Inside Information and Debt Rating Changes

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I. Introduction

This paper brings together two separate lines of research. The two areas are the information content of corporate debt ratings and the role of market microstructure in the determination of security price behavior. Market microstructure theory indicates that market makers set wider bid-ask spreads at times when trading by investors who hold superior, private information is more likely. Previous research on debt ratings suggests that rating change announcements reveal new information to the stock market. That is, the ratings contain information about the quality of the firm as a whole, not just the firm's debt. I test the hypothesis that trading by differentially informed investors is more likely in periods when ratings are under review for revision. The evidence provides some support for the hypothesis.

II. Inside Information and Debt Rating Changes

In an efficient market, the economic survival of security rating agencies implies that ratings convey new information. Stickel (1986) and Holthausen and Leftwich (1986) report convincing evidence that preferred stock ratings, and bond ratings, respectively, provide new information to security markets. Common stock prices react to debt rating changes, while preferred stock prices react to preferred stock rating changes. These studies use daily security price data and carefully control for contemporaneous information releases. Therefore, the authors are able to attribute changes in security prices directly to the rating changes.[1]

In the studies cited above, the stock market seems to anticipate the rating change announcements. Security upgrades appear to be preceded by abnormally large increases in stock prices, while downgrades appear to be preceded by unusually poor stock price performance. There are two possible explanations for the abnormal performance. The first is that rating agencies respond to the changing financial conditions of the companies they follow. Improvements and declines in financial conditions may be public knowledge before a rating agency completes a rating change.

The second explanation is that there may be some leakage of information about the rating change or of confidential information used by the rating agency. Both Moody's and Standard and Poor's seek confidential information from the companies they rate. Standard and Poor's also discloses its tentative rating changes to corporate executives in advance in order to provide an opportunity for comment before the decision becomes final. Thus, during the period preceding a rating change, some individuals possess superior knowledge relevant to the ratings. Trading by the differentially informed individuals could cause the stock price to react in advance of the public announcement of the rating change. Other investors with the opportunity to ob-

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[1]Stock price reactions to rating upgrades tend to be statistically insignificant. Zaima and McCarthy (1988) report that rating upgrades are associated with a redistribution of wealth from stockholders to bondholders which offsets the positive information effect of the upgrade. Stickel (1985) presents evidence of significant stock price reactions to *Value Line* common stock ranking changes, as does Peterson (1987) for initial reviews of stocks by *Value Line*. Singh and Power (1992) report that insurance claims paying ability rating changes appear to certify existing public information rather than convey new information. Pinches and Singleton (1978) conducted the first study of stock price reactions to bond rating changes. Using monthly returns, they found no evidence that rating changes affect common stock prices.

serve such trades may imitate them, bidding stock prices up or down in the direction of the likely rating change.

It seems certain that rating changes are in part responses to widely known financial changes in a firm. Investors may be able to partially predict the rating changes on the basis of publicly available data [see Gentry, Whitford and Newbold (1988)]. Nevertheless, the evidence presented by Holthausen and Leftwich (1986) and Stickel (1986) implies that rating change announcements provide some information that would not otherwise be available to investors. Moreover, Danos, Holt and Imhoff (1984) find that bond raters exercise expert judgement in their use of management financial forecasts. Thus, there is a possibility that trading by insiders with superior information explains part of the pre-announcement stock price changes. (By insider, I mean anyone with access to private information, not necessarily a corporate officer or director.)

Standard and Poor's CreditWatch, instituted in late 1981, makes it possible in some cases to determine when a firm's debt is under review for a rating change. Standard and Poor's places issues on CreditWatch when it decides that "trends and events" merit "special surveillance" pending a rating change or affirmation. Wansley and Clauretie (1985) and Holthausen and Leftwich (1986) report that common stock prices react negatively to CreditWatch listings with announced negative implications. Wansley, Elayan and Maris (1990) report negative preferred stock price reactions when preferred stocks are listed on CreditWatch with negative implications.

CreditWatch listings publicly announce the start of a rating review period. If individuals who have advance knowledge of the outcome of the review trade on that information, they should do so before the firm is removed from CreditWatch. This argument suggests that during the period in which a firm is listed on CreditWatch, there is an unusually high probability of trading by informed investors.

III. Private Information and the Bid-Ask Spread

Copeland and Galai (1983) and Glosten and Milgrom (1985) model the behavior of a security dealer when some investors, whom the dealer cannot identify, hold superior information about the value of a security. They show that it is optimal for a security dealer to set a wider bid-ask spread, the greater the probability of trading with investors better informed than the dealer.

