

## **Sand Spring Advisors LLC**

### **Lunar Moments**

by,

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**July 4, 2007**

On the night of May 31<sup>st</sup> I stood in Lakeville CT (attending my son's high school graduation) and stared up into the Eastern sky at one of the largest rose-colored full moons that I have ever seen. This was technically a "Blue Moon" -- the second full moon during the month of May. As I peered at it, I was short stocks, and wondered if the typical cycle of negative market behavior near Full Moons and more robust market behavior near New Moons would hold. (More on this theory later in this paper.) At the time I was also short the U.S. bond market looking for an upswing in rates to also transpire and cause the equity market to become un-nerved.

And then – boom – post that Full Moon, a significant downswing in both equities and bonds did indeed transpire. Life felt good once again. My personal account recouped a significant portion of its profit give-back that had transpired between its early March high-water mark and that late May Full Moon period.

But then by mid-month, with a New Moon period fast approaching on June 14<sup>th</sup>, 2007 (also a Bradley Cycle date in the heavens), I became less than enamored with the emerging Fibonacci rhythm that had developed on the major U.S. equity indices. I started to cover my shorts, with a view that perhaps one more "third thrust" to new highs would still emerge. We posted an article on [www.SandSpring.com](http://www.SandSpring.com) as of June 12<sup>th</sup> entitled "Unhappy with Fib Rhythm" in which we espoused basically getting flat the equity market.

Since that time, the market rallied, and then stumbled again back toward or slightly beyond the mid-June lows (at least in terms of the S&P). The market fell as news intensified regarding Bear Stearns problems within the mortgage derivatives world. Post the Bear fiasco, the new issuance of CDOs suddenly requires about 75 basis points higher yield – a de-facto rate increase to the U.S. consumer through mortgage spread widening.

But to our eye, the equity market decline by the S&P was a half-hearted one – a typical C-wave within an A-B-C corrective period, and NOT an impulsive Elliott decline. Indeed, even while the S&P struggled, Nasdaq 100 and Nasdaq Composite indices have moved to new 2007 highs. And today, even while the Nasdaq 100 fast approaches some significant resistance around 1975 (see chart picture within the June 12<sup>th</sup> web posting), the Nasdaq Composite still has a significant room left up to its 2778 target (with a possible spillover daily move as high as 2851) as pictured in the chart below where a variety of Fib rhythms – weekly, daily, and hourly -- are drawn.



In terms of foreign markets, we also see a clear double Fibonacci target for the CAC in Paris around 5,888.



We are also, of course, fast approaching another minor PEI cycle date on July 5<sup>th</sup>, 2007 – a date 4.3-months or 131 days beyond the February 24, 2007 major 8.6-year PEI cycle high. Originally, we had envisioned this date to be a potential equity low, but such is clearly not to be. Will it be a high? We also think not – at least not in terms of equities.

Here's why:

- 1) The Fibonacci chart patterns discussed above simply do not suggest a major high at this time.
- 2) The market's reaction to recent negative news events has not been suggestive of a market losing upside momentum. To the contrary, the market seems to be making noises as if it would like to accelerate higher and someday form a "spike reversal top," not a gradual momentum-losing top.
- 3) If one remembers back to the behavior of the PEI cycles after the July 20, 1998 pre-LTCM cycle high, the high/low rhythm of the following several 4.3-month minor cycle dates was as follows:
  - November 28, 1998 ...an acceleration higher of the equity up-move that began during October 1998 lows.
  - April 8, 1999... short-term top, particularly in some Internet stocks.
  - August 17, 1999 ...acceleration higher of internet bubble
  - December 26-27, 1999 ...first momentum signs of internet bubble end, with DJIA to top two weeks later on Jan 13, 2000, even while NASDAQ continued higher into March 2000.
  - May 5, 2000...First momentum low post bubble break.

In similar fashion, July 5, 2007 feels ripe to fit into the November 28, 1998 slot, with equity markets actually accelerating -- not topping. Yes, The Nasdaq 100 will hit some resistance soon, but overall, the S&P and the Nasdaq Composite still appear to have some leg-room basis their Fibonacci rhythms.

Overall, if the 1999-2000 bubble period serves as an ongoing analogy, then Nov. 13, 2007 would represent the next short-term top. Then, after an intervening period of sloppiness, Mar. 23, 2008 would be another period of upside acceleration. Final highs for the rally period would not arrive until around the PEI cycle of Aug 1, 2008 – just in front of the U.S. presidential elections.

But do we really expect that the current bull market could accelerate higher in another 1999-2000-like bubble? In the short-term, yes. But over the intermediate term, we are loath to really believe the latter bits of the timing analogy above. After a five year advance from the late 2002 lows, we simply do not believe that the current equity rally has the "sea legs" to carry on this long and this far. But that is more a personal opinion – not something immediately obvious from any chart pattern.

One thing that could support the bull run in our mind would be a sudden reversal in inflationary pressures -- with commodity and energy markets reversing lower. Although we remain generally negative of the U.S Treasury chart (see third chart below), intermediate-term trading tops in oil and gold are possible within the current window of time. From a psychological sentiment point of view, one would expect that there are too many neophyte speculators in both of these markets and a shake-out decline of some magnitude is overdue.





