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Influences on the Stock Market: Examination of the Effect of Economic Variables on S&P 500

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Abstract

It's the economy stupid!" This slogan from Bill Clinton's 1992 Presidential campaign acknowl edges the importance of the U.S. economy in American politics. This slogan might also resonate loudly on Wall Street and among investors across the world. In many ways the performance of the economy influences the success of the stock market and vice versa. This study will examine the impact that various economic factors have on the stock market. Specifically, it will ask the question, "How do interest rates, real GDP, and the Fisher Effect impact the S&P 500?". In addition, this study will assess the impact of these economic factors on various industries including a utilities, transportation, financial, and technology index. The results of this study will help investors understand just how important these economic variables are in influencing both the overall market and major industries.

Influences on the Stock Market:

An Examination of the Effect of Economic Variables on the S&P 500

By Nathan Taulbee

I. INTRODUCTION

It's the economy stupid!" This slogan from Bill Clinton's 1992 Presidential campaign acknowledges the importance of the U.S. economy in American politics. This slogan might also resonate loudly on Wall Street and among investors across the world. In many ways the performance of the economy influences the success of the stock market and vice versa. This study will examine the impact that various economic factors have on the stock market. Specifically, it will ask the question, "How do interest rates, real GDP, and the Fisher Effect impact the S&P 500?". In addition, this study will assess the impact of these economic factors on various industries including a utilities, transportation, financial, and technology index. The results of this study will help investors understand just how important these economic variables are in influencing both the overall market and major industries.

The following sections of this paper further examine the issues raised. Section II offers a theoretical analysis of how real GDP, unemployment, and the Fisher Effect should impact the S&P 500. Section III provides information on the expected relationship between the economy and the following major industry categories: growth, cyclical, defensive, and interest-sensitive. Section IV introduces the research design including the generalized least squares model. Section V presents the results and examines the appropriate econometric specification. Section VI concludes the study and reiterates important findings.

II. THEORETICAL MODEL

Over the past 40 years a significant amount of research has been conducted on the overall stock market. Included in many of these studies is the rational expectations hypothesis that John Muth developed in 1961. The rational expectations hypothesis offered a new perspective on the formation of prices. The general idea behind this hypothesis is that economic agents use both past experiences and their expectations and predictions of the future to determine the price of an asset today. According to Stephen Sheffrin's book titled Rational Expectations, "Expectations are rational if, given the economic model, they will produce actual values of variables that will, on average, equal the expectations." The rational expectations hypothesis does not, however, require that all economic agents have identical expectations. Instead, the weighted average of these agents' forecasts will provide the expected value of the actual variable (Sheffrin, 1996).

Like other research on the stock market, this study will use the rational expectations hypothesis in the proceeding theoretical model. For this study, the economic agents forming expectations about the future value of stock prices will be stock market investors. Because the rational expectations hypothesis assumes that investors take all information into account, both expectations variables and coincident indicators will be incorporated into the model. Coincident indicators are variables that provide an assessment of economic conditions at the present time. For example, the most recent unemployment figure released represents the current amount of unemployment in the United States today and is, therefore, a coincident indicator. The remainder of this section will examine the variables in the model in more detail.

A. The Fisher Effect

Irving Fisher found that real interest rates were equal to nominal interest rates minus expected inflation. This macroeconomic relationship is known as the Fisher Effect (Mankiw, 1997). The Fisher Effect is unique in that it incorporates expected inflation as

opposed to actual inflation rates into the equation. This is of interest to many economists because it allows them to use rational expectations models in their studies. One such economist, Yu Hsing, studied the Fisher Effect and discovered that nominal interest rates have a non-linear positive relationship with expected inflation when the Federal Funds rate was used (1997). These findings will be incorporated into the empirical model in Section IV.

The Fisher Effect is primarily an alternative way of measuring real interest rates and will be used as a means of relating interest rates and inflation expectations to stock prices. To fully understand the relationship between the Fisher Effect and stock prices, it is necessary to understand the individual relationships between inflation expectations, interest rates, and the stock market.

