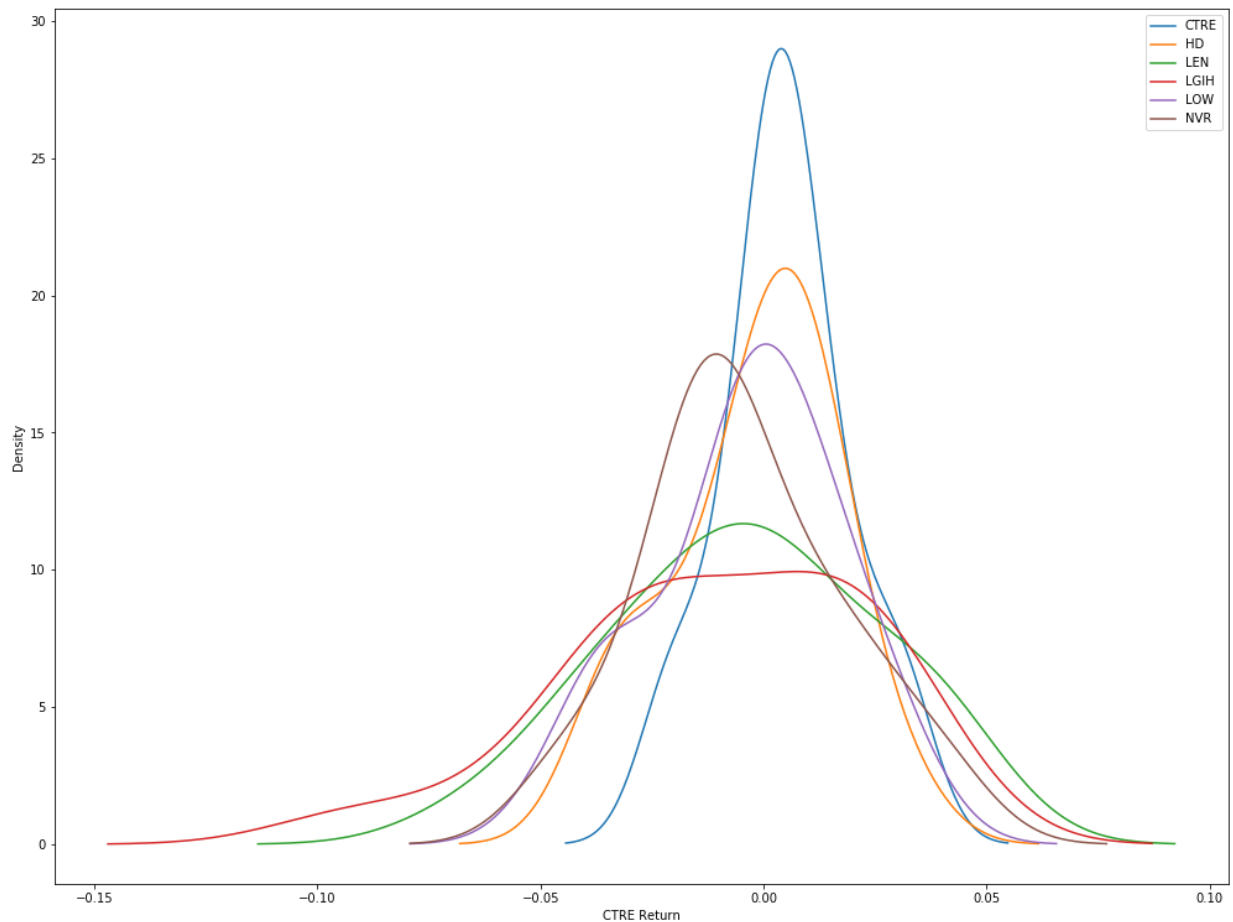


The PairPlot chart of the relationships between returns of different symbols: CTRE, HD, LEN, LGIH, LOW, and NVR. Each plot in the grid corresponds to a pair of these symbols and shows the distribution of their returns.

The CTRE Return shows a distinct peak indicating a common return value with minimal spread. The scatter plots associated with it show some degree of positive correlation with HD, LEN, LGIH, LOW, and NVR Returns but not strong linearity. This suggests that while CTRE Return tends to move in the same direction as these Returns, the strength of their movement together is not as pronounced.

HD, LEN, LGIH, LOW, and NVR Returns exhibit similar patterns in their distributions - clear peaks with minimal spread - indicating consistency in returns. Their relationships with each other and with CTRE Return are scattered yet lean towards positive correlation.