Thus, overall, we find ourselves looking for July 5<sup>th</sup> PEI Cycle to perhaps represent a commodity and oil market high more than having anything particularly important to do with

equity markets. But even as commodities and energy markets potentially top, we still also see a “path of least resistance” for the U.S. Treasury market to still move lower – at least until prices fall to the 102.50 region.

Now back to the first paragraph of this article where we referred to equity markets tending to underperform around Full Moons, while periods around New Moons more often represent periods of robust equity performance.

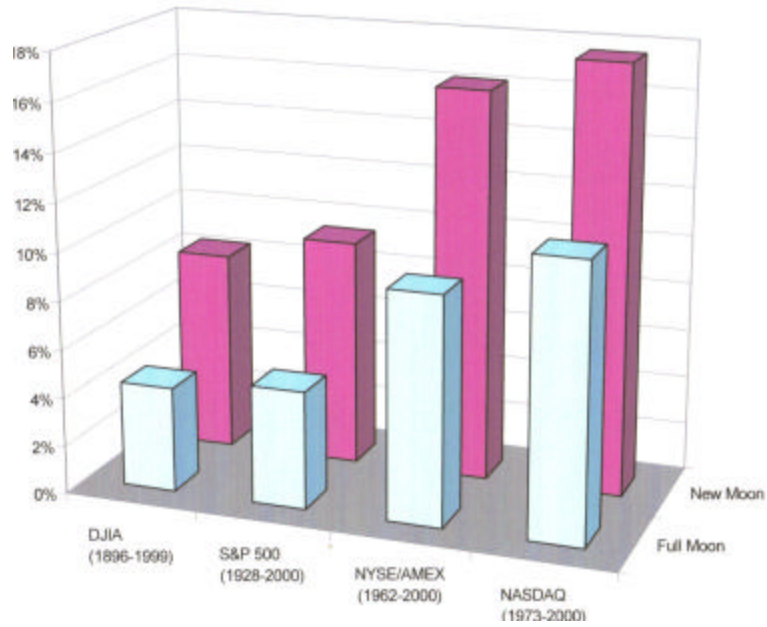
This is of course a very “noisy” and un-tradable rule by itself, but a quick glance at the S&P chart below marking Full Moons and New Moons across 2007 does show at least some proclivity for the above statement to have some validity.



Indeed, I recently read two academic studies out of the University of Michigan that demonstrate statistical significance between equity market behavior and the phases of the moon.

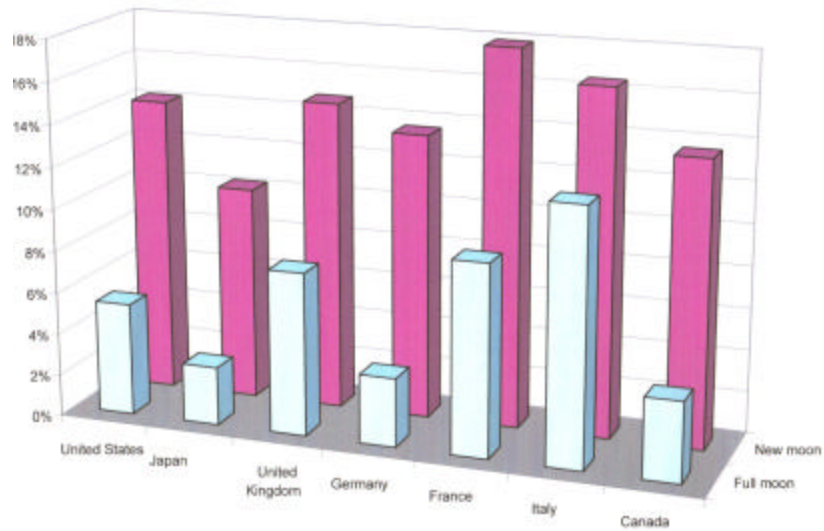
In the first of these studies, entitled “Lunar Cycle Effects in Stock Returns” by Ilia Dichev and Troy Janes, the authors tested for mean daily returns throughout the lunar month, and observed that “high returns tend to cluster around the New Moon date, while low returns tend to cluster around the Full Moon date.” Going on to test various 6-day and 15-day windows around the Full and New Moons, they produced the following three summary charts that show annualized returns for a variety of global markets across a partitioned universe of Full Moon periods and New Moon periods. The conclusion reached by the authors is that regardless of using either a 6-day window or a 15-day window, one could produce approximately 460 to 800 basis points greater annualized average return only being invested across New Moon periods as compared to only being invested across Full Moon periods. Otherwise put, and in terms of a distribution of expected returns, the New Moon period has a distribution of returns skewed more favorably to the right over that of Full Moon periods (see Figure 4 below).

