

## If the January Effect Fails, Does Market Timing also Fail? Empirical Evidence from Calendar Month Returns

Huijian Dong<sup>1,\*</sup>, Andrew Harris<sup>2</sup>

<sup>1</sup> College of Business, Pacific University, USA

<sup>2</sup> A research associate at the Investment Project of College of Business, Pacific University, USA

\*Correspondence: Huijian Dong, Ph.D., CFA, an Assistant Professor of Finance at College of Business, Pacific University, 2043 College Way, Forest Grove, OR 97116, USA. Email: hdong@pacificu.edu

Received: July 07, 2016 Accepted: August 31, 2016 Online Published: March 25, 2018

DOI: 10.12735/jbm.v7n1p20 URL: <http://dx.doi.org/10.12735/jbm.v7n1p20>

Copyright © H. Dong, and A. Harris \*\*

### Abstract

This paper uses the monthly average returns of the S&P 500 index and the Russell 2000 index for a determination of whether knowledge of the January Effect and timing in the market can lead an investor to a positive alpha, holding other conditions unchanged. The analysis conveys that the January Effect is not present neither in terms of the large cap stocks or the small cap stocks. It is appropriate to distinguish that although a higher return may be achieved through timing the market with respect to large firm stocks; such marginal return is not significant enough to cover trade and other associated costs. However, evidence supports timing the acquisition and sale of small firm stocks will lead to an advantage. Results show that timing the market to establish long positions will lead investors to an advantage solely in the small cap equities.

**JEL classifications:** G10, G12, G14

**Keywords:** Efficient Market Hypothesis, EMH, January effect, market timing

### 1. Introduction

The Efficient Market Hypothesis is built on the basis that prices fully, correctly, instantaneously reflect all relevant information. Exploring and comparing returns of assets according to the calendar cannot generate extra return. It reflects that ideology that all stocks are purchased and sold at fair price levels (2003). However, this hypothesis has been disputed by opposing theorist (2003, 1976) as to whether the Efficient

---

\*\*This is an open access article distributed under the terms of the Creative Commons Attribution 4.0 International License

(<http://creativecommons.org/licenses/by/4.0/>). 

Licensee: [Science and Education Centre of North America](#)

**How to cite this paper:** Dong, H., & Harris, A. (2018). If the January effect fails, does market timing also fail? Empirical evidence from calendar month returns. *Journal of Business and Management*, 7(1), 20-25. <http://dx.doi.org/10.12735/jbm.v7n1p20>

Market Hypothesis is relevant. Those in opposition argue that there are different forms of efficient markets:

Strong Form Efficient: no information can lead to extra return in the market.

Semi-strong Form Efficient: private information can lead to extra return in the market.

Weak Form Efficient: private and current public information can lead to extra return in the market.

Less than Weak Form Efficient: all information can lead to extra return in the market.

This paper focuses primarily on whether the market is less than weak form efficient. One of the major influences that classify a market in this way is whether analysis of historical data can give an investor a persistent above average return over the market. If an investor is able to analyze historical data and use the newfound information to outperform the rest of the market, the market is less than Weak Form Efficient. This focus is being tested by determining whether knowledge of the January Effect and the use of timing in the market bring a competitive advantage in the market.

The January Effect is a hypothesis that suggests that stock prices are at the highest level in the month of January than in any other month. The January Effect was first observed by Sydney B. Wachtel who published his findings of higher returns in the Dow Jones Industrial Average from 1927-1942 (1942). It is reasonable to argue that the January Effect is no longer relevant and if a similar concept is applicable, the increase in stock price would be seen in the month of November as investors attempt to take advantage of the arbitrage opportunity and buy in November or December when the price is low and then sell in January once the stock prices had risen.

