January Returns Phenomena: Current Evidence for the Dow-Jones Industrials and for the NASDAQ

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Abstract

Two measures of stock performance are examined to gauge the extent of abnormal returns behavior attributable to the month of January. The January Effect (JE) and January Barometer (JB) are assessed on a large market capitalization portfolio, the Dow, and on a small market capitalization portfolio, the NASDAQ. The JE is confirmed for small capitalization firms over the period of study but is rejected for large capitalization firms. Evidence is found to support the JB effect for the large capitalization group. No evidence is found to support the JB effect for the small capitalization group.

Introduction

For many years investment industry analysts have speculated on the verity and potential usefulness of market timing strategies that are linked to external events. An important class of systems relies on a calendar of annual events, many of which are not intrinsic to the companies whose securities are being assessed. One prominent group of strategies considers the behavior of stocks in different months of the calendar year. Proponents hope to identify actionable precursors to subsequently observed return behavior. Several investigations have compared the behavior of securities prices in January to their behavior in other months and have provided insights to a class of phenomena collectively known as the January Effect. In this paper we examine return data for two leading U.S. market indices for evidence of these January phenomena.

Some variability exists among investigators in their definitions of January Effect. Notable contributions to the debate are studies by (Jones, Pearce and Wilson 1987), (Thayer 1987), (Haugen and Lakonishok 1988), (Kramer 1994), (Haugen and Philippe 1996), and (Gu 2003). A prominent school of research interest hypothesizes that January might be a relatively good month for stock returns. Researchers here pursue evidence that would permit them to reject hypotheses that January returns are no better than those of other months. The popular nomenclature for this phenomenon is simply, The January Effect or JE, and we adopt that labeling for this paper.

Other researchers have hypothesized that January returns may be a valuable predictor of stock returns for the remainder of the year. Pertinent studies include (Hensel & Ziemba 1995), (Brown and Luo 2004) and (McConnell, Cooper and Ovtchinnikov 2005). They pursue evidence that would permit the rejection of hypotheses that January returns have no predictive ability for the remainder of the year. Popular nomenclature here is The January Barometer or JB, labeling which we will also adopt.

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The January Effect (JE)

JE proponents attribute superior January returns to provisions of the income tax code. They observe tax loss selling in December by calendar year investor/taxpayers and impute negative price pressure on stocks near the end of the year. Especially for small-capitalization stocks and for stocks with embedded losses, JE investigators reason that this negative year-end price pressure will leave target stocks undervalued. Subsequent reinvestment in the first few trading days of the new year will boost prices from artificially depressed lows, resulting in superior price performance and hence superior returns in January.

Textbook authors (Jordan and Miller 2008) characterize the JE as the "small-stock-in January-especially-around-the-turn-of-the-year-for-losers effect," and provide the arcane acronym, SSIJEATTOTYLFLE. Market players sell losers in December and buy them back in January creating taxable losses for the previous tax year. Researchers have found the SSIJEATTOTYLFLE is more pronounced in small stocks that have experienced losses and these extraordinary returns are noted in the first trading days of January. Jordan and Miller opine that this tax motivated churning would likely have much less impact on the prices and returns of large-capitalization stocks.

Window dressing is another hypothesized motivator for portfolio churning that might lead to JE. The managers of institutional investment funds typically strive to post returns that exceed those of large-cap stocks. To this end, fund managers may load up on small company stocks early in the year, hoping for the superior returns that small-cap issues often provide. Later they sell the small-caps, repositioning their year-end portfolios to more closely resemble the large-cap indices that serve as their benchmarks.

The potential generation of tax losses by individual investors and the possibility of portfolio repositioning by window-dressing fund managers both suggest that JE might be identified in the return streams of U.S. companies.

JE Analysis for Dow-Jones Industrials (DJIA)

To assess the presence of JE in large-cap stocks, we examined monthly returns for the companies comprising the Dow-Jones Industrial Average. Exhibit I is a visual characterization of the average monthly returns for the DJIA for the period 1929-2005. This pattern is not unique to the DJIA as studies focused on the S&P 500 over this period show an almost identical pattern. Notably, both April and December appear to have larger average monthly returns than does January.