1. Inflation Expectations

Since the introduction of the rational expectations hypothesis, many studies concerning inflation expectations have been completed including Douglas Pearce's "An Empirical Analysis of Expected Stock Price Movements" in 1984. Using the Livingston survey, a survey of business, government, and academic economists, Pearce found that prior to 1972, investors expected nominal stock prices to rise with the general price level because they felt it was a good hedge against inflation. However, after 1972, Pearce found that the relationship between stock prices and inflation expectations became less significant. A likely reason for this is the volatility of the US economy and the inflation rate increase in the 1970s due to the OPEC crisis (Pearce, 1984).

A study conducted by Michael Niemira and Philip Klein supports the changing relationship between inflation expectations and the stock market that Pearce observed after 1972. They found that an inverse relationship existed between inflation expectations and the stock market when using the leading indicator of inflation as their data source for inflation expectations (Niemira and Klein, 1994). Although no reasons were cited, the likely cause of the inverse relationship between inflation expectations and the stock market is that the Federal Reserve will likely change interest rates in order to influence a potential change in inflation. Because this study examines the relationship of the economy and the stock market since 1972, an inverse relationship between inflation expectations and the S&P 500 is predicted. The following section will explain in greater detail how changes in interest rates affect stock prices.

2. Interest Rates

William Breen, Lawrence Glosten, and Ravi Jangannathan completed a study of the relationship between the Treasury bill rate and the stock market in their article titled, "Economic Significance of Predictable Variations in Stock Index Returns." In their study, the authors found that an inverse relationship between stock index returns and Treasury bill interest rates exists when a value-weighted stock index is used. The reasoning behind this negative relationship is that, when interest rates rise, the expected earnings streams of S&P 500 firms on the whole declines because of the higher cost of borrowing and financing expenditures. Because earnings reports play a dramatic role in stock prices, a rise in interest rates that adversely affects earnings reports will lead to lower stock prices (Breen, Glosten, and Jagannathan, 1989). In summary, the Fisher Effect should have a negative relationship with the S&P 500.

B. Gross Domestic Product (GDP)

The fundamental measure for the performance of the economy is the level of gross domestic product, or GDP. GDP measures the total income in an economy earned domestically, including the income earned by foreign-owned factors of production (Mankiw, 1997). GDP is important to the stock market in that it serves as a measure of the health of the economy. As a rational stock market investor, a rise in the level of GDP (a positive growth rate) from one period to the next would suggest that firms on the whole are performing positively. This aggregate performance of firms allows for more reinvesting which should ultimately lead to higher future earnings and stock prices.

An increase in GDP from one period to the next should also increase the level of the stock market because consumers in general have more purchasing power and would likely devote more income toward stock market investing, ceteris paribus. In this regard, GDP acts as a proxy for the purchasing power ability

of investors.

C. Unemployment

In addition to GDP, the unemployment rate is another common measure for the health of the economy. A high unemployment rate results in a lower sense of financial security for the unemployed for obvious reasons. However, high unemployment rates also raise concerns for the employed because their employment status is also in jeopardy in a climate of downsizing and layoffs. This decline in financial security by both the employed and unemployed due to an increase in the unemployment rate will lead to less investment in the stock market as investors try to find safer means of saving their income. Thus, the unemployment rate serves as one of the key signals to investors on the health of the economy. The predicted sign of the unemployment coefficient is negative.