Evidence of such anomaly was investigated by Michael S. Rozeff and William R. Kinney (1976). Rozeff and Kinney used an equal-weighted index and found there were seasonal patterns in stock prices from 1904-1974. They also noted that January averaged a monthly return of 3.5% while the other remaining months averaged a return of only 0.5%. However, these same high returns did not exist when large stocks were used. Therefore, the reason for the increased profit in January was due to the small stocks that were given equal weight in the market through the equal-weighted index. This finding was in contradiction of Wachtel's findings which saw the effect among large firm stocks.

Burton G. Malkiel (2003, 2015) questioned the validity of the January effect. He suggests that such an effect might not be applicable because of the high transaction costs. He also suggested that this effect is not persistent year by year. However, there is no thorough review in terms of the validity and the academia needs empirical evidence of the failure of such effect. In other words, to what degree the transaction cost would swallow possible profit brought by the January Effect; and the absence of persistence of the January Effect would, to what degree, reject the validity of the effect as a statistically significant pattern.

The purpose of this paper is to determine if the January Effect is still present in the market today and, if so, to what extent. The determination of the extent is based on whether costs of acquisition and selling of stock rid any possible arbitrage. It will also evaluate whether Malkiel's theory of the January Effect being shifted into the months of November and December is correct as investors have become more aware of this theory. The ultimate analysis will be to determine if timing the purchase of assets will lead to an advantage in the market or if it is more valuable to analyze assets themselves in order to find an advantage. This will be tested through analysis and presentations of various benchmark and alternate strategies of the S&P 500 index, which will compare with the research of Wachtel, and the Russell 2000 index for comparison to the research performed by Rozeff and Kinney.

Section 2 describes the data and the procedures of comparison; the results from the comparisons are presented in section 3, including the extension to the small cap equities; section 4 concludes the implication of the outcomes, especially to the meaning of market timing.

## 2. Data and Methodology

This paper uses the monthly adjusted closing data for both the Russell 2000 index and S&P 500 index in the analysis. The data from the S&P 500 index ranges from January of 1950 to January of 2016 while the Russell 2000 index data ranges from October 1987 through January of 2016. The change in adjusted close from month to month is then calculated to determine the rate of return for each month within the beforehand mentioned timetable. The average monthly rate of return is calculated to summarize the data into an average analyzable twelve month period. The months are then ranked from the highest average rate of return to the lowest in order to determine different possible investment strategies.

We created dummy variables to separate the monthly returns. The returns that are compared in the next section is computed as:

$$r_i = \overline{D_i r}, \text{ where } D_i = 1 \text{ for month } i \text{ and } D_i = 0 \text{ for month } j, i \neq j$$

The average returns are arithmetic-based rather than geometric-based, as the same period comparison cannot involve compounding return regime. The returns are first computed based on the Standard and Poor's 500 index and then computed based on the Russell 2000 index. The former is widely accepted as a proxy of large cap stocks. Though the Dow Jones Industrial Average Index can also serve for this purpose, its components are more limited to the traditional companies and do not have exposure to high tech companies that is advocated by the NASDAQ popular assets. Russell 2000 is a relatively stable and liquid proxy for small cap stocks, with much of the components being optionable in options market. Unlike broader indices such as Wilshire 5000, Russell 2000 does not include stressed equities or the frequently delisted components.

Using the average monthly returns, we rank the investment performances on a full year-round calendar basis. Such ranking is employed to explore possible optimal investment timing strategy. Optimization is defined as local preferred returns, rather than single high returns that do not consider extra transaction cost that are created by frequent position rebalancing and adjustments.

In addition, the investment timing strategy developed in this paper is consistent in terms of real investment process. The months that are naturally connected are also included on a compounded basis. The strategy does not cherry-pick the highest returns that cannot be continuously invested.

According to the widely used and cited Fama-French three-factor model, size of equity plays a significant role in returns (Fama & French, 1993). Monthly returns would accumulate even higher performance from the size perspective. Timing strategy should present more valid return by distinguishing monthly impact, if the existence of it can be confirmed. Large cap stocks, on the other hand, have on average beta values closer to market portfolio and the extra alpha from timing the calendar might be insufficient to pay off the transaction cost.

