The seasonal impact of institutional investors [The January effect]

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Portfolio rebalancing can account for the January effect, but in a more complex relationship than first thought

The average rate of return on stocks is higher in January than for any other month of the year. Though this so-called "January effect" has received much coverage, it continues to pique the interests of academics and investors alike. Empirical findings show that the January anomaly is related to firm size and share price, with returns being higher in January for small firms and firms with low stock prices.(f.1) However, recent research shows that seasonality in returns is not a phenomenon observed only for small firms' stock or those with low stock prices.(f.2) The returns of widely followed firms also exhibit strong seasonality, thought opposite in direction to that reported for small, less visible, low stock price firms.

Two explanations for the January anomaly have been proposed: tax-loss selling and gamesmanship. The two hypotheses differ in that tax-loss selling focuses on the behavior of individual investors while gamesmanship focuses on institutional investors. According to tax-loss selling, investors sell stocks at year-end that have fallen in price over the year in order to realize capital losses. Returns are high in January because tax-loss selling diminishes and these stocks jump up to their equilibrium level.(f.4) In contrast, the gamesmanship hypothesis suggests that seasonality in returns results from portfolio rebalancing by institutional investors. Portfolio holdings are rebalanced in order to "window dress" or to influence performance-based renumeration.(f.4) According to the gamesmanship hypothesis, institutional investors begin each year with the willingness to take risks by moving funds into higher risk securities -- generally stocks of smaller and/or lesser-known and followed firms. Higher risk securities have higher expected returns, while at the same time, institutional investors have sufficient time to correct mistakes before year end without jeopardizing their bonus. If, at any subsequent time, these risky securities produce a satisfactory return, portfolio managers lock in this return by moving investments out of risky securities and into lower risk ones -- generally stocks of larger and/or well-known and followed firms. This way, they finish the year on a more conservative note, having locked in, at the same time, their year-end bonus. In either case, the stock of small and risky firms is subject to selling pressure at year-end which reverses in January and is replaced by buying pressure.

Both the gamesmanship and tax-loss-selling hypotheses suggest that average stock returns are higher in January for small, risky firms but only the gamesmanship hypothesis further suggests that average returns for highly followed firms are lower in January. According to the gamesmanship hypothesis, portfolio managers sell the lesser-known (riskier) or poorly performing stocks over the year and replace them with stocks in highly visible and less risky firms. Tax-loss selling, on the other hand, is associated with individual investors who tend to hold low capitalization stocks. If the January effect results from tax-loss selling, no seasonality in stock returns for highly visible firms is expected. Results reported recently for a study of U.S. firms indicate that excess returns for widely followed firms are highly seasonal with unusually low excess returns in January.(f.5) Thus, gamesmanship is an important determinant of seasonality in stock returns for the U.S. market.

Institutional investors appear to be the dominant force in the U.S. market even though they hold less than one-half of the shares outstanding. In Canada, institutional investors hold an even larger proportion of stocks, suggesting that if seasonality can be ascribed to gamesmanship, it should be a factor in the Canadian market.(f.6)

Highly-Followed Firms

To test the research hypothesis that there is no seasonality in the returns of large, highly-followed firms, the investigation looks at a sample of firms containing relatively large and highly visible firms. The number of analysts following a firm differentiates visible firms: if a firm is followed by many professional financial analysts it is likely to be highly visible.

Sample firm information for the overall sample, as well as quartiles determined by the standard deviation of analysts' earnings forecasts (in panel A) and quartiles determined by market value (in panel B) is provided in Table 1 (below). Sample statistics are reported for these two sets of quartiles in order to shed light on whether there are differences across uncertainty levels or across firm size.(f.7) The average analyst following is substantial. The mean of the consensus forecast exceeds the mean of actual earnings suggesting that analysts are optimistic in their earnings predictions for the overall sample.

A comparison of the sample means reported in Table 1 to those reported previously for U.S. firms suggests differences across the border.(f.8) As expected, Canadian firms are, on average, smaller and surrounded by greater uncertainty. For the Canadian sample, average market value is $1,108 million (standard deviation is 0.0204) whereas previously reported U.S. averages are $3,905 million (standard deviation is 0.0076). Note that the average price ($25.9) and market value ($3,201 million) for the largest market value quartile of Canadian firms are only larger than the average price ($25.8) and market value ($689 million) for the smallest quartile of U.S. firms.

