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A partisan effect in the efficiency of the US stock market

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ABSTRACT

This work examines the presence of a partisan effect in the US markets over different presidential periods. The analysis is based on the computation of the fractal scaling dynamics of the Dow Jones Industrial Average by means of the detrended fluctuation analysis. The results indicated the presence of several cycles with dominant periods ranging from a 4 to 12 years/cycle. It is argued that these periods are within the range for business cycles reported in the recent literature. On the other hand, it is found that over Democratic terms the stock market tends to deviate from de random walk behavior, which suggests important differences in the economic policies implemented by each political party.

1. Introduction

Classical efficient market theory establishes that stock market prices follow a random walk with drift

$$s_t = s_{t-1} + d + \varepsilon_t$$

where s_t is the natural logarithm of stock prices, d is a deterministic drift parameter and $\varepsilon_t \sim N(0, \sigma_s)$. After backward substitution, the above equation can be rearranged to give

$$s_t = s_0 + d \times t + \sum_{i=1}^{t} \varepsilon_t.$$

This states that s_t is driven by a trend and retains a perfect memory of all random disturbances that that occurred to date. However, given the white-noise nature of ε_t, each historical episode of stock price movements is unique and without any systematic connection with the past. Under the random walk hypothesis (RWH), stock price returns cannot be predicted to exploit arbitrage conditions in the outcome of the market behavior.

Motivated by the practice of technical analysis in real markets, the RWH has been challenged in the academic literature by exploring the presence of regular patterns and cycles in the stock dynamics. In fact, many studies have enriched the literature by providing new and provocative evidence of stock market anomalies. The presence of a day-of-the week effect where stock returns tend to depend on the days of the week has been documented [1–3]. Based on such empirical findings, buyers are benefited from delaying transactions until Monday while sellers find Wednesday or Friday as the preferred transactions days. Further studies showed empirical evidence that the day-of-the-week effect differs between partisan administrations, being more pronounced during the Republican than during the Democrat administrations [4].

The January or turn-of-the-year effect refers to the phenomenon that small capitalization returns have unusually high returns in early January [5,6]. In addition, studies found that the January effect is more pronounced following presidential elections [7]. A pattern in the stock market returns related to the four-year presidential term has been widely explored. In this

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Table 1
Presidential terms.

President's name	Political party	Period
Herbert Hoover	Republican	March 4, 1929–March 4, 1933
Franklin D. Roosevelt—1st term	Democratic	March 4, 1933–January 20, 1937
Franklin D. Roosevelt—2nd term	Democratic	January 20, 1937–January 20, 1941
Franklin D. Roosevelt—3rd term	Democratic	January 20, 1941–January 20, 1945
Harry S. Truman—1st term[a]	Democratic	January 20, 1945–January 20, 1949
Harry S. Truman—2nd term	Democratic	January 20, 1949–January 20, 1953
Dwight D. Eisenhower—1st term	Republican	January 20, 1953–January 20, 1957
Dwight D. Eisenhower—2nd term	Republican	January 20, 1957–January 20, 1961
John F. Kennedy[b]	Democratic	January 20, 1961–January 20, 1965
Lyndon B. Johnson	Democratic	January 20, 1965–January 20, 1969
Richard Nixon	Republican	January 20, 1969–January 20, 1973
Gerald Ford[c]	Republican	January 20, 1973–January 20, 1977
Jimmy Carter	Democratic	January 20, 1977–January 20, 1981
Ronald Reagan—1st term	Republican	January 20, 1981–January 20, 1985
Ronald Reagan—2nd term	Republican	January 20, 1985–January 20, 1989
George H.W. Bush	Republican	January 20, 1989–January 20, 1993
Bill Clinton—1st term	Democratic	January 20, 1993–January 20, 1997
Bill Clinton—2nd term	Democratic	January 20, 1997–January 20, 2001
George W. Bush–1st term	Republican	January 20, 2001–January 20, 2005
George W. Bush–2nd term	Republican	January 20, 2005–January 20, 2009
Barack Obama	Democratic	January 20, 2009–Date

[a] Harry S. Truman's first term includes the first 82 days of Franklin D. Roosevelt's last term.
[b] John F. Kennedy's period is nominal.
[c] Gerald Ford's period includes the last months of the Richard Nixon's 2nd term.

market pattern, low returns in the first two years and high returns in the last two years of a president's term are economically and statistically significant [8–10]. Some studies have revealed that this presidential cycle is persistent for both Democrat and Republican administrations [11,12]. Partisan effects in the presidential cycle have also been documented. Simple tests of mean differences found that fixed-income securities (e.g., T-bills, long-term government bonds, etc.) exhibit higher returns under Republican presidents than under Democrat presidents [10]. These results suggest that there is a systematic and permanent difference in economic (e.g., inflation and unemployment) policies between the two parties [13]. Analyses of all presidential elections since 1880 also revealed that electing a Republican president raises equity valuations by 2%–3%, and that since Ronald Reagan, Republican presidents have tended to raise bond yields [14].

Empirical evidences like the day-of-the-week effect and the presidential cycles seem to suggest that the market is inefficient in the sense that trading strategies could be developed to systematically beat the market. That is, the stock market contains deviations from the RWH which, under suitable processing information strategies, can be exploited to realize excess returns against the market. Following the proposal of behavioral finance, anomalies in financial market dynamics should reflect not only utilitarian characteristics (e.g., risk, profit, etc.), but also psychological and socio-political sentiments [15]. Within this framework, departures from the RWH should be expected since the different financial markets reflect the social, political and economic conditions of a particular historic episode.

The objective of this study is to examine the partisan effect in the RWH for the US stock markets. To this end, the historic Dow Jones Industrial Average (DJIA) daily stock return was analyzed by means of the detrended fluctuation analysis [16]. The empirical analysis indicated that the US stock market tends to be more efficient, following a random walk behavior, under Republican administrations than under Democrat administrations. That is, Democrats push the DJIA away from efficiency, while Republicans do the opposite. This suggests that the efficiency of the market over different presidential administrations may influence strategies investors would employ with regard to the timing of purchases and sales.

2. Data

The DJIA's daily stock return index from October 1st, 1929 to September 30, 2011, a total of 20 835 observations, was obtained from the public website finance.yahoo.com. The entire period was categorized into subperiods of Democrat administration and periods of Republican administration. Table 1 provides the period of each presidential administration. This work uses the inauguration date to indicate the beginning of a new presidential administration. In this way, Harry S. Truman's first term includes the first 82 days of Franklin D. Roosevelt's last term. John F. Kennedy's period is nominal in the sense that the months after his assassination are included in the period. Gerald Ford's period includes the last months of the Richard Nixon's second term.

The descriptive statistics for the entire period, as well as for the Republican and Democrat administrations, are given in Table 2. The mean stock return is positive for the entire period, which reflects that the DJIA has shown an average growth over the scrutinized period. However, Democrat and Republican presidential administrations exhibit mean values with different signal. While the mean stock return for Republican administrations is negative, it is positive for Democrat administrations. It is apparent that the US stock market contains a partisan effect in its dynamic behavior over the last 80 years.