THE EFFECT ON INTRA-INDUSTRY RIVALS WHEN FIRMS EMERGE FROM AND REFILE FOR CHAPTER 11 BANKRUPTCIES

Jow-Ran Chang*, Chii-Shyan Kuo**, Yu-Chun Tseng***

Abstract

We examine the intra-industry credit contagion effect when firms emerge from and refile for Chapter11 bankruptcies. We use the industry competitors' daily credit default swap (CDS) spreads to measure the contagion effects. We find that the firm's emergence from bankruptcy protection favorably affects the creditworthiness of market leaders. One possible interpretation of the result is that industry leaders could be less susceptible to the competitive challenges induced by the reinvigorated firms from bankruptcies. In addition, the markets may interpret such events positively since healthy competitors can boost and benefit the prospects of industry. Further, we find that Chapter 11 bankruptcy refilings also generate a favorable contagion effect. Apparently, the refiling firm's industry peers may benefit from the financial difficulty of the refiling firms.

Keywords: Credit contagion effect; Chapter 11 bankruptcy

** Jow-Ran Chang (Corresponding author), Department of Quantitative Finance, College of Technology Management, National Tsing Hua University, Hsinchu, Taiwan 30013, R.O.C. Tel.:+ 886-03-5715131 Ext #42420; fax: 886-035621823 E-mail: jrchang@mx.nthu.edu.tw*

*** Chii-Shyan Kuo, Department of Quantitative Finance, College of Technology Management, National Tsing Hua University, Hsinchu, Taiwan 30013, R.O.C.*

*** Yu-Chun Tseng, Department of Quantitative Finance, College of Technology Management, National Tsing Hua University, Hsinchu, Taiwan 30013, R.O.C.*

1. Introduction

Jorion and Zhang (2007) explain the intra-industry information transfer effects of Chapter 11 and Chapter 7 bankruptcy filings in terms of the credit contagion effects. They argue that Chapter 11 bankruptcy filers are very likely to reemerge from the bankruptcy process as competitive industry rivals. Therefore, such credit events may unfavorably affect the creditworthiness of the bankrupt firm's industry peers. Alternatively, Chapter 7 filings cause the liquidation of distressed firms and therefore industry competitors may gain additional market share from the displaced firms, leading to a favorable effect on the credit ratings of peer firms.

The purpose of the study is twofold. First, we extend Jorion and Zhang (2007) by examining the effect on creditworthiness of their industry peers when the bankrupt companies emerge from the Chapter 11 process. [19] Second, we further examine the credit contagion effect on its industry competitors when a bankrupt firm files for bankruptcy protection a second time. To better understand the effects of the two credit events is of importance for the proper specification of default correlation in portfolio credit risk models. Since portfolio credit risk modeling techniques have been widely used by investment management and financial institutions, our findings may provide meaningful insights into the construction of portfolios with credit-sensitive financial instruments.

[19] Prior studies suggest that about 80% of firms filing bankruptcies subsequently emerge from the Chapter 11 process (Wruck 1990; Gilson et al. 1990; Weiss 1990). In our dataset, about 60% of sample firms reorganize and emerge from Chapter 11 bankruptcies. See Section 3 for details.

A company's emergence from Chapter 11 may have an unfavorable credit contagion effect on its peers, because such credit events imply fiercer intra-industry competition caused by the reintroduction of a financially healthy rival into the market (Eberhart et al. 1999; Jorion and Zhang 2007). On the other hand, the very event could also signal revivified future prospects for the industry (Caton et al. 2008) and thereby favorably affect the creditworthiness of industry competitors. [20] Since the two countervailing effects could co-occur, the observed effect is the net result of the two. To better capture the two competing effects, we partition the sample set into two groups, market leaders and followers, based on their credit ratings.

The industry's leading firms in general have a substantial competitive advantage, which is closely linked to the development of a firm's intangible resources (Guimon 2005) and is thus deemed the most valued intangible driver (Hall 2003; Lev 2002). Since intangibles are one of the main sources of future cash flows, they are essential in evaluating the firm's capacity to meet future debt obligations (Guimon 2005). As such, market leaders are mostly characterized by their higher credit ratings. We speculate that industry leaders can be less vulnerable to the competition challenge induced by companies emerging from bankruptcy protection. Indeed, the market may interpret such credit events as good news since healthy competitors can benefit and boost the future prospects of the industry (Helms and Wright 1997). Therefore, for intra-industry leaders we expect to observe a favorable contagion effect when firms emerge from Chapter 11.

