The Holiday Anomaly: An Investigation of Firm Size Versus Share Price Effects

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The holiday effect is one of the oldest and most consistent of all seasonal anomalies. It is responsible for 30 percent to 50 percent of the total return on the market and exhibits above average mean returns coupled with below average variances (Lakonishok and Smidt, 1988; Ariel, 1990). Although firm size has been associated with the weekend, January, and holiday effects, recent research suggests that share price subsumes the firm size effect (Bhardwaj and Brooks, 1992a). The primary objective of this study is to determine whether the holiday effect is a share price or firm size phenomenon. The results confirm the growing evidence that share price is a fundamental variable underlying stock return anomalies. This research increases our understanding of capital market behavior and reduces the range of probable explanations for the holiday effect, as well as for other stock return anomalies.

INTRODUCTION

Although numerous market anomalies have been discovered and investigated over the past 20 years, the holiday effect is among the oldest, largest, and most consistent of all seasonal regularities.[1] This single effect is responsible for approximately 50 percent of the return on the Dow Jones Industrial Average (DJIA), has existed for at least 90 years (Lakonishok and Smidt, 1988), and exhibits above average mean returns along with below average variances (Ariel, 1992a). As part of the search for plausible explanations, Rogalski (1984) and Pettengill (1989) document an inverse relation between firm size and the holiday effect, similar to the well-documented weekend and January effects.[2] Bhardwaj

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[1] While the precise holidays used by different researchers vary, most studies include New Year's Day, President's Day (formerly Washington's Birthday), Good Friday, Memorial Day, July 4th, Labor Day, Thanksgiving, and Christmas.

[2] Wachtel (1942) and Rozeff and Kinney (1976) are two of the first studies to document the January effect while Banz (1981) and Reinganum (1981) provide early evidence of the small firm effect. Keim (1983), Roll

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and Brooks (1992a), however, show that market anomalies previously associated with firm size are more accurately described as share price effects. These authors conclude that (p. 101), "This new evidence raises the question of whether other independently reported stock market anomalies persist after controlling for a price effect." The primary purpose of this study is to investigate the effects of firm size versus share price on the previously-documented holiday anomaly.

The distinction between size and price effects is important because each effect implies somewhat different underlying causes. If the holiday effect is mostly associated with low price stocks, for example, then the likelihood increases that market microstructure plays a central role in explaining the empirical results. This link would suggest conducting subsequent studies using transactions data to analyze bid, ask, and midpoint prices. If the empirical results are predominantly a function of firm size, however, subsequent research should focus on alternative risk-adjusted return models.

THE HOLIDAY EFFECT[3]

Lakonishok and Smidt (1988) conduct a comprehensive analysis of previously-reported seasonal anomalies.[4] Using approximately 90 years of DJIA daily returns, the authors test for weekly, monthly, yearly, and holiday effects. The holiday effect is investigated by classifying all trading days as pre-holiday, post-holiday, and non-holiday. While the average daily non-holiday return over the entire sample period is 0.0094 percent, the average pre-holiday return is 0.220 percent. The pre-holiday return, therefore, is more than 23 times larger than the average non-holiday return and accounts for approximately 50 percent of DJIA annual returns. These results are consistent over most subperiods with the notable exception of the most recent subperiod, 1976 to 1986, in which pre-holiday returns are positive but insignificantly different from non-holiday returns. In addition, Lakonishok and Smidt show that the holiday effect is separate and distinct from other seasonal anomalies.

Based on the size-related findings of Rogalski (1984), Pettengill (1989) analyzes holiday returns for both large and small capitalization portfolios using daily data from July 1962 to December 1986. He confirms that pre-holiday returns are significantly different from non-holiday returns for each size-based portfolio regardless of the weekday, year, or holiday, although pre-holiday returns are stronger for the smallest capitalization portfolio (0.4607 percent versus 0.2692 percent for the largest). Post-holiday returns vary by the day of the week as well as by portfolio size. While the overall post-holiday return is insignificantly positive for large and small portfolios, the small portfolio return is con-

(1983a), and Blume and Stambaugh (1983) show that the two anomalies are related. Evidence of a weekend effect is provided by Cross (1973), French (1980), Gibbons and Hess (1981), and Lakonishok and Levi (1982). Evidence that the weekend effect depends on firm size is presented by Keim and Stambaugh (1984) and Rogalski (1984).