The rationale behind the models is that better informed investors will buy only if they know the security to be worth more than the dealer's ask price, and will sell only if the security is overvalued at the dealer's bid price. The dealer can only lose money on a trade with a better informed investor. Dealers always face possible losing trades of this kind. However, they make a profit overall because many trades are made by investors without superior information. The relatively uninformed investors pay a higher price to buy securities (the ask price) than they receive when they sell (the bid price). They accept the spread between the bid and ask prices in order to receive the service of immediacy provided by the dealer.

The more private information held by potential traders, the more likely it is that any given trade is based on such information, and the greater are the dealer's expected losses due to trading with the informed individuals. When the dealer's expected losses to informed traders are high, the dealer must make a greater profit on each trade with uninformed investors. Therefore, the dealer sets a wider bid-ask spread.

Recent work reports that dealers increase spreads during periods when open market stock repurchase programs are operating [Barclay and Smith (1988)] and when earnings and dividend announcements are delayed [Venkatesh and Chiang (1986)]. Both of these instances represent periods when dealers may be more likely to trade with better informed investors.

As discussed above, the process of revising a bond rating provides some individuals with superior access to information. If more individuals possess superior information prior to rating changes, security dealers may perceive a greater expected loss to informed traders. In general, a dealer may not know when a rating is being revised. However, a listing on CreditWatch effectively announces that a rating change is under consideration. If a dealer believes that individuals who have access to superior information during the rating review period are likely to trade, the dealer will set wider bid-ask spreads than at other times, other things being the same.

IV. Data

To construct the sample, I examine Standard & Poor's *Creditweek*. An annual summary lists firms removed from CreditWatch, the date of the issue reporting the removal and the rating decision. I consult the issue reporting the removal to learn the date of placement on CreditWatch. *Creditweek* also reports whether the firm was listed on CreditWatch with positive, negative or "developing" implications. I eliminate firms described as takeover targets because the large stock price movements of targets may mask any effect of the rating process. I also remove firms listed with developing implications, which mostly relate to attempts to take over or restructure firms. In addition, I remove electric, gas and local telephone utilities. These firms are subject to frequent regulatory review, which reduces the potential information asymmetry between market makers and traders.

For the period covered by this study, bid and ask price data are available in a machine readable form for NASDAQ over the counter stocks. Eighty-eight firms have data on the 1990 version of the CRSP NASDAQ files. *Creditweek* reports negative implications for seventy firms and positive implications for eighteen firms. The total sample size varies because three firms lack return data for either the pre- or post-CreditWatch period. Bid and ask quotations are available for eighty-six firms.[2]

I inspect the *Wall Street Journal Index* for reports of the CreditWatch listing and removal. About forty percent of the listings are reported only by *Creditweek*. The *Wall Street Journal* sometimes reports the listing or removal before *Creditweek*. The empirical tests use the earlier of the two dates.

V. Results

A. Stock Price Reactions

To investigate the potential information content of CreditWatch actions, I examine the stock price reactions to the CreditWatch listing and removal announcements. The event study method uses market model abnormal returns. The market model parameter estimation period is 200 days long. For the listing date event study, the estimation period ends 46 trading days before the listing date. For the removal date event study, the estimation period begins one week after the removal date. The test statistics, which use standardized abnormal returns, are identical to those in Singh, Cowan and Nayar (1991). As Cowan, Nayar and Singh (1990) observe, the usual standardized abnormal return test statistic does not correct for the serial correlation of the abnormal returns. Since the present study focuses on short test periods, serial correlation makes little difference to the results. Therefore, the tests do not include a correction for serial correlation.

The first panel of Table 1 reports the average stock price reaction when firms are placed on CreditWatch with negative implications. Day 0 refers to the date of the first *Creditweek* or *Wall Street Journal* report of the event. The public may learn of a listing before or after the *Creditweek* date because of press releases or variable mailing dates. Because the date that the information becomes public is uncertain, I examine returns over the intervals composed of days -1 and 0 and days -2 through $+2$. The average stock price reaction is negative and statistically significant in both intervals. Table 1 also reports the reaction after the removal of announcements contaminated by unrelated *Wall Street Journal* reports about the firm during days -2 through $+2$. The sample that remains is the clean sample. The average stock price reaction is negative and significant for the clean sample. The results support the idea that the CreditWatch listing conveys new information to the stock market. The results also are consistent with the findings of Wansley and Clauretie (1985) and Holthausen and Leftwich (1986).

