5-2016

Pre-holiday Anomaly: Examining the pre-holiday effect around Martin Luther King Jr. Day

Scott E. Jones

PRE-HOLIDAY ANOMALY: EXAMINING THE PRE-HOLIDAY EFFECT AROUND MARTIN LUTHER KING JR. DAY

by

Scott E. Jones

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Financial Economics

Approved:

_____	_____
Dr. Tyler Brough Major Professor	Dr. Ben Blau Committee Member

_____
Dr. Ryan Whitby
Committee Member

UTAH STATE UNIVERSITY
Logan, Utah

2016

ABSTRACT

Pre-holiday Anomaly:

Examining the pre-holiday effect around Martin Luther King Jr. Day

by

Scott E. Jones, Master of Science

Utah State University, 2016

Major Professor: Dr. Tyler J. Brough

Department: Finance

This paper looks at the 17 years leading up to Martin Luther King Jr. day becoming a non-traded holiday and the 17 years since to see if this exogenous shock to the market resulted in abnormal rates of return on the day before the holiday (known as the pre-holiday effect). I also look to see if evidence of abnormal returns still exists before Christmas and July 4th during the same time period. I used daily data on the equally-weighted universe of stocks, the value-weighted universe of stocks, and the S&P 500. I find that while there is some evidence of pre-Christmas abnormal rates of return, there is no evidence of such anomalies before July 4th. My results also show that returns do

not change around the time when Martin Luther King Jr. Day became a non-traded holiday. (16 Pages)

CONTENTS Page

1 Introduction

Fama (1970) made the argument that markets are efficient in his efficient market hypothesis. This hypothesis implies that all publicly available information and all historical information are fully reflected in prices. Lakonishok and Smidt (1988), on the other hand, find evidence of the existence of persistent seasonal patterns in rates of return. In particular, they find abnormally high rates of return around the turn of the week, around the turn of the month, and around the turn of the year. Furthermore, Lakonishok and Smidt (1988) show return seasonalities around holidays. Specifically, they find that stock returns before holidays are more than 20 times the normal rate of return using daily returns from the Dow Jones Industrial Average from 1897 to 1986. These findings contradict the efficient market hypothesis discussed by Fama (1970).

Since Lakonishok and Smidt's (1988) analysis on seasonally anomalous returns, Martin Luther King Jr. day has become a non-traded holiday in 1998. In this paper I look at the 17 years leading up to Martin Luther King Jr. day becoming a non-traded holiday and the 17 years after to see if this exogenous event is associated with the inception of abnormal returns. Perhaps the pre-holiday effect is explained by frictions associated with non-continuous trading due to the holiday.

These tests suggest that there is no significant evidence that Martin Luther King Jr. Day becoming a non-traded holiday caused abnormally high rates of return on the day leading up to it. Said differently, stock returns on the day before Martin Luther King

Jr. Day are no different when looking at the periods before and after this holiday became a non-traded holiday.

Perhaps the pre-holiday effect is only found in the largest holidays and Martin Luther King Jr. Day is not a large enough holiday to affect stock returns. To investigate this possibility I also test weather rates of return are abnormally high before other more common holidays. In particular I look at returns the day before Christmas and before the 4th of July. I also find that while there is some evidence of a pre-Christmas effect, there is no such evidence for the July 4th holiday. These results seem to indicate that pre-holiday effect is isolated for larger holidays, such as Christmas, but not for smaller holidays such as Martin Luther King Jr. Day or the July 4th holiday.

2 Data

Data was pulled from the Center for Research in Historical Prices (CRSP). I used three separate indexes: CRSP equally-weighted daily returns, CRSP value-weighted daily returns, and S&P 500 daily returns.