[3] For a more comprehensive review and analysis of the holiday effect, see Brockman (1995).

[4] Some of the first reports documenting anomalous stock return behavior around holidays are provided by investment advisors such as Merrill (1966) and Fosback (1976). Next, Roll (1983a) and Lakonishok and Smidt (1984) observe unusually high rates of return on the last trading day of December and around the Christmas holiday, respectively. From 1963 to 1982, Ariel (1985) finds that 38 percent of the total annual return on the CRSP value-weighted index occurs on the trading days preceding just eight yearly holidays. These early results have generally been confirmed and expanded by subsequent research.

siderably higher than its large portfolio counterpart (0.1938 percent versus 0.0034 percent).

Ariel (1990) uses daily stock index returns from the CRSP value-weighted and equally weighted portfolios from 1963 to 1982 to confirm that pre-holiday returns are significantly different from non-holiday returns. Parametric and nonparametric tests fail to reject the hypothesis of equal frequency of advances and equal mean returns across holidays.[5] Ariel shows that these results are not due to a small number of high return outliers and that the pre-holiday return variance is actually lower than the non-holiday return variance. Ariel also documents that high pre-holiday returns occur only on the single day before the actual holiday.

Kim and Park (1994) show that the holiday effect exists across U.S. markets (New York Stock Exchange (NYSE), American Stock Exchange (AMEX), and National Association of Security Dealers Automated Quotation System (Nasdaq)) and international stock markets (U.K. and Japan). This study tests whether the holiday effect is independent of the weekend, January, and small firm effects. Similar to previously-mentioned studies, the holiday effect appears to be a phenomenon independent of the day-of-the-week and January effects. Kim and Park also find that the holiday effect is independent of the small firm effect by testing the equivalence of pre-holiday dummy variable coefficients across size decile portfolios.[6]

Fabozzi, Ma, and Briley (1994) investigate holiday effects on the U.S. futures exchanges. The study of futures provides evidence from a different financial instrument traded within a different institutional framework. Empirical evidence from these instruments, therefore, is useful in reducing the set of plausible explanations for the holiday effect.[7] Using 20 years of data from 1969 to 1989 and 28 actively-traded futures contracts, Fabozzi, Ma, and Briley show that there is a significantly positive pre-holiday effect associated with exchange-closed holidays.

This brief overview demonstrates that the holiday effect is a pervasive market anomaly. While most previous studies agree on the significance of pre-holiday returns, conflicting evidence is presented with respect to post-holiday returns. Conflicting evidence is also presented with respect to the role of firm size. To date, the above-mentioned empirical regularities have eluded explanation. The current study provides additional evidence in an effort to gain a clearer understanding of the holiday effect and to narrow the list of potential explanations. In particular, no previous research has tested for holiday

[5] The only exception to this result is the pre-holiday return of the CRSP equally-weighted portfolio associated with New Year's Day. This is not surprising, however, based on previous studies documenting the relationship between the January and small-firm effects.

[6] The regressions include day-of-the-week, pre-holiday, and pre-New-Year's-Day dummy variables for each of ten size-based portfolios. The coefficients on the pre-holiday dummies are tested for equivalence across the ten regressions, and the null hypothesis of equality is not rejected. See Ariel (1990) for a slightly different methodology based on the same dummy variable regression design.