Our analysis of the average monthly returns for the DJIA appears as Exhibit II. The panels present the average return (DJIA) for each month for a representative decade, the 1980's, for the entire period 1929-2005, and for the period 1971-2005. The 1971-2005 segment is used in later comparisons with the NASDAQ for which we have data beginning in 1971. In each panel, the line represents average return and the bar is standard deviation. The left scale is the standard deviation percentage and the right scale is the return percentage. A visual examination of these data suggests there is nothing remarkable about the January returns. The returns by decade show little or no consistency and no discernable patterns. Examining the decades reveals very high volatility in the 1930's and 1940's—almost 3 times the return. The 1960's through the 1990's have fairly stable volatility that is about twice the level of the returns. The 1950's were tranquil—volatility was only slighter larger than the average return level. Surprisingly, the current decade is fairly tranquil by historical standards. Of course, these initial assessments are based on visual assessment of the panels rather than on tests of statistical significance.

Exhibit III presents the results of an ANOVA on the 1971-2005 data where the null hypothesis is that all monthly means are equal. The analysis suggests that the monthly means may be different. The ANOVA doesn't tell us which means are different, however. One tail t-tests were conducted for each contrast: Jan/Feb, Jan/Mar..., and Jan/Dec. The results of these t-tests are presented in Exhibit IV. For Jan/June and Jan/Sep we can reject the equality of means at the 5% level of significance. For Jan/Feb and Jan/Aug we can reject at the 10% level. For the other 7 contrasts we can not reject the null hypotheses of equal means. Exhibit IV shows the *number* of positive months, years, and 11 month periods following January. December and January have a very high percentage of positive returns. Except for September, there is a better than 50% chance for any given month, year, or 11 month period following January to display a positive return. By both visual inspection and statistical examination, the JE doesn't seem to be expressed in the DJIA returns.

JE Analysis for the NASDAQ

Exhibit V portrays the relative monthly returns of NASDAQ stocks over the period 1971 through 2005 and over a typical decade, the 1990's. Unlike the DJIA returns for the same period, the NASDAQ returns for January are much more pronounced. Indeed, the visual cues suggest that the January returns are extraordinary. This pattern is not unique to the NASDAQ but is also evident in other small cap indices. An examination of returns for the entire study period shows January to have nearly twice the return of any other month. This is not the case for the 2000s, however, as there are four months that have higher average returns than the annual average. Volatility is almost twice the return for the entire study period. The individual decade studies reveal that in the 1970's the standard deviation was about the same magnitude as the return. The 1980's saw volatility of more than 2.5 times the return. The 1990's were volatile but returns were also high, thus the risk to reward ratio was only 1.33 times. Volatility has been up for the last 6 years and January has not been an extraordinary month. The risk to reward ratio has gone up to 1.67 during the 2000's but remains below the long term average. Again, these initial assessments are based upon visual interpretation of graphs rather than formal statistical analysis.

Exhibit VI reports the results of an ANOVA of the NASDAQ returns where the null hypothesis is that all monthly means are equal. The analysis suggests that the monthly means may be different. The ANOVA doesn't reveal which means are different. Exhibit VII reports the results of one tail t-tests that were conducted for Jan/Feb, Jan/Mar...,Jan/Dec. For every comparison we reject the equality of means at the 5% (or less) level, except for Jan/Feb (at 6% level) and Jan/Nov (at the 10% level). In the NASDAQ returns, January has clearly been a remarkable month.

Exhibit VIII shows the number of positive months, years, and 11 month periods following January. For the 35 years of NASDAQ data, January is positive almost 80% of the time. The second panel of the table shows that the six years of the 2000's have been 'abnormal' when compared to the entire study period and compared to the period 1972-1999. The first 6 years of this decade have had many more down months.

The January Barometer (JB)

The January Barometer (JB) is summarized by an old Wall Street adage, "As goes January, so goes the year." To assess JB for the DJIA and NASDAQ we employ the same data as in the previous analysis of JE.

Several researchers (Hensel and Ziemba 1995; Brown and Luo 2004; and McConnell, Cooper and Ovtchinnikov 2005) have found evidence that January returns are positive predictors of returns for the next 11 months. One team (Brown and Luo 2004) found that the effect is more robust for predicting market down-turns than market up-turns. Earlier studies compared January returns to the entire yearly return which included the predictor month—January.

A standard statistical test of independence for categorical frequency data is the Chi-Squared Test. This test is appropriate when the expected frequency in each cell is at least five. In the current study, this is often not the case because of the small sample sizes and the preponderance of + Januaries. The methodology we adopt is Fisher's Exact Test, described at http://faculty.vassar.edu/lowry/webtext.html. This test is based on the hyper-geometric distribution, and calculates a p-value which is equal to the conditional probability of getting a result equal to or more extreme than that observed, given the current row and column sums. A more extreme result is one that is farther from what would be expected under independence, given the row and column sums.