Alternatively, market followers are generally young, growing firms, which are typically high yield bond issuers (Hakim and Shimko 1995). Therefore, industry followers are more likely to suffer from poor ratings. We speculate that firms emerging from a bankruptcy process may pose a real threat to the followers, because firms with poor credit ratings are likely to compete with each other for cheaper external funding. Accordingly, we expect such events would have an unfavorable contagion effect on the market followers in industries.

In the second part of the study, we examine the credit contagion effect on their industry rivals as firms file Chapter 11 bankruptcies a second time.[21] Prior studies (e.g., LoPucki and Whitford 1993; Hotchkiss 1995; Gilson 1997) found a large incidence of firms filing for bankruptcy or restructuring their debt a second time. Further, Altman et al. (2009) found significant economic differences between the firms emerging from Chapter 11 and surviving as going concerns and those later filing bankruptcy again. In particular, firms refiling Chapter 11 have significantly higher leverage and lower profitability than those emerging and continuing as going concerns. Since industry rivals are very likely to benefit from the financial difficulty of the bankruptcy refiler, we expect a favorable intra-industry contagion effect on their industry peers when firms file for bankruptcy a second time.

To address our research questions, we collect sample firms emerging from Chapter 11 and refiling for Chapter 11 bankruptcy from *Lynn M. LoPucki's Bankruptcy Research Database*. In addition, we collect daily credit default swap (CDS) spread data from the *Markit* database. We then measure the credit contagion effect by using the *average cumulative CDS spread changes* (*ACCSCs*) of the industry peers. Compared with equity market returns, CDS spreads represent a more efficient measure of credit diffusion (Norden and Weber 2004; Jorion and Zhang 2007 and 2008). Therefore, in the study we use CDS spreads to test the intra-industry credit risk effect.[22] If a credit event generates a favorable (unfavorable) contagion effect on the industry rivals, we expect the change in *ACCSCs* for the industry peers to be negative (positive).

We find the bankrupt firms' emergences from Chapter 11 bankruptcy protection have

[20] Caton et al. (2008, p.305) argue, "When entering Chapter 11 sickness is contagious, but when exiting from Chapter 11 health is contagious".

[21] Having re-emerged from bankruptcy, firms could once again experience distress and therefore refile the bankruptcy protection of Chapter 11. According to the Bankruptcy Research Database glossary, refiling means "the filing of a second bankruptcy case by the company that previously emerged from the original case."

[22] To examine the effect of Chapter 11 bankruptcy filings, numerous studies focus on the equity performance of rivals, e.g., Aharony and Swary (1983), Lang and Stulz (1992), Ferris et al. (1997), and Serednyakov (2002). In contrast, our study focuses on the CDS markets, which grew to 57,325 billion by June 2008 and contained 33,334 billion single names.

favorable contagion effects on a group of industry leaders. The *ACCSCs* significantly decrease for several observed event windows. The magnitude of reduction in *ACCSCs* ranges from 2.53 to 4.90 basis points. The result is consistent with our prediction that when companies exit Chapter 11, health is contagious, especially for the industry leaders. Alternatively, for industry followers we find positive *ACCSCs*, which are as expected but insignificant. In addition, we do not find any significant results for the full sample, probably because the favorable credit effect is almost offset by the unfavorable one.

Further, consistent with our conjecture, we find a dominant favorable effect for their peers when firms refile for bankruptcies. All observed event windows are significantly negative for market followers, but less so for market leaders. In addition, the size of the reduction in *ACCSCs* ranges from 2.04 to 9.19 basis points. One possible interpretation of the result is that market followers are more likely to gain market share from the Chapter 11 refilers due to their similar competitive position.

Our study provides interesting and meaningful contrasts to Jorion and Zhang (2007). First, they find an unfavorable effect on their industry peers when companies *enter* Chapter 11. Jorion and Zhang interpret their findings to be a result of heightened competition triggered by the bankrupt firms' emergence from Chapter 11. However, they did not actually look into those events and thus it is unclear how the events of reorganization and emergence from Chapter 11 affect the peer firm's credit ratings. In this study, we focus on the events of firms' emergence from Chapter 11 and find a favorable credit contagion effect on their market leaders when firms *exit* Chapter 11.