## 3. Results and Discussion

In analysis of the S&P 500 index there were fourteen different strategies formed and presented. Twelve of the strategies had yearlong holding periods in which the only differentiating components were the months in which the index was bought and sold. The other two strategies were based on maximizing the rate of return by eliminating certain months from the holding strategies. The first alternate strategy focused on avoiding the hold of the index in months where the average rate of return was negative. This required the purchase of the index at the end of August, selling it in April, and then buying it again at the end of May and selling again in June. The second alternate strategy was formulated to be a closer comparison to the yearlong

strategies with regard to market commission and other costs associated with the exchange of the index. This strategy required the purchase of the index at the end of August and selling in April.

Similarly to the analysis of the S&P 500 index, twelve yearlong holding periods, differentiating solely in the months the index was acquired and sold. One other strategy was presented which consisted of a purchase of the index at the end of November and sold the end of March. This strategy is proposed as it completely eliminates holding the Russell 2000 index during any month that on average produces a negative rate of return. This strategy also presents a more equivalent comparison to the twelve month holding periods as it would require similar commission and other costs associated with the buying and selling of the index in a period of a year (see table 1, 2, 3).

**Table 1.**

S&P 500 index			Russell 2000 index		
Month	Average Rate of Return	Ranking	Month	Average Rate of Return	Ranking
January	0.0513%	9	January	0.5167%	4
February	1.1682%	4	February	1.0879%	2
March	1.4748%	3	March	0.9220%	3
April	0.2116%	8	April	-0.1003%	5
May	-0.0476%	10	May	-1.0370%	9
June	0.9947%	5	June	-1.0094%	8
July	-0.0931%	11	July	-1.3540%	11
August	-0.5174%	12	August	-1.0578%	10
September	0.9311%	6	September	-0.3718%	6
October	1.5149%	2	October	-2.9778%	12
November	1.6210%	1	November	-0.7769%	7
December	0.8836%	7	December	1.5686%	1

**Table 2.** S&P 500 index holding strategies

Holding Period	Rate of Return	Holding Period	Rate of Return
January - December	8.4767%	August - July	8.4767%
February - January	8.4767%	September - August	8.4767%
March - February	8.4767%	October - September	8.4767%
April - March	8.4767%	November - October	8.4767%
May - April	8.4767%	December - November	8.4767%
June - May	8.4767%	September - April, June	9.1944%
July - June	8.4767%	September - April	8.1190%

**Table 3.** Russell 2000 index holding strategies

Holding Period	Rate of Return	Holding Period	Rate of Return
January - December	-4.5798%	August - July	-4.5798%
February - January	-4.5798%	September - August	-4.5798%
March - February	-4.5798%	October - September	-4.5798%
April - March	-4.5798%	November - October	-4.5798%
May - April	-4.5798%	December - November	-4.5798%
June - May	-4.5798%	December - March	4.1556%
July - June	-4.5798%		

Conclusions can be drawn through evaluation of both indexes that timing in the market does effect the prices of stock. When the average monthly returns were ranked in ascending order it is seen that January does not have the highest average return which the January Effect leads one to believe. However, if the knowledge of the January Effect was highly known it would be expected that the highest returns would transition into the months of November and December. This would occur as investors would attempt to gain a higher profit by acquiring assets at a lower price and selling those assets in January when the prices were expected to be at their highest point for the year. This suggestion is prevalent as the S&P 500 index monthly averages show that November has the highest rate of return and the Russell 2000 index monthly averages show December as the month with the highest return.

The results also reveal that all year long holding periods will yield, on average, the same amount of return regardless of the month in which an asset is purchased. The yearlong holding period for the S&P 500 yields a positive return of 8.4767% opposed to the Russell 2000 which yields a negative 4.5798% return over all yearlong holding periods.