[7] For example, because futures contracts are settled daily, the delayed settlement procedure hypothesis related to equities can be tested by looking at pre-holiday futures returns. Because the pit committee usually sets the settlement price around the midpoint of the closing bid and ask prices, the importance of closing bid-ask patterns can be tested by comparing futures to equity results. Arguments based on the timing (manipulation) of corporate information releases can be tested with the use of futures contracts because most futures prices are affected by macroeconomic news which is less susceptible to manipulation.

firm size effects on Nasdaq stocks or, more importantly, distinguished firm size from share price effects in both auction and dealer markets.[8]

DATA AND EMPIRICAL RESULTS

The data set used in this study consists of Center for Research in Security Prices (CRSP) daily prices, number of shares outstanding, and returns for all stocks traded on the NYSE and AMEX from 1963 to 1994 and all stocks traded on the Nasdaq from 1973 to 1994. All NYSE, AMEX, and Nasdaq stocks are ranked (by exchange) in ascending order using the CRSP classification which is based on outstanding shares and stock prices at the end of the prior year. Every firm is then placed into one of five size-based portfolios (S1, S2, S3, S4, S5 (largest)). Each of the five size-based categories is approximately equal in the number of firms it contains. Next, each of these five size-based portfolios is divided into five price-based portfolios (P1, P2, P3, P4, P5 (highest)) according to end-of-prior-year prices. In summary, a total of 25 size/price-based portfolios are generated each year based on the prior year's ending prices and number of shares outstanding.

Following Bhardwaj and Brooks (1992a), the price portfolios are classified as prices less than $5 (P1), between $5 and $10 (P2), between $10 and $15 (P3), between $15 and $20 (P4), and greater than $20 (P5). The purpose of this design is to test for differential return effects based on firm size while holding share prices constant and to test for differential return effects based on share prices while holding firm size constant.[9] Again, following the literature, holidays are identified as any normal trading day (Monday through Friday) on which trading does not occur. Pre-holiday (post-holiday) returns are classified as the daily close-to-close returns that occur one trading day prior (subsequent) to a holiday.

EMPIRICAL RESULTS: ALL HOLIDAY RETURNS

Table 1 demonstrates that there exists statistically significant share price and firm size effects for pre-holiday returns based on the F-statistics reported in the last column and last three rows of the table. These F-statistics test the null hypothesis of equal means across categories (e.g., the first F-statistic in the right column (0.89) tests the equality of mean pre-holiday returns for the smallest NYSE size class across all five price groupings, while the first F-statistic in the bottom rows (0.90) tests the equality of mean pre-holiday returns for the lowest NYSE price class across all five size groupings). Therefore, significant F-statistics on the right side of the table provide empirical evidence of a price effect (i.e., after correcting for size differences), while significant F-statistics at the bottom of the table are evidence of size effects (i.e., after correcting for price differences).

On the NYSE, the firm size effect is statistically significant for stocks trading in the P2 and P3 ranges, while the share price effect is significant for the middle three firm sizes, S2, S3 (marginally, at the 10 percent level), and S4. On the AMEX, the firm size

[8] Although Kim and Park (1994) use Nasdaq data for parts of their study, they use only NYSE/AMEX data when testing for a firm size effect. Wilson and Jones (1993) also use Nasdaq data but do not test for firm size effects.

[9] This method of partitioning firms by one variable (size) and then subpartitioning based on a second variable (price) is widely used in the literature. It should be noted that this methodology creates unequal sample sizes (see the appendix), particularly in the small size and high price category for NYSE (i.e., S1:P5).

Table 1—Price Effect Versus Size Effect on Pre-Holidays

This table reports mean returns in percentages for the day before the standard U.S. holidays over the period 1963-1994 for NYSE and AMEX and the period 1973-1994 for Nasdaq. Price groups are calculated using the last price during the prior year. Capitalization groups are calculated using the CRSP classification which is based on the outstanding shares and stock price at the end of the prior year. F-statistic tests are for the null hypothesis that there is no difference in mean returns across the five price groups within a particular size group (last column) and across the five size groups within a particular price group (last three rows).