Second, Jorion and Zhang (2007) showed an unfavorable contagion effect on the industry competitors as firms file Chapter 11 bankruptcy protection. However, it remains unanswered as to how the second Chapter 11 filings affect the creditworthiness of the industry peers. We find a favorable contagion effect when firms file for bankruptcy a second time, especially for the industry followers. One possible interpretation of the result is that the refiling firm's industry peers may benefit from the financial difficulty of the refiling firms.

The rest of this paper is organized as follows. Section 2 describes our methodology. Section 3 summarizes the data selection procedure and reports the descriptive statistics. Section 4 reports the empirical results. Section 5 concludes.

2. Methodology

To measure the credit effect, we first select all industry peers of bankrupt firms from COMPUSTAT to construct an industry portfolio, which is formed based on the 3-digit standard industry classification (SIC) code. Further, to measure the changes in the credit risk of industry competitors surrounding the credit events, we calculate the *cumulative CDS spread changes* for each industry peer over a day or a time interval [t_i, t_j]. The *cumulative CDS spread changes* for each peer firm over a time interval [t_i, t_j] is measured by subtracting the CDS spreads for day t_{i-1} from that for day t_j, where t_i and t_j are the number of days relative to the event date and $i \leq j$. We then calculate the equally weighted *cumulative CDS spread changes* for each industry portfolio.

Further, we calculate the cross-sectional mean, i.e., the *average cumulative CDS spread changes* (*ACCSCs*), and standard deviations for all industry portfolios. Next, we compute t-statistics to test the significance of the contagion effects. Like other credit instruments, CDS spreads reflect the underlying firm's credit quality. Namely, larger (smaller) CDS spreads suggest that the underlying firm's credit quality decreases (increases).

If a favorable contagion effect dominates, we expect the *ACCSCs* around the event date to be significantly negative. By contrast, if an unfavorable contagion effect dominates, we expect the *ACCSCs* surrounding credit event date to be significantly positive.

3. Sample selection and descriptive statistics

We select bankrupt company data from the *Lynn M. LoPucki's Bankruptcy Research Database*.[23] First, we collect 768 firms filing Chapter 11 bankruptcy from April 7, 1980 to September 26, 2008. Further, from the Chapter 11 filing firms, we select 457 firms that emerged from Chapter 11. Next, from 457 emerging firms, we identify 94 firms subsequently filing for bankruptcy a second time.

To measure the change in the credit risk of peer firms, we collect daily credit default swap (CDS) spread data from the *Markit*

[23] The dataset is available from the website: http://lopucki.law.ucla.edu/index.htm. The dataset is mainly composed of large and public companies in North America.

database covering the 2001-2007 period. Notably, the CDS spread data is available from 2001, thus we delete 430 firms filing for bankruptcies during the 1980-2000 period. Further, we delete 129 additional firms whose corresponding industry cumulative CDS spread data are not available. Finally, we have 209 firms filing Chapter 11 during the sample period. Next, by using the same procedure, we find 133 firms emerging from Chapter 11 and 33 firms that refiled Chapter 11, respectively. We summarize the number of sample firms in Panel A of Table I. The statistics suggest that, on average, for each 100 Chapter 11 filing firms, about 64 firms emerge from bankruptcy, and 16 firms refile for bankruptcy a second time.

Table I, Panel B summarizes the number of industry peers for the three credit events. At first, we find 1,331 peer firms for the first event, i.e., a firm's filing Chapter 11 bankruptcy, 954 industry peers for the second event, i.e., a firm's emergence from bankruptcies, and 147 peer firms for the third event, i.e., a firm's refiling bankruptcy. Some industry rivals' CDS spread data are not available, thus we delete 35, 40, and 21 industry peer firms for the three credit events, respectively. Lastly, the number of intra-industry competitors is 1,296 for Chapter 11 filing, 914 for emergence from Chapter 11, and 126 for refiling Chapter 11 events.[24]

The *Markit* database assigns each firm a credit rating, i.e., AAA, AA, A, BBB, BB, B, CCC or D. By credit ratings, we divide the data into two categories, Investment Grade (IG) and High Yield (HY). We refer IG firms to those with higher ratings, including AAA, AA, A, and BBB. In addition, we define HY firms as those having lower ratings, including BB, B, CCC, and D. We find 67% of Chapter 11 filing firms' competitors have credit ratings lower than BBB. Alternatively, more than 50% of intra-industry rivals of the emerging and refiling firms have above-BBB ratings.