KERNEL DISTRIBUTION ESTIMATE ANALYSIS

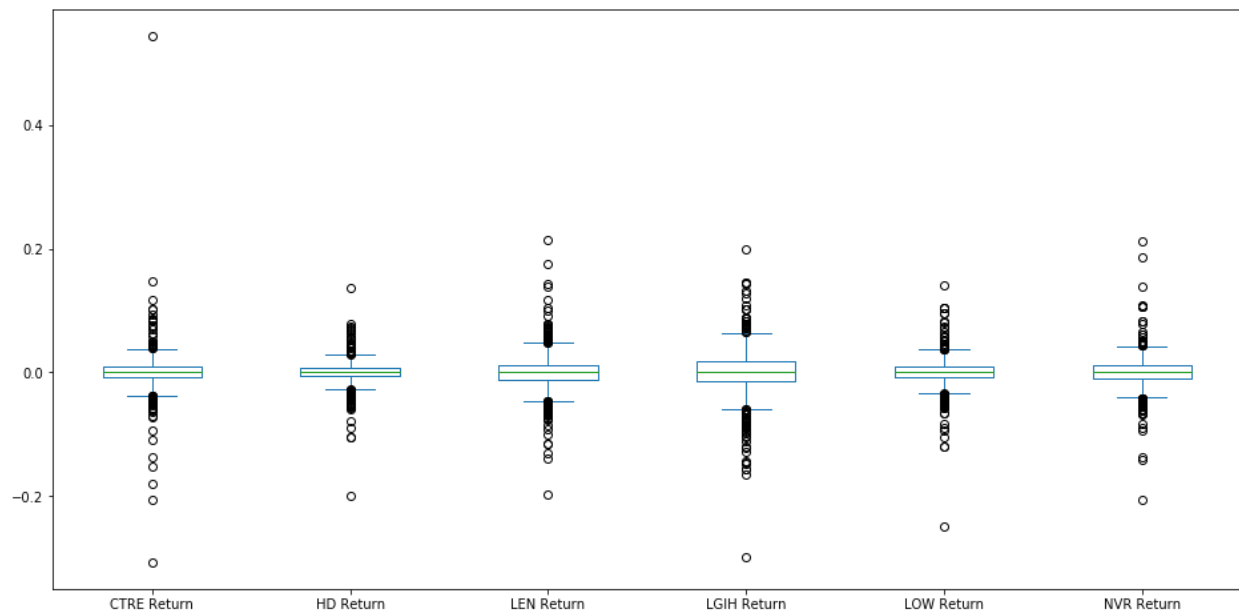


The Kernel Distribution Estimation chart is a visual representation of the return distributions for various investment symbols: CTRE, HD, LEN, LGIIH, LOW, and NVR. Each line in the chart corresponds to a symbol and shows the probability density of its returns.

CTRE, represented by the blue line, exhibits a peak performance, indicating a higher probability of substantial returns. This suggests that CTRE has been a consistent performer. HD and LEN, depicted in orange and green respectively, show moderate performance with their peaks being less pronounced than CTRE but still significant. This indicates that these investments have provided moderate returns.

LGIIH and LOW, represented by the red and purple lines, indicate lower return probabilities as their peaks are not as prominent. This suggests that these investments may not have performed as well as others. Lastly, NVR, represented by the brown line, has the least pronounced peak, suggesting it might be a riskier investment with lower expected returns.

BOXPLOT ANALYSIS



The boxplot chart you've shared provides a visual representation of the return rates for various investment symbols: CTRE, HD, LEN, LGIH, and NVR. Each boxplot corresponds to a symbol and shows the distribution of its returns.

The boxplot for CTRE shows a median near 0.1 with outliers extending beyond 0.4, indicating a generally positive return with occasional significant gains. This suggests that CTRE has been a high-performing asset during this period, potentially yielding substantial returns for investors.

HD and LOW have maintained relative stability with minor fluctuations, as indicated by their compact interquartile ranges. This suggests that these investments have provided consistent returns with less volatility.

LEN and LGIH experienced an increase until 2020 followed by a decline. This could suggest that these investments may have been affected by certain market events during this period.

INVESTMENT CONCLUSION

In conclusion, the period spanning from December 1, 2021, to September 2, 2022, marked a remarkable upswing in both the real estate and investment domains. Fueled by a burgeoning population in the USA and a surge in home purchases by both domestic and international buyers, these sectors experienced substantial growth. This surge in housing demand not only prompted increased construction activities but also facilitated the development of additional residential properties, thereby opening doors to lucrative investment opportunities across diverse industries.

The continuous expansion within the real estate and investment sectors signifies a compelling landscape for investors to explore. By strategically considering companies such as CTRE, HD, LOW, LEN, LGIH, and NVR, investors stand to benefit from the flourishing home improvement retail market and the broader trends propelling growth within the real estate industry. This confluence of factors underscores the potential for investors to capitalize on the ongoing momentum and harness substantial returns in the evolving market landscape.

REFERENCES

1. CareTrust REIT, Inc. (CTRE): CareTrust REIT, Inc. (CTRE). (n.d.). Retrieved October 7, 2022, from <https://finance.yahoo.com/quote/CTRE>
2. The Home Depot, Inc. (HD): The Home Depot, Inc. (HD). (n.d.). Retrieved October 7, 2022, from <https://finance.yahoo.com/quote/HD>
3. Lennar Corporation (LEN): Lennar Corporation (LEN). (n.d.). Retrieved October 7, 2022, from <https://finance.yahoo.com/quote/LEN>
4. LGI Homes, Inc. (LGIH): LGI Homes, Inc. (LGIH). (n.d.). Retrieved October 7, 2022, from <https://finance.yahoo.com/quote/LGIH>
5. Lowe's Companies, Inc. (LOW): Lowe's Companies, Inc. (LOW). (n.d.). Retrieved October 7, 2022, from <https://finance.yahoo.com/quote/LOW>
6. NVR, Inc. (NVR): NVR, Inc. (NVR). (n.d.). Retrieved October 7, 2022, from <https://finance.yahoo.com/quote/NVR>