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Tracking the Market: Sectoral Associations with the S&P 500 Index

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ABSTRACT

This study investigates the extent to which different industry sectors align with the overall performance of the S&P 500 index. Using visual trend analysis of daily open and close prices, the research evaluates the co-movement between the S&P 500 and six key sectoral indices: industrials, financials, consumer staples, healthcare, energy, and oil. The results show clear variation in the degree of alignment. Industrials and financials exhibit the strongest positive associations with the S&P 500, closely tracking the index with minimal dispersion. Consumer staples and healthcare also follow the index, though with somewhat weaker intensity. In contrast, energy shows a more modest correlation, and oil demonstrates the weakest association, with highly scattered movements and a near-flat trend line. These findings highlight the importance of sectoral differentiation in understanding market behavior and provide insights for investors, analysts, and policymakers in designing sector-specific investment and risk strategies.

Keywords: S&P 500 index, oil price volatility, sectoral stock performance

1. Introduction

Understanding how different industry sectors move in relation to the broader equity market is essential for investors, portfolio managers, and policymakers. The S&P 500 index, as a benchmark for U.S. equity performance, aggregates the performance of 500 large-cap companies spanning a wide range of industries. While this aggregate measure captures overall market sentiment and economic outlook, it masks substantial variation in the performance of individual sectors. This study examines how closely six major industry sectors—industrials, financials, consumer staples, healthcare, energy, and oil—track the S&P 500 index.

The motivation for this inquiry stems from the need to disaggregate market behavior. Different sectors are influenced by distinct structural and cyclical factors—macroeconomic conditions, global commodity markets, interest rates, consumer behavior, and technological change. For

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instance, cyclical sectors like industrials may exhibit high sensitivity to economic growth and market-wide performance, while defensive sectors like consumer Staples and healthcare tend to show more stability during downturns. Energy-related sectors, particularly oil, may move independently due to commodity-specific dynamics and geopolitical events.

Using daily open and close price data, the study employs graphical analysis to compare sectoral price movements with those of the S&P 500 index. The results reveal distinct patterns of association. Industrials and financials show the strongest positive correlation with the index, indicated by steep, tightly clustered trend lines. Consumer staples and healthcare follow a similar but more moderate pattern. Energy exhibits a looser fit with greater dispersion, while oil shows a nearly flat trend line with substantial variation, indicating little correlation with the S&P 500.

These patterns hold consistently across both opening and closing price comparisons, suggesting that the findings are robust to intraday volatility. By empirically documenting the relative degree of co-movement between sectoral indices and the broader market, the study contributes to our understanding of market structure and provides actionable insights for sector-specific investment strategies.

2. Literature Review

Oil prices continue to play a pivotal role in the broader economy. They influence inflation, production costs, and consumer behavior, each of which directly affects stock market performance. Since the mid-1980s, movements in oil prices have accounted for a significant share of variation in the S&P 500, often exceeding the impact of conventional economic indicators like interest rates (Sadorsky, 1999). Volatility in oil markets has also been linked to notable changes in equity performance, particularly in the United States (Malik and Hammoudeh, 2007).

The intensity of oil price fluctuations—not just their direction—has become a key variable in market behavior. Volatility in oil prices tends to spill over into other commodities and financial assets, a phenomenon that became especially evident during periods of market distress such as the 2008 financial crisis (Ji and Fan, 2012). Sharp, unexpected increases in oil prices are often associated with disproportionately negative movements in the S&P 500 index (Chiou and Lee, 2009).

Oil-related shocks contribute significantly to the volatility of stock returns, and in some cases exert a greater influence than interest rate changes (Park and Ratti, 2008). As a result, the ability to anticipate volatility—particularly when driven by unstable oil markets—remains central to financial risk assessment and portfolio strategy (Poon and Granger, 2003).

