
| RESEARCH ARTICLE

Chapter 11 Bankruptcy Impact on Earnings Forecasts

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| ABSTRACT

Studies in the area of management forecasts contain a common characteristic: they assess voluntary earnings disclosures during normal operating periods, when the incentive structure is generally routine and on-going. This research tests whether voluntary earnings disclosures released during Chapter 11 protection are significantly different from those forecasts released after emergence from Chapter 11 protection. From a biased perspective, results indicate that managers exert greater upward earnings management on the forecast during Chapter 11 protection periods. From an information content perspective, results indicate the presence of information content during both of these periods. When firms are engaged in Chapter 11 protection, the information content is significantly negative indicating that investors have a tendency to discount the forecast. After emergence from Chapter 11, the information content is significantly positive, indicating that investors have a tendency to not discount the forecast. With the number of bankruptcies steadily rising today, these findings have practical implications for not only users of forecast information, but also for the managers generating the forecasts.

| KEYWORDS

Chapter 11, Earnings forecasts, Voluntary disclosures

| ARTICLE INFORMATION

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1. INTRODUCTION

Bankruptcy has the potential to be a tremendously traumatic experience for a firm. The primary purpose of the U.S. bankruptcy code, through Chapter 11 filing, is to provide temporary respite from financial obligations to companies with a sufficiently high probability of reorganizing obligations successfully. A successful reorganization would allow the company to ultimately emerge from bankruptcy as a much more financially healthy organization.

Eberthart et al (2009) study the stock market performance of firms emerging from Chapter 11 bankruptcy. They find that in the first 200 days after shedding the Chapter 11 cover abnormal stock returns average from +24.6% to +138.8%. This is similar to the findings of Bradley and Rosenzweig (2002). Doherty (2022) extends the analysis and finds that this market reaction can exert a positive competitive effect, particularly since the Chapter 11 bankruptcy can be an indication of a general negative contagion in the industry in which the Chapter 11 emerging company competes. The news of a successful emergence from Chapter 11 is then viewed as good market news relative to other firms in the industry. Casey (2020) separates firms in comparable industries by those that file for bankruptcy and those that do not. An analysis is then made three years prior to the bankruptcy and three years after emerging from bankruptcy. They find that when the bankruptcy announcement is made, the firms declaring Chapter 11 filings see a decline in stock prices, but so do rivals firms in the same industry. When the firms emerge from Chapter 11, they see an even greater increase in stock price than the stock prices of rival firms.

In 1998, the U.S. Congress passed the Securities Litigation Uniform Standards Act (SLUSA). The intent of this law was to encourage U.S. firms to issue greater numbers of voluntary forecasts by offering protection from potential litigation that might arise through the issuance of inaccurate forecasts. Greater numbers of voluntary earnings releases would be viewed by current and future investors as beneficial from a full disclosure perspective. During the period between 1998-2007, Chapter 11 bankruptcies averaged around 10,000 per year. From 2008-2020 they increased to over 20,000 per year. In 2016 alone the number of Chapter 11 filings increased by nearly 50%. Even though the U.S. Congress has sought to increase the number of voluntary forecasts, this effort could in fact have been minimized by the looming presence of bankruptcy for some firms. This study will attempt to evaluate the linkage between voluntary earnings forecasts and Chapter 11 filings. The question to be answered is, do voluntary earnings forecast differ during periods of Chapter 11 protection versus periods when a firm is not under the auspices of Chapter 11? In assessing that question, a sample of firms that issued voluntary forecasts while under Chapter 11 protection is analyzed against a sample of those same firms that issued voluntary forecasts after emerging from Chapter 11 protection. The two samples are then compared for statistical differences.

2. LITERATURE REVIEW

Prior research in the study of voluntary earnings disclosures finds that managers release information that is unbiased relative to subsequently revealed earnings and that tends to contain more bad news than good news (Baginski et al., 1994; Frankel, 1995). Such releases are also found to contain information content (Patell, 1976; Waymire, 1984; Pownell and Waymire, 1989). Although forecast release is costly, credible disclosure will occur if sufficient incentives exist. These incentives include bringing investor/manager expectations in line (Zadeh and Song, 2022), removing the need for expensive sources of additional information (Diamond, 2005), reducing the cost of capital to the firm (Diamond and Verrechia, 2007), and reducing potential lawsuits (Lees, 1991).