[Table]
Table 1 Highly visible firms: While the sample containedrelatively large and visible firms, Canadian firms are generally smallerand surrounded by greater uncertainty than U.S. firms.
Panel A

Means for the full sample and quartiles determined by the standarddeviation of analysts' earning forecasts scaled by price
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Overall Quartile 1 Quartile 2

Sample (Low)

Number of analysts 12.0243 11.7785 12.9050

Earnings forecasts 1.2676 1.5156 1.3784

Actual earnings 1.0083 1.6175 1.2661

Standard deviation 0.0204 0.0026 0.0066

Price 18.3148 23.7463 20.0395

Market value
(in millions) 1108.498 1377.0090 1579.5091

[Table]
Table 1 Highly visible firms: While the sample containedrelatively large and visible firms, Canadian firms are generally smallerand surrounded by greater uncertainty than U.S. firms. --continued
Quartile 3 Quartile 4

(High)

Number of analysts 12.3283 11.4335

Earnings forecasts 1,2379 0.8668

Actual earnings 0.9049 0.1867

Standard deviation 0.0127 0.0621

Price 16.9878 11.5349

Market value

(in millions) 1153.6742 474.7348

[Table]
Table 1 Highly visible firms: While the sample containedrelatively large and visible firms, Canadian firms are generally smallerand surrounded by greater uncertainty than U.S. firms. --continued
Panel B

Means for quartiles determined by market value		
	Market Value 1 (Low)	Market Value 2
Number of analysts	10.4232	9.3454
Earnings forecasts	0.8801	1.1429
Actual earnings	0.4703	0.8482
Standard deviation	0.0453	0.0187
Price	10.4376	15.7737
Market value (in millions)	72.9093	222.9540

[Table]
Table 1 Highly visible firms: While the sample containedrelatively large and visible firms, Canadian firms are generally smallerand surrounded by greater uncertainty than U.S. firms. --continued

	Market Value 3	Market Value 4 (High)
Number of analysts	12.1103	15.7924
Earnings forecasts	1.1282	1.7366
Actual earnings	0.9485	1.5394
Standard deviation	0.0175	0.0090
Price	17.7641	25.8527
Market value (in millions)	683.6129	3201.2352

Seasonal Pattern

In order to examine the seasonal pattern in returns for the sample of highly followed Canadian firms, monthly excess returns were regressed on a constant and eleven dummy variables, each taking the value of one for a particular month of the forecast year and zero otherwise. The average return for January is given by the regression constant whereas the coefficients of the dummy variables represent differences in returns from January. Results are reported for the overall sample, as well as quartiles determined by the standard deviation of analysts' earnings forecasts scaled by price. This standard deviation is a measure of analysts' uncertainty regarding the firm. Other research has shown that analysts' optimism regarding a firm's earnings is related to the level of uncertainty surrounding the firm and that portfolio strategies based on these observations can generate abnormal returns.(f.9) An examination of seasonality by standard deviation quartile may detect a

relationship between the level of uncertainty and seasonality. The firms were first ranked in ascending order according to standard deviation and then divided into four quartiles of equal size. The first quartile contains the firms with the lowest standard deviation and the fourth contains those with the highest standard deviation. To investigate whether there is a relationship between firm size and seasonality, dummy variables regressions were also estimated for market value quartiles where the first quartile contains the firms with the smallest market capitalization.

Tables 2 and 3 (pages 30 and 31) report estimates of seasonality in excess returns using dummy OLS regressions for the sample of Canadian firms. Table 2 reports the regression results for the overall sample and by standard deviation quartile whereas Table 3 reports the regression results for market value quartiles. The tables report t-statistics below each estimated coefficient. For the overall sample, excess returns in January are higher than the remainder of the year. The January dummy is positive and many other dummies are negative, though not all are significant. The final row reports an F-statistic which tests the null hypothesis of no differences across months. The null is rejected at the 1% significance level for the full sample.

The results are in stark contrast to those reported in U.S. studies of highly-followed firms.(f.10) The seasonality is much weaker and is not in the same direction. For the highly-visible Canadian firms, excess returns are higher in January, though not significantly so.

The Role Of Institutional Investors

Seasonality in returns is not a phenomenon observed only for small firms' stock or those with low capitalization. For a sample of large, widely-followed Canadian firms, seasonality in excess returns is examined. Sample firms have high excess returns in January and returns adjust downward over the remainder of the year. The pattern weakens with higher uncertainty and lower market value. The seasonal pattern differs from that reported for highly visible U.S. firms.

