THE EFFECT ON RIVALS WHEN FIRMS EMERGE FROM BANKRUPTCY

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Abstract

Studies on the announcement effects of bankruptcy filings have found that when a firm files for Chapter 11 bankruptcy protection its shareholders suffer significant losses. A recent paper extends these findings by investigating the announcement effect on rival companies, while another examines the equity performance of firms emerging from bankruptcy. We combine these two lines of inquiry by examining the effect on rivals when a firm emerges from the protection of Chapter 11. We find both significant negative stock market returns and significant negative revisions in analysts' earnings forecasts for rivals of successfully reorganized companies.

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I. Introduction

Bankruptcy can be a tremendously traumatic experience for a company. The primary purpose of the American bankruptcy code, through its Chapter 11, is to provide temporary respite from financial obligations to companies with sufficiently high probability of reorganizing those obligations successfully. A successful reorganization would allow the company to ultimately emerge from bankruptcy as a much more financially healthy competitor.

Eberhart, Altman and Aggarwal (1999) study the long-term stock market performance of firms emerging from Chapter 11 bankruptcy. They report that in the first 200 days after shedding the cover of Chapter 11, abnormal stock returns average anywhere from +24.6 percent to +138.8 percent depending on methodology. Interestingly, the former is nearly identical in magnitude, but opposite in sign, to the -24.3 percent abnormal return reported by Bradley and Rosenzweig (1992) for companies entering Chapter 11 protection.

Lang and Stulz (1992) extend the analysis to the intra-industry effects of bankruptcy by examining the abnormal stock returns of rivals of companies filing Chapter 11. Lang and Stulz point out that there are two potential market reactions to the news of a competitor's Chapter 11 bankruptcy, and that predicting which of these dominates the other is difficult to predict. It is possible that a rival's bankruptcy gives the remaining firms a competitive advantage such as, for example, a greater share of the product market. If a competitive advantage is conveyed by a rival's bankruptcy, and the advantage is significant, the market reaction should be significantly positive. Lang and Stulz term this potential positive market reaction the competitive effect. However, the news of a bankrupt competitor could also indicate some underlying problem common to all firms in the industry. In this case, a surprise Chapter 11 announcement may lead to a negative market reaction that spreads throughout the industry. This potential negative market reaction is termed the contagion effect. Lang and Stulz argue that ultimately the dominant market reaction is an empirical question. Their results show significantly negative abnormal returns of –1.0 percent for a portfolio comprised of rival companies and conclude that the contagion effect dominates the competitive effect for their sample of rival firms. That is, the effect of bankruptcy can be characterized as a contagion that spreads to other companies in the industry.

Ferris, Jayaraman, and Makhija (1997) separate rival firms into those that file for bankruptcy themselves over the subsequent three years, and those that do not. They suggest that when a bankruptcy announcement is made, the market makes an unbiased prediction of the future bankruptcy probability of rival firms. However, they use actual reported bankruptcies over the subsequent three-year period as a proxy for the market's revised bankruptcy probabilities. They argue that firms predicted to fail, i.e., those that subsequently do fail, are expected to suffer declines in value due to the contagion effect, while those predicted to continue operations, i.e., those that do not fail over the subsequent three years, should gain in value due to the competitive effect. Consistent with Lang and

Stulz' findings, Ferris, Jayaraman and Makhija report a significant average negative announcement effect of –0.56 percent. Moreover and consistent with their expectations, for the three days surrounding the bankruptcy announcement sample firms predicted to fail have negative stock returns that average –4.68 percent in value, however, firms predicted to remain solvent also have negative stock returns that average –0.49 percent. They conclude that the contagion effect dominates the competitive effect for all rivals, even those predicted to remain solvent.

The primary question we wish to answer is whether there is a competitive or contagion intra-industry effect when companies emerge from the protection of Chapter 11 bankruptcy. Modifying the Lang and Stulz (1992) argument, when a firm emerges from bankruptcy the industry becomes more competitive with the reintroduction of a presumably financially healthy rival. Hence, the competitive effect in this case should lead to a negative market reaction for rivals. On the other hand, the emergence of a rival from bankruptcy could also indicate a reinvigorated industry and the contagion effect would be positive news for the industry and lead to positive market reactions for rivals. In other words, when entering Chapter 11 sickness is contagious, but when exiting from Chapter 11 health is contagious.