All of the aforementioned empirical studies have one common characteristic, they assess voluntary earnings disclosures of firms during normal operating periods, when the incentive structure is generally routine and ongoing. The research question addressed in this study is: Do voluntary earnings forecasts differ during periods of Chapter 11 protection versus periods when a firm is not under the auspices of Chapter 11? This question also links earnings management to voluntary disclosures of earnings. For several years researchers have found that some degree of earnings management may exist in mandatory disclosures. Incentives leading to earnings management may also manifest in voluntary disclosures. If the potential exists for voluntary disclosures to be managed, Chapter 11 bankruptcy may well be a time in which they are managed. If this is the case, then to what extent do investors rely upon the forecast information? This is the other research issue that will be addressed in this study.

In conducting this study, literature is relied upon that indicates different incentive structures during non-normal operating periods (such as those implied by Chapter 11 governance). DeAngelo (1996) shows that managers have incentives during management buyouts to manage earnings downward in attempts to reduce buyout compensation. Collins and DeAngelo (1990) show that earnings management occurs during proxy contests, and market reaction to earnings during these contests is different than during normal operating periods. DeAngelo (1990) finds that managers have incentives during merger activities to manage earnings upward so as to convey to current stockholders that the potential merger will not adversely affect their investment. Perry and Williams (2004) find that management of accounting earnings occurs in the year preceding "going private" buyouts. Stunda (2006) finds that managers exert greater upward earnings management during mergers and acquisitions.

This study assesses the effect that Chapter 11 bankruptcy has on management forecast credibility. In accomplishing this, the presence of earnings forecast management is tested by using bias measures along with the market reaction to the forecast during both non-Chapter 11 periods and Chapter 11 periods for the same firms. Based upon statistical analysis, conclusions are drawn that identify whether bankruptcy becomes a factor that influences voluntary earnings forecasts. This would have implications for voluntary disclosures in general (since current literature finds voluntary disclosures to be unbiased). There would be potential implications for managers of firms seeking a Chapter 11 filing, along with the investors of these firms.

3. HYPOTHESES DEVELOPMENT

1) Hypothesis About Bias of Management Forecast

As previously noted, recent studies of management earnings forecasts do not find evidence of bias in voluntary management disclosures. These studies of management forecasts must be considered along with earnings management literature. For instance, voluntary disclosures facilitate additional information to the investor at a lower acquisition cost. However, if only partial communication flows from management to investors and acquiring full information is costly, there exists asymmetric information and the potential for earnings management in the earnings forecast.

If the same degree of earnings management (whether positive or negative) exists in both the forecast of earnings and actual earnings, the expectation is that there would be no difference in forecast error. If, however, the ability to perform earnings management is anticipated but not realized, some difference in forecast error would be present. If greater upward earnings

management of the forecast occurs (or less actual earnings management), a negative forecast error should exist. If greater downward earnings management of the forecast occurs (or more actual earnings management), a positive forecast error should exist. Thus, the first hypothesis tests for the existence of forecast error in the sample of firms issuing forecasts while in Chapter 11, versus the same sample of firms issuing forecasts after emerging from Chapter 11. The null hypothesis tested is:

H1: Average management forecast error (actual EPS – management forecast of EPS) equals zero for sample firms issuing forecasts for both Chapter 11 and post-Chapter 11 periods.

2) Hypothesis About Information Content of Accounting Earnings and Management Forecasts

If mandatory disclosures of earnings contain some degree of earnings management, then voluntary disclosures may possess the potential for such earnings management as well. Investors may react to managed earnings in one of two ways; they may discount the information as additional noise, or they may view this information as enhancing the properties of the signal (i.e., in terms of amount of variance). Research during the past three decades has shown that accounting earnings possess information content; however, current literature finds that the information content of earnings announcements is different during non-normal operating periods. For instance, Collins and DeAngelo (1990) finds a greater market reaction to earnings during proxy contests, and Stunda (2006) finds a greater reaction during mergers and acquisitions.

If investors interpret managed earnings forecasts as just additional noise, the market would discount this information. If, however, investors view the managed earnings forecast as a positive (or negative) signal from management, the market would not discount the information. The expectation for information content of management forecasts in non-normal operating periods (i.e., such as Chapter 11) would revolve around these two notions. These alternative notions suggest the following null hypothesis, stated in null form:

H2: The information content of management forecasts during Chapter 11 periods is equal to the information content of management forecasts after emergence from Chapter 11.