Figure 1  
New moon vs. full moon annualized returns for four major U.S. stock indexes



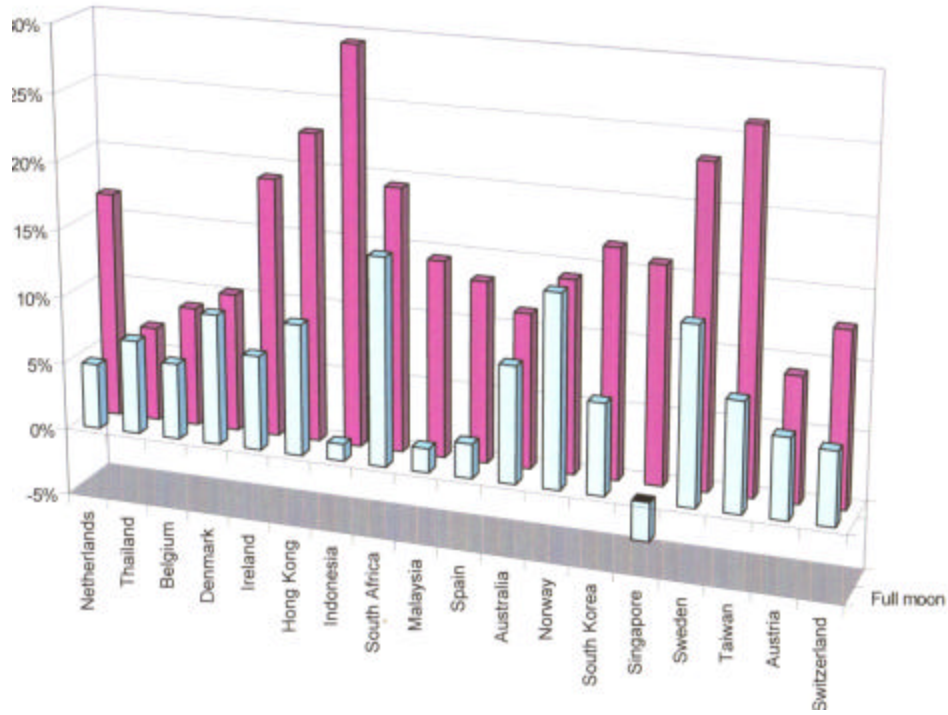
Source: Dichev & Janes, *Lunar Cycles in stock returns*, University of Michigan Business School, August 2001

Figure 2  
New moon vs. full moon annualized returns for major stock indexes of the G-7 countries



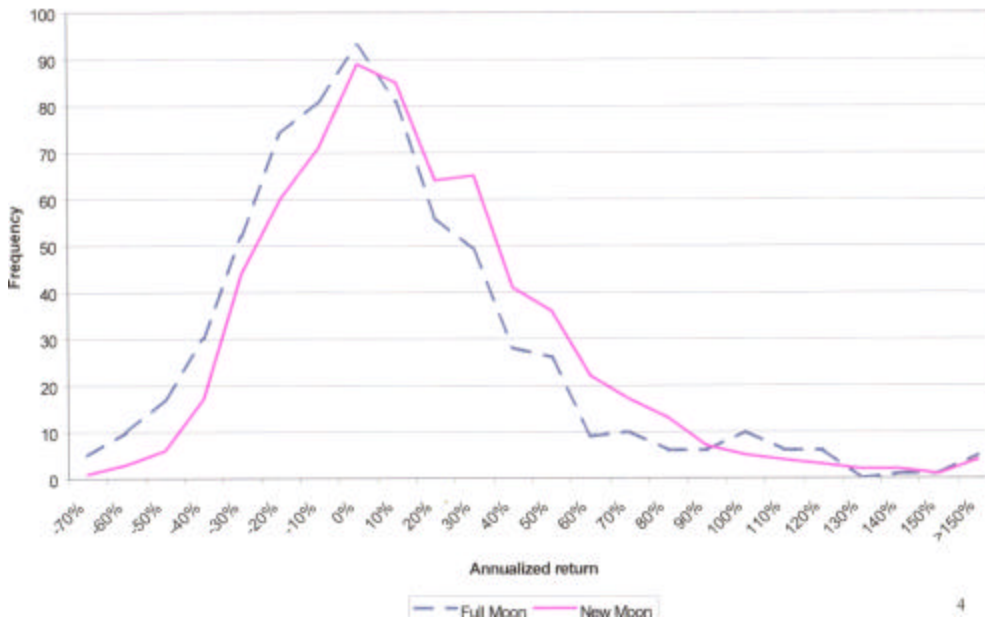
Source: Dichev & Janes, *Lunar Cycles in stock returns*, University of Michigan Business School, August 2001

**Figure 3**  
**New moon vs. full moon annualized returns for smaller stock exchanges around the world**



Source: Dichev & Janes, *Lunar Cycles in stock returns*, University of Michigan Business School, August 2001