III. APPLICATION OF THEORY TO INDUSTRIES

Some sectors of the stock market perform better than others given the same economic conditions. In the recent economic boom, new economy stocks such as technology stocks have generally outperformed old economy stocks such as Wal-Mart and the Coca Cola Corporation. Understanding the relationship between the economy and different industries allows investors to narrow their focus when deciding where to allocate their resources. Charles P. Jones, author of Investments: Analysis and Management, believes, "Industry analysis pays because industries perform very differently over time, and investor performance will be significantly affected by the particular industries in which investors select stocks" (1998 p. 440). Jones also believes that there is a definite link between the business cycle and the stock performance of different industries and stated the following:

Clearly, business cycle analysis for industries is a logical and worthwhile part of fundamental security analysis. Industries have varying sensitivities to the business conditions and interest rate expectations at any given time, and the smart investor will think carefully about these factors. (p 452)

This section will explore how real GDP, unemployment, and the Fisher Effect impact the general industry categories classified as cyclical, defensive, interest-sensitive, and growth.

A. Cyclical Industry

Cyclical industries such as capital goods and consumer durables follow the business cycle closely. When the economy prospers, cyclical stocks do very well. However, during times of poor economic conditions and recessions, cyclical stocks are likely to suffer more than all non-cyclical stocks. For example, during the 1990 recession, cyclical stocks declined three times more than the S&P 500 (Jones, 1998). The expected relationship between economic growth, unemployment, and the Fisher Effect on cyclical stocks is the same as it is on the overall market. However, the degree of these relationships should vary for cyclical stocks relative to the overall market because of the fact that cyclicals are more responsive to the business cycle.

B. Defensive Industry

Just as cyclical industries are most affected by recessions and economic conditions, defensive industries are least affected by the state of the economy. Examples of defensive industries include pharmaceuticals, food and beverages, and utilities (Reilly and Norton, 1999). No matter how bad the economy is, people will continue to eat, drink, and use basic utilities. Therefore, as found by Frank Reilly and Edgar Norton, two finance researchers, "Defensive industries generally maintain their values during market declines" (1999 p417). The relationship between economic factors and the utilities industry should be less significant than that of other industries and the overall market.

C. Growth Industry

Earnings of growth industries are expected to be much greater than earnings in all other industries. In addition, growth industries often have increased earnings regardless of the status of the economy. In the 1980s the major growth industries were genetic engineering, microcomputers, and new medical devices (Jones, 1998). Today, the major growth industries are technology, biotechnology, and Internet-infrastructure. It is expected that growth industries will

perform extremely well when the economy is sound and may continue to perform well when the economy suffers. Therefore, real GDP, unemployment, and the Fisher Effect should have a less significant impact on growth stocks.

D. Interest-Sensitive

Interest-sensitive stocks are most affected by expectations about changes in interest rates. Interest-sensitive industries include the financial services, banking, real estate, and building industries (Jones, 1998). For example, if interest rates increase, individuals are less likely to move or build new homes, which means less business for construction companies, real estate agencies, banks, and other financial services companies. It is hypothesized that an increase in interest rates will cause interest-sensitive industry's stock price to decline.

IV. RESEARCH DESIGN

A. Dependent Variables

1. S&P 500 Index (sp500)

The S&P 500 index is a major U.S. stock market index that consists of 500 stocks.

The chief advantage of using the S&P 500 over the more often quoted Dow Jones Industrial Average (DJIA) is that it is more representative of the entire market because it contains a larger number of stocks. In addition, the S&P 500 index is value-weighted whereas the Dow Jones is a price-weighted index. Thus, high-priced stocks carry more weight with the DJIA than with the S&P 500 (Jones, 1998). This study will use end-of- month S&P 500 index values from January, 1972, to August, 1999 as the data source for this dependent variable. The Economagic.com website will provide the S&P 500 data.

2. Dow Jones Transportation Average (Transp)

The Dow Jones Transportation Average (DJT) consists of 20 airline, rail, and transportation services companies that represent the transportation industry as a whole. [A complete listing of the 20 companies is contained in Appendix A]. The DJT will serve as a proxy for a cyclical industry because it is plausible to expect less transportation during recessions and more transportation during boom periods. For instance, when individuals and families are operating on tight budgets, it may not be necessary to pursue a "weekend getaway" vacation. Many corporations operating on tight budgets might also not decide to send as many employees, if any, on a company trip. Instead, especially with today's technological advancements, which include videoconferencing, an expensive plane ticket during peak hours may not be necessary. Data for the DJT is end of month data from January, 1972, to August, 1999. Yahoo! Finance is the source for the data (www.finance.yahoo.com).