4. RESEARCH DESIGN

The sample consists of management forecast point estimates made during the period that saw a significant rise in Chapter 11 bankruptcies, 2008-2020, where the following criteria were met: 1) The management earnings forecast was recorded by the Dow Jones News Retrieval Service (DJNRS). 2) Chapter 11 information was obtained from the Wall Street Journal (WSJ). 3) Security price data was obtained from the Center for Research on Security Prices (CRSP). 4) Earnings data was obtained from Compustat. 5) Each sample firm must have had a minimum of one forecast during Chapter 11 and one forecast after emerging from Chapter 11.

The main sample is further divided into two sub-samples; one consisting of firms issuing forecasts while under the umbrella of Chapter 11 protection; and the other consisting of the same firms issuing forecasts after emerging from the protection of Chapter 11. For sensitivity analysis an additional sample of firms is assessed. This sample consists of firms that have not been involved in Chapter 11 activity and that have issued at least one forecast during the study period. The purpose of this third sample is to ascertain any distinction Chapter 11 may have in the life of a firm. Table 1 summarizes the forecast samples utilized in the study.

Table 1 Study Samples Study Period 2008-2020	
Sample Set	Number of Forecasts
Forecasts during Chapter 11	108
Forecasts after Emergence from Chapter 11	135
Forecasts not Involving Chapter 11 Activities	318
Total	561

5. TEST OF HYPOTHESIS 1

The management forecasts of earnings must be related to actual earnings in order to determine if bias exists. McNichols (1999) analyzes bias through the determination of forecast error. The forecast error of a firm (fei) is equal to the actual earnings per share minus the management forecast of earnings per share. In order to test hypothesis 1, the forecast error is assessed for

firm forecasts on a cross-sectional basis in periods of Chapter 11 and compared to forecasts of the same firms in periods after emerging from Chapter 11. This test allows for the assessment of forecast error in these two respective time periods. Stated in statistical form, the hypothesis is represented in equation (1) as follows:

$$\Sigma \frac{fei}{\eta_{Chapter\ 11}} = \Sigma \frac{fei}{\eta_{post-Chapter\ 11}} \quad (1)$$

Where: fei = forecast error of firm i
 $\eta_{Chapter\ 11}$ = forecasts made in Chapter 11 periods ($n = 108$)
 $\eta_{post - Chapter\ 11}$ = forecasts made in post-Chapter 11 periods ($n = 135$)

Statistical analysis is performed on the two samples in order to determine if the forecast error between the two samples is significantly different. McNichols (1999) and DeAngelo (1996) conduct a t-test on their respective samples in addition to a Wilcoxon signed rank test. Lehman (1975) reports that the Wilcoxon test has an efficiency of about 95% relative to a t-test for data that is normally distributed, and that the Wilcoxon test can be more efficient than the t-test for non-normal distributions. Therefore, this analysis consists of performing a t-test and a Wilcoxon signed rank test on average cross-sectional differences between actual earnings per share and the management forecast of earnings per share for the two sample groups.

The required criteria for this hypothesis is that these firms have at least one earnings forecast during their Chapter 11 period and at least one forecast after emerging from Chapter 11.

In order to provide sensitivity analysis and establish a baseline for reaching conclusions among firms that have engaged in Chapter 11 protection, an analysis similar to the one conducted above is made for firms issuing forecasts during the same sample period (2008-2020) but have not filed for Chapter 11 protection. Stated in statistical form, this sensitivity analysis is represented in equation (2) as follows:

$$\Sigma \frac{fei}{n} = 0 \quad (2)$$

Where: fei = forecast error of firm i
 η = forecasts made for firms not engaged in Chapter 11 ($n = 318$)

6. TEST OF HYPOTHESIS 2

The purpose of this test is to assess the relative information content of management earnings forecasts during Chapter 11 periods and post-Chapter 11 periods. The following model in equation (3) is used to evaluate information content:

$$CAR_{it} = a + b1UE_{it} + b2UE_{11it} + b3UE_{p11it} + b4MBit + b5Bit + b6MV_{it} + b7Hit + eit \quad (3)$$