	Price Group					
Size	P1≤$5	$5<P2≤$10	$10<P3≤$15	$15<P4≤$20	$20<P5	F-statistic[a]
S1 (smallest)						
NYSE	0.6630	0.1194	0.4074	0.2518	0.5316	0.89
AMEX	0.8788	0.3536	0.0220	0.3166	0.6068	10.99***
Nasdaq	0.4196	0.2122	0.2088	0.1860	0.0776	6.09***
S2						
NYSE	0.7912	0.3464	0.1251	0.4140	0.3032	6.25***
AMEX	0.7485	0.4300	0.3645	0.2574	0.3087	10.49***
Nasdaq	0.5196	0.2767	0.2205	0.1749	0.1388	11.87***
S3						
NYSE	0.7579	0.4730	0.4226	0.4230	0.3975	2.18*
AMEX	0.8197	0.5885	0.5168	0.4132	0.2945	8.33***
Nasdaq	0.6067	0.4398	0.3346	0.2767	0.2238	10.22***
S4						
NYSE	0.6458	0.5954	0.4672	0.3945	0.3328	4.22***
AMEX	0.7124	0.5762	0.4856	0.4786	0.3964	1.37
Nasdaq	0.5772	0.4243	0.3190	0.2999	0.2701	3.61***
S5 (largest)						
NYSE	0.3605	0.5228	0.4433	0.3833	0.3055	1.00
AMEX	0.1009	0.6966	0.4167	0.5519	0.3791	1.78
Nasdaq	0.4693	0.3407	0.3258	0.2798	0.2785	0.40
F-statistic[b]						
NYSE	0.90	2.70**	3.84***	0.31	0.37	
AMEX	3.57***	1.77	5.72***	2.49**	1.42	
Nasdaq	0.56	2.26*	1.46	1.57	3.31**	

*** Significant at $\alpha = 0.01$
** Significant at $\alpha = 0.05$
* Significant at $\alpha = 0.10$
[a]Degrees of freedom range from 4,506 to 4,1237
[b]Degrees of freedom range from 4,704 to 4,1208

effect is statistically significant for stocks trading in the P1, P3, and P4 ranges. The share price effect is significant for the smallest three firm sizes, S1, S2, and S3. Nasdaq returns exhibit a significant firm size effect for stocks trading in the P2 (marginally, at the 10 percent level) and P5 ranges. The share price effect, however, is significant for all firm size categories except S5. Both effects are present in the data, although share prices appear to capture more of the pre-holiday return variation than firm sizes.

In addition to the above-mentioned findings, Table 1 documents two interesting results. First, pre-holiday returns are always highest for stocks trading in the less than $5 category (P1) except for the largest size stocks trading on NYSE and AMEX. For example, the average NYSE, AMEX, and Nasdaq pre-holiday returns in the P1 group of the S1 row (i.e., first row) are 0.7173, 0.8826, and 0.4257, respectively. These returns are higher than those of any other price range (P2, P3, P4, P5) for each respective exchange. This finding is consistent with that of Bhardwaj and Brooks (1992a) in which the January effect is shown to be more closely associated with a low share price effect than a small firm effect. And second, Nasdaq returns decrease monotonically as one moves from the lower

Table 2—Price Effect Versus Size Effect on Post-Holidays

This table reports mean returns in percentages for the day after the standard U.S. holidays over the period 1963-1994 for NYSE and AMEX, and the period 1973-1994 for Nasdaq. Price groups are calculated using the last price during the prior year. Capitalization groups are calculated using the CRSP classification which is based on the outstanding shares and stock price at the end of the prior year. F-statistic tests are for the null hypothesis that there is no difference in mean returns across the five price groups within a particular size group (last column) and across the five size groups within a particular price group (last three rows).

	Price Group					
Size	P1≤$5	$5<P2≤$10	$10<P3≤$15	$15<P4≤$20	$20<P5	F-statistic[a]
S1 (smallest)						
NYSE	1.5535	0.1791	0.3538	0.0256	0.2772	4.99***
AMEX	0.7649	0.1704	0.2560	0.0291	0.2574	4.98***
Nasdaq	0.1670	0.0477	0.0868	0.0843	-0.0142	1.17
S2						
NYSE	0.3615	0.2370	0.2180	0.1316	0.1495	0.45
AMEX	0.2591	0.1401	0.1255	0.1839	0.1880	0.53
Nasdaq	-0.0612	-0.0296	-0.0393	0.0890	-0.0652	1.03
S3						
NYSE	0.0554	0.2310	0.1797	0.1507	-0.0443	1.16
AMEX	0.3862	0.1333	0.1109	0.0287	0.0776	2.47**
Nasdaq	-0.1861	-0.1007	-0.0787	-0.0284	0.0505	2.03*
S4						
NYSE	0.1570	0.1067	0.1053	0.0881	0.0711	0.13
AMEX	0.0607	0.0718	0.0074	0.0628	0.0031	0.11
Nasdaq	-0.3288	-0.1985	-0.1221	-0.0676	-0.0790	1.50
S5 (largest)						
NYSE	0.4401	-0.0017	0.1442	0.0710	0.0200	2.43**
AMEX	0.0331	-0.1917	0.0236	0.0621	0.0024	0.46
Nasdaq	-0.6938	-0.2864	-0.1776	-0.1490	-0.1143	1.52
F-statistic[b]						
NYSE	8.74***	0.85	0.68	0.28	1.30	
AMEX	2.73**	2.10*	1.29	0.71	2.15*	
Nasdaq	3.35***	2.33*	2.32*	2.97**	0.93	