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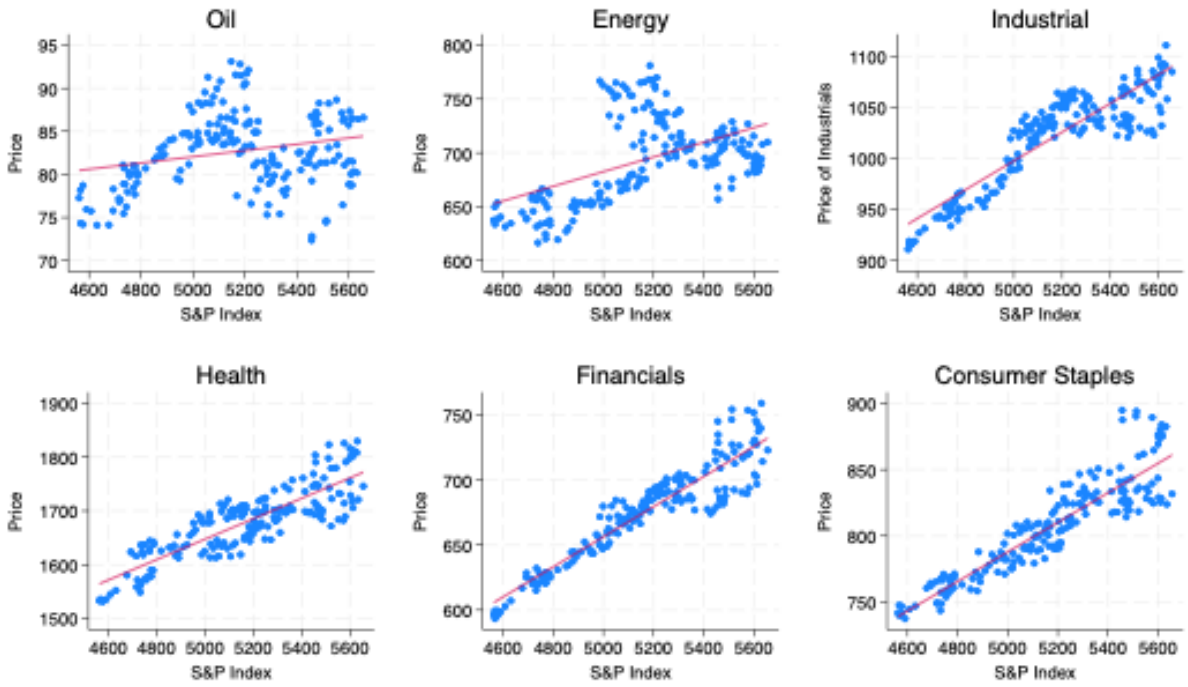
3. Methodology

Although many studies have examined the general relationship between oil prices and stock markets, fewer have explored sector-level differences within the S&P 500. Industries do not respond uniformly to S&P 500 index. Some are highly energy-intensive, while others are more insulated from such fluctuations. Sectors including energy, industrials, financials, consumer staples, and healthcare demonstrate varying degrees of sensitivity to S&P 500 price changes. For instance, energy and industrial stocks tend to react more sharply to market dynamics, whereas sectors like consumer staples and healthcare may show greater stability. This paper aims to assess both the broader connection between oil price volatility and the S&P 500 and the specific ways in which individual sectors are affected. Such insights are essential for investors, firms, and policymakers navigating an increasingly complex financial environment.

4. Findings

After reviewing the graphs, each sector seems to move generally in the same direction as the S&P 500, but how closely they follow the index really depends on the sector.

Figure 1: Association between Mean Daily S&P 500 Index and Sectoral Prices



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Among the sectors analyzed, **industrials exhibit the strongest positive association with the S&P 500 index.** The trend line for this sector is steep and tightly clustered, indicating both a high degree of correlation and low dispersion around the fitted line. **Financials follow closely,** displaying a similarly strong upward trajectory, albeit with a slightly lower slope, and minimal scatter around the trend, suggesting consistent co-movement with the broader market. **Consumer staples also demonstrate a clear positive relationship** with the S&P 500; index the slope of the trend line is comparable to that of financials, with relatively tight data clustering.

The **healthcare sector** shows a more moderate correlation. While its trend line remains upward-sloping, the gradient is more gradual, and the data points exhibit slightly greater dispersion, implying a weaker but still positive association. The **energy sector's** alignment with the S&P 500 index is noticeably less pronounced; although the trend line remains positive, its slope is flatter and the scatter significantly more dispersed. Finally, the **oil sector displays the weakest relationship** to the S&P 500 index. The trend line is nearly flat, and the data points are widely scattered, indicating minimal correlation with overall market performance.

These observations suggest a hierarchy of sectoral alignment with the S&P 500: **Industrials, financials, and consumer staples** demonstrate the strongest co-movement, followed by **healthcare and energy,** while **oil appears largely uncorrelated** with the index.

