Recent Evidence On Friday The Thirteenth Effect In U.S. Stock Returns

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**Abstract**

*We examine Friday the thirteenth effect in U.S. stock returns from January 1950 to December 2007. Our results reveal that stock returns on Friday the thirteenth are not significantly lower than that of other Fridays for the overall period. When we examine the differences by decades, we find that Friday the thirteenth returns are significantly lower than returns of other Fridays in only one out of the six sub-periods. We therefore conclude that U.S stock returns do not show evidence of a Friday the thirteenth effect.*

**Keywords:** Friday the thirteenth effect, stock market efficiency, stock market anomalies.

**Introduction**

A

n interesting stock market anomaly uncovered by Kolb and Rodriguez (1987) was Friday the thirteenth effect. Kolb and Rodriguez state that it is well documented that Friday returns are relatively greater than other trading days of the week. However, they were curious if superstition was a factor in the behavior of stock market returns. Therefore, they investigated if returns on Friday the thirteenth were actually lower than that of other Fridays. They examined CRSP equally and value weighted stock indices from 1962 to 1985 and found stock returns on Fridays of thirteenth were significantly lower than other Fridays. They concluded that U.S. stock returns exhibit a Friday the thirteenth effect.

Dyl and Maberly (1988) reexamined Friday the thirteenth effect indicating that we should be skeptical of existence of seasonal anomalies until they are tested on different data sets and time periods. They examined the effect on Standard and Poor’s index for the period 1940 through 1987. They found returns on Friday the thirteenth were actually higher than that of other Fridays; however, the differences were not statistically different. When they examined this effect by sub-periods, Friday the thirteenth returns were higher in four of the five sub-periods. The only sub-period when Friday the thirteenth returns were significantly lower than other Fridays was during the 1970-79 sub-period. Dyl and Maberly concluded that this effect is not pervasive among sub-periods and there is no Friday the thirteenth effect.

Chamberlain, Cheung and Kwan (1991) indicate the existence of Friday the thirteenth effect would indicate that the stock market is impacted by superstition. Therefore, this effect should be carefully examined. They examined Friday the thirteenth effect by simultaneously taking into account the turn of the month effect. Utilizing Standard and Poor’s index for the period 1940 to 1984, they concluded that there is no Friday the thirteenth effect in stock returns.

Coutts (1999) indicate that Friday the thirteenth effect is one of the least examined anomalies in the literature. Using Financial Times Industry Ordinary Shares Index (FT 30) for the period 1935 to 1994, Coutts concluded that Friday the thirteenth effect does not exist in the U.K. stock market. The author reports that U.K stock market actually generated higher returns on Friday the thirteenth than other Fridays. When he investigated the effect over sub-periods, the results remained consistent and it was clear that Friday the effect was not existent in the U.K stock market.

Lucey (2001) examined Friday the thirteenth effect in 19 countries over the period 1988 to 2000. Lucey utilized parametric as well as non-parametric statistical tests and concluded that there is a reversed Friday the thirteenth effect. He found returns on Friday the thirteenth were actually higher than that of other Fridays in most of the countries.

Our study contributes to the finance literature in several ways. First, we reexamine Friday the thirteenth effect with recent stock market data to December 2007. Second, we examine NASDAQ composite index in addition to Standard and Poor’s 500 index to investigate the existence of this effect. Third, we utilize parametric as well as non-parametric significance tests to report additional evidence regarding Friday the thirteenth effect in U.S. stock returns. Finally, we believe that Friday the thirteenth effect is not extensively examined in the finance literature. There appears to be limited published research on examination of Friday the thirteenth effect. Therefore, this study attempts to fill a gap in the stock market anomalies literature. In the next section, we briefly describe the data utilized in this study.

**Data**

In this study, we utilize the NASDAQ composite index (NASDAQ) and the Standard and Poor’s 500 index (S&P 500) as representative U.S. stock market indices. The NASDAQ index was created in February 5, 1971 and its daily index values since inception are available from the yahoo website. For the NASDAQ index, we collected daily index values from February 5, 1971 to December 31, 2007. Daily index values from January 1950 are available for the S&P 500 index on the yahoo website. Therefore, we collected daily index values for the S&P 500 index from January 1, 1950 to December 31, 2007.

We calculate returns using the standard methodology. In this paper, the emphasis is on examining Friday returns. Therefore, Friday returns are utilized for comparison purposes. More specifically, we compare Friday the thirteenth returns with that of other Friday returns. This examination is performed for the overall sample as well as for numerous sub-periods. We report results in the next section.

**Empirical Analysis**

We initially compare returns on Fridays the thirteenth with that of remaining Fridays in the S&P 500 index. The results are reported in Table 1. During the overall period of our study of January 1950 to December 2007, there were 97 Fridays on the thirteenth day of the month (Friday the thirteenth) in comparison to 2817 Fridays that were on days other than thirteenth of the month (Other Fridays). Daily returns on Friday the thirteenth were 0.0759 percent which was slightly lower than the daily returns of other Fridays (0.0766 percent). When we tested the significance of the differences, the results utilizing parametric t-tests as well as non-parametric Mann-Whitney U tests indicate that Friday the thirteenth returns are not significantly different than those of other Fridays for the S&P 500 index.

Next, we divide the overall sample of the S&P 500 index into six sub-periods. The six sub-periods reported in Table 1 are as follows: (1) January 1950 to December 1959 (2) January 1960 through December 1969 (3) January 1970 to December 1979 (4) January 1980 to December 1989 (5) January 1990 to December 1999 (6) January 2000 to December 2007.