JB Analysis for Dow-Jones Industrials (DJIA)

The null hypothesis for the Fischer Exact Test is that *+/- January returns* and *annual market returns* are independent. Exhibit IX presents the up/down markets for the DJIA, and + and – Januarys since 1929 and since 1971. Each top panel represents the 2 by 2 results if January's return is compared to the 12 month return (January included). Each bottom panel represents the results if January is compared to the following 11 months. In each study we are comfortable that the p-value for the first panel supports rejection of the null hypothesis of independence. The evidence is less compelling in the 11 month panels. For the DJIA it appears that there is support for the January Barometer for the entire 78 year period for which we have data. The support is confirmed for the period beginning in 1971.

JB Analysis for the NASDAQ

Exhibit X reports the Fisher Exact Test results for the entire NASDAQ sample period. There is no statistical support for JB in the overall NASDAQ data. Further, when the data were broken down into decades, there was still no support for the January Barometer.

Conclusions

The January Effect (JE) implies that January will be a good month because of tax loss selling and the window-dressing activities of institutional investors. Our analysis confirms that JE is present in the return of small cap firms as represented by the NASDAQ, but cannot be identified in the returns of larger cap DJIA firms.

The January Barometer (JB) implies that January returns are predictive of subsequent returns in any given year. For the DJIA it appears that there is support for the January Barometer for the entire 78 year period for which we have data, as well as for the period beginning in 1971. Our analysis of the NASDAQ through the end of 2005 finds no evidence to support the JB theory. We posit no explanation why one index would be predictive while another is not.

Mixed results across markets for the JE and JB suggest avenues for further research. Of course, the analysis can be extended as the underlying processes evolve and additional observations become available. Also, the increasing globalization of markets prompts questions about the existence and strength of JE and JB phenomena in other world markets.