We find a significantly positive reaction for our sample of 60 firms emerging from bankruptcy that averages 7.87 percent over the three-day window centered on the announcement date. This compares to around 3.5 percent reported by Eberhart, et al (1999), depending on the method used to calculate abnormal returns. Over the same three-day window we find a significantly *negative* –0.40 percent average return for our sample of 3,270 rivals. Hence, although the contagion effect dominates the market reactions of rivals when a firm announces filing Chapter 11, apparently the competitive effect dominates when those firms emerge from bankruptcy. That is, it is bad news for the industry competitors when a rival files for Chapter 11 protection, and it is bad news for the industry when those same firms emerge from Chapter 11 protection.

Like Ferris, et al (1997) we go beyond the market reaction in an attempt to explain the range of market reactions, both positive and negative. However, we believe that, rather than a simple yes/no bankruptcy prediction, it is more likely that market participants use the new information provided by their rivals' emergence from Chapter 11 bankruptcy to revise their estimates of future *cash flows*. We use abnormal revisions in analysts' earnings forecasts as a proxy for these estimates and find that not only is there a significant decline in expected future cash flows for rivals, but forecasters appear to anticipate the bankrupt firms' emergence from Chapter 11 in the months prior to the reorganization announcement.

Finally, although the competitive stock market effect dominates the contagion effect, stock market reactions are not negative for all rivals. In fact, it could be expected that individual rivals would be affected differently by the news of a revitalized competitor. For example, suppose an industry consists of three firms: the market leader firm A, a market follower firm B, and the bankrupt firm C. Further, while they are all in the same industry suppose firm C's product line is a closer substitute to that of firm B than to that of firm A. In this case firm C's reorganization may weaken the competitive position of the market follower, while strengthening that of the market leader, and lead to opposite market reactions for the rivals. Earnings forecasters are in the best position, not including insiders, to distinguish between the expected effect of firm C's reorganization on firms A and B. Therefore, we expect a positive relation between abnormal market reactions and abnormal forecast revisions for rivals of firms emerging from bankruptcy. We confirm the positive relation formally using regression analysis. The negative market reaction, the negative earnings forecast revisions, and the positive relation between the two all imply that the competitive effect dominates the contagion effect for rivals of firms emerging from Chapter 11 bankruptcy.

Section II explains our data selection process. In section III, we examine the market response to announcements of bankruptcy filings for both the filing firm and its rivals. Section IV examines the earnings forecast revisions for the rival companies. Conclusions are summarized in section V.

II. Sample selection

We compiled our sample of firms emerging from bankruptcy using the Securities Data Corporation (SDC) database. SDC reports the reorganization date, which is the date the bankruptcy court accepts the reorganization plan. Our sample consists of firms that reorganized between January 1, 1987 and December 31, 1998. Obviously, an analysis of intra-industry effects requires data from a firm's industry rivals. Following Lang and Stulz (1992), we define a firm's rivals as all firms with the same four-digit Standard Industry Classification (SIC) code. Finally, for a rival firm to be included in our final sample we require that there be sufficient data in both the Center for Research in Security Prices (CRSP) data files and the Institutional Brokers Estimation System (IBES) earnings forecast database.

After applying these various requirements our final sample includes sixty firms operating in forty-eight different four-digit industries that announced a bankruptcy filing during the sample period. Competing with these filing firms are 3,270 rivals.

III. Stock Market Reaction

We compute standardized abnormal returns following Patel (1976) as modified by Mikkelson and Partch (1988). Day 0 is defined as the date the court accepts

the firm's reorganization plan, i.e., the date the firm emerges from Chapter 11 bankruptcy protection. The abnormal returns are the difference between the actual return and an expected return generated by the market model. We estimate the parameters for the market model using daily returns data from day -510 to day -251.[14] Abnormal returns are generated for both the filing firms and an equally weighted portfolio of rival firms with the same four-digit SIC code. Finally, we compute the Z-statistic and use it to test for statistical significance of standardized abnormal returns and cumulative standard abnormal returns (CAR) for various windows.