Further, Panel A of Table II summarizes the daily CDS spread data for industry peers during 2001-2007.[25] The total number of daily CDS spread data over the sample period is 995,693. The number of CDS spread data increases from 53,113 in 2001 to 258,298 in 2006. Most of the data are collected from 2005 and 2006, accounting for 50% of the full dataset.

Next, we partition the dataset into two groups, i.e., HY and IG groups. As shown in Panel B and C of Table II, the daily CDS spreads and standard deviations of the HY group are, on average, greater than that of the IG group, indicating that peer firms in the IG group have higher credit ratings and less volatility than those in the HY group.

Panel A of Table III summarizes the distribution of CDS spread data over each credit rating. Compared with the IG group, the HY group has higher average CDS spreads and larger standard deviations, which reflect higher credit risk. Panel B of Table III shows that most CDS spread data for the IG group cluster in credit ratings from A to BBB. Alternatively, Panel C of Table III indicates that most firms in the HY group have credit ratings from BB to B.

4. Empirical results

We calculate the *average cumulative CDS spread changes*. i.e., *ACCSCs*, for several event windows around the event of filing Chapter 11 bankruptcy and report the results in Table IV. We find that the *ACCSCs* are significantly positive for event windows [-5, -5] and [-5, 0] at the 5% level. In addition, for the market followers (HY) group, the *ACCSCs* are significantly positive for windows [-5, -5], [-5, -4], [-5, -1], and [-5, 0] at the 10% level. Alternatively, for the industry leader (IG) group, the *ACCSCs* is significantly positive for windows [-5, 5] at the 10% level. We notice there are several negative *ACCSCs* for the IG group, but none are significant. Overall, the results are consistent with Jorion and Zhang (2007) that the announcements of filing for Chapter 11 bankruptcies in general have dominant unfavorable contagion effects on the bankrupt firm's industry peers, causing the peer firms' CDS spreads to increase surrounding the announcement of Chapter 11 bankruptcies.

Next, we calculate the *ACCSCs* for the events of emergence from Chapter 11 and report the results in Table V. We find several

[24] The emerging firms are distributed across 148 different industries. The industry portfolio for an event of emergence from Chapter 11, on average, contains three to four industry peers. Alternatively, the refiling firms cover 66 different industries and each industry portfolio, on average, contains one to two industry competitors.

[25] The website is http://www.markit.com/information/home.html. The number of total observations of full dataset is 19,419,411 and covers 1,090 names.

negative *ACCSCs* for the full sample, but none are significant. The result seemingly indicates that the emergence announcement on average does not significantly affect the creditworthiness of the emerging firm's industry peers. However, the event of emergence from Chapter 11 may have different effects on the bankrupt firm's rivals with different competitive positions. To better capture the credit effects, we partition the full sample into market leaders (IG) and followers (HY) and then we calculate the *ACCSCs* for the two sub-sample groups. For the HY group, we find that the *ACCSCs* are still insignificant. By contrast, for the IG group, we find negative *ACCSCs* for 10 event windows. Especially, the *ACCSCs* for the 6, 7, 8, 9, 10, and 11-day windows decrease significantly. The size of reduction in *ACCSCs* ranges from 2.53 to 4.90 basis points, which are significant at the 1% level. The result has two implications. First, it is consistent with our conjecture that splitting the data could help capture the credit effect. Second, the event of a firm's emergence from Chapter 11 could have a favorable contagion effect on the market leaders' credit ratings, probably because such credit events convey good news as to the prospects of the industry.