*** Significant at $\alpha = 0.01$
** Significant at $\alpha = 0.05$
* Significant at $\alpha = 0.10$
[a]Degrees of freedom range from 4,506 to 4,1237
[b]Degrees of freedom range from 4,704 to 4,1208

price groups to the higher price groups (i.e., from P1 to P5) within each firm size grouping. This evidence indicates that price (as opposed to firm size) plays a more dominant role on Nasdaq than on the auction markets of NYSE and AMEX.

Table 2 demonstrates that there also exists statistically significant share price and firm size effects for post-holiday returns. On the NYSE, the firm size effect is significant only for stocks trading in the P1 range, while the share price effect is significant for the smallest (S1) and largest firm size (S5). On the AMEX, the firm size effect is significant for stocks trading in the P1, P2 (marginally), and P5 (marginally) ranges. The share price effect is significant for the smallest (S1) and middle firm size (S3). Nasdaq returns exhibit a significant firm size effect for stocks trading in all price ranges with the exception P5. The share price effect is insignificant for all size-based portfolios except S3 (marginally). Contrary to the pre-holiday findings, share prices appear to capture less of the post-holiday return variation than firm sizes. Nasdaq firms reveal a pervasive size effect and little share price effects.

Table 3—Price Effect Versus Size Effect on Pre-Holidays Excluding Weekend and Turn-of-the-Year Returns

This table reports mean returns in percentages for the day before the standard U.S. holidays excluding New Years and weekends over the period 1963-1994 for NYSE and AMEX, and the period 1973-1994 for Nasdaq. Price groups are calculated using the last price during the prior year. Capitalization groups are calculated using the CRSP classification which is based on the outstanding shares and stock price at the end of the prior year. F-statistic tests are for the null hypothesis that there is no difference in mean returns across the five price groups within a particular size group (last column) and across the five size groups within a particular price group (last three rows).

	Price Group					
Size	P1≤$5	$5<P2≤$10	$10<P3≤$15	$15<P4≤$20	$20<P5	F-statistic[a]
S1 (smallest)						
NYSE	0.9312	-0.0180	0.3406	0.3004	0.6016	0.67
AMEX	1.1083	0.5007	0.1438	0.5273	0.6858	5.38***
Nasdaq	0.3746	0.2011	0.1863	0.2749	0.1385	5.23***
S2						
NYSE	1.0187	0.4807	0.0659	0.4725	0.2987	3.11**
AMEX	1.0823	0.5548	0.4954	0.2211	0.4647	6.73***
Nasdaq	0.6435	0.3695	0.3446	0.1874	0.2883	4.07***
S3						
NYSE	0.9417	0.5895	0.5104	0.3597	0.2465	3.34**
AMEX	1.2179	0.7135	0.6214	0.5744	0.3541	6.35***
Nasdaq	0.7643	0.5737	0.4111	0.3000	0.3071	4.72***
S4						
NYSE	0.8092	0.6940	0.5600	0.5013	0.3796	2.14*
AMEX	1.3100	0.3914	0.6466	0.6563	0.4717	3.81**
Nasdaq	0.9572	0.4594	0.4124	0.3724	0.3484	4.59***
S5 (largest)						
NYSE	0.5874	0.4047	0.5569	0.4304	0.3530	0.40
AMEX	-0.2383	0.7226	0.7152	0.7602	0.4701	1.57
Nasdaq	0.5258	0.4546	0.2579	0.2637	0.3725	0.44
F-statistic[b]						
NYSE	0.21	1.99*	2.71**	0.26	1.00	
AMEX	4.79**	0.42	2.39*	2.44**	0.72	
Nasdaq	1.62	1.62	1.00	0.60	0.88	