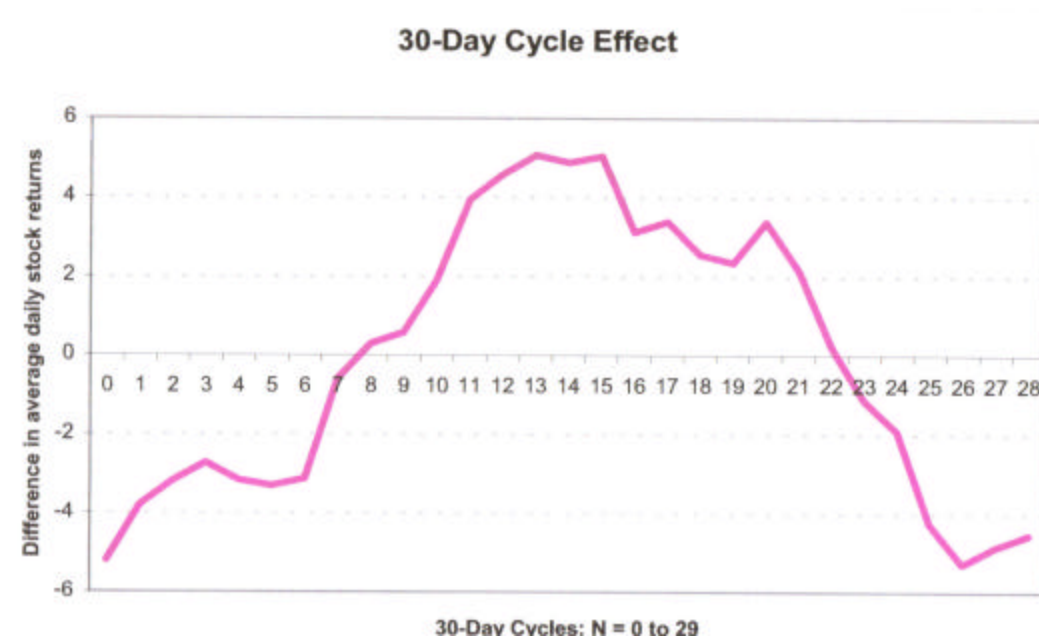
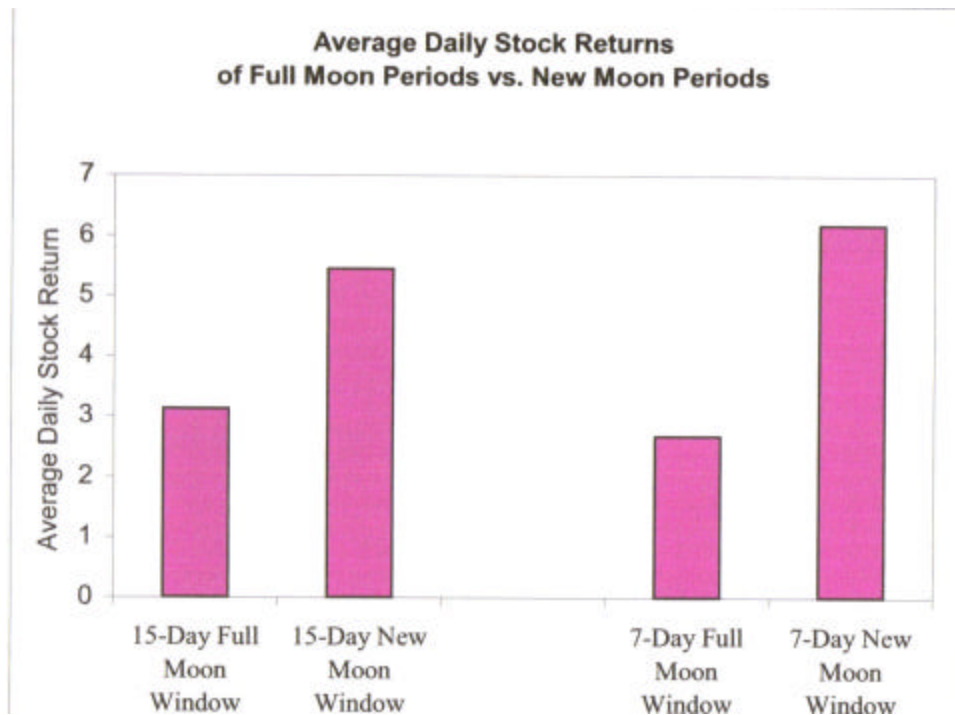
**Figure 4**  
**Distribution of annualized new and full moon returns for pooled sample of all exchanges and years**



Source: Dichev & Janes, *Lunar Cycles in stock returns*, University of Michigan Business School, August 2001



In the second of studies, also conducted in 2001 at the University of Michigan by Kathy Yuan, Lu Zheng, and QiaoQiao Zhu, entitled “*Are Investors Moonstrick? Lunar Phases and Stock Returns,*” similar results are found across a broad number of global markets, and are summarized in the following two graphics.