Exhibits

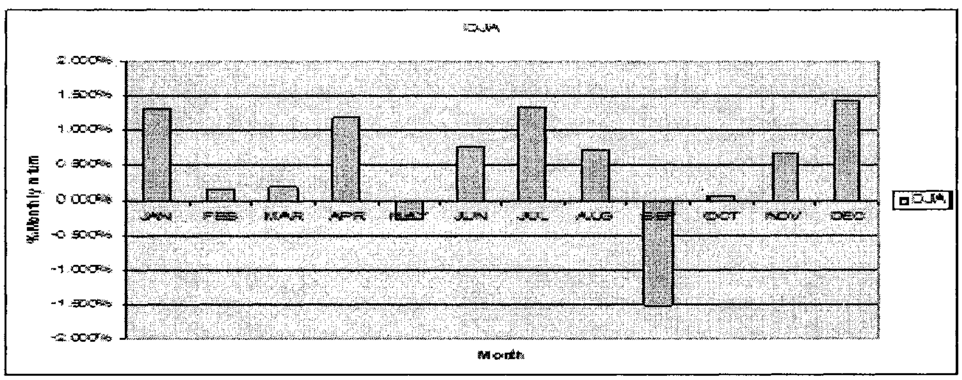


Exhibit I – source: www.economy.com/freelunch

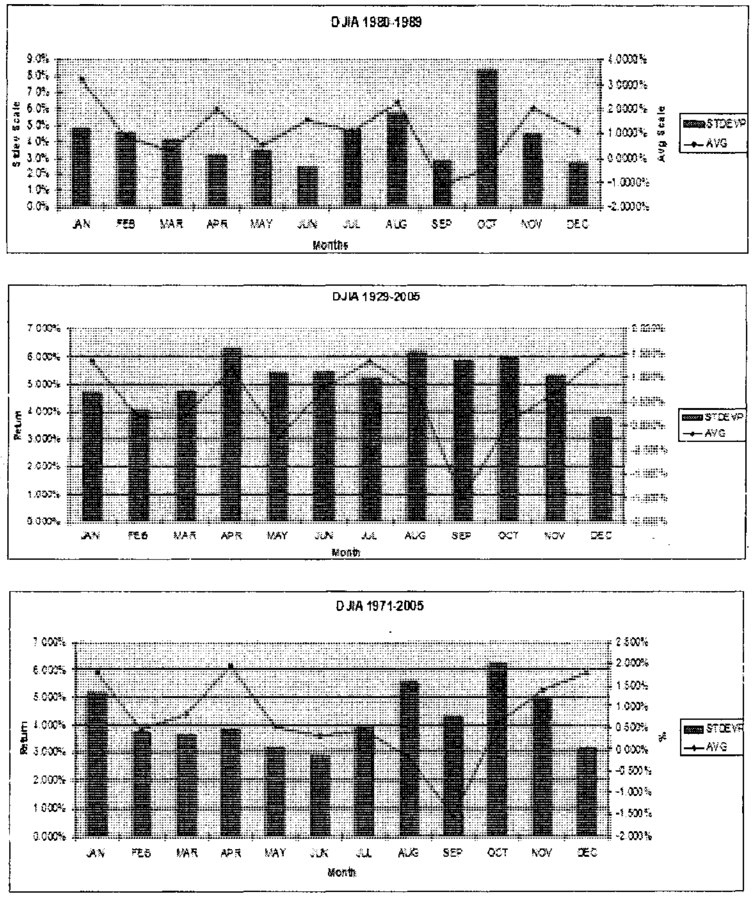


Exhibit II – source: www.economy.com/freelunch

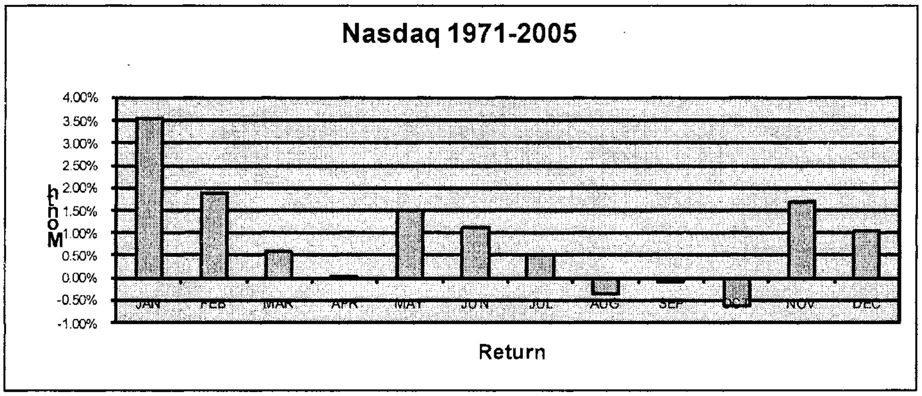
Analysis of Variance: Single Factor – DJIA 1971-2005				
Groups	*Count*	*Sum*	*Average*	*Variance*
JAN	35	35.62502	1.79%	0.002736
FEB	35	35.15957	0.46%	0.001439
MAR	35	35.29048	0.83%	0.001354
APR	35	35.68422	1.95%	0.001538
MAY	35	35.18623	0.53%	0.001053
JUN	35	35.11211	0.32%	0.000866
JUL	35	35.1563	0.45%	0.001561
AUG	35	34.93527	-0.18%	0.003193
SEP	35	34.45798	-1.55%	0.001863
OCT	35	35.20322	0.58%	0.003966
NOV	35	35.4862	1.39%	0.002612
DEC	35	35.62917	1.80%	0.000996
F	*P-value*	*F critical*		
1.746224	*0.061531*	1.81214		

Exhibit III

The first row of the 1970-2005 and 1929-2005 periods presents the % of positive retums while the second row shows the number of positive returns. The first 12 columns are for the month, the last two columns are for the 12 month an 11 month (excluding January) periods.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	12 month--	11 month
1971-2005	64.71%	55.88%	61.76%	52.94%	55.88%	58.82%	52.94%	52.94%	29.41%	58.82%	67.65%	73.53%	67.65%	70.59%
	22	19	21	18	19	20	18	18	10	20	23	25	23	24
1929-2005	67.53%	55.84%	58.44%	54.55%	53.25%	53.25%	61.04%	59.74%	37.66%	55.84%	59.74%	74.03%	64.94%	66.23%
	52	43	45	42	41	41	47	46	29	43	46	57	50	51