These results for Canadian firms are somewhat perplexing. The tax- loss-selling hypothesis asserts that high returns in January on small, less-followed firms with low-priced stock results from selling pressure at year-end. No seasonality in the stock of highly-followed firms is expected if this hypothesis explains seasonal patterns. In contrast, the gamesmanship hypothesis predicts downward price pressure in January for highly visible firms. As financial institutions rebalance their portfolios in January, they tend to sell the stock of highly visible firms acquired toward the end of the previous year, thus causing downward pressure in the prices of these stocks in January. The downward pressure is alleviated over the year. The seasonal pattern in returns reported here is not consistent with either hypothesis, suggesting that neither fully explains the January anomaly. These firms are highly followed. Institutional investors hold an even larger proportion of the stock in Canada than in the U.S., suggesting that if seasonality can be ascribed to gamesmanship, it should be a factor in the Canadian market. However, there is some indication from the results that uncertainty plays a role as the Canadian sample has much higher dispersion in analysts' earnings forecasts.

The apparent inconsistency of the results for Canadian firms and those reported for samples of U.S. firms can be explained as follows. The Canadian firms are relatively smaller, are followed to a lesser degree, and have considerably higher risk and uncertainty in their environment than their U.S. counterparts. In fact, the standard deviation of expected earnings per share, a measure of uncertainty, is larger by a factor of three for the Canadian (0.0204) sample as compared to the U.S. (0.0076). Thus, for a U.S. institutional investor, the Canadian stocks included in the sample can be viewed as higher risk alternatives to their U.S. domestic portfolios that are also liquid and relatively well-followed. There is evidence that trading in inter-listed stocks is dominated by U.S. investors and a majority of the sample firms are inter-listed.(f.11) As a result, if the marginal trader for Canadian inter-listed stocks is a U.S. institutional investor, the Canadian returns pattern may behave differently from the behavior observed in the U.S. for well-followed stocks. In such a case, the Canadian stocks in this sample, being a risky investment alternative in a foreign market, may exhibit a pattern of return behaviour that is more in line with the traditional evidence of higher stock returns in January visa-vis the rest of the year (Tables 2 and 3). This provides support for the gamesmanship hypothesis and the effect of institutional trading across national borders.

[Table]
Table 2 High returns in January: The sample of highly followedCanadian firms showed high excess returns in

January, which weakens withhigher uncertainty.

Month	Overall	Quartile 1	Quartile 2
Sample (Low)			
January	0.0059	0.0218	0.0106
	(1.58)	(3.25)	(1.60)
February	-0.0009	-0.0054	0.0035
	(-0.18)	(-0.58)	(0.38)
March	0.0026	-0.0095	-0.0050
	(0.50)	(-1.04)	(-0.54)
April	-0.0130	-0.0158	-0.0135
	(-2.47)	(-1.72)	(-1.45)
May	-0.0177	-0.0158	-0.0165
	(-3.36)	(-1.74)	(-1.76)
June	-0.0032	-0.0066	-0.0129
	(-0.62)	(-0.73)	(-1.42)
July	-0.0085	-0.0187	-0.0056
	(-1.63)	(-2.10)	(-0.62)
August	-0.0092	-0.0105	-0.0091
	(-1.76)	(-1.19)	(-1.01)
September	-0.0071	-0.0200	-0.0013
	(-1.35)	(-2.23)	(-0.15)
October	-0.0142	-0.0125	-0.0198
	(-2.72)	(-1.41)	(-2.23)
November	-0.0017	-0.0160	-0.0020
	(-0.32)	(-1.84)	(-0.23)
December	-0.0183	-0.0071	-0.0141
	(-3.48)	(-0.85)	(-1.56)
F-statistic	3.69[*]	.96	1.42

[Table]

Table 2 High returns in January: The sample of highly followedCanadian firms showed high excess returns in January, which weakens withhigher uncertainty. -- continued

Month	Quartile 3	Quartile 4

(High)	
January 0.0005	-0.0061
(.08)	(-0.67)
February -0.0045	0.0070
(-0.47)	(0.54)
March 0.0189	0.0032
(2.01)	(0.25)
April -0.0095	-0.0169
(-1.00)	(-1.29)
May -0.0095	-0.0237
(-1.02)	(-1.79)
June 0.0091	-0.0060
(0.97)	(-0.44)
July -0.0032	-0.0148
(-0.35)	(-1.05)
August -0.00	-0.0175
(-0.02)	(-1.24)
September -0.0049	-0.0111
(-0.51)	(-0.78)
October -0.0175	-0.0145
(-1.83)	(-1.03)
November -0.0108	0.0171
(-1.13)	(1.19)
December -0.0215	-0.0499
(-2.17)	(-3.41)
F-statistic 2.61[*]	2.60[*]

The table reports the results of dummy OLS regressions for a sample of excess returns for the 1976 through 1991 time period. Excess returns are calculated using the Capital Asset Pricing Model. Results are reported for the overall sample as well as quartiles determined by the standard deviation of analysts' earnings forecasts scaled by price. The table reports t-statistics in parenthesis below each estimated seasonal dummy and, in the final row, an F-test of the null hypothesis of no differences across months.