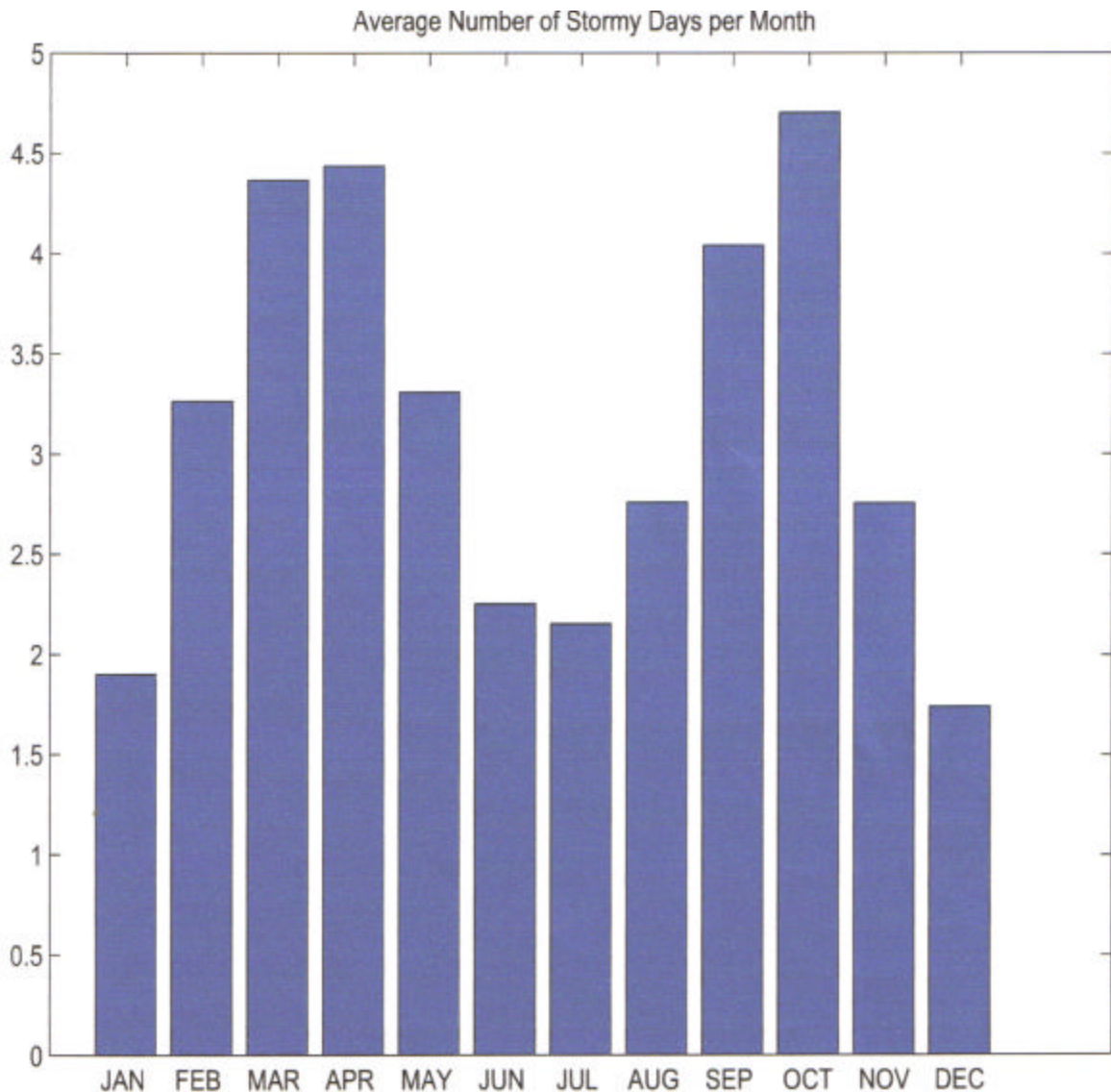


With our recent cycle of Full Moons falling at the beginning of each month, with New Moons near the middle of each month, the chart above suggests buying around the 7<sup>th</sup> each month, and selling around the 23<sup>rd</sup>.

But the phase of the moon is not alone in its apparent statistical correlation to equity market behavior. An October 2003 study by the Federal Reserve of Atlanta and Boston College

Department of Economics also analyzes the behavior of markets around geomagnetic storms caused by solar flares. In this latter study, the authors show two things of note.

First, there is a clear seasonal pattern of geomagnetic storms being higher in the spring and the fall than they are in the summer and winter. Perhaps this correlates somehow to the typical March-May and Sep-Oct sloppiness in equity markets seen so often in financial markets. This is just our own thought, not that of the authors.



**Figure II. Number of Storms per Month.** The figure displays the bar graph of the average number of stormy days (vertical axis) per month using the Ap index. Daily Ap index data can be downloaded from the following web site:

[ftp : //ftp.ngdc.noaa.gov/STP/GEOMAGNETIC\\_DATA/INDICES/KP\\_AP/.](ftp://ftp.ngdc.noaa.gov/STP/GEOMAGNETIC_DATA/INDICES/KP_AP/)