Finally, we calculate the *ACCSCs* for their industry peers as firms refile Chapter 11 and report the result in Table VI. Table VI shows that, for the full sample, the *ACCSCs* from one-day window, [-5, -5], to 11-day window, [-5, 5], are all negative, indicating that the favorable contagion effect dominates, as expected. In particular, the *ACCSCs* for windows [-5, -3], [-5, -2] and [-5, -1] are significantly negative at the 1% level. Moreover, for market followers (HY), the favorable effect is even clearer, as evident by the significantly negative *ACCSCs* for all event windows. On the other hand, except for [-5, -5], we find that the *ACCSCs* for other event windows are also negative for the market leaders. In addition, the *ACCSCs* for windows [-5, 1], [-5, 3], and [-5, 4] are significant at the 10% level. This result is consistent with our conjecture that the second-time Chapter 11 filings in general favorably affect the creditworthiness of industry peers. We interpret the result as the industry rivals, including market leaders and followers, being able to benefit by gaining additional market share due to the difficulties of the refiling firms.

5. Conclusion

In this study, we examine the intra-industry credit contagion effects on industry rivals when firms emerge from Chapter 11 bankruptcy and file Chapter 11 a second time. An unfavorable contagion effect suggests an increase in CDS spreads of bankrupt firm's industry peers surrounding a credit event and, in contrast, a favorable contagion effect implies a decrease in CDS spreads surrounding a credit event.

Using the CDS spread database, we find that the first Chapter 11 filing has an unfavorable contagion effect, consistent with Jorion and Zhang (2007). Further, we find the emergence from Chapter 11 could have a favorable contagion effect on the creditworthiness of market leaders. One possible interpretation for the result is that market leaders could be less susceptible to the competitive challenge induced by firms emerging from bankruptcies. In addition, markets may interpret such events positively since healthy competitors can benefit and boost the prospects of the industry. Finally, we find Chapter 11 bankruptcy refilings have a favorable contagion effect. Apparently, the industry peers may benefit from the difficulty of the refiling firms.

References

1. Altman, E., T. Kant, and T. Rattanaruengyot (2009) Post-Chapter 11 bankruptcy performance: avoiding Chapter 22, Working paper. New York University.
2. Aharony, J. and I. Swary (1983) Contagion effects of bank failures: evidence from capital markets, *The Journal of Business* 56(3), 305-22.
3. Caton, G. L., J. Donaldson and J. Goh (2008) The effect on rivals when firms emerge from bankruptcy, *Corporate ownership & control* 6(2): 304-311.
4. Das, S. R., D. Duffie, N. Kapadia, and L. Saita (2007) Common failings: how corporate defaults are correlated. *The Journal of Finance* 62(1): 93-117.
5. Eberhart, A. C., E. I. Altman, R. Aggarwal (1999) The equity performance of firms emerging from bankruptcy, *The Journal of Finance* 54(5), 1855-1868.
6. Ferris, S. P., N. Jayaraman and A. K. Makhija (1997) The response of competitors to announcements of bankruptcy: An empirical examination of contagion and competitive effects, *Journal of Corporate Finance* 3(4), 367-395.
7. Gilson, S. C. (1997) Transactions costs

and capital structure choice: Evidence from financially distressed firms, *The Journal of Finance* 52(1), 161-196.

8. _____, K. John, and L. Lang (1990) Troubled debt restructurings: an empirical study of private reorganization in firms in defaults, *Journal of Financial Economics* 27: 315-353.
9. Guimon, J. (2005) Intellectual capital reporting and credit risk analysis. *Journal of Intellectual Capital* 6(1): 28-42.
10. Hall, M. (2003) Measures to increase the effectiveness of credit risk analysis in corporate lending through a better understanding of the role of intangibles. Work Package 7, PRISM Project, available at: www.euintangibles.net.
11. Hakim, S. R. and D. Shimko (1995) The impact of firm's characteristics on junk-bond default. *Journal of Financial and Strategy Decisions* 8 (2): 47-55.
12. Helms, M. M. and P. Wright (1997) Planning prospects for industry followers. *Marketing Intelligence & Planning* 15 (3): 135-141.
13. Hotchkiss, E. S. (1995) Postbankruptcy performance and management turnover, *The Journal of Finance* 50, 3-21.
14. Jorion, P. and G. Zhang (2007) Good and bad credit contagion: evidence from credit default swaps, *Journal of Financial Economics* 84, 860-883.
15. Jorion, P. and G. Zhang (2008) Credit contagion from counterparty risk, *The Journal of Finance, Forthcoming*.
16. Lang, L. H. and R. M. Stulz (1992) Contagion and competitive intra-industry effects of bankruptcy announcements: An empirical analysis, *Journal of Financial Economics* 32, 45-60.
17. Lev, B. (2002) Intangibles: what's next? Proceedings of the conference "The Transparent Enterprise. The Value of Intangibles", Madrid.
18. LoPucki, L. M. and W. C. Whitford (1993) Patterns in the reorganization of large, publicly held companies, *Cornell Law Review* 78, 597-618.
19. Norden, L. and M. Weber (2004) Information efficiency of credit default swap and stock markets: The impact of credit rating announcement, *Journal of Banking & Finance* 28, 2813-2843.
20. Serednyakov, A. (2002) The information flows around bankruptcy announcements: An empirical investigation, working paper.
21. Weiss, L. A. (1990) Bankruptcy resolution: direct costs and violation of priority claims, *Journal of Financial Economics* 27: 285-314.
22. Wruck, K. H. (1990) Financial distress: reorganization and organizational efficiency, *Journal of Financial Economics* 27: 419-444.