Endnotes

(f.1.) See: G. Athanassakos, "Beating January to the Punch," Canadian Investment Review, Spring 1995, pp. 23-29; R.W. Banz, "The Relationship Between Return and Market Value of Common Stocks, Journal of Financial Economics, vol. 9, 1981, pp. 3-18; A. Berges, J.J. McConnell and G. Schlarbaum, "The Turn-of-the-Year in Canada," The Journal of Finance, vol. 39, March 1984, pp. 185-192; R. Bhardwaj and L.D. Brooks, "The January Anomaly: Effects of Low Share Price, Transactions Costs, and Bid-Ask Bias, The Journal of Finance, vol. 47, 1992, pp. 553-575; M. Blume and R. Stambaugh, "Biases in Computed Returns: An Application to the Size Effect, Journal of Financial Economics, vol. 12, 1983, pp. 387-404; D. Keim, "Size-Related Anomalies and Stock Return Seasonality: Further Empirical Evidence, Journal of Financial Economics, vol. 12, 1983, pp. 13-32.

(f.2.) See: L.F. Ackert and G. Athanassakos, "Institutional Investors, Analyst Following, and the January Anomaly," Working Paper, The Mutual Group Financial Services Research Centre, Wilfrid Laurier University, 1997.

(f.3.) See: M. R. Reinganum, "The Anomalous Stock Market Behavior of Small Firms in January: Some Empirical Tests for the Tax-Loss Selling Effects," Journal of Financial Economics, vol. 12, 1983, pp. 89-104 and R. Roll, "On Computing Mean Returns and the Small Firm Premium," Journal of Financial Economics, vol. 12, 1983, pp. 371-386.

[Table]
Table 3 Still excess January returns: The pattern of excessJanuary returns also weakens with lower market value.
Month Overall Market

Sample	Value 1 (Low)	Value 2
January	0.0059	0.0027	0.0130
	(1.58)	(3.22)	(1.51)
February	-0.0009	-0.0013	0.0218
	(-0.18)	(-0.08)	(1.83)
March	0.0026	0.0123	0.0188
	(0.50)	(0.72)	(1.58)
April	-0.0130	-0.0181	-0.0269
	(-2.47)	(-1.07)	(-2.25)
May	-0.0177	-0.0311	-0.0019
	(-3.36)	(-1.85)	(-0.15)
June	-0.0032	-0.0017	-0.0054
	(-0.62)	(-0.10)	(-0.44)
July	-0.0085	-0.0110	-0.0042
	(-1.63)	(-0.65)	(-0.34)
August	-0.0092	-0.0309	-0.0098
	(-1.76)	(-1.84)	(-0.80)

September -0.0071 -0.0184 -0.0454

(-1.35) (-1.11) (-3.73)

October -0.0142 -0.0183 -0.0467

(-2.72) (-1.11) (-3.85)

November -0.0017 -0.0041 0.0022

(-0.32) (-0.25) (0.18)

December -0.0183 -0.0576 0.0086

(-3.48) (-3.47) (0.70)

F-statistic 3.69[*] 52[*] 6.79[*]

[Table]
Table 3 Still excess January returns: The pattern of excessJanuary returns also weakens with lower market value.
Month Market Market

Value 3 Value 4 (High)

January 0.0175 0.0086

(2.64) (1.62)

February 0.0147 -0.0110

(1.57) (-1.46)

March 0.0138 0.0032

(1.48) (0.43)

April -0.0254 -0.0163

(-2.72) (-2.20)

May -0.0098 -0.0071

(-1.05) (-0.96)

June -0.0085 -0.0047

(-0.90) (-0.64)

July -0.0116 -0.0033

(-1.23) (-0.45)

August -0.0100 -0.0026

(-1.06) (-0.36)

September -0.0410 -0.0038

(-4.37) (-0.50)

October -0.0380 -0.0076

(-4.03) (-1.02)

November -0.0165 -0.0002

(-1.74) (-0.02)

December 0.0106 -0.0050

(1.12) (-0.67)

F-statistic 7.63[*] 1.01

The table reports the results of dummy OLS regressions for a sample of returns for the 1976 through 1991 time period. Excess returns are calculated using the Capital Asset Pricing Model. Results are reported for the overall sample as well as quartiles determined by market value. The table reports t-statistics in parenthesis below each estimated seasonal dummy and, in the final row, an F-test of the null hypothesis of no differences across months.