Where: CAR_{it} = Cumulative abnormal return forecast i , time t
 a = Intercept term
 UE_{it} = Unexpected earnings for forecast i , time t , for firms never engaged in Chapter 11
 UE_{11it} = Unexpected earnings for forecast i , time t , for firms during Chapter 11 protection
 UE_{p11it} = Unexpected earnings for forecast i , time t , for firms post-Chapter 11
 $MBit$ = Market to book value of equity as proxy for growth and persistence
 Bit = Market model slope coefficient as proxy for systematic risk
 MV_{it} = Market value of equity as proxy for firm size
 Hit = Horizon of forecast, measured as days into year before forecast
 eit = error term for forecast i , time t

The coefficient a in the above equation measures the intercept. The coefficient $b1$ is the earnings response coefficient (ERC) for all firms never engaged in Chapter 11 proceedings. Coefficient $b2$ is the ERC for all firms issuing forecasts during Chapter 11, while coefficient $b3$ is the ERC for all firms issuing forecasts after emerging from Chapter 11. The coefficients $b4$, $b5$, $b6$, and $b7$ are contributions to the ERC for all firms in the sample. To investigate the effects of the information content of management forecasts on ERC, there must be some control for variables shown by prior studies to be determinants of ERC. For this reason, the variables represented by coefficients $b4$ through $b7$ are included in the study.

Unexpected earnings (UE_{it}) is measured as the difference between the management earnings forecast ((MFi) and the security market participants' expectations for earnings proxied by consensus analyst following as per Investment Brokers Estimate Service (IBES). The unexpected earnings are scaled by the firm's stock price (P_i) 180 days prior to the forecast. This is represented by the statistical formula in equation (4) as follows:

$$UE_i = \frac{MFi - EX_i}{P_1} \quad (4)$$

For each disclosure sample, an abnormal return (AR_{it}) is generated for event days -1, 0, +1, where day 0 is defined as the date of the forecast disclosure as per the DJNRS. The market model is utilized along with the CRSP equally-weighted market index and regression parameters are estimated between -290 and -91. Abnormal returns are then summed to calculate a cumulative abnormal return (CAR_{it}). Hypothesis 2 is tested by examining the coefficients associated with unexpected earnings of forecasts, b₁, b₂, b₃. There are two possible conclusions; the forecast may be noisy, which in this event, the coefficients will be <0, or the forecast will possess an information-enhancing signal to the investor, which will result in the coefficients >0.

7. RESULTS

Hypothesis 1 examines whether there is a difference in bias measurement between the sample of firms issuing forecasts while under Chapter 11 protection versus the same firms issuing forecast after emerging from Chapter 11. This test is developed by comparing forecasts of these two samples and allows for a test of the relative forecast error between the two. Table 2 indicates the results of this test. Results show that the mean forecast error derived from the average cross-sectional differences between the two samples is -.08 with a p-value of 0.01. Using the distribution-free sign rank test, significance is observed at the 0.01 level. These results suggest rejection of the hypothesis that the average forecast errors during these two sample time frames are the same. In addition, the average forecast error during periods of Chapter 11 protection is more negative the forecast error during post-Chapter 11 periods (mean = -.08). This is consistent with the notion of greater upward earnings management of the forecast during Chapter 11 protection periods. In other words, firms are more likely to skew the earnings forecast upward during Chapter 11 periods.

Table 2 Test of Hypothesis 1					
Model: $\Sigma \frac{fei}{\eta_{Chapter\ 11}} = \Sigma \frac{fei}{\eta_{post - Chapter\ 11}}$					
Table entry is average management forecast error difference between Chapter 11 and post-Chapter 11 time periods					
Mean	Median	Minimum	Maximum	Standard Deviation	t-Statistic
-.08	-.04 ^b	-.01	-.12	.0020	(2.26) ^a
^a Significant at the 0.01 level (two-sided test)					
^b Significant at the 0.01 level using non parametric sign rank test					
<i>fei</i> = forecast error of firm <i>i</i>					
η Chapter 11 = 108 Firm forecasts for the period 2008-2020					
η Post Chapter 11 = 135 Firm forecast for the period 2008-2020					

As a sensitivity analysis, a test of bias is also made on all forecasts during the study period of 2008-2020 for firms that have not engaged in Chapter 11 filings. Table 3 provides the results of this test. Results show a mean forecast error of .04 with a p-value of 0.01. Using the distribution-free sign rank test, significance is observed at the 0.01 level. These results indicate that for firms issuing earnings forecasts that have not been engaged in Chapter 11 activity, there is a downward earnings management of the forecast. This is consistent with extant literature and also consistent with what was seen in the sample of firms issuing forecasts after emerging from Chapter 11 protection.