Table 1

CRSP Value-Weighted		*CRSP Equally-Weighted*		*S&P 500*	
Mean	0.000456529	Mean	0.000782976	Mean	0.000371725
Standard Error	0.000114567	Standard Error	9.44977E-05	Standard Error	0.000119448
Median	0.00077	Median	0.0014	Median	0.000521
Mode	-0.001431	Mode	-0.003513	Mode	0
Standard Deviation	0.010763796	Standard Deviation	0.008878256	Standard Deviation	0.011222421
Sample Variance	0.000115859	Sample Variance	7.88234E-05	Sample Variance	0.000125943
Kurtosis	15.945999	Kurtosis	14.52830117	Kurtosis	20.6014433
Skewness	-0.631496934	Skewness	-0.678328232	Skewness	-0.751712887
Range	0.286247	Range	0.211319	Range	0.320469
Minimum	-0.171349	Minimum	-0.103897	Minimum	-0.204669
Maximum	0.114898	Maximum	0.107422	Maximum	0.1158
Sum	4.029778	Sum	6.911332	Sum	3.281214
Count	8827	Count	8827	Count	8827

Table 1 shows statistics that summarize the data used throughout the analysis. We see from column [2] the average daily return for the CRSP Value weighted index is 0.05%. The average daily return for the CRSP Equal-Weighted index is 0.08% while the average daily return for the S&P 500 is 0.04%.

We report the volatility as standard deviation as well as the skewness and kurtosis. We find that the Equal-weighted index has the least volatility. Alternatively the S&P 500 has the highest volatility. The S&P 500 also has the most negative skewness and the highest kurtosis. The Value-Weighted index has the highest (least negative) skewness while the Equal-Weighted index has the lowest Kurtosis.

3 Results

In this section we report studying market returns for our various indices around Martin Luther King Jr. Day, Christmas and July 4th (America's Independence Day). In the sections below we will discuss the models, results, and implications of our findings.

3.1 Pre-Holiday Effects before Martin Luther King Jr. Day

Table 2

	CRSP Value-Weighted	CRSP Equal-Weighted	S&P 500
Interaction	-0.000264854 (-0.072611612)	0.000334545 (0.111219281)	-0.000773096 (-0.203286675)
PreMlkDay	0.002434496 (0.930696509)	0.002915542 (1.351588627)	0.002885152 (1.057899073)
After	-0.000272404 (-1.186085486)	-0.000292908 (-1.546536279)	-0.00025512 (-1.065426552)
Intercept	0.000587151*** (3.569506404)	0.000920987*** (6.789503614)	0.00049273*** (2.87305717)

Notes: T-Statistics are in Parentheses.
* Significance at the 10 percent level
** Significance at the 5 percent level
*** Significance at the 1 percent level

We begin by examining market returns for our various indices on the day before MLK day from 1981 to 2015. We note that on Jan 19, 1998, MLK day became a non-

traded holiday. We use this exogenous event to test whether or not the pre-holiday effect, found in Lakonishok and Smidt (1988), is explained by frictions caused by non-continuous trading. Table 2 shows the results from estimating the following equation:

$$IndexReturns = \alpha + \beta_1(PreMlkDay) + \beta_2(After) + \beta_3(PreMlkDay * After) + \varepsilon$$

Where IndexReturns is the daily return data for each index discussed earlier, PreMlkDay is a dummy variable equal to 1 if the date is the last trading day before Martin Luther King Jr. Day, After is a dummy variable equal to 1 if the date is in a year when Martin Luther King Jr. Day was not a traded holiday (i.e. 1998 – 2015), and PreMlkDay * After is an interaction variable between the two.

The independent variable of interest is the interaction between PreMlkDay and after. If the coefficient on the interaction variable is positive and significant, then we can reject the null hypothesis that non-continuous trading does not explain the pre-holiday effect. The results are reported in Table 2. Here we find that none of the interaction variables from the three models are statistically significant. Therefore, we are unable to reject the null hypothesis that non-continuous trading does not explain the pre-holiday effect.