(f.4.) See: R.A. Haugen, and J. Lakonishok, The Incredible January Effect: The Stock Market's Unsolved Mystery, 1988, Dow-Jones-Irwin, Homewood, Illinois.

(f.5.) See: L.F. Ackert and G. Athanassakos, "Institutional Investors, Analyst Following, and the January Anomaly," Working Paper, The Mutual Group Financial Services Research Centre, Wilfrid Laurier University, 1997.

(f.6.) Less than one-half of the value of U.S. stocks is in the hands of institutional investors versus two-thirds in Canada. See: "Institutional Share of U.S. Equities Slip," Wall Street Journal, December 8, 1993, pp. C1:4 and C21:2.

(f.7.) The standard deviation of analysts' earnings forecasts is a measure of the level of uncertainty associated with a firm. When issuing earnings forecasts, analysts are overly-optimistic for firms with a high level of uncertainty but little or no optimism exists when uncertainty is low. See: L.F. Ackert, and G. Athanassakos, "Prior Uncertainty, Analyst Bias, and Subsequent Abnormal Returns," The Journal of Financial Research, Summer 1997, pp. 263-273, and "Expectations of the Herd," Canadian Investment Review, Winter 1996/97, pp. 7-11.

(f.8.) See: L.F. Ackert and G. Athanassakos, "Institutional Investors, Analyst Following, and the January Anomaly," Working Paper, The Mutual Group Financial Services Research Centre, Wilfrid Laurier University, 1997.

(f.9.) See note 7.

(f.10.) See: L.F. Ackert and G. Athanassakos, "Institutional Investors, Analyst Following, and the January Anomaly," Working Paper, The Mutual Group Financial Services Research Centre, Wilfrid Laurier University, 1997.

(f.11.) See: L.G. Booth and D.J. Johnston, "The Ex-Dividend Day Behavior of Canadian Stock Prices: Tax Changes and Clientele Effects," The Journal of Finance, 1984, pp. 457-476.

Appendix

The authors thank Bryan Church and Marie Racine for helpful comments.

Analyst following, forecasts, and earnings data are obtained from the Institutional Brokers Estimate System (IBES) for each year of the 1976 through 1991 sample period. The firms included in the final sample passed through several filters. The criteria follow:

(1) The TSE/Western database includes returns data.

(2) At least three individual forecasts determine the median forecast of earnings per share.

(3) The IBES database includes consensus forecasts for at least thirteen consecutive months starting in January of the year prior to the forecast year and ending in January of the subsequent year.

(4) The company's fiscal year ends in December.

The final sample contains 6,660 observations for 150 firms. We compute monthly returns by compounding the daily returns for each firm using holding-period returns and excess return series. The holding period and excess returns series are calculated using the TSE/Western database. Excess returns are computed using the capital asset pricing model (CAPM). That is, for each stock and month over the sample period, excess return is calculated as the difference between the stock's (actual) holding period return and its CAPM-based risk-adjusted expected return. On recent evidence that provides support for a positive relationship between expected return and beta see G.N. Pettengill, S. Sundaram, and I. Mathur, "The Conditional Relation Between Beta and Returns," Journal of Financial and Quantitative Analysis, vol. 30, 1995, 101-116.

In order to examine the seasonal pattern in returns for the sample of highly followed Canadian firms, we regressed monthly return on a constant and eleven dummy variables, each taking the value of one for a particular month of the forecast year and zero otherwise. The constant is the average sample return in January and the coefficients of the dummy variables measure differences in monthly returns from the January base. Results are reported for the overall sample, as well as quartiles determined by the standard deviation of analysts' earnings forecasts scaled by price ([Symbol Not Transcribed](FEPS)). We divide the firms into quartiles determined by the standard deviation of the individual analysts' earnings estimates ([Symbol Not Transcribed](FEPS)) as of June of the year prior to the earnings forecast. We first rank the firms in ascending order according to [Symbol Not Transcribed](FEPS) and then divide them into four quartiles of equal size. The first quartile (Q1) contains the firms with the lowest standard deviation and the fourth (Q4) contains those with the highest standard deviation. We partition into quartiles using the standard deviation for June of the year prior to the forecast year, rather than the standard deviation over the entire sample period. As a result, a firm's membership in a quartile can vary from forecast year to year as its standard deviation changes over time.