Table I. Summary of three credit events

We collect data of firms filing bankruptcy from Lynn M. LoPucki's Bankruptcy Research Database. First, we collect 768 Chapter 11 bankruptcy protection filings. Next, we identify and collect 457 firms emerging from Chapter 11, for which we find a "yes" marked in the "XEmergeRefile" column. Moreover, we find 94 refiling firms by looking for a "Refiled" or "Refile" shown in the "Refile" column. Finally, as shown in Panel A, there are 209 firms filing for Chapter 11, 133 firms emerging from Chapter 11, and 33 firms refiling for Chapter 11, respectively. Panel B reports the number of intra-industry competitors for each of the three credit events. We partition the full sample into two groups, i.e., High Yield (HY), and Investment Grade (IG) groups. High Yield (HY) group contains industry peers with AvRating equal to or higher than BBB. Investment Grade (IG) group includes peer firms with AvRating lower than BBB.

Panel A. Number of sample firms for the three credit events

	Num of firms filing for Chapter 11	Num of firms emerging from Chapter 11 (% of num of firms emerging from Chapter 11 to that of firms filing for Chapter 11)	Num of firms refiling for Chapter 11 (% of num of firms refiling for Chapter 11 to that of firms filing for Chapter 11)
Original dataset	768	457	94
Num of firms missing CDS spread data to calculate *ACCSCs* for industry portfolios	559	324	61
Final dataset	209(100%)	133 (64%)	33 (16%)

Panel B. Number of intra-industry rivals for the three credit events

	Num of intra-industry competitors for firms filing Chapter 11	Num of intra-industry competitors for firms emerging from Chapter 11	Num of intra-industry competitors for firms refile for Chapter 11
Full Sample	1,331	954	147
Num of industry peers whose CDS spread data are not available	35	40	21
	1,296	914	126
High Yield (HY)	865(67%)	292(32%)	46(37%)
Invest. Grade (IG)	431(23%)	622(68%)	80(63%)
Final dataset	1,296(100%)	914(100%)	126(100%)

Table II. Summary statistics of CDS dataset

This table summarizes statistics of daily CDS spread (in basis points) data for intra-industry competitors from January 2001 to February 2007. Panel A shows the number (N), mean (Mean), standard deviation (Std Dev), minimum (Min), and maximum (Max) of observed daily CDS spread data for each sample year. Panel B summarizes statistics of CDS spread data of Investment Grade (IG) group for each year. Panel C shows CDS spread data statistics of High Yield (HY) group for each year. High Yield (HY) group includes firms with AvRating equal to or higher than BBB. Investment Grade (IG) group includes firms with AvRating lower than BBB.

Panel A (Full sample; N=995,693)

Year	N	Mean	Std Dev	Minimum	Maximum
2001	53,113	158.27	249.46	6.00	4565.00
2002	99,985	246.35	474.75	5.50	7258.81
2003	135,898	184.63	375.01	1.00	6642.58
2004	183,429	135.09	290.62	0.50	7168.32
2005	230,532	146.90	435.90	1.10	23800.00
2006	258,298	128.62	431.65	1.29	25766.55
2007	34,438	105.04	218.04	1.00	6453.00

Panel B (IG; N=694,916)