When we examine the Friday the thirteenth effect over decades, the results did not exhibit significant differences in every sub-period. In fact, returns on Friday the thirteenth were lower than other Fridays in only two out of the six sub-periods. When we utilize significance tests, we find Friday the thirteenth returns are significantly lower than other Fridays only in the 1970-79 decade. These findings are consistent with results of earlier studies that reported that the seventies were the only anomalous decade that had Friday the thirteenth effect. Alternately, returns are significantly higher than the returns of other Fridays at the 0.10 level of significance for the 1990-99 decade. Additionally, Friday the thirteenth returns were higher than other Fridays although not statistically significant in the last sub-period of 2000-07. We concur with Dyl and Maberly (1988) that this effect is not pervasive among sub-periods and therefore there is no Friday the thirteenth effect.

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| **Table 1**  **Friday Returns to the Standard and Poor’s 500 Index: 1950-2007** | | | | | | | |
|  | **Overall** | **1950-59** | **1960-69** | **1970-79** | **1980-89** | **1990-99** | **2000-07** |
| ***Friday the 13th*** |  |  |  |  |  |  |  |
| Mean | 0.0759 | 0.2612 | 0.1656 | -0.4817 | -0.0966 | 0.4444 | 0.1736 |
| Standard deviation | 1.0073 | 0.4522 | 0.4148 | 0.6460 | 1.7573 | 0.7720 | 1.1626 |
| Observations | 97 | 19 | 16 | 16 | 18 | 16 | 12 |
| ***Other Fridays*** |  |  |  |  |  |  |  |
| Mean | 0.0766 | 0.1847 | 0.0841 | 0.0879 | 0.0944 | 0.0489 | -0.0660 |
| Standard deviation | 0.8273 | 0.6105 | 0.5220 | 0.8051 | 0.9441 | 0.8880 | 1.0983 |
| Observations | 2817 | 479 | 484 | 490 | 484 | 487 | 393 |
| T-Statistic | -0.01 | 0.54 | 0.62 | -2.80a | -0.81 | 1.76c | 0.74 |
| significance | (0.993) | (0.589) | (0.537) | (0.005) | (0.419) | (0.079) | (0.458) |
| Mann-Whitney | -0.25 | -0.65 | -0.83 | -2.98a | -0.11 | -1.81c | -0.43 |
| significance | (0.799) | (0.516) | (0.406) | (0.003) | (0.914) | (0.070) | (0.670) |
| a Significant at the 0.01 level; c Significant at the 0.10 level. | | | | | | | |

We now examine the NASDAQ index for Friday the thirteenth effect. As reported earlier, the NASDAQ index was created in February 5, 1971. We examine the effect for the overall period, February 1971 to December 2007 as well as over four sub-periods which are: (1) February 1971 to December 1979 (2) January 1980 to December 1989 (3) January 1990 to December 1999 (4) January 2000 to December 2007. The results are reported in Table 2.

For the overall period, there are 59 Friday the thirteenths compared to 1803 other Fridays. In fact, daily returns on Friday the thirteenth for the NASDAQ index were actually higher (0.2019 percent) than that of the other Fridays (0.1062 percent). These differences are however not statistically significant and therefore the NASDAQ index also did not exhibit Friday the thirteenth effect for the overall period.

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| **Table 2**  **Friday Returns to the NASDAQ Index: 1971-2007** | | | | | |
|  | **Overall** | **1971-79** | **1980-89** | **1990-99** | **2000-07** |
| ***Friday the 13th*** |  |  |  |  |  |
| Mean | 0.2019 | -0.1311 | 0.0173 | 0.4536 | 0.5037 |
| Standard deviation | 1.3969 | 0.5897 | 0.9655 | 1.0762 | 2.5518 |
| Observations | 59 | 13 | 18 | 16 | 12 |
| ***Other Fridays*** |  |  |  |  |  |
| Mean | 0.1062 | 0.1804 | 0.1933 | 0.1115 | -0.0906 |
| Standard deviation | 1.0992 | 0.6735 | 0.7324 | 0.9940 | 1.7628 |
| Observations | 1803 | 439 | 484 | 487 | 393 |
| T-Statistic | 0.65 | -1.65 | -0.99 | 1.35 | 1.13 |
| Significance | (0.515) | (0.100)c | (0.323) | (0.177) | (0.258) |
| Mann-Whitney | -0.07 | -1.98 | -0.32 | -0.96 | -0.62 |
| Significance | (0.941) | (0.048)b | (0.746) | (0.339) | (0.533) |
| b Significant at the 0.05 level; c Significant at the 0.10 level. | | | | | |

When we examine the effect over decades, the results from the NASDAQ index are similar to those of the S&P 500 index. These results are reported in Table 2. For the NASDAQ index, the returns on Friday the thirteenth are lower than that of other Fridays in the 1970-79 and 1980-89 sub-periods. Conversely, Friday the thirteenth returns are higher than returns of other Fridays in the later two sub-periods, 1990-99 and 2000-07. Again, only in 1970-79 decade, Friday the thirteenth returns are significantly lower than the returns of other Fridays. We therefore conclude that Friday the thirteenth is not prevalent in the NASDAQ index.

**Conclusion**

We reexamined Friday the thirteenth effect in two representative U.S. stock market indices, namely the S&P 500 index and the NASDAQ index that include a recent time period. Our results are consistent with earlier findings that Friday the thirteenth effect was only documented in the 70’s. In fact, we find that Friday the thirteenth returns are actually higher than that of other Fridays in recent years. Our results reinforce the conclusion of Dyl and Maberly (1988) and Chamberlain, Cheung and Kwan (1991) that U.S. stock market does not demonstrate Friday the thirteenth effect.

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