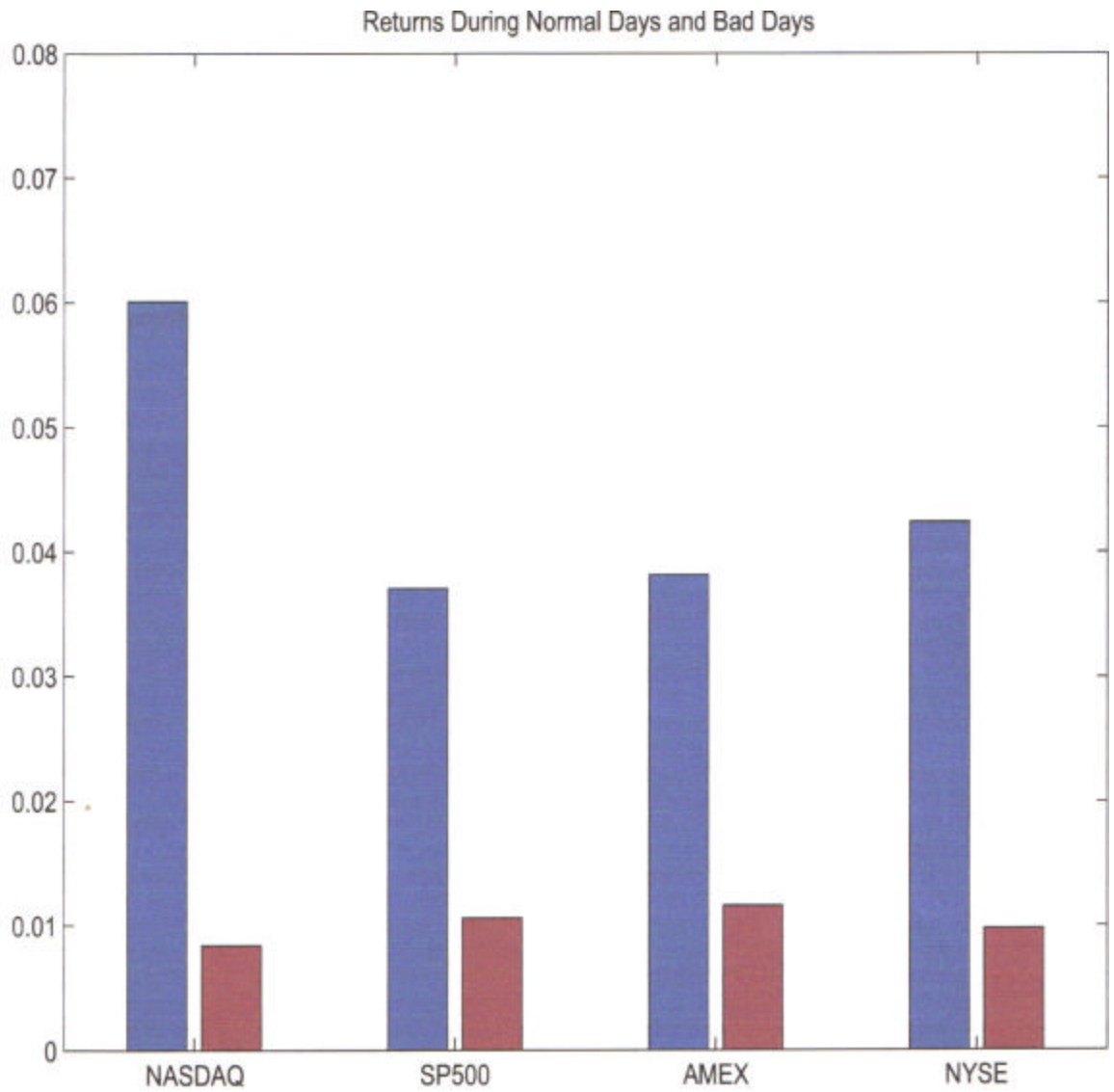
*Source of above chart and charts that follow: Cesare Robotti & Anya Krivelyova, "Playing the Field: Geomagnetic Storms and the Stock Market," Federal Reserve Bank of Atlanta Working Paper No. 2003-5b*

But the authors main observation is that in the six days after a significant geomagnetic storm, equities tend to perform more poorly than they do over other non-storm periods. The authors conclude:

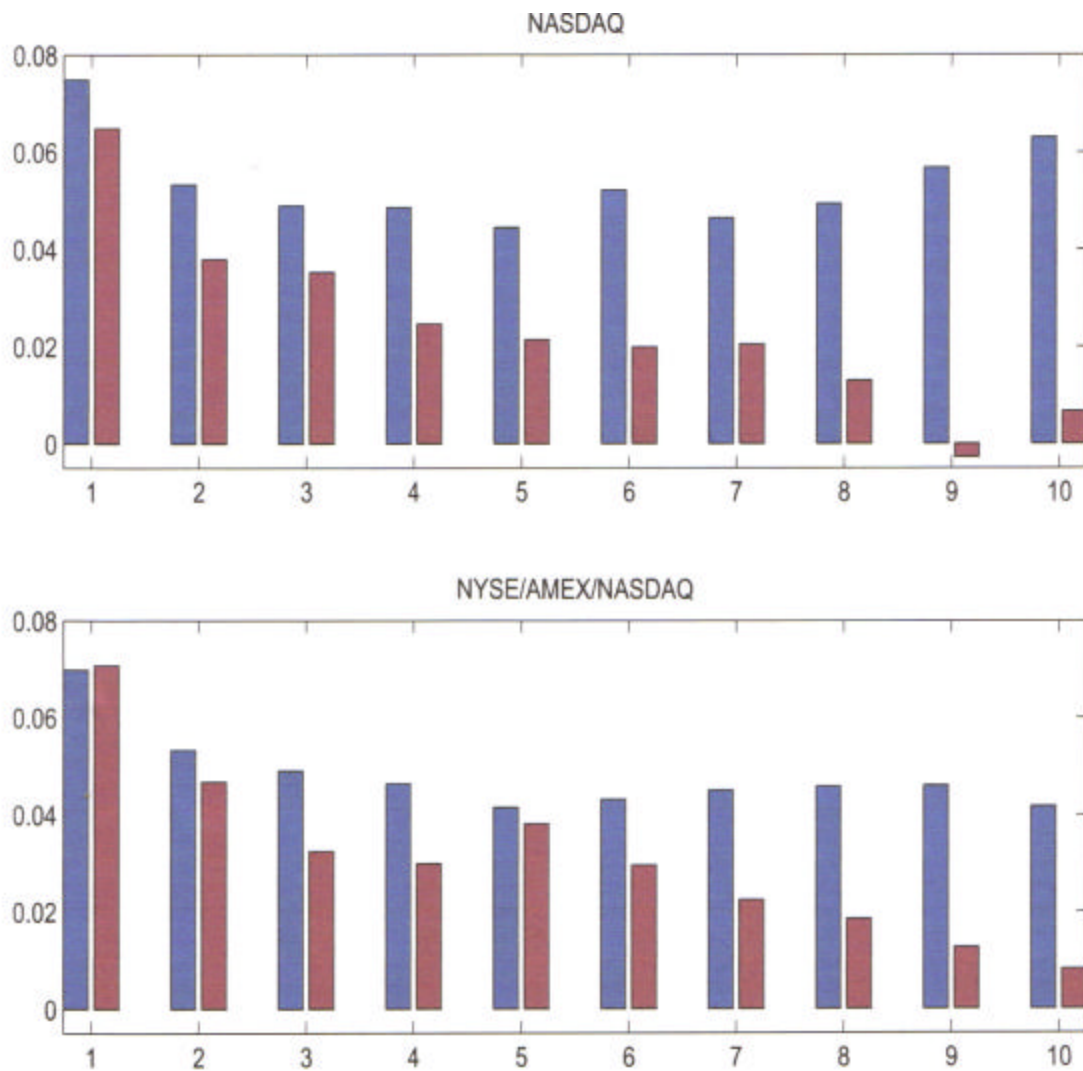
“A large body of research in psychology has documented a link between depression, anxiety, altered moods, and unusually high levels of geomagnetic activity...”Bad moods” [in turn] have been found to be linked to more cautious behavior, including decisions of a financial nature... Small capitalization stocks are affected by GMS [global magnetic storms] more than large capitalization stocks. This latter result is consistent with the empirical finding that institutional ownership is positively correlated with stock capitalization, small cap stocks being held mostly by individuals. Since investment decisions of individual investors are more likely to be affected by emotions and mood than those of institutional investors who trade and rebalance their portfolio using a specified set of rules, the GMS effect should be more pronounced in the pricing of smaller cap stocks.”

Since it takes approximately 40 hours for a geomagnetic storm on the sun to reach the earth, and storms can easily persist for periods of two to four days, the authors are not surprised to see the persistence of a GMS effect in stock returns over such a six day window. Over a similar window, it has been shown by R.W. Kay in a 1994 study written for *The British Journal of Psychiatry*, that “hospital admissions of predisposed individuals with a diagnosis of depression rose 36.2% during periods of high geomagnetic activity as compared with normal periods”...In a separate Moscow-based study, the average number of patients admitted to hospitals with cardiovascular diseases during geomagnetic storms also “increased approximately two times compared with quiet periods”....Geomagnetic storms also have been shown to influence the activity of the pineal gland, causing “imbalances and disruptions of the circadian rhythm of melatonin production, a factor that plays an important role in mood disturbances...In summary, there seems to be a direct causal relationship between geomagnetic storms and common psychological disorders and geomagnetic activity seems to affect people’s health with a lag...[As a knock-on effect,] people affected by GMS may be more inclined to sell stocks by incorrectly attributing their bad mood to negative economic prospects rather than the true environmental conditions.”

