The Role of Distressed Debt Markets, Hedge Funds and Recent Trends in Bankruptcy on the Outcomes of Chapter 11 Reorganizations

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This paper explores the scope and importance of the distressed debt market and its market participants and summarizes several relevant scholarly publications relating to how both these markets and participants have performed and contributed to the Chapter 11 bankruptcy- reorganization process. We also present new and potentially important data on recent trends in the outcomes of Chapter 11 bankruptcy reorganization filings, over the period 1981-2013, that will, we expect, contribute to the current investigation by the "bankruptcy industry" on the possible revision of the U.S. Bankruptcy Code. Such questions as to the relative success, or not, of the Chapter 11 process, the time in bankruptcy for various outcomes of the process, the impact of prepackaged restructuring on the outcomes and the recovery rate to various creditor classes will be examined.

Key Words: Chapter 11, Bankruptcy-Reorganization, Hedge Funds, Distressed Debt Markets

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Introduction

In this paper we discuss and evaluate the scope and importance of the development and growth of the Distressed and Defaulted Debt market and its market participants, particularly in the United States. We also summarize a number of scholarly research publications that I, and others, have contributed to better the understanding of how these markets have performed and the important role they have played in our financial economic system. Finally, we present some relevant trends in bankruptcy-reorganization filings and outcomes that will hopefully shed some light on several controversial issues presently being discussed by the **American Bankruptcy Institute (ABI)** and the bankruptcy profession. The background for my research and continued study of these markets was originally motivated by having been commissioned by **The Foothill Group** to prepare a series of "White Papers" on Distressed Debt Markets in 1990 and 1992.[1] These studies provided the original analysis to the development of the Altman Defaulted Bond and Bank Loan Indexes, now called the **Altman-Kuehne NYU Salomon Center Defaulted Bond and Defaulted Bank Loan Index**, a well-known and respected benchmark of these securities' performance. Tables showing the size of these indexes over time

[1] E. Altman, 1990, "Investing in Distressed Securities: The Anatomy of Defaulted Debt and Equities, "Foothill Group, Inc., Los Angeles, CA, April and "The Market for Distressed Securities and Bank Loans," Altman-Foothill Report II, Foothill, Los Angeles, 2002. The former was the basis for E. Altman (1991), *Distressed Securities*, Probus Press.

are shown in Figures 1-2. We estimate that there are, today, more than 200 financial institutions investing between $400-450 billion in the distressed debt market in the U.S. and a substantial number and amount operating in Europe and in other markets. Interestingly, the corporate bond market usually becomes more liquid and volume increases as a firm becomes distressed and even more so at the time that it defaults. Friewald, Jankowitsch, and Subrahmanyam (2012) and Jankowitsch, Nagler and Subrahmanyam (2013) substantiate this assertion.

It is interesting to note that we expanded our analysis to distressed bank loans in 1995 as these private transaction assets became more liquid and trading increased. Loans have become subject to intense scrutiny by investors, providing the incentive to apply more sophisticated valuation analytics to these heretofore essentially "buy and hold assets." Also, the rating agencies began rating large commercial loans in the mid-1990s, coincident with the tremendous growth in the syndicated loan market and later as these assets were securitized into collateralized loan obligations (CLO). As will be discussed, distressed debt investors have played an important role in the depth and liquidity of the loan market, as well as the bond market, especially since the late 1980s.

Important Institutional Investors

To address the question of the impact and role that institutional investors (e.g., Hedge Funds) have had on the bankruptcy process, one can cite the impressive growth, scope and specific actions that these investors, and others, have played in the evolution of the Chapter 11 reorganization and post-reorganization process over the last 20-plus years. Figures 3 and 4 show our calculations of the annual amounts of bankruptcy liabilities for Chapter 11 filings with

Figure 1. Size of the Altman-Kuehne Defaulted Bond Index, 1987–2012

Year-End	Number of Issues	Number of Firms	Face Value ($ Billions)	Market Value ($