Exhibit IV – source: www.economy.com/freelunch



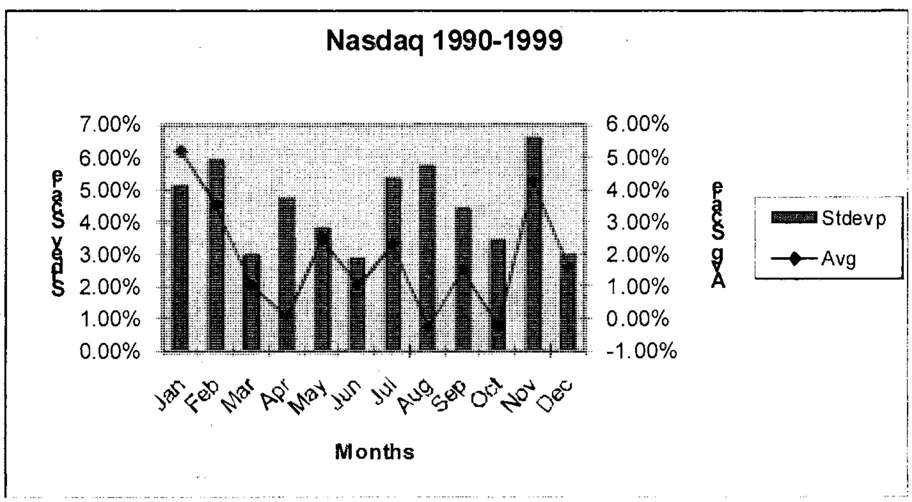


Exhibit V – source: www.economy.com/freelunch

Analysis of Variance: Single Factor – NASDAQ 1971-2005				
Groups	*Count*	*Sum*	*Average*	*Variance*
JAN	35	1.2359	3.53%	0.0021
FEB	35	0.6532	1.87%	0.0037
MAR	35	0.2118	0.61%	0.0028
APR	35	0.0034	0.01%	0.0028
MAY	35	0.5206	1.49%	0.0024
JUN	35	0.3861	1.10%	0.0016
JUL	35	0.1776	0.51%	0.0024
AUG	35	-0.1299	-0.37%	0.0024
SEP	35	-0.0383	-0.11%	0.0034
OCT	35	-0.2119	-0.61%	0.0023
NOV	35	0.5880	1.68%	0.0053
DEC	35	0.4793	1.37%	0.0014
F	P-value	*F critical*		
1.75942	0.05905	1.81214		

Exhibit VI

t-Test: Paired Two Sample for Means 1971-2005 NASDAQ			
Groups	*Count*	*T-STAT*	P(T<=t) one-tail
JAN/FEB	35	1.5580	0.0642
JAN/MAR	35	2.9570	0.0028
JAN/APR	35	3.3733	0.0009
JAN/MAY	35	1.7034	0.0488
JAN/JUNE	35	2.1713	0.0185
JAN/JULY	35	2.8397	0.0038
JAN/AUG	35	3.3142	0.0011
JAN/SEP	35	2.9446	0.0029
JAN/OCT	35	3.6832	0.0004
JAN/NOV	35	1.3016	0.1009
JAN/DEC	35	2.1743	0.0184

Exhibit VII

The first row of the 1971-2005, 2000-2005, and 1971-1999 periods presents the % of positive returns while the second row shows the number of positive returns. The first 12 columns are for the month, the last two columns are for the 12 month an 11 month (excluding January) periods.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	12 month--	11 month
1971-2005	79.41%	61.76%	61.76%	55.88%	55.88%	61.76%	55.88%	44.12%	61.76%	52.94%	61.76%	58.82%	67.65%	70.59%
	27	21	21	19	19	21	19	15	21	18	21	20	23	24
2000-2005	50.00%	16.67%	66.67%	50.00%	33.33%	66.67%	50.00%	16.67%	50.00%	66.67%	83.33%	66.67%	33.33%	50.00%
	3	1	4	3	2	4	3	1	3	4	5	4	2	3
1971-1999	85.71%	71.43%	60.71%	57.14%	60.71%	60.71%	57.14%	50.00%	64.29%	50.00%	57.14%	57.14%	75.00%	75.00%
	24	20	17	16	17	17	16	14	18	14	16	16	21	21

Exhibit VIII – source: www.economy.com/freelunch

	Fisher's Exact Test DJIA 1929-2005		
	Full year (Jan return included)		
	+mkt	-mkt	Fishers p-value
+Jan	42	9	2.97E-05
-Jan	9	18	
	11 months after January		
	+mkt	-mkt	Fishers p-value
+Jan	38	13	0.0395
-Jan	14	13	
	Fisher's Exact Test DJIA 1971-2005		
	Full year (Jan return included)		
	+mkt	-mkt	Fishers p-value
+Jan	22	2	0.000239
-Jan	4	9	
	11 month		
	+mkt	-mkt	Fishers p-value
+Jan	20	4	0.063333
-Jan	7	6	

Exhibit IX

	Fisher's Exact Test NASDAQ 1971-2005		
	1971-2005 Full year (Jan return included)		
	+mkt	-mkt	Fishers p-value
+Jan	21	7	0.12
-Jan	3	4	
	11MO		
	+mkt	-mkt	Fishers p-value
+Jan	21	7	0.31
-Jan	4	3	

Exhibit X

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