- Table 1 reports the stock market reaction to successful reorganization and emergence from bankruptcy protection for both the reorganized firms and their rivals. Consistent with Eberhart, et al (1999), we observe a significant positive abnormal stock market reaction when the bankruptcy court accepts a firm's reorganization plan. The average three-day CAR (days -1 to +1) for the sample of 60 emerging firms is positive 7.87 percent, which with a t-statistic of 4.27, is significant below the one percent level. Clearly, the market views a firm's emergence from bankruptcy protection as a positive and significant informational event.
- Conversely, the equally weighted portfolio of rival firms has a three-day average CAR of -0.40 percent, which with a t-statistic of –3.15 is also significant below the one percent level. This finding is comparable in both size and significance to those found at the original Chapter 11 filing by both Lang and Stulz (1992), who report a - 1.07 percent reaction over the eleven days centered on the filing date, and by Ferris, Jayaraman, and Makhija (1997), who report a -0.56 percent reaction over the a three-day window at filing. Apparently, although the Chapter 11 filing and subsequent reorganization produce significantly negative and positive average abnormal market reactions, respectively, for the filing companies, rival firms react negatively at both the original filing and subsequent emergence.

At first glance, these abnormal market reactions may appear to be statistically but not economically significant. However, as pointed out by Ferris, et al, since the total equity value of the competitor portfolio is much larger than the equity value of the individual companies filing for bankruptcy, or in our case, emerging from bankruptcy, they are significant in dollar terms. Ferris, et al, report that for their sample the competitor portfolio loses $3.32 of equity value on average for every dollar of equity value lost by the bankrupt firms.

These event study findings indicate that while emerging from Chapter 11 protection is very good news for reorganized firms it is significantly bad news for industry rivals. We now turn our focus to determining how the information contained in the court's acceptance of the reorganization plan is translated into a negative market reaction for rivals. We hypothesize that market participants interpret the emergence of a newly healthy competitor as downward pressure on expected future cash flows of rivals and that this downward pressure leads to lower market valuations for those firms. The next section presents our methodology for testing this hypothesis, and the results of that test.

IV. Abnormal Earnings Forecast Revisions

To judge whether or not the market reaction for rival companies are related to changes in expected cash flows we need a proxy for those expectations. Earnings analysts help to set the market's level of expected cash flows with their forecasts of future earnings. Similarly, revisions in analyst's forecasts help to reset the market's expectations at some new level. We use reported earnings forecast revisions subsequent to announcements of emergence from bankruptcy as a proxy for the changes in the market's expectations of future cash flow from the rival firms. Significant earnings revisions after emergence from Chapter 11 protection are consistent with the hypothesis that the reorganization of a financially rejuvenated company leads to revisions in the market's cash flow expectations for rival companies, and their subsequent negative abnormal market reaction.

Following Brous (1992), we measure earnings forecast revisions (FR) using the following equation:

$FR_{i,t} = [(F_{i,t} - F_{i,t-1}) / P_i] \times 100$

where $F_{i,t}$ is the median analyst earnings forecast from IBES in month t for the annual earnings per share of firm i for the current fiscal year, and P_i is the stock price for firm i six months prior to the reorganization announcement. Since previous studies have shown that IBES data contain errors, we eliminate a filing firm or rival from our sample if $FR_{i,t}$ is more than five standard deviations (defined over all firms) from the overall mean in any month. After the initial round of data eliminations, the standard deviation is recalculated and again firms with observations outside five standard deviations are eliminated, and so on until there are no observations more than five standard deviations from the mean.