Table 3 Test of Hypothesis 1 Model: $\Sigma \frac{fei}{\eta} = 0$					
Table entry is average management forecast error for all firms never engaged in Chapter 11 activities					
Mean	Median	Minimum	Maximum	Standard Deviation	t-Statistic
.04	.01 ^b	-.004	.198	.0013	(2.38) ^a
^a Significant at the 0.01 level (two-sided test)					
^b Significant at the 0.01 level using non parametric sign rank test					
<i>fei</i> = forecast error of firm <i>i</i>					
η = 318 firm forecasts for the period 2008-2020					

Hypothesis 2 tests information content of the management forecast for the two sample periods of during Chapter 11 protection, and after emergence from Chapter 11. Table 4 reports results from this test. The coefficient representing the incremental ERC of firms never engaged in Chapter 11 procedures (b1) has a value of .12 with a p-value of 0.01. The coefficient representing the response to firm forecasts during Chapter 11 protection (b2) has a value of -.06 with a p-value of -0.01. The coefficient representing the response to firm forecasts after emergence from Chapter 11 (b3) has a value of .09 with a p-value of 0.01. All other control variables are not significant at conventional levels. In addition, whenever regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an interpretive perspective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIP) was utilized. Values of VIP exceeding 10 are often regarded as indicating multicollinearity. In the test of hypothesis 2, a VIP of 2.3 was observed, thus indicating a absence of significant multicollinearity

These findings indicate that not only do earnings forecasts contain information content, but there is a difference in the information content of management forecasts during Chapter 11 protection and all other periods. When firms have never engaged in Chapter 11 proceedings, the information content is positive and significant, meaning that investors do not discount the forecast. This is consistent with prior forecast literature. When firms issue earnings forecasts while in Chapter 11 protection, the information content is negative and significant, meaning that investors tend to discount the forecast. When these firms emerge from Chapter 11, the forecast is again seen as positive and significant, meaning that once again the forecast is perceived to have value and therefore not discounted. These results suggest rejection of the hypothesis that information content of management forecasts during periods of Chapter 11 protection is equal to periods after emerging from Chapter 11 protection.

Table 4 Test of Hypothesis 2								
Model: $CARit = a + b1UEit + b2UE11it + b3UEp11it + b4MBit + b5Bit + b6MVit + b7Hit + eit$								
Table represents data for all firm forecasts during the period 1998-2012								
a	b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	b ₇	Adj. R ²
.18	.12	-.06	.09	.13	-.07	.03	.14	.179
(0.90)	(2.31) ^a	(-2.40) ^a	(2.39) ^a	(.10)	(-.41)	(.27)	(.44)	
^a Significant of the 0.01 level (one-sided test)								
Where: <i>CARit</i> = Cumulative abnormal return forecast i, time t								
<i>a</i> = Intercept term								
<i>UEit</i> = Unexpected earnings for forecast i, time t, for firms never engaged in Chapter 11								
<i>UE11it</i> = Unexpected earnings for forecast i, time t, for firms during Chapter 11								
<i>UEp11it</i> = Unexpected earnings for forecast i, time t, for firms post-Chapter 11								
<i>MBit</i> = Market to book value of equity as proxy for growth and persistence								
<i>Bit</i> = Market model slope coefficient as proxy for systematic risk								
<i>MVit</i> = Market value of equity as proxy for firm size								
<i>Hit</i> = Horizon of forecast, measured as days into year before forecast								
<i>eit</i> = error term for forecast i, time t								

8. CONCLUSIONS

This study provides empirical evidence regarding the credibility of management forecasts during Chapter 11 protection and after emerging from Chapter 11 protection. Bias results indicate that managers exert greater upward earnings management on the forecast during Chapter 11 protection periods. Information content results indicate the presence of information content during both of these periods. When firms are engaged in Chapter 11 protection, the information content is significantly negative indicating that investors have a tendency to discount the forecast. After emergence from Chapter 11, the information content is significantly positive, indicating that investors do not tend to discount the forecast.

These findings have implications for firms currently or prospectively engaged in Chapter 11 activities. It also acts as a signal to investors to be cognizant of differences that may occur in earnings forecasts made during Chapter 11 protection.

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