3. Dow Jones Utilities Index (Utility)

The Dow Jones Utility Index (DJU) includes various utilities companies including major energy and electricity providers throughout the U.S. [Appendix B contains a complete listing of the 15 companies that make up the DJU]. The DJU will serve as a proxy for the defensive industry because of the fact that utilities are used regardless of the status of the economy. Data for the DJU is end of month data from January, 1972, to August, 1999. Yahoo! Finance is the source for the data (www.finance.yahoo.com).

4. Pacific Exchange Technology Index (Tech)

The Pacific Exchange Technology Index (PSE) includes end-of-month data from February, 1984, to August, 1999. The PSE will serve as a proxy for a growth industry index. The PSE will be used over other growth indices because of the difficulty of obtaining inexpensive historical data on growth industries. Yahoo! Finance is the source for the data (www.finance.yahoo.com).

5. Financial Services Index (Financial)

The Fidelity Select Brokerage & Investment Fund (FSLBX) is a mutual fund that includes several major brokerage and financial services companies including Morgan Stanley Dean Witter, Charles Schwab, Merrill Lynch, and American Express. The fund has been in existence since January, 1987, and will serve as a proxy for an interest-sensitive industry index. Due to the lack of free historical data for a major financial stock index, this study will use FSLBX

fund. The FSLBX fund provides end of month historical data that can be obtained from the Yahoo! Finance website (www.finance.yahoo.com).

B. Independent Variables

1. Real GDP (RGDP)

Real GDP will be used instead of nominal GDP because real GDP values the total output of the economy measured at constant prices. Therefore, real GDP changes from year to year if the quantities produced change. Theory suggests that real GDP should have a positive significant impact on the performance of most stock indices. However, theory also suggests that the magnitude of real GDP's impact should vary across stock indices. For example, real GDP should have a greater effect on growth industries than on cyclical and interest-sensitive industries. The real GDP data is indexed for 1992 dollars and is supplied by the economagic.com website (www.economagic.com).

2. Unemployment (UNMPLOY)

The unemployment rate is announced monthly and is simply a measure of the percentage of the civilian labor force that is not employed. As discussed in the theoretical model, the expected sign of the UNMPLOY coefficient is negative. The economagic.com website will provide the unemployment data.

3. Fisher Effect (FISHER)

The Fisher Effect is a measure of real interest rates using nominal interest rates minus inflation expectations. The three-month Treasury bill rate will be used as a proxy for nominal interest rates. This rate was chosen over other interest rates because it is highly recognized by stock market participants and because it acts as a catalyst for changes in other interest rates that affect the ability of individuals and firms to borrow. The economagic.com website is the source of the three-month Treasury bill rate (www.economagic.com).

Meanwhile, inflation expectations is measured by the inflation forecasts of those participants in the aforementioned Livingston survey. The Livingston survey, which began in 1946, has been conducted every June and December. The participants provide a one-month, six-month, and twelve-month forecast of the inflation rate. This paper will use a moving average of the Livingston survey participants six-month inflation forecast as a proxy for the inflation expectations explanatory variable (Livingston Survey). The purpose of the moving average is to make the inflation expectations data consistent with other monthly data.

C. Generalized Least Squares Models

In order to test the hypothesis discussed in prior sections, regression analysis using double log generalized least squares (GLS) equations will be used. Double log equations are used to assist in the interpretation of the results. GLS equations are used because of the existence of serial correlation in all ordinary least squares (OLS) regressions that were conducted. The following five steps explain how GLS equations were achieved (Gujarati, 1988):

1. Using the Statistical Package for the Social Sciences (SPSS), an OLS regression was run and produced a coefficient (B) for all independent variables.
2. Rho (p) was calculated by taking [1 - (Durbin Watson statistic/2)].
3. The dependent variable was transformed using the following equation:
   Dependent variable - p*(dependent variable t-1).
4. All explanatory variables were transformed using the following equation:
   B*(1-p)*[independent variable - p*(independent variable t-1)]
5. A new regression was run for each model using all transformed variables.