However, both O'Brien (1988) and Brous (1992) have shown that raw forecast revisions such as those computed using equation 1 can be biased. O'Brien (1988) shows that reported earnings forecasts systematically decrease until the actual earnings are announced by the firm. This implies that forecasters are systematically overly optimistic when making their first earnings forecast for a company. Brous (1992) reports that earnings analysts update their forecasts for any specific company only every four to five months. That is, on average in any given month only about 20 percent of forecasts are updated. This implies that

2. We use this estimation period because we look at the cumulative abnormal returns in the pre-filing period from 250 days to 31 days prior to the filing.

revisions in the median earnings forecast for one specific company across all analysts covering that company, tend to be serially correlated. For example, if new information is revealed that causes a reduction in expected earnings the median forecast will begin to fall immediately and will tend to continue falling due to the same information for four to five months as all analysts get around to updating their forecasts. To test whether the competition of a reorganized firm affects cash flow expectations of rivals, we need measures that correct for these two effects.

- To correct for these two expected effects we employ a modified version of the Ederington and Goh (1998) procedure, which they developed to isolate surprise revisions surrounding bond-rating changes. Their method, in turn, is a modification of the procedure pioneered by Brous (1992) to examine earnings forecast revisions following seasoned equity offerings. Following Ederington and Goh, we start by randomly choosing 500 firms from the IBES data file. Then, for each firm we randomly select a 25-month period between January 1984 and December 1990. Finally, we pool the resulting data and estimate the following equation:

- $$FR_{i,t} = -.093 + .085\ FR_{i,t-1} + .085\ FR_{i,t-2} + .081\ FR_{i,t-3} + .072\ FR_{i,t-4} + .058\ FR_{i,t-5} + .040\ FR_{i,t-6} + u_{i,t}. \quad (2)$$

The negative intercept in this equation (-.093) confirms the finding by O'Brien (1988) that absent new information, analysts tend to reduce their forecasts over time. For instance, for a firm with a P/E ratio of 12, the negative intercept implies an average revision of -1.12% (12 x .093%) each month. If this representative forecast is twelve months out, the forecast will decline an additional 12.6 percent on average ($(1 - .0112)^{12} - 1 = -.126$). The positive coefficients on the lagged forecast revisions are consistent with Brouse (1992) and indicate that when new information is revealed it will continue to affect forecast revisions as far as six months into the future. For example, suppose on April 1 economic conditions unexpectedly improve to a level that will lead all analysts to eventually double their end-of-year earnings forecasts for a company. Given Brous's findings, only a fraction of analysts will update their forecasts by the end of April. The remaining analysts will update their forecasts with a lag. Therefore, by the end of April the median forecast will only partially reflect the better economic conditions and in each subsequent month additional analysts will incorporate the new information in their end-of-year forecasts. This lag will lead to median monthly forecasts that incrementally reflect the new information through time until all analysts have doubled their forecasts at which time the median forecast will be double what it was on April 1. Specifically, in equation 2 the .085 coefficient for $FR_{i,t-1}$ indicates that the median forecast for end-of-year earnings is expected to increase by about 8.5 percent in May, while June's median forecast should increase by about 8.5 percent, and so on for a total lagged average cumulative effect of 42.1 percent implying that only 58.9 percent of the total revision ocurred in the month the new information was revealed.

Using equation 2, each firm's lagged values of $FR_{i,t}$ for all t = -1 to -6, and assuming $u_{i,t}$ is normally distributed with mean zero, we calculate the expected forecast revision, $E(FR_{i,t})$. We then define the abnormal earnings forecast revision, $AFR_{i,t}$, as the difference between the actual revision in the consensus forecast in month t and its expected forecast revision calculated as outlined above. Specifically:

$$AFR_{i,t} = FR_{i,t} - E(FR_{i,t}) \quad (3)$$

We use a simple t-test to test the null hypothesis $AFR_{i,t} = 0$. Table 2 presents the abnormal earnings forecast revisions for the rivals of firms emerging from bankruptcy protection. A general negative trend in abnormal forecast revisions during the three months prior to emergence may indicate anticipation of the pressure on cash flows. Indeed the reorganization date is known in advance. However, the three most negative monthly AFR in the thirteen-month period are months t-1 to t+1, where month t=0 is the month the bankrupt company emerges from protection. Given Brous's (1992) finding that earnings forecasts can tend to become stale as analysts incrementally update them, we cumulate abnormal forecast revisions after the bond rating downgrade to capture the full effect of emergence from bankruptcy on earnings forecast revisions using the following equation:

$$CAFR_i = \sum_i [CAFR_{i,t}] = \sum_i [\sum_{t=0}^{3} \{AFR_{i,t}\}] \quad (4)$$