Year	N	Mean	Std Dev	Minimum	Maximum
2001	39,068	104.72	112.16	6.00	1500.00
2002	76,655	127.47	152.87	5.50	2053.80
2003	101,934	76.26	85.58	1.29	1445.45
2004	128,915	46.38	34.17	0.50	476.76
2005	156,044	39.93	27.11	1.10	358.40
2006	170,439	35.80	28.66	1.29	455.98
2007	21,861	31.74	25.64	1.00	362.00

Panel C (HY; N=300,777)

Year	N	Mean	Std Dev	Minimum	Maximum
2001	14,045	307.24	414.60	27.00	4565.00
2002	23,330	636.97	837.16	34.00	7258.81
2003	33,964	509.89	636.61	1.00	6642.58
2004	54,514	344.87	472.85	22.29	7168.32
2005	74,488	370.99	724.31	24.23	23800.00
2006	87,859	308.69	692.06	20.00	25766.55
2007	12,577	232.45	312.27	22.00	6453.00

Table III. Distribution of CDS dataset by average rating and year

This table summarizes statistics of daily CDS spread (in basis points) of intra-industry rivals from January 2001 to February 2007. Panel A reports the summarized statistics of daily CDS spread data by the industry competitors' credit ratings. Panel B reports summarized statistics of CDS spread for Investment Grade (IG) group by year. Panel C reports summarized statistics of CDS spread for High Yield (HY) group by year. High Yield (HY) group contains firms with AvRating equal to or higher than BBB. Investment Grade (IG) group includes firms with AvRating lower than BBB.

Panel A (Full sample; N=995,693)

AvRating	N	Mean	Std Dev	Minimum	Maximum
Invest. Grade (IG):					
AAA	27,651	21.37	19.62	0.50	170.00
AA	63,695	25.28	25.66	2.49	388.00
A	229,802	39.46	44.81	4.35	1333.33
BBB	373,768	78.59	93.24	8.61	2053.80
High Yield (HY):					
BB	162,532	210.22	225.78	19.95	6397.12
B	108,558	381.61	399.70	1.00	5909.49
CCC	27,354	1119.58	1347.67	65.00	25766.55
D	2,333	2895.24	2955.42	153.00	23800.00

Panel B (IG; N=694,916)

Year	AAA	AA	A	BBB
2001	1,334	4,345	14,164	19,225
2002	3,143	7,636	27,531	38,345
2003	4,295	8,979	34,903	53,757
2004	5,368	11,428	41,966	70,153
2005	5,905	13,634	50,032	86,473
2006	6,809	15,619	54,212	93,799
2007	797	2,054	6,994	12,016
Total	27,651	63,695	229,802	373,768

Panel C (HY; N=300,777)

Year	BB	B	CCC	D
2001	6,793	4,986	2,006	260
2002	11,908	8,392	2,664	366
2003	18,193	11,555	3,714	502
2004	29,995	18,750	5,245	524
2005	40,835	26,816	6,329	508
2006	48,236	32,953	6,497	173
2007	6,572	5,106	899	0
Total	162,532	108,558	27,354	2,333

Table IV. Average cumulative CDS spread changes of industry rivals when firms file for Chapter 11

The table summarizes *average cumulative CDS spread changes* (*ACCSCs*) (in basis points) of *filing* for bankruptcy event for various event windows, from one day, i.e., [-5, -5] to 11 days, i.e., [-5, 5]. The table reports *ACCSCs* for High Yield (HY) and Investment Grade (IG) groups. High Yield (HY) group contains firms with AvRating equal to or higher than BBB. Investment Grade (IG) group includes firms with AvRating lower than BBB. *, ** and *** stand for significance at 10%, 5% and 1% levels.

		Full Sample		HY		IG	
		ACCSCs		*ACCSCs*		*ACCSCs*	
Number of days observed	Event windows	Mean	t-value	Mean	t-value	Mean	t-value
1	[-5, -5]	3.36**	1.96	10.21*	1.94	0.18	0.56
2	[-5, -4]	4.14*	1.87	13.80**	2.04	-0.41	-0.92
3	[-5, -3]	3.76	1.12	12.95	1.26	-0.59	-1.31
4	[-5, -2]	4.93	1.30	17.47	1.51	-0.83	-1.34
5	[-5, -1]	6.49*	1.65	21.33*	1.77	-0.59	-0.86
6	[-5, 0]	9.68**	1.96	29.11*	1.93	0.48	0.46
7	[-5, 1]	7.02	1.05	19.74	0.97	1.09	0.91
8	[-5, 2]	9.69	1.42	26.72	1.28	1.73	1.30
9	[-5, 3]	11.95*	1.69	32.96	1.53	2.10	1.51
10	[-5, 4]	11.63	1.62	31.73	1.45	2.21	1.57
11	[-5, 5]	13.70*	1.81	35.23	1.53	3.63*	1.74