The third and fourth panels of Table 1 report the stock price reactions when Standard & Poor's lists firms on *Creditweek* with positive implications. The day -1 and 0 abnormal return is positive but not statistically significant. The two day abnormal return is 1.14% for the clean sample. Holthausen and Leftwich (1986) report a two day abnormal return of 1.10% for a clean sample of exchange listed firms placed on CreditWatch with positive implications during 1981–1983. Holthausen and Leftwich report that the abnormal return is statistically significant. The sample of clean positive implication listing announcements is smaller in the present paper because of the inclusion of only NASDAQ stocks. The lack of statistical significance may be due to the size of the sample.

[2]Bid and ask data come from the CRSP NASDAQ master file for stocks not on the NASDAQ/National Market System and from the CRSP NMS Auxiliary File for NASDAQ/NMS stocks.

Table 1
Stock Price Reactions to Announcements of CreditWatch Listings, 1981–1990

Event Period	Cumulative Average Abnormal Return: Equally Weighted	Cumulative Average Abnormal Return: Precision Weighted[a]	Z^b	Number of Positive and Negative: Abnormal Returns	Number of Positive and Negative: Raw Returns
Negative Implications: Clean and Contaminated (n=70)					
−45 through −2	−5.07%	−4.13%	−2.78**	24:46*	30:40
−1 and 0	−1.30%	−0.61%	−1.96*	25:45*	26:44
−2 through +2	−1.85%	−1.50%	−3.02**	27:43	31:39
Negative Implications: Clean Only (n=61)					
−45 through −2	−6.24%	−4.89%	−3.14**	18:43**	24:37
−1 and 0	−1.54%	−0.85%	−2.57**	21:40*	20:41
−2 through +2	−1.51%	−1.39%	−2.67**	24:37	28:33
Positive Implications: Clean and Contaminated (n=16)					
−45 through −2	0.18%	−0.36%	−0.10	8:8	10:6
−1 and 0	0.88%	0.45%	+0.59	8:8	7:9
−2 through +2	1.84%	0.85%	+0.70	9:7	9:7
Positive Implications: Clean Only (n=12)					
−45 through −2	2.37%	1.03%	+0.26	6:6	7:5
−1 and 0	1.14%	0.43%	+0.50	5:7	5:7
−2 through +2	1.47%	0.39%	+0.29	5:7	6:6

[a]The precision weighted average weights each stock in inverse proportion to the standard deviation of its abnormal return.

[b] The asterisks *,** show significance at the .05 and .01 levels, respectively, using a one tailed test. For the number positive and negative, the asterisks denote the significance level of the generalized sign test, which adjusts for the frequency of positive returns in the estimation period.

Table 2 reports the average stock price reaction around the date Standard & Poor's removes the firm from CreditWatch. For the full negative implication sample, the day −1 and 0 abnormal return is negative and statistically significant. The second panel reports the results for the sample of clean announcements in which Standard & Poor's reduced the firm's debt rating. The average two day abnormal return of −0.97% is statistically significant. The significant negative reaction to rating reductions suggests that investors do not fully anticipate the outcome of the CreditWatch review. Wansley and Clauretie (1985) and Holthausen and Leftwich (1986) report no significant stock price reaction to CreditWatch removals with rating reductions. The previous studies use samples of stocks listed on the New York and American exchanges. The NASDAQ firms in the present study tend to be smaller than exchange listed firms. There may be fewer sources of information about the values of smaller firms, so credit rating changes may convey more new information.

The results for the positive implication sample reveal no statistically significant stock price reaction to the removal announcement. The lack of a significant reaction is consistent with previous studies.

B. Bid-Ask Spreads

Table 3 reports means and medians of the average absolute and relative bid-ask spreads for three periods. The periods are ninety days preceding the CreditWatch listing date, the listing date through the removal date, and ninety days following the CreditWatch removal date. The ninety day periods do not include the ten days before listing or after removal. The table reports the absolute bid-ask spread in dollars. The relative bid-ask spread is

$$\frac{AskPrice - BidPrice}{(AskPrice + BidPrice)/2}.$$

The unit of observation in the table is one day for one firm. This means that some firms carry more

Table 2
Stock Price Reactions to Announcements of CreditWatch Removals, 1981–1990