The average CAFR for this four-month period after emergence from bankruptcy protection is -0.114, which with a t-statistic of -2.96 is significant below the 1 percent level. This finding is consistent with our hypothesis that as a result of successfully completing the Chapter 11 process and thus emerging from bankruptcy protection as a more financially healthy competitor, analysts revise downward the earnings forecasts for rivals of the reorganized companies. If earnings expectations proxy for expected future cash flow, this decrease in earnings forecasts may lead to the decline in market values we report in table 1.

We formally test for a relation between earnings forecasts and the change in market values of equity using regression analysis. Specifically, we regress the cumulative abnormal forecast revisions on the cumulative abnormal stock returns over the three-day period surrounding the date the bankruptcy court accepts the reorganization plan. In addition, we control for other firm-specific information that could affect earnings forecast revisions. Hertzel and Jain (1991) and Hertzel and Rees (1998) both indicate that because of the serial correlation inherent in the IBES data, there is potential for a great deal of contaminating information since forecast revisions could reflect information released either months prior to or after the

bankruptcy filing. We believe that our methodology of calculating abnormal forecast revisions accounts for this problem. However, in order to control for any unaccounted for firm-specific information, we include two variables in the cross-sectional regression models, the pre-announcement cumulative abnormal stock return over the interval from Day -250 to Day -30, and the post-announcement cumulative abnormal stock return over the interval from Day +30 to Day +250. These two control variables should capture any other firm-specific information that could potentially cause analysts to revise their earnings forecasts either prior to the announcement or during the four-month period during which we cumulate abnormal earnings forecasts.

Results for the cross-sectional regression analysis are presented in table 3 and suggest that the stock market reaction is strongly and positively related to analysts' earnings forecasts. This finding is consistent with our hypothesis that the acceptance of the reorganization plan causes market participants to revise downward their cash flow expectations for rival companies and that these reduced expectations lead to the negative stock market reaction we show in table 1. That is, the average competitive stock market effect we discover may be due to significant reductions in expected future cash flow.

VI. Conclusion

This paper provides evidence that the announcement of emergence from Chapter 11 bankruptcy protection provides a release of new information for both the emerging firm and its rivals. The information comes as a surprise as evidenced by the positive stock market reaction for announcing firms and the negative reaction for their rivals, as well as the subsequent negative earnings revisions for the rivals. These two effects on rival firms across so many different industries imply that, on average, the competitive effect, dominates the contagion effect for these firms. Moreover, the results of the cross-sectional regression show a significant relation between the negative stock price reaction for the portfolio of rival firms and negative revisions in analysts' earnings forecasts. All of these findings are consistent with our hypothesis that decreases in expected future cash flow as a result of increased competitive pressure in the industry produce the negative stock market reactions of rival companies.

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Table 1
Average abnormal returns for announcing firms and industry rivals surrounding reorganization announcements

We estimate average abnormal returns based on the market model around the date of reorganization, Day 0. The market model is estimated over the period from Day -510 to Day -251. The sample includes 60 announcing firms and 3,270 rivals between the years 1987 and 1998. (*** denotes .01, ** denotes .05, and * denotes .10 levels of significance)