Table V. Average cumulative CDS spread changes of industry rivals when firms emerge from Chapter 11

The table summarizes *average cumulative CDS spread changes* (*ACCSCs*) (in basis points) of *emergence* from bankruptcy event for various event windows, from one day, i.e., [-5, -5] to 11 days, i.e., [-5, 5]. The table reports *ACCSCs* for High Yield (HY) and Investment Grade (IG) groups. High Yield (HY) group contains firms with AvRating equal to or higher than BBB. Investment Grade (IG) group includes firms with AvRating lower than BBB. *, ** and *** stand for significance at 10%, 5% and 1% levels.

		Full Sample		HY		IG	
		ACCSCs		*ACCSCs*		*ACCSCs*	
Number of days observed	Event windows	Mean	t-value	Mean	t-value	Mean	t-value
1	[-5, -5]	-0.79	-0.35	-5.96	-0.93	-0.40	-1.30
2	[-5, -4]	1.90	0.79	2.06	0.29	0.01	0.03
3	[-5, -3]	-1.63	-0.50	-2.23	-0.25	-3.35	-1.52
4	[-5, -2]	0.82	0.23	6.36	0.63	-3.62	-1.60
5	[-5, -1]	1.17	0.29	8.69	0.75	-4.03*	-1.76
6	[-5, 0]	0.98	0.24	5.33	0.41	-2.53***	-2.85
7	[-5, 1]	3.78	0.75	15.44	0.98	-2.95***	-2.96
8	[-5, 2]	2.82	0.60	13.84	0.94	-3.70***	-3.40
9	[-5, 3]	3.28	0.61	15.94	0.94	-3.96***	-3.16
10	[-5, 4]	-4.30	-0.53	-6.95	-0.26	-4.54***	-2.96
11	[-5, 5]	-6.26	-0.70	-12.55	-0.44	-4.90***	-2.96

Table VI. Average cumulative CDS spread changes of industry rivals when firms refile for Chapter 11

The table summarizes *average cumulative CDS spread changes* (*ACCSCs*) (in basis points) of *refiling* bankruptcy event for various event windows, from one day, i.e., [-5, -5] to 11 days, i.e., [-5, 5]. The table reports *ACCSCs* for High Yield (HY) and Investment Grade (IG) groups. High Yield (HY) group contains firms with AvRating equal to or higher than BBB. Investment Grade (IG) group includes firms with AvRating lower than BBB. *, ** and *** stand for significance at 10%, 5% and 1% levels.

		Full Sample		HY		IG	
		ACCSCs		*ACCSCs*		*ACCSCs*	
Number of days observed	Event windows	Mean	t-value	Mean	t-value	Mean	t-value
1	[-5, -5]	-0.84	-1.53	-2.04***	-3.30	0.20	0.29
2	[-5, -4]	-1.90*	-1.85	-2.79**	-2.43	-0.12	-0.16
3	[-5, -3]	-3.31***	-2.86	-4.36***	-3.01	-0.60	-0.69
4	[-5, -2]	-3.30***	-2.75	-4.91**	-2.50	-0.81	-0.87
5	[-5, -1]	-3.66***	-2.74	-4.62*	-1.93	-1.00	-1.05
6	[-5, 0]	-3.34*	-1.68	-6.48***	-2.83	-2.12	-1.55
7	[-5, 1]	-2.16	-0.85	-7.42**	-2.57	-2.93*	-1.77
8	[-5, 2]	-2.27	-0.86	-8.99***	-2.73	-2.76	-1.62
9	[-5, 3]	-1.12	-0.36	-9.19**	-2.26	-3.31*	-1.72
10	[-5, 4]	-1.04	-0.35	-8.25*	-1.84	-3.47*	-1.70
11	[-5, 5]	-0.59	-0.17	-8.96*	-1.84	-3.47	-1.50