5. Discussion

The analysis revealed similar results when repeated using both the daily open (Figure 1) and close prices (Figure 2) for the S&P 500 index. The overall patterns and trend directions remained consistent across all sectors. While there were minor differences in point dispersion, the core relationships had no meaningful shifts. This consistency across pricing measures suggests that the results are not sensitive to intraday fluctuations and can be considered robust.

Figure 2: Association between Mean Daily (Open) S&P 500 Index and Sectoral Prices

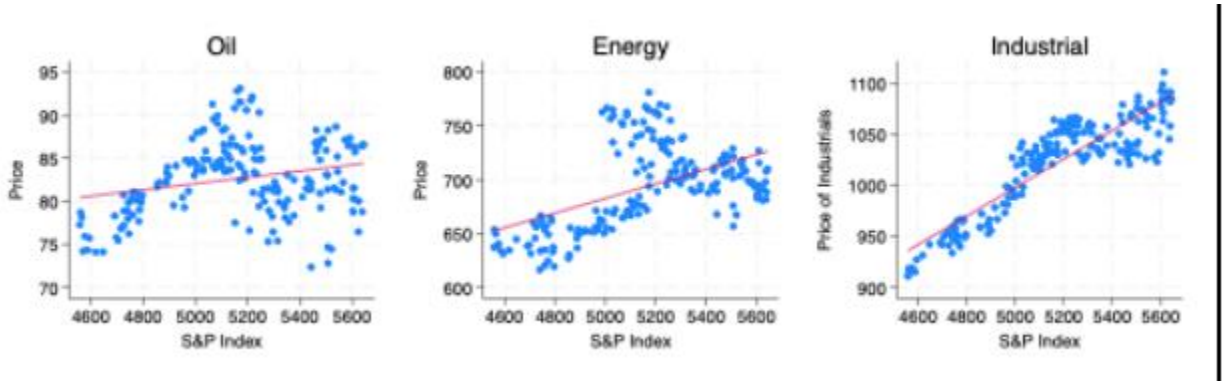

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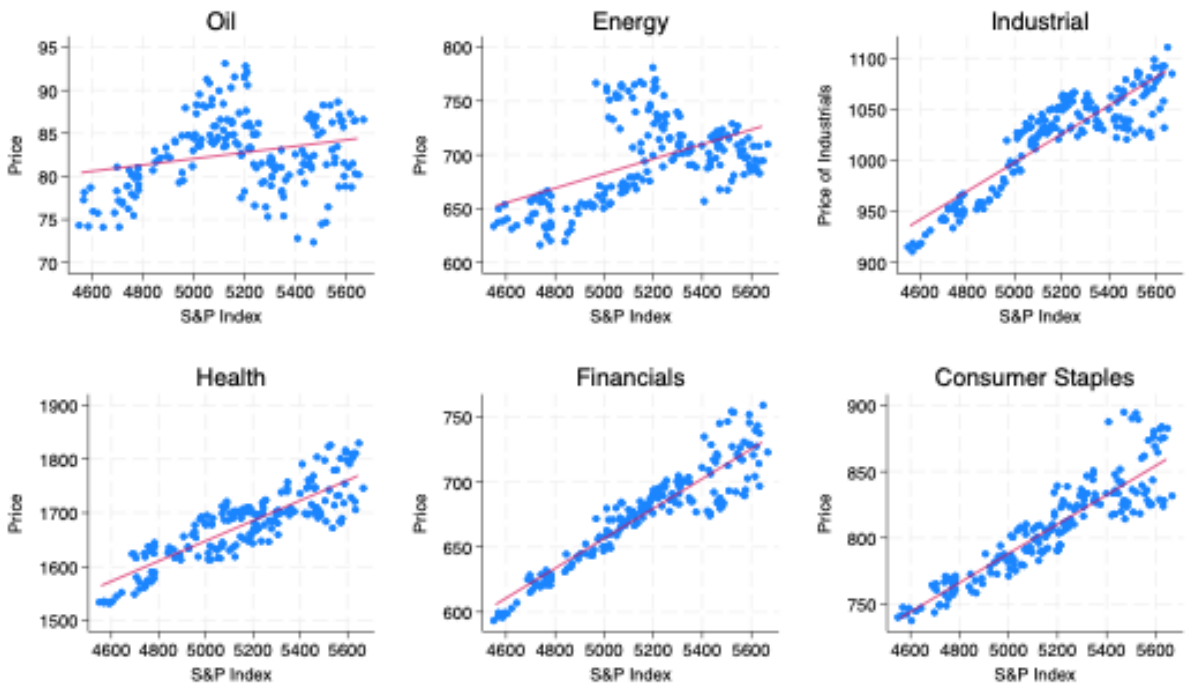
Figure 3: Association between Mean Daily (Closing) S&P 500 Index and Sectoral Prices