*** Significant at $\alpha = 0.01$
** Significant at $\alpha = 0.05$
* Significant at $\alpha = 0.10$
[a]Degrees of freedom range from 4,177 to 4,432
[b]Degrees of freedom range from 4,268 to 4,421

EMPIRICAL RESULTS: EXCLUDING WEEKEND AND TURN-OF-THE-YEAR EFFECTS

The evidence presented thus far does not control for possible interactions between the turn-of-the-year (January) effect, weekend effect, and holiday effect. Ariel (1990) and Kim and Parks (1994), for example, find that the size effect associated with pre-holiday returns disappears after controlling for both the January and weekend effects.[10] Because holiday returns overlap these other known anomalies, it is essential to construct testing methods that isolate holiday pricing behavior from weekend and turn-of-the-year behavior. We isolate these behaviors by duplicating the test procedures described above after deleting the pre- and post-New Year's day returns from the data set, thereby controlling for the turn-of-the-year effect. Likewise, the weekend effect is controlled by deleting both pre- and post-

[10] As stated by Kim and Park (1994, pp. 150-151), "Consistent with those of Ariel (1990), the results indicate that, after controlling for the day-of-the-week effect and the pre-New-Year's-Day effect, size effect is not present in mean returns on pre-holidays. Also, see Ariel (1990, p. 1623).

Table 4—Price Effect Versus Size Effect on Post-Holidays Excluding Weekend and Turn-of-the-Year Returns

This table reports mean returns in percentages for the day after the standard U.S. holidays excluding New Years and weekends over the period 1963-1994 for NYSE and AMEX, and the period 1973-1994 for Nasdaq. Price groups are calculated using the last price during the prior year. Capitalization groups are calculated using the CRSP classification which is based on the outstanding shares and stock price at the end of the prior year. F-statistic tests are for the null hypothesis that there is no difference in mean returns across the five price groups within a particular size group (last column) and across the five size groups within a particular price group (last three rows).

	Price Group					
Size	P1≤$5	$5<P2≤$10	$10<P3≤$15	$15<P4≤$20	$20<P5	F-statistic[a]
S1 (smallest)						
NYSE	3.4298	0.4737	0.9470	-0.2272	-0.0817	6.53***
AMEX	2.0962	0.5436	0.5799	0.3927	0.5023	7.46***
Nasdaq	0.6947	0.2542	0.1412	0.1631	-0.1185	6.52***
S2						
NYSE	1.7798	0.6753	0.6103	0.3108	0.3741	5.93***
AMEX	1.1817	0.7137	0.5001	0.4714	0.4886	4.59***
Nasdaq	0.5618	0.2994	0.1253	0.2181	-0.1929	4.22***
S3						
NYSE	1.3408	0.9095	0.6869	0.4896	0.2689	5.31***
AMEX	1.7547	0.8680	0.5723	0.2765	0.3322	13.55***
Nasdaq	0.5503	0.3691	0.1835	0.1924	0.1707	3.31**
S4						
NYSE	1.6007	0.8305	0.6444	0.4266	0.2817	9.64***
AMEX	1.1356	0.7517	0.4618	0.4505	0.3089	2.83**
Nasdaq	0.5279	0.4982	0.2897	0.2609	0.1376	2.06*
S5 (largest)						
NYSE	1.8406	0.6801	0.6807	0.4950	0.2295	8.40***
AMEX	1.5784	0.4598	0.5395	0.5148	0.2327	2.90**
Nasdaq	0.3552	0.2715	0.3287	0.2970	0.1991	0.09
F-statistic[b]						
NYSE	4.03***	0.53	0.35	2.77**	0.76	
AMEX	1.28	0.81	0.13	0.55	0.91	
Nasdaq	0.32	0.60	0.88	0.33	1.60	

*** Significant at $\alpha = 0.01$
** Significant at $\alpha = 0.05$
* Significant at $\alpha = 0.10$
[a]Degrees of freedom range from 4,177 to 4,432
[b]Degrees of freedom range from 4,268 to 4,421

weekend returns from the data set.[11] This method of analysis allows one to isolate price versus size effects on pure holiday returns without the confounding influences of price versus size January effects and weekend effects.