3.2 Pre-Holiday Effects before Christmas

Table 3

	CRSP Value-Weighted	CRSP Equal-Weighted	S&P 500
PreChristmas	0.002416625 **(**1.325664797)	0.003921573*** **(**2.608835909)	0.001703802 **(**0.896394427)
Intercept	0.000446946*** **(**3.893610212)	0.000767427*** **(**8.107668523)	0.000364969*** **(**3.049357618)

Notes: T-Statistics are in Parentheses.
* Significance at the 10 percent level
** Significance at the 5 percent level
*** Significance at the 1 percent level

Our results in Table 2 suggest that the introduction of the non-traded holiday does not influence the pre-holiday anomalies found in Lakonishik and Smidt (1988). It is possible, however, that these types of anomalies have been arbitraged away (Schwert (2003)). To the extent that this is true, we may be drawing incorrect inferences from our tests around Martin Luther King Jr. Day. To draw better inferences, we test for a pre-holiday effect around Christmas – following Lakonishok and Smidt (1988). In particular we study market returns for our various indices on the day before Christmas during the same time period to test whether or not the pre-holiday effect found in Lakonishok and

Smidt (1988) still exists. Table 3 shows the results from estimating the following equation:

$$IndexReturns = \alpha + \beta_1(PreChristmas) + \varepsilon$$

Where IndexReturns is the daily return data for each index discussed earlier and PreChristmas is a dummy variable equal to 1 if the date is the last trading day before Christmas Day.

In this model the null hypothesis is that there are no abnormally high returns the day before Christmas. We can reject the null hypothesis if the coefficient on the independent variable is positive and significant. Table 3 presents the results from our tests. Results from the CRSP Value-Weighted index and the S&P 500 do not show any significant evidence or a pre-Christmas effect. However, results from the model using the CRSP Equally-Weighted daily returns shows that returns are 0.3921573% which is significantly different from zero. Thus, there is some evidence that there are abnormally high returns the day before Christmas.

3.3 Pre-Holiday Effects before July 4th

Table 4

	CRSP Value-Weighted	CRSP Equal-Weighted	S&P 500
PreJuly4	0.000132855 (0.072871937)	0.000069298 (0.046083201)	0.000081484 (0.042867983)
Intercept	0.000456002*** (3.972102708)	0.000782702*** (8.265855835)	0.000371402*** (3.102962347)

Notes: T-Statistics are in Parentheses.
* Significance at the 10 percent level
** Significance at the 5 percent level
*** Significance at the 1 percent level

Finally, we test market returns for our various indices on the day before the 4th of July during the same time period as the previous models to test whether or not the pre-holiday effect found in Lakonishok and Smidt (1988) exists for larger holidays and smaller holidays alike. Table 4 shows the results from estimating the following equation:

$$IndexReturns = \alpha + \beta_1(PreJuly4)$$

Where IndexReturns is the daily return data for each index discussed earlier and PreJuly4 is a dummy variable equal to 1 if the date is the last trading day before July 4th.

If the coefficient on the independent variable is positive and significant we can reject the null hypothesis that there are no abnormally high returns the day before July 4th. Results from the three indices do not show any significant evidence or a pre-July 4th effect. Combined with our earlier findings, these results indicate the frictions caused by non-traded holidays do not explain the pre-holiday effect. In fact, the pre-holiday effect only exists surrounding larger holidays, such as Christmas. Around smaller holidays, such as Martin Luther King Jr. Day and July 4th, returns remain relatively normal.

Conclusion

In this study we take an additional look at the pre-holiday effect discussed in Lakonishok and Smidt (1988), which suggests that market returns are unusually high on the day before holidays. From our findings we can conclude that while there is some evidence of pre-holiday anomalous returns, these anomalies seem to be driven by larger, worldwide holidays and not by smaller national holidays. Perhaps this is due to an increase in excitement and optimism around such holidays as Christmas. Using the adoption of Martin Luther King Jr. Day as a non-traded holiday, we test whether the pre-holiday effect is partly explained by potential frictions caused by non-trading. Results suggest that it is not.

An interesting extension of this study would be to examine returns before and after traded holidays such as Valentine's Day, Halloween, and Saint Patrick's Day to further test if anomalous returns are driven by a break in trading or the holiday itself.

References

Fama, 1970, “Efficient Capital Markets: A Review of Theory and Empirical Work,” The Journal of Finance, 25 (2), 383–417.

Lakonishok and Smidt, 1988, “Are Seasonal Anomalies Real? A Ninety-Year Perspective,” The Society for Financial Studies, 1 (4), 403-425.

Schwert, 2003, “Anomalies and Market Efficiency,” Financial Markets and Asset Pricing, 1 Part B, 939–974.