The variation in responsiveness across sectors to S&P 500 index movements is due to structural, economic, and behavioral determinants that influence the way each sector reacts to general market movements. While all sectors are affected by overall market performance, their sensitivity depends on their correlation with macroeconomic conditions, investor sentiment, and industry-specific risk.

Industrials is among the most sensitive due to its direct relationship with economic growth and infrastructure activity. Companies in the sector tend to produce capital goods, machinery, and

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equipment used in manufacturing and construction. Because demand for such products tends to rise during periods of economic growth—when the S&P 500 index is also likely to rise—the sector's performance tracks the index. In addition, industrials are considered cyclical, meaning they would rise more in bull markets and contract more in bear markets, once again rendering them strongly correlated with market direction. The financials sector also correlates highly with the S&P 500 index due to its exposure to interest rates, lending, and overall investor confidence. During upmarkets, central banks are likely to maintain interest rate regimes that are supportive, encouraging borrowing and investment—both of which drive earnings for banks, insurers, and asset managers. Market liquidity and risk appetite also rise along with the index, affecting this sector. Consumer staples, which are typically more stable, here as well show high responsiveness. Many of the participants in this sector group, such as the household and packaged foods companies, enjoy big market capitalization and are constituents of the S&P 500 index itself. While they hold up well during downturns, their stable demand and consistent earnings also make them attractive during growth times, and therefore the industry's correlation to the index is evident.

The healthcare sector displays a somewhat weaker but still positive correlation. This shows how the sector is less cyclical and more demographically driven, with longer-term R&D cycles and regulatory issues. Although it continues to be a major component of the market and is aided by overall growth, it does not necessarily pick up speed in tandem with overall market rallies. Consequently, its responsiveness to S&P 500 movements has a tendency to be more restrained. Energy is less correlated to the S&P 500, partly due to its being so commodity-price driven—especially oil and gas—which have a tendency to move by themselves regardless of stock market direction. Global supply and demand imbalances, geopolitical conflict, and OPEC interventions can all drive energy prices, making the sector more volatile and less reliably correlated with the index.

The weakest correlation to the S&P 500 is the oil sector. Unlike the other sectors, oil prices are highly driven by global market forces beyond the control of domestic equity trends. Geopolitical conflicts, production cutbacks, and global trade interruptions have a tendency to move oil prices independent of the S&P 500 index direction. Also, oil markets are prone to sudden shocks and speculative bursts, introducing noise that could mask any underlying relationship with the overall market.

Briefly put, categories such as industrials and financials are more directly correlated to the S&P 500 since they are reliant on economic growth and investor demand. Consumer staples and healthcare, while comparatively more stable, still reflect overall trends. Energy and oil, on the other hand, are influenced by more complex and global forces, so their responsiveness to the index is less direct and more volatile.

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6. Conclusion

This study highlights the heterogeneous relationships between industry sectors and the overall S&P 500 index. While all sectors tend to move broadly in the direction of the market, the strength of this alignment varies significantly. Industrials and financials are most tightly linked to the S&P 500 index, underscoring their sensitivity to macroeconomic conditions and investor sentiment. Consumer staples and healthcare, though less volatile, still show clear upward trends consistent with broader market movements. In contrast, energy is more weakly correlated, and oil appears largely decoupled from index performance—reflecting its susceptibility to idiosyncratic, commodity-driven shocks.

The findings carry important implications for policy and investment. For institutional investors and asset managers, understanding sectoral co-movement can inform more resilient portfolio diversification strategies, especially in periods of market stress. For policymakers and financial regulators, the analysis underscores the need to monitor sector-specific vulnerabilities that may not be evident from index-level trends alone. Future research could build on this work by incorporating regression-based correlation measures or examining cross-sector dynamics under different macroeconomic regimes.

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