Event Period	Cumulative Average Abnormal Return: Equally Weighted	Cumulative Average Abnormal Return: Precision Weighted[a]	Z^b	Number of Positive and Negative: Abnormal Returns	Number of Positive and Negative: Raw Returns
Negative Implications: Clean and Contaminated (n=69)					
−1 and 0	−0.72%	−0.84%	−2.59**	27:42	28:41
−2 through +2	−0.19%	−0.87%	−1.69*	30:39	36:33
Clean Rating Reduction Announcements (n=42)					
−1 and 0	−0.97%	−0.95%	−2.08*	18:24	15:27
−2 through +2	0.25%	0.31%	+0.43	20:22	27:15
Positive Implications: Clean and Contaminated (n=18)					
−1 and 0	−5.22%	−0.63%	−0.66	6:12	9:9
−2 through +2	−14.08%	−0.62%	−0.41	8:10	9:9
Clean Rating Increase Announcements (n=7)					
−1 and 0	0.31%	0.25%	+0.21	4:3	2:5
−2 through +2	−1.75%	−0.58%	−0.30	3:4	3:4

[a]The precision weighted average weights each stock in inverse proportion to the standard deviation of its abnormal return.

[b] The asterisks *,** show significance at the .05 and .01 levels, respectively, using a one tailed test.

weight than others in the results for the period from listing through removal, depending on the length of the period.

Panel A of Table 3 reports spreads for the entire sample. Panel B excludes firms for which the period from 100 days before listing through 100 days following removal includes October 15, 16, or 19, 1987. Disruptions of market maker activity during the 1987 market crash may affect spread results. In Panel A, the mean absolute spread for the full sample is greater while the firm is on CreditWatch than either before or after. In Panel B, the mean absolute spread is slightly smaller during the CreditWatch period than before. The median absolute spread is constant at twenty-five cents regardless of the exclusion of the 1987 crash period. The relative spread while on CreditWatch is greater than before listing.

Stocks of firms listed with negative implications have larger mean absolute and mean and median relative spreads during the CreditWatch period than before. The result holds whether or not the 1987 crash is included. Including the crash period, the mean absolute and mean and median relative spreads decrease following CreditWatch. When I exclude the crash period, the post-CreditWatch mean relative spread slightly exceeds the mean spread during CreditWatch.

The positive implication sample experiences spread behavior different from the negative implication sample. The mean relative spread is larger while the firm is on CreditWatch than before or after. However, the median relative spread is smaller during the CreditWatch period. The absolute spread declines from pre-CreditWatch to CreditWatch and from CreditWatch to post-CreditWatch.

Table 4 reports paired difference tests of the change in the absolute and relative spreads. The unit of observation is the difference between the mean spread in one period and the mean spread in another period for a single firm. Thus the paired difference test gives equal weight to each firm regardless of the length of the CreditWatch period. The absolute spread is smaller during the CreditWatch period as compared to the period before the listing date. The decrease in the absolute spread occurs for both negative and positive implication subsamples and is marginally statistically significant. The relative spread is larger while the firm is on CreditWatch than before. The increase is statistically significant for the full sample and for the negative implication sample including the 1987 crash. For the negative implication sample, excluding the 1987 crash, the increase in the relative spread is marginally significant. The increase in the relative spread means that market makers reduced the absolute spread more slowly than prices fell.

The average absolute spread after the CreditWatch removal date is smaller than during the CreditWatch period. The relative spread after removal is smaller for the positive implication sample but larger for the negative implication sample. However, the changes in the relative spread are statistically insignificant for both negative and positive implications and for the full sample.

Expectations about the timing of information may explain the absence of a decrease in the relative spread following removal from a CreditWatch listing with negative implications. The accounting literature documents that firms tend to accelerate the release of good news and delay the release of bad news [see Givoly and Palmon (1982) and Kross and Schroeder (1984)]. The tendency to announce bad news late is especially strong among smaller firms [see Atiase, Bamber and Tse (1989)]. Market makers may anticipate that any good news will appear by the time a positive CreditWatch listing ends, but that bad news will continue to arrive beyond the end of a negative listing. If so, market makers would not reduce relative spreads. Consistent with the hypothesis, I find (but do not report) decreases in relative spreads following removal from negative listings when Standard & Poor's affirms the existing rating but not when it reduces the rating.

The results support the hypothesis that market makers perceive a greater probability of trading with differentially informed investors while a firm is on the CreditWatch list.

C. Volume and Number of Trades

If investors with superior information trade on the information during the CreditWatch period, the increased trading may be detectable in volume statistics. For example, Gupta and Misra (1988) use trading volume to test for informed trading before corporate takeover announcements. In this section, I directly test whether trading activity during the CreditWatch period differs from the surrounding periods.