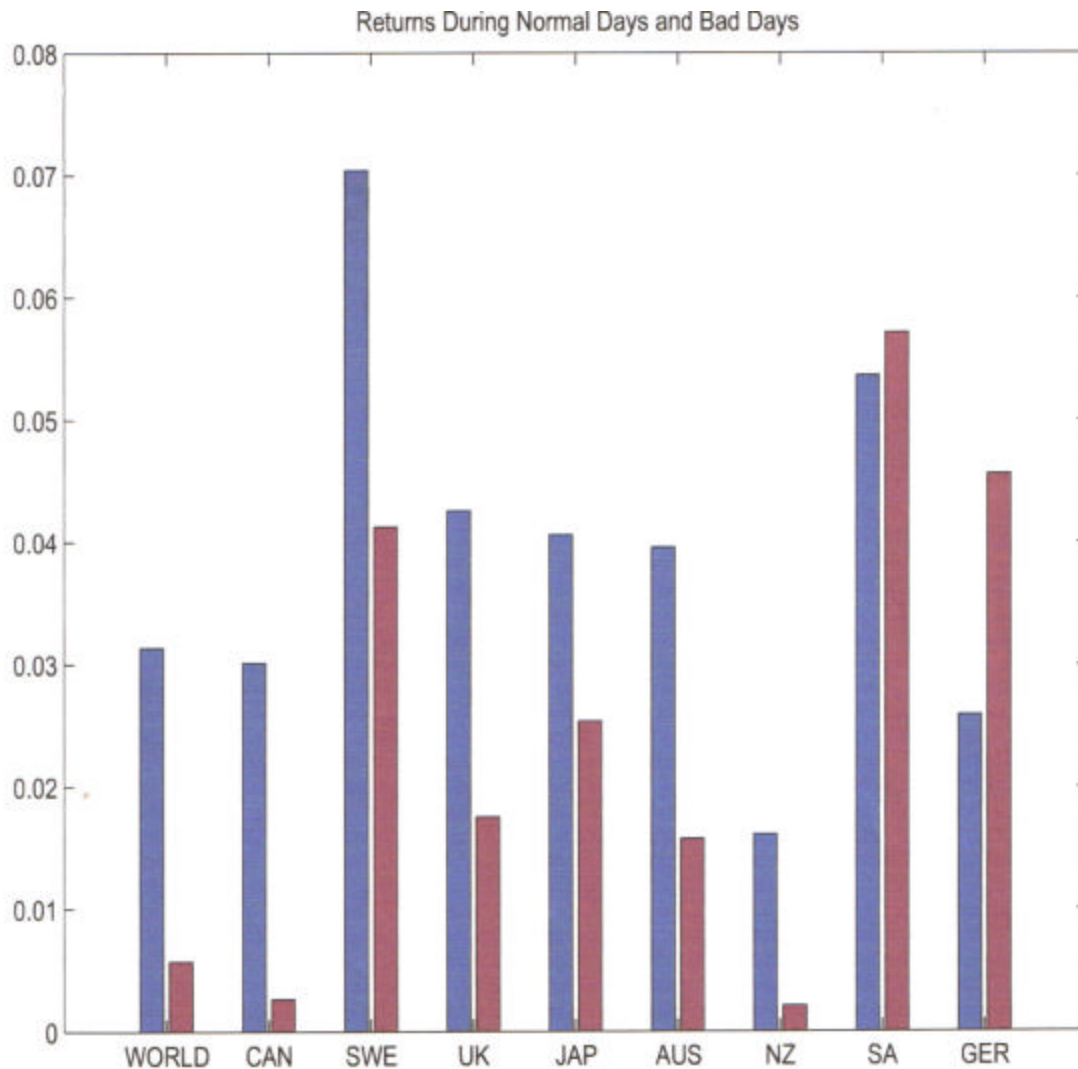
Please take a moment to peruse the following few charts from this study. We find them fascinating.



**Figure III. US Stock Returns during Normal Days and Bad Days.** The figure displays the bar graphs of the returns on the NASDAQ, S&P500, AMEX, and NYSE (NY) stock market indices during normal days (left column) and bad days (right column). We define the six calendar days after a storm as bad days and the remaining calendar days as normal days.



**Figure IV. Returns during Normal Days and Bad Days for US Size Deciles.** The figure displays the bar graphs of the returns on the NASDAQ and NYSE/AMEX/NASDAQ size deciles during normal days (left column) and bad days (right column). We define the six calendar days following a geomagnetic storm as bad days. We define the remaining calendar days as normal days. Large Cap = 1,..., Micro Cap = 10.



**Figure V. International Stock Returns during Normal Days and Bad Days.** The figure displays the bar graphs of the returns on the World, Canadian (CAN), Swedish (SWE), British (UK), Japanese (JAP), Australian (AUS), New Zealander (NZ), South African (SA), and German (GER) stock market indices during normal days (left column) and bad days (right column). We define the six calendar days after a storm as bad days and the remaining calendar days as normal days.

*Source of above charts: Cesare Robotti & Anya Krivelyova, "Playing the Field: Geomagnetic Storms and the Stock Market," Federal Reserve Bank of Atlanta Working Paper No. 2003-5b*

Thus, it may be useful to look out your window from time-to-time at the phase of the moon, or tap into space weather website <http://www.sec.noaa.gov/SWN/> before pulling the trigger on a given trade. What may seem like independent rational thought may in reality be a mood impacted by subtle environmental forces that none of us pay much attention to.

For one's reference, the next New Moon falls on July 14<sup>th</sup>, and the sun is relatively quiet at present -- with no observable geomagnetic storms. *Tant pis* for equity bears.

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