Because this study focuses on the impact of economic factors on the overall stock market as well as four major industry categories, five regression equations are used. The following five regression equations include double log transformations as stated previously:

Model 1 (overall market): sp500 = a + b1(RGDP) + b2 (UNMPLOY) + b3 (FISHER) + error

Model 2 (cyclical industry): transp = a + b1(RGDP)

Table 1: Summary of Variables

Variable	Type	Description
sp500	Dependent	The Standard & Poors 500 index; Index for overall stock market
Transp	Dependent	The Dow Jones Transportation Average; An example of a cyclical index
Utility	Dependent	The Dow Jones Utilities Average; An example of a defensive index
tech	Independent	The Pacific Exchange Technology index; An example of a growth index
financial	Independent	The Fidelity Select Brokerage & Investment mutual fund; An example of an interest-sensitive index
RGDP	Independent	Real Gross Domestic Product in the U.S.
UNMPLOY	Independent	Percentage of the civilian labor force not employed
FISHER	Independent	Real interest rate measure that factors inflation expectations with nominal interest rates

+ b2 (UNMPLOY) + b3 (FISHER) + error

Model 3 (defensive industry): utility = a + b1(RGDP) + b2 (UNMPLOY) + b3 (FISHER) + error

Model 4 (growth industry): tech = a + b1(RGDP) + b2 (UNMPLOY) + b3 (FISHER) + error

Model 5 (interest-sensitive industry): financial = a + b1(RGDP) + b2 (UNMPLOY) + b3 (FISHER) + error

Table 1 provides a reminder for all variables in the preceding equations.

A. Model 1: Overall Market

Model 1 performed the best when compared to the other models. This is not surprising because of the comparison of broad macroeconomic factors with a broad stock index. As Table 2 shows, the adjusted R^2 was .669 which means that the model explained about 67% of the variation in the S&P 500. In addition, real GDP was significant to the .001 level and had the correct sign. Unemployment was significant to the .10 level and also had the correct sign. The Fisher Effect, however, was not significant. One explanation for the insignificance of the Fisher variable is that the transformation of inflation expectations from semiannual to monthly data was not an accurate means of incorporating investor's inflation fears into their determination of real interest rates.

Table 2: Regression Results for S&P 500

Adjusted R^2: .669
Sample Size: 327

Variable	Coefficient	Test Statistic	Prob Value	Expected Sign
RGDP	13.593	24.356 ***	0	Positive
UNMPLOY	-19.348	-1.776 *	0.077	Negative
FISHER	1.514	1.216	0.225	Negative

***** Significant to the .001 level**
*** Significant to the .10 level**

Table 3: Regression Results for Transportation Index
Adjusted R^2: .509
Sample Size: 327

Variable	Coefficient	Test Statistic	Prob Value	Expected Sign
RGDP	13.605	17.802 ***	0	Positive
UNMPLOY	38.804	2.466 **	0.014	Negative
FISHER	1.612	0.717	0.474	Negative

***** Significant to the .001 level ** Significant to the .05 level**

The coefficient values suggest that for a 1.0% increase in real GDP in a month, the S&P 500 is expected to increase by 13.59%. Meanwhile, the interpretation of changes in the unemployment rate is more difficult. The difficulty results from taking the elasticity of a variable already stated as a percentage. A more complex simulation suggests that if the unemployment rate rises from 5% to 6.25% in a month, the S&P 500 is expected to fall by over 19%, holding all other things constant. It may be difficult to believe that a major stock index would rise by 13.59% or fall by 19% if real GDP and unemployment rise by 1% and 1.25%, respectively. However, it is also difficult to accept that real GDP would rise by 1% and the unemployment rate would increase by 1.25% in just one month. Dividing these elasticities by 10 provides more reasonable interpretations. For example, if real GDP rises by .10 % (1%/10), the S&P 500 is expected to rise by 1.359% (13.59%/10), holding all else constant. Similarly, if the unemployment rate rises from 5% to 5.125%, the S&P 500 is expected to fall by 1.9%, holding all else constant.