Table 3
Absolute and Relative Bid-Ask Spreads Around CreditWatch Appearances, 1981–1990

Sample	Period	Absolute Spread ($) Mean	Absolute Spread ($) Median	Relative Spread Mean	Relative Spread Median
Panel A: Including the 1987 Market Crash					
Full sample (n=86)	days −100 through −11 preceding listing	0.6912	0.2500	2.57%	1.44%
	listing through removal	0.7051	0.2500	3.35%	1.68%
	days +11 through +100 following removal	0.5935	0.2500	2.93%	1.60%
Negative implications (n=70)	days −100 through −11 preceding listing	0.5604	0.2500	2.46%	1.57%
	listing through removal	0.6053	0.2500	3.09%	1.90%
	days +11 through +100 following removal	0.5183	0.2500	2.86%	1.77%
Positive implications (n=16)	days −100 through −11 preceding listing	1.2609	0.5000	3.05%	1.02%
	listing through removal	1.1061	0.5000	4.38%	0.92%
	days +11 through +100 following removal	0.9303	0.4641	3.25%	1.11%
Panel B: Excluding the 1987 Market Crash					
Full sample (n=68)	days −100 through −11 preceding listing	0.7307	0.2500	2.60%	1.39%
	listing through removal	0.7220	0.2500	3.16%	1.45%
	days +11 through +100 following removal	0.6169	0.2500	2.92%	1.57%
Negative implications (n=55)	days −100 through −11 preceding listing	0.5497	0.2500	2.40%	1.49%
	listing through removal	0.5623	0.2500	2.74%	1.71%
	days +11 through +100 following removal	0.5098	0.2500	2.80%	1.69%
Positive implications (n=13)	days −100 through −11 preceding listing	1.4922	0.5000	3.42%	1.06%
	listing through removal	1.3140	0.5000	4.71%	0.77%
	days +11 through +100 following removal	1.0848	0.5000	3.47%	1.34%

Table 4
Paired Difference Tests for Shifts of Absolute and Relative Bid-Ask Spreads Around CreditWatch Appearances

Sample	Periods	Absolute Spread		Relative Spread	
		Difference	t	Difference	t
Panel A: Including the 1987 Market Crash					
Full sample	CreditWatch minus days −100 through −11	−0.0369	−1.68*	0.37%	+3.16**
Full sample	days +11 through +100 minus CreditWatch	−0.0810	−1.74*	−0.05%	−0.18
Negative Implications	CreditWatch minus days −100 through −11	−0.0195	−0.94	0.34%	+2.79**
Negative Implications	days +11 through +100 minus CreditWatch	−0.0365	−1.71*	0.04%	+0.16
Positive Implications	CreditWatch minus days −100 through −11	−0.1131	−1.53	0.47%	+1.46
Positive Implications	days +11 through +100 minus CreditWatch	−0.2827	−1.18	−0.46%	−1.18
Panel B: Excluding the 1987 Market Crash					
Full sample	CreditWatch minus days −100 through −11	−0.0415	−1.55	0.24%	+2.03*
Full sample	days +11 through +100 minus CreditWatch	−0.0978	−1.67*	0.05%	+0.15
Negative Implications	CreditWatch minus days −100 through −11	−0.0143	−0.56	0.21%	+1.76*
Negative Implications	days +11 through +100 minus CreditWatch	−0.0413	−1.69*	0.19%	+0.57
Positive Implications	CreditWatch minus days −100 through −11	−0.1567	−1.81*	0.38%	+1.00
Positive Implications	days +11 through +100 minus CreditWatch	−0.3470	−1.16	−0.57%	−0.53

*,**The mean paired difference is statistically different from zero at the .05 or .01 level of significance, respectively, using a one-tailed test.