The alternate holding strategies of the S&P 500 index were compared to the yearlong benchmark strategies to indicate if timing truly made an impact on the rate of return. The first alternate strategy, which required the holding of the index solely in the months where the average rate of return was positive, resulted in the highest rate of return of all strategies at a rate of 9.1944%. The second alternate strategy, which required the holding of the index in all positive average return months except in the month of June, yields the lowest return at 8.1990%.

In evaluation of the Russell 2000 Index, only one alternate strategy was proposed in opposition to the yearlong benchmark. The proposed strategy calculated the holding of the index during all months which maintained a positive average return. The compound of returns equaled a positive 4.1556% return which is vastly higher than the twelve month holding benchmark.

#### 4. Concluding Remarks

In conclusion, the results reveal there is a lessening of a January Effect in the Market. Malkiel's proposal of the January Effect occurring earlier in November and December also holds credibility when applied to the S&P 500 and Russell 2000 indexes. The analysis also revealed that timing when assets are purchased and sold can increase profitability; however, the application of this knowledge differentiates when applied to the S&P 500 index versus the Russell 2000 index.

The highest returning alternate investment strategy for the S&P 500 yields a 9.1944% rate of return versus the yearlong holding strategies which yields an 8.4767%. This is a difference of 0.7177% which is

not a vast difference but initially may appear appealing as it yields a higher return. However, when commission and other related expenses are taken into consideration in the acquisition of the index this is the less profitable option. This strategy requires an additional purchase and sale in comparison to the yearlong holding periods. The average market costs associated with these transactions are \$14, which would require a minimum yield of \$1950.68 return to equal the return of the yearlong holding periods. Theoretically, timing the market yields a higher return but when consideration for costs associated with purchasing and selling of the asset, this alternate strategy is no better than a yearlong holding strategy according to the results using the S&P 500 index analysis.

Although timing was only theoretically beneficial when applied to the S&P 500 index, analysis of the Russell 2000 index indicated a different result. The yearlong holding benchmark of the Russell 2000 Index yield a negative 4.5798% opposed to our proposed strategy which, using timing in the market, resulted in a yield of a positive 4.1556% a difference of 8.7354% between the two strategies. All other commissions and related costs associated with the purchase and sale of the index remain the same across both strategies. This enables the direct comparison between the rates of return as acceptable.

Given the application of these strategies, when investing in larger stocks, timing the purchase and sale of the stock has no direct correlation to a competitive advantage in the market and may potentially lead to a lesser return as proposed by Malkiel. However, given the analysis of the Russell 2000 index it is greatly to the advantage of a small stock holder to time the market. Timing the small stock market will not only lead to a higher return but it will hedge the risk and on average lead to a positive return rather than a negative return.

## Acknowledge

This research is funded by Pacific University Faculty Development Grant. We appreciate the valuable comments made by the anonymous referees

## References

- [1] Fama, E. F., & French, K. R. (1993). Common risk factors in the return on stocks and bonds. *Journal of Financial Economics*, 33(1), 3-56. [https://doi.org/10.1016/0304-405X\(93\)90023-5](https://doi.org/10.1016/0304-405X(93)90023-5)
- [2] Malkiel, B. G. (2003). The efficient market hypothesis and its critics. *Journal of Economic Perspectives*, 17(1), 59-82. <https://doi.org/10.1257/089533003321164958>
- [3] Malkiel, B. G. (2015). *A random walk down Wall Street: The time-tested strategy for successful investing*. New York: W.W. Norton & Company, Inc.
- [4] Rozeff, M. S., & Kinney, Jr., W. R. (1976). Capital market seasonality: The case of stock returns. *Journal of Financial Economics*, 3(4), 379-402. [https://doi.org/10.1016/0304-405X\(76\)90028-3](https://doi.org/10.1016/0304-405X(76)90028-3)
- [5] Wachtel, S. B. (1942). Certain observations on seasonal movements in stock prices. *The Journal of Business of the University of Chicago*, 15(2), 184-193.