B. Model 2: Cyclical Industries

Results from Model 2 suggest that both real GDP and unemployment rates have a positive, significant influence on cyclical industries. The Fisher Effect was not significant in this model. Table 3 presents the results from the regression.

Although the positive impact of real GDP on cyclical industries is not unexpected, the positive relationship between unemployment rates and cyclical industries is puzzling. The only plausible explanation for this result is that the representative cyclical stock index, the Dow Jones Transportation Average (DJTA), is not really a cyclical index. A closer examination of Appendix A suggests that the companies that make up the DJTA are more business-oriented than vacationer-oriented. For example, only 30% of the DJTA are airline companies whose passengers might be sensitive to higher unemployment rates. In addition, this finding assumes that the passengers are vacation or leisure travelers that would be more affected by higher unemployment rates. However, most airline passengers are traveling for business purposes and are under time constraints to conduct their business. Perhaps a more representative cyclical stock index would have been one that examined the entertainment in-

Table 4: Regression Results for Utilities Index
Adjusted R^2: .22
Sample Size: 327

Variable	Coefficient	Test Statistic	Prob Value	Expected Sign
RGDP	15.671	8.763 ***	0	Positive
UNMPLOY	-50.794	-1.506	0.133	Negative
FISHER	7.381	2.908 **	0.004	Positive

***** Significant to the .001 level ** Significant to the .01 level**

Table 5: Regression Results for Technology Index
Adjusted R^2: .154
Sample Size: 182

Variable	Coefficient	Test Statistic	Prob Value	Expected Sign
RGDP	16.903	5.582 ***	0	Positive
UNMPLOY	-9.431	-0.417	0.677	Negative
FISHER	15.335	1.253	0.212	Negative

***** Significant to the .001 level**

dustry.

C. Model 3: Defensive Industries

Because defensive industries are least affected by the economy, it would be expected that the three economic independent variables would have a less significant influence on these industries. Results from the GLS regression show that real GDP and the Fisher Effect had a significant, positive impact on the representative defensive stock index, the Dow Jones Utilities Average (DJUA). Further analysis suggests that it is not unexpected that the Fisher Effect has a positive relationship with the DJUA. Because the Fisher Effect measures interest rates adjusted for inflation expectations, it makes sense that investors would shift their funds to defensive industries when they fear inflation and higher interest rates. It does not make sense, though, that there is a large, significant relationship between real GDP and the DJUA. As Table 4 shows, a 1% increase in real GDP would cause the DJUA to rise by 15.67%. Similarly, a 1% decline in real GDP would cause the DJUA to fall by 15.67%. Because the DJUA consists of many companies that provide electricity, it is plausible that electricity consumption varies with the performance of the economy (as measured by real GDP). Unemployment was not significant in this model.

D. Model 4: Growth Industries

Results from Model 4 suggests that only real GDP has a significant impact on growth industries. As Table 5 shows, a 1% increase in real GDP causes the Pacific Exchange Technology Index (PETI), the representative growth index, to rise by almost 17%. This large increase in the PETI given a 1% increase in real GDP is not surprising because growth industries are supposed to perform better than the stock market in general. Model 1 shows that the overall market will rise by13.59% given a 1% increase in real GDP, a smaller increase than that of growth industries. Unemployment and the Fisher Effect may not have been significant because the data period for Model 4 (1984-1999) did not include the volatility of interest rate and unemployment in the 1970s and early 1980s.