Table 5
Daily Average Volume and Number of Trades Around CreditWatch Appearances, 1981–1990

Sample	Period	Volume		Number of Trades
		Shares	% of Shares	
Panel A: Including the 1987 Market Crash				
Full sample (n=80)	days −100 through −11 preceding listing	147,104	6.34%	71.09
	listing through removal	202,128	9.19%	82.06
	days +11 through +100 following removal	167,049	12.20%	70.81
Negative implications (n=65)	days −100 through −11 preceding listing	138,053	6.48%	65.31
	listing through removal	208,254	10.40%	80.07
	days +11 through +100 following removal	150,305	13.91%	65.97
Positive implications (n=15)	days −100 through −11 preceding listing	186,327	5.74%	95.90
	listing through removal	176,859	4.22%	90.13
	days +11 through +100 following removal	242,956	4.44%	92.21
Panel B: Excluding the 1987 Market Crash				
Full sample (n=62)	days −100 through −11 preceding listing	148,063	6.31%	69.42
	listing through removal	223,409	10.12%	87.25
	days +11 through +100 following removal	179,645	13.99%	74.26
Negative implications (n=50)	days −100 through −11 preceding listing	147,143	6.85%	69.01
	listing through removal	241,753	11.94%	91.68
	days +11 through +100 following removal	167,166	16.50%	72.82
Positive implications (n=12)	days −100 through −11 preceding listing	151,895	4.06%	71.16
	listing through removal	151,447	2.96%	69.88
	days +11 through +100 following removal	234,759	2.92%	80.56

Table 5 reports the daily average volume, relative volume and number of trades for the pre-listing, CreditWatch and post-removal periods. The relative volume is the percentage of outstanding shares traded per day. For the full sample and the negative implication sample, the shares traded and the number of trades are greater during the CreditWatch period than in the surrounding periods. The positive implication sample experiences a decrease in share volume, relative volume and number of trades during CreditWatch listing. The relative volume appears to increase in the CreditWatch period and in the post-removal period for the full and negative implication samples.

Table 6 reports paired difference tests for changes in relative volume and number of trades. Following Cready and Ramanan (1991), I conduct the test only on a log transformation of the relative volume, not on the raw volume. For the negative implication sample, the relative volume and number of trades increase in the CreditWatch period and decrease in the post-removal period. The changes are statistically significant, except for the post-removal decline in the number of trades when the 1987 crash period is included. For the positive implication sample, there is a statistically significant decrease in the relative volume while the firm is on CreditWatch. The number of trades also decreases, significantly if the 1987 crash period is included.

The results support the idea that there is an unusually large amount of trading, on average, while a firm remains on the CreditWatch list with negative implications. Average trading activity does not increase during listings with positive implications, and in fact appears to decrease. The trading activity in the negative implication sample may be due to investors who have superior information. Alternatively, market makers may be unable to determine the cause of increased trading but interpret the activity as an indication that the probability of informed trading has increased. If so, market makers would increase the relative spread to cover the perceived increase in their asymmetric information-related costs. This conjecture is consistent with the spread results in Table 4.

VI. Conclusion

This paper reports common stock abnormal returns, bid-ask spreads and measures of trading activity for NASDAQ traded firms with debt listed on Standard and Poor's CreditWatch. Abnormal returns around the listing and removal dates are consistent with previous research, and suggest that the credit review process generates new information relevant to the market pricing of common stocks. Relative bid-ask spreads are greater on average during the period when a firm is on CreditWatch than during a preceding non-CreditWatch period. Stocks of firms listed with negative implications experience increased trading activity during the CreditWatch period. The results support the idea that potential, and possibly actual, informed trading increases when the debt of a firm appears on CreditWatch.

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Table 6
Paired Difference Test Statistics for Shifts of Relative Volume and Number of Trades Around CreditWatch Appearances

Sample	Periods	Volume t	Trades t
Panel A: Including the 1987 Market Crash			
Full sample	CreditWatch minus days −100 through −11	+1.76*	+1.56
Full sample	days +11 through +100 minus CreditWatch	−1.89*	−1.60
Negative Implications	CreditWatch minus days −100 through −11	+2.87**	+2.28*
Negative Implications	days +11 through +100 minus CreditWatch	−2.07*	−1.59
Positive Implications	CreditWatch minus days −100 through −11	−2.86**	−1.80*
Positive Implications	days +11 through +100 minus CreditWatch	+0.15	−0.25
Panel B: Excluding the 1987 Market Crash			
Full sample	CreditWatch minus days −100 through −11	+1.61	+1.54
Full sample	days +11 through +100 minus CreditWatch	−2.04*	−2.23*
Negative Implications	CreditWatch minus days −100 through −11	+2.54**	+2.24*
Negative Implications	days +11 through +100 minus CreditWatch	−2.23*	−2.28*
Positive Implications	CreditWatch minus days −100 through −11	−2.17*	−1.39
Positive Implications	days +11 through +100 minus CreditWatch	+0.27	−0.19

*,**The mean paired difference is statistically different from zero at the .05 or .01 level of significance, respectively, using a one-tailed test.

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