The results in Table 3 are consistent with those in Table 1, although Table 3 shows that the evidence for a share price effect versus a firm size effect is stronger when one isolates pre-holiday returns from pre-weekend and pre-turn-of-the-year returns. Again, these findings add support to those of Bhardwaj and Brooks (1992a,1992b) in which share prices play a significant role in explaining the January and neglected firm anomalies. Some firm size effects are still present in these findings, however, in contrast to Bhardwaj and Brooks' January effect results.

Table 4 demonstrates that post-holiday returns, when separated from the confounding effects of post-weekend and post-turn-of-the-year returns, are much more sensitive to share

[11] This procedure deletes pre- and post-holiday returns for holidays that fall on Fridays and Mondays as they, in effect, extend the weekend.

prices than to firm sizes. Additional testing (not reported herein, but available upon request) shows that it is the correction for post-weekend returns that drives most of the significant results. In other words, predominantly negative Monday or Tuesday returns (i.e., post-weekend) tend to mitigate post-holiday share price effects as seen in Table 2. When the method of analysis accounts for weekend and turn-of-the-year effects, however, post-holiday returns show an even stronger dependency on price groupings than do pre-holiday returns. For the low share prices in particular, post-holiday returns are large once the weekend effect has been taken into account. These results also suggest that the inconsistent post-holiday findings of previous studies may be a function of the treatment and/or number of weekend-related post-holiday returns.

SUMMARY AND CONCLUSION

The holiday effect is one of the oldest and most consistent of all seasonal regularities and is associated with 30 percent to 50 percent of the total return on the market. Moreover, it seems unlikely that model misspecification is responsible for this anomaly because holiday returns exhibit above average means along with below average variances. While previous studies have produced intriguing results about the holiday effect, additional research is warranted. This study provides additional evidence on the holiday effect by investigating its relationship to share price and firm size. New findings related to Nasdaq and post-holiday returns are also presented.

The results of this study demonstrate that share price is at least as significant as firm size in explaining the behavior of stock returns immediately before and after holidays. Although the returns data including all holidays display somewhat ambiguous price versus size effects, the returns data corrected for weekend and January effects display a stronger role for a share price effect. This evidence is consistent with that of Bhardwaj and Brooks (1992a) and others who show that share price is a fundamental variable underlying previously-reported firm size anomalies. Unlike the results of Bhardwaj and Brooks, however, the findings reported herein do not negate a significant role played by firm size as well (i.e., price effects do not unambiguously dominate size effects).

In addition, the results demonstrate that much of the conflicting evidence on post-holiday returns is probably a function of including or excluding weekend and turn-of-the-year (i.e., January) returns from the holiday returns sample. Data with the weekend and turn-of-the-year returns omitted display a stronger role for a share price effect. Nasdaq pre-holiday returns are shown to decrease monotonically while moving from smallest to largest price groupings. This finding, warranting additional research, suggests that share price may play a unique role in dealer markets.

This research increases our understanding of capital market behavior and restricts the range of probable holiday effect explanations. Because the holiday anomaly is related to share prices, for example, this increases the likelihood of a market microstructure-related underlying cause and suggests that future research should focus on transactions data and bid-ask spreads. The holiday effect is consistent with higher (lower) buying (selling) pressure on the day before holidays. This asymmetric change in price pressure should be more pronounced on lower share prices due to their larger relative bid-ask spreads. An additional area of future interest is to investigate possible trading strategies designed to exploit the holiday effect. For example, a filter rule that purchases low price (P1) shares before a non-

weekend-related holiday and sells at the close of the next (post-holiday) trading day appears to be potentially profitable, at least before transaction costs.

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