E. Model 5: Interest-Sensitive Industries

As Table 6 indicates, only real GDP had a significant influence on interest-sensitive industries. It is rather surprising that the Fisher Effect was not significant in this model given that interest-sensitive industries are highly responsive to fluctuations in interest rates. However, the dependent variable used to represent interest-sensitive industries, the Fidelity Select

Table 6: Regression Results for Financial Index
Adjusted R^2: .449
Sample Size: 147

Variable	Coefficient	Test Statistic	Prob Value	Expected Sign
RGDP	9.899	9.774 ***	0	Positive
UNMPLOY	0.902	0.199	0.843	Negative
FISHER	0.08087	0.066	0.948	Negative

***** Significant to the .001 level**

Brokerage and Investment Mutual Fund, may have been the shortcoming for this model. A major financial stock index would likely have been more representative than the Fidelity fund that was used. Another shortcoming of the dependent variable is that its data period was 1987-1999, which was a period of stability of interest rates. Finally, because only the best stocks are selected and retained in a mutual fund in order to meet the goals of a fund manager, it is not surprising that all three independent variables had a positive coefficient.

VI. CONCLUSION

Does the economy actually have a significant influence on the performance of the stock market? If so, how can investors benefit from significant relationships between the economy and the stock market? Results from this study show that real GDP is the greatest economic determinant of stock prices. For the overall stock market and the four industries examined, real GDP had a significant positive influence on the representative stock indices. But can investors increase their rate of return during periods of rising GDP levels? A comparison of the real GDP coefficients for the different models, as seen in Table 7, indicates that during a booming economy investors will maximize their return by entering growth industries. Table 7 shows that the next best industry to enter during good economic times is defensive industries. However, as mentioned earlier, defensive industries should not be greatly affected by the business cycle. The high coefficient value for defensive industries may be a result of not having a stock index that contained solely defensive stocks. Table 7 also shows a strong correlation between the representative cyclical index and the overall market. A 1% increase in real GDP over a month will cause the S&P 500 to increase by 13.59% and the Dow Jones Transportation Average to rise by 13.60%. This finding supports a likely assumption that the overall market is rather cyclical and follows the business cycle closely. Interest-sensitive industries are least affected by a change in real GDP, as shown by the 9.90 beta value. This finding is not surprising given that interest-sensitive industries are mainly responsive to changes in interest rates.

Another finding suggests that rising unemployment rates significantly reduce the performance of the overall stock market. But, industry analysis suggests that unemployment does not influence which industries to invest in. Finally, this study shows that defensive industries perform well during times of inflation fears and interest rate uncertainty. Relatively unaffected defensive stock indices during a recent market crash (April 14, 2000) supports this finding that defensive industries excel when investors fear inflation [Note: The Consumer Price Index was higher than expected which triggered the downward spiral of the stock market on April 14, 2000].

In conclusion, the economy, especially real GDP, is a major determinant of the performance of the stock market. The results of this study provide investors

Table 7: Comparison of Real GDP's Impact on Different Stock Indices

Model	Dependent Variable	Coefficient (Beta)	T-Statistic	Significance Level
Overall stock market	S&P 500	13.593	24.356	0
Cyclical Industries	Dow Jones Transportation Average	13.605	17.802	0
Defensive Industries	Dow Jones Utilities Average	15.671	8.763	0
Growth Industries	Pacific Exchange Technology Index	16.903	5.582	0
Interest-Sensitive Industries	Fidelity Select Brokerage and Investment Fund	9.899	9.774	0

with the tools to make wise portfolio decisions given their outlook for the future of the economy. If investors are optimistic about future output growth (rises in real GDP), they should concentrate their funds into growth industries in order to maximize their return on investment. So, are President Clinton's famous words "It's the economy stupid" applicable to the performance of the stock market? The findings in this study suggest that the answer to this question is a simple and straightforward "Yes."

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