Panel A Announcing firms			Panel B Rival firms		
Day	Abnormal Return	t-statistic	Day	Abnormal Return	t-statistic
-5	1.11	1.05	-5	-0.12	-1.45
-4	1.59	1.50	-4	0.16	2.18*
-3	1.63	1.53	-3	-0.05	-0.74
-2	1.13	1.07	-2	-0.11	-1.45
-1	1.38	1.27	-1	-0.09	-1.19
0	2.19	2.06*	0	-0.08	-1.03
1	4.31	4.05***	1	-0.24	-3.24***
2	-1.75	-1.65	2	-0.11	-1.49
3	-0.58	-0.55	3	-0.13	-1.80*
4	2.23	2.09*	4	0.02	0.29
5	-0.63	-0.59	5	-0.10	1.33
Event Windows:					
(0, 1)	6.49	4.32***		-0.31	-3.02**
(-1, 1)	7.87	4.27***		-0.40	-3.15***
(-250, -30)	59.83	3.79***		-2.82	-2.55**
(30, 250)	56.62	3.58***		-2.45	-2.22*

Table 2

Average abnormal earnings forecast revisions for industry rivals at reorganization announcements

We estimate average abnormal earnings forecast revisions based on a modification of the Ederington and Goh (1998) methodology surrounding the announcement month (Month 0) of a dividend omission. The sample includes 3270 rivals during the announcement month between the years 1987 and 1998. The mean abnormal forecast revision, $AFR_{i,t} = FR_{i,t} - E(FR_{i,t}|FR_{i,t-j},j=1,6)$, is reported where $FR_{i,t} = [(F_{i,t} - F_{i,t-1})/P_i]*100$, $F_{i,t}$ is the median forecast in month t of earnings per share for the current fiscal year as reported by IBES, and P_i is the price per share six months prior to the reorganization date. $E(FR_{i,t}|FR_{i,t-j},j=1,6)$ is the expected forecast revision in month t, based on a six-month distributed lag of past forecast revisions estimated from a random sample. Reported forecast revision estimates are actual estimates times 100.

(*** denotes .01, ** denotes .05, and * denotes .10 levels of significance)

Month	Abnormal Forecast Revision	t-statistic	n
-6	-0.021	-0.99	3046
-5	-0.010	-0.48	3064
-4	0.005	0.24	3092
-3	-0.030	-1.59	3118
-2	-0.036	-1.68	3155
-1	-0.048	-2.17*	3191
0	-0.038	-1.79	3237
1	-0.037	-1.90*	3240
2	-0.032	-1.57	3256
3	-0.017	-1.00	3269
4	-0.022	-1.20	3252
5	0.019	1.07	3263
6	0.002	0.12	3263
Event Window: (0,+3)	-0.114	-2.96***	3152

Table 3

Cross-sectional regressions of rivals' average abnormal earnings forecast revisions and abnormal stock returns

The dependent variable is the Rivals' cumulative abnormal earnings forecast revisions from the month the sample company emerges from bankruptcy protection, Month 0, through Month +3. We estimate average abnormal earnings forecast revisions for rival companies of those emerging from bankruptcy protection based on a modification of the Ederington and Goh (1998) methodology. The mean abnormal forecast revision, $AFR_{i,t} = FR_{i,t} - E(FR_{i,t}|FR_{i,t-j}, j=1,6)$, is reported where $FR_{i,t} = [(F_{i,t} - F_{i,t-1})/P_i]*100$, $F_{i,t}$ is the median forecast in month t of earnings per share for the current fiscal year as reported by IBES, and P_i is the price per share six months prior to the reorganization date. $E(FR_{i,t}|FR_{i,t-j}, j=1,6)$ is the expected forecast revision in month t, based on a six-month distributed lag of past forecast revisions estimated from a random sample. We estimate abnormal stock returns using the market model over the period from Day -510 through Day -251. (*** denotes .01, ** denotes .05, and * denotes .10 levels of significance)

	Estimated Coefficient	t-statistic
Intercept	-0.0010	- 2.47**
RCAR	0.0194	2.08**
RCAR_PRE	0.0040	2.57***
RCAR_POST	0.0002	0.21
F statistic	10.119	
P-value	(.0001)	
Adjusted R^2	.01	

RCAR = Rivals' 3-day cumulative abnormal stock returns centered on the announcement day.
RCAR_PRE = Rivals' pre-announcement cumulative abnormal returns from Day -250 through -30.
RCAR_POST = Rivals' post-announcement cumulative abnormal returns from Day +30 though +250.