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Empirical Evidence of Abnormal Stock Returns: The January and Size Effects

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The purpose of the present study is to provide further empirical evidence of the January and size effects on abnormal stock returns. The data used in this study are monthly stock returns, shares outstanding, and prices of all the stocks listed on the NYSE, AMEX, and NASDAQ. The data of monthly stock returns, shares outstanding, and prices of all the stocks listed on the NYSE are from January, 01, 1959 to December 31, 2007. The data of the stocks listed on the AMEX are from January, 01, 1962 to December 31, 2007. The NASDAQ's data are from January, 01, 1971 to December 31, 2007. The findings confirm the January and size effects on abnormal returns reported in the previous studies.

Keywords: Abnormal Returns, Empirical Evidence, January and Size Effects

1. Introduction

Explaining abnormal returns of securities has been one of the interests in financial and economics research. Many researchers have successfully attempted to explain abnormal stock returns. For instance, stock returns in the month of January are negatively related to returns in the previous year (Branch, 1977; Reinganum, 1983). In addition, DeBondt and Thaler (1987) find January returns and the returns in the previous three to five years to be negatively related. Likewise, Branch (1977) and Reinganum (1983) find that stocks that performed poorly in the previous year exhibit abnormally high returns in January. Keim (1983) finds high average abnormal returns in small-size portfolios, and these abnormal returns are highest in the month of January compared to other months in the same year. Lakonishok and Schmidt (1988) find similar evidence for January returns. Jegadeesh (1990) constructs ten portfolios based on size (market capitalization) and finds abnormal January returns; the portfolios consisting of small-size firms have higher January returns compared to those containing bigger firms. In respect to size-sorted portfolios, Fama and French (1992) find similar results; portfolios whose underlying securities belonging to firms with small market equity have higher average abnormal returns. Moreover, Denial and Titman (1997) reported higher abnormal returns in the same fashion as Fama and French (1992).

The size and January effects have been extensively documented in the literature of stock return predictability. Fama (1991) stated that "there is a resurgence of interesting research on the predictability of stock returns from past returns and other variables" (p. 1609). Therefore, the purpose of the current study is to provide further empirical evidence of the January and size effects on abnormal returns by analyzing more recent data.

2. Methods and Data

The data used in this study are monthly stock returns, shares outstanding, and prices of all the stocks listed on the NYSE, AMEX, and NASDAQ. The data of monthly stock returns, shares outstanding, and prices of all the stocks listed on the NYSE are from January, 01, 1959 to December 31, 2007. The data of the stocks listed on the AMEX are from 1962 to December 31, 2007. The NASDAQ's data are from January, 01, 1971 to December 31, 2007. The data were obtained from the database of the Center for Research in Security Prices (CRSP).

Ten portfolios were constructed based on the market capitalization of all the stocks listed on the NYSE, AMEX, and NASDAQ. The market capitalization was calculated by multiplying a security's share price at the end of each month by its number of shares outstanding. The market capitalization calculated using data in the previous year ($t-1$) was used for forming the ten portfolios in the current year (t). For instance, the formation of the ten portfolios of all the stocks listed on the NYSE in 1960 was based on the market capitalization calculated using the data in 1959. First of all, the empirical tests of the January and size effects were performed separately for all the stocks listed on the NYSE, AMEX, and NASDAQ. Then the empirical test was performed on all the combined stocks listed on the NYSE and AMEX. Finally, the data of all stocks listed on the NYSE, AMEX, and NASDAQ were analyzed to determine the January and size effects. For each portfolio, monthly returns for January and the rest

of the months of all stocks in that portfolio were calculated and then averaged for each decade; the results are reported in the next section.

3. Results

The analysis of the data of monthly stock returns, shares outstanding, and prices of all the stocks listed on the NYSE, AMEX, and NASDAQ provides strong evidence of the January and size effects. Table 1 provides evidence of abnormal returns of small firms and in the month of January for stocks listed on the NYSE. The comparison of January and the rest of the months shows that the average abnormal returns for the 1960s, 1970s, and 1980s are significantly higher in the month of January than other months combined. However, the differences in abnormal returns for the month of January and the rest of the months are statistically insignificant for the 1990s and 2000s. In addition, small firms exhibit higher returns compared to big firms, and the returns are highest in the 1970s. Moreover, small firms listed on the AMEX exhibit higher average abnormal returns in January compared to the rest of the months as shown in Table 2. The 1970s also record the highest average abnormal returns (25.50%) for the smallest portfolio in the month of January. Stocks with small market capitalization listed on the NASDAQ have higher average abnormal returns in January (See Table 3) than the rest of the months. In addition, Table 4 shows average abnormal returns of all the combined stocks listed on the NYSE and AMEX. Finally, the results in Table 5 indicate that all the stocks listed on the NYSE, AMEX, and NASDAQ exchanges that have smaller market capitalization have higher average abnormal returns in the month of January compared to the rest of the months, and the results are statistically significant.

Overall, the results reported in the present study strongly confirm the January and size effects reported in the previous studies. The evidence is statistically significant mostly at 1 percent level.

Table 1 Average Abnormal Returns of the Ten Portfolios Containing All the Stocks Listed on the NYSE from January 01, 1960 to December 31, 2007 (In Percentage)

The ten portfolios were constructed based on the market capitalization of all the stocks listed on the NYSE. The market capitalization was calculated by multiplying a security's share price at the end of each month by its number of shares outstanding. The market capitalization calculated using data in the previous year ($t-1$) was used for forming the ten portfolios in the current year (t). The t -statistic is the test of difference between the average abnormal returns in the month of January and the rest of the months in the same decade.

Portfolio	1960s		1970s		1980s		1990s		2000s	
	Jan	Other	Jan	Other	Jan	Other	Jan	Other	Jan	Other
Smallest	7.75	0.95	16.11	0.33	7.86	0.86	8.57	0.62	5.94	1.13
2	5.82	0.78	12.11	0.28	5.38	1.03	3.50	0.47	3.57	0.85
3	5.32	0.73	9.63	0.32	4.53	1.05	2.17	0.55	3.54	1.02
4	4.16	0.82	7.65	0.43	4.13	1.07	2.30	0.67	2.07	1.06
5	3.73	0.61	6.97	0.48	3.96	1.10	1.01	0.88	1.59	1.16
6	2.79	0.72	5.57	0.43	4.47	1.22	1.34	0.81	1.21	1.18
7	2.50	0.72	4.30	0.58	3.21	1.25	0.51	0.80	1.04	1.25
8	2.25	0.72	3.79	0.64	3.31	1.24	0.54	1.07	0.00	1.13
9	1.80	0.72	2.43	0.51	3.53	1.31	0.91	1.05	0.61	1.15
Largest	0.75	0.55	0.83	0.50	3.40	1.26	1.35	1.30	-0.16	0.79
<i>t</i> -statistic	4.591***		4.323***		6.728***		1.729		1.434	

(***) significant at 1 percent level

Table 2 Average Abnormal Returns of the Ten Portfolios Containing All the Stocks Listed on the AMEX from January 01, 1963 to December 31, 2007 (In Percentage)

The ten portfolios were constructed based on the market capitalization of all the stocks listed on the AMEX. The market capitalization was calculated by multiplying a security's share price at the end of each month by its number of shares outstanding. The market capitalization calculated using data in the previous year ($t-1$) was used for forming the ten portfolios in the current year (t). The t -statistic is the test of difference between the average abnormal returns in the month of January and the rest of the months in the same decade.

Portfolio	1960s		1970s		1980s		1990s		2000s	
	Jan	Other	Jan	Other	Jan	Other	Jan	Other	Jan	Other
Smallest	15.38	2.35	25.50	-0.26	15.73	1.10	15.65	2.79	16.72	2.56
2	11.99	1.75	20.72	-0.24	10.38	0.60	8.81	0.97	13.08	0.67
3	12.28	1.70	17.11	-0.48	8.86	0.97	6.05	0.79	5.70	0.53
4	10.34	1.25	14.71	-0.47	7.39	0.56	5.40	0.68	6.96	0.43
5	8.87	1.06	13.52	0.13	7.27	0.53	5.44	0.49	5.44	0.18
6	7.66	0.87	10.78	-0.25	6.30	0.62	3.96	0.47	3.95	0.49
7	7.55	1.24	9.90	-0.21	5.09	0.61	4.06	0.25	5.48	0.56
8	5.13	1.30	8.43	-0.21	4.48	0.62	2.57	0.53	3.15	0.66
9	4.61	0.97	7.20	-0.10	3.52	0.71	1.78	0.52	1.77	0.72
Largest	3.62	0.82	4.45	0.27	3.36	0.97	0.12	0.56	0.92	0.64
<i>t</i> -statistic	6.945***		6.428***		5.609***		3.897***		3.892***	

(***) significant at 1 percent level

Table 3 Average Abnormal Returns of the Ten Portfolios Containing All the Stocks Listed on NASDAQ from January 01, 1972 to December 31, 2007 (In Percentage)

The ten portfolios were constructed based on the market capitalization of all the stocks listed on the NASDAQ. The market capitalization was calculated by multiplying a security's share price at the end of each month by its number of shares outstanding. The market capitalization calculated using data in the previous year ($t-1$) was used for forming the ten portfolios in the current year (t). The t -statistic is the test of difference between the average abnormal returns in the month of January and the rest of the months in the same decade.

Portfolio	1970s		1980s		1990s		2000s	
	Jan	Other	Jan	Other	Jan	Other	Jan	Other
Smallest	17.11	2.83	11.87	1.58	17.70	3.15	18.57	1.81
2	14.13	1.82	9.58	0.64	8.86	1.39	12.11	0.99
3	12.75	1.73	9.08	0.27	6.88	0.79	9.25	0.79
4	13.21	1.56	8.15	0.10	5.96	0.81	8.49	0.50

5	11.80	1.45	7.30	-0.08	5.18	0.56	8.01	0.61
6	11.32	1.22	6.71	0.03	4.80	0.80	6.49	0.46
7	9.42	1.16	6.12	0.17	3.45	0.78	5.48	0.24
8	8.73	0.96	5.50	0.33	2.52	0.87	3.25	0.33
9	7.61	0.66	4.63	0.79	2.03	0.91	2.63	-0.12
Largest	4.49	0.76	3.69	0.95	1.63	1.53	1.14	-0.27
<i>t</i> -statistic	10.047***		8.984***		3.617***		4.881***	

(***) significant at 1 percent level

Table 4 Average Abnormal Returns of the Ten Portfolios Containing All the Combined Stocks Listed on the NYSE and AMEX from January 01, 1963 to December 31, 2007 (In Percentage)

The ten portfolios were constructed based on the market capitalization of all the combined stocks listed on the NYSE and AMEX. The market capitalization was calculated by multiplying a security's share price at the end of each month by its number of shares outstanding. The market capitalization calculated using data in the previous year ($t-1$) was used for forming the ten portfolios in the current year (t). The t -statistic is the test of difference between the average abnormal returns in the month of January and the rest of the months in the same decade.

Portfolio	1960s		1970s		1980s		1990s		2000s	
	Jan	Other	Jan	Other	Jan	Other	Jan	Other	Jan	Other
Smallest	11.78	1.60	22.01	-0.07	12.21	0.90	11.02	1.41	10.23	1.14
2	8.93	1.16	15.36	-0.12	7.50	0.60	5.42	0.56	5.72	0.69
3	7.34	0.92	12.63	0.01	6.05	0.78	3.78	0.39	4.01	0.73
4	5.74	1.05	11.04	0.13	5.00	0.87	2.54	0.51	3.34	0.97
5	5.12	0.83	9.68	0.10	4.32	0.97	2.39	0.60	2.34	1.05
6	4.47	0.87	7.77	0.26	3.79	1.04	1.26	0.79	1.64	1.11
7	3.53	0.83	6.09	0.34	4.05	1.20	0.94	0.78	1.31	1.14
8	2.99	0.79	4.77	0.43	3.52	1.23	0.61	0.92	0.60	1.20
9	2.46	0.76	3.43	0.48	3.51	1.24	0.73	1.01	0.50	1.13
Largest	1.33	0.55	1.37	0.48	3.36	1.29	1.26	1.25	-0.04	0.83
<i>t</i> -statistic	4.771***		4.564***		4.718***		2.198**		1.975*	

(***) significant at 1 percent level; (**) significant at 5 percent level; (*) significant at 10 percent level

Table 5 Average Abnormal Returns of the Ten Portfolios Containing All the Combined Stocks Listed on the NYSE, AMEX, and NASDAQ from January 01, 1972 to December 31, 2007 (In Percentage)

The ten portfolios were constructed based on the market capitalization of the all the combined stocks listed on the NYSE, AMEX, and NASDAQ. The market capitalization was calculated by multiplying a security's share price at the end of each month by its number of shares outstanding. The market capitalization calculated using data in the previous year ($t-1$) was used for forming the ten portfolios in the current year (t). The t -statistic is the test of difference between the average abnormal returns in the month of January and the rest of the months in the same decade.

Portfolio	1970s		1980s		1990s		2000s	
	Jan	Other	Jan	Other	Jan	Other	Jan	Other
Smallest	18.53	1.06	12.14	1.35	15.08	2.58	15.46	1.60
2	14.55	0.61	9.24	0.43	7.89	1.02	9.14	0.80
3	13.35	0.55	8.01	0.33	6.15	0.75	7.57	0.66
4	11.70	0.63	7.50	0.17	4.89	0.61	6.10	0.64
5	10.18	0.53	6.02	0.30	4.05	0.65	4.97	0.70
6	9.29	0.60	5.62	0.52	2.94	0.70	4.15	0.62
7	8.21	0.52	4.73	0.74	2.13	0.75	2.58	0.72
8	6.61	0.64	4.19	0.94	1.53	0.90	1.80	0.63
9	4.87	0.61	3.68	1.09	0.90	1.08	0.96	0.68
Largest	2.47	0.56	3.74	1.22	1.25	1.23	0.36	0.61
<i>t</i> -statistic	6.303***		6.498***		2.969**		3.320***	

(***) significant at 1 percent level; (**) significant at 5 percent level

4. Conclusion

Previous studies have documented the January and size effects on abnormal returns; in particular, small-cap firms have higher average abnormal returns compared to big-cap firms, and these abnormal returns are apparent in the month of January. For the NYSE, AMEX, NASDAQ, combined NYSE-AMEX, and combined NYSE-AMEX-NASDAQ datasets, the results are statistically significant. The average abnormal returns are highest in the 1970s compared to other decades. Finally, the January and size effects are strongly evident in the present study, and the results firmly support the previous studies.

How can one make profits based on the January and size effects? It is now empirically proven that average returns are higher for small-cap firms (value firms) than big-cap firms (growth firms). Based on this information, an investor can use a traditional buy-and-hold strategy to make profits. The investor can purchase a portfolio of (30 is the recommended number) small-cap firms in the month of February or somewhere between February and December in the previous year ($t-1$) and hold the portfolio then sell the portfolio on Wednesday, Thursday, or Friday in the first week of January in the current year (t). Another strategy which has been very popular among aggressive investors is short selling. Based on the information of abnormal returns related to January and size effects, the investor can short sell (borrow stocks from a broker and sell them immediately at the market prices) a security or securities with small market capitalization on Wednesday, Thursday, or Friday in the first week of January in the current year then buy back the short-sold security or securities on Monday in the first, second, third or fourth week of February in order to return the short-sold security or securities back to the broker. One of the

recommendations for future studies is to test the January and size effects of stocks listed in other stock exchanges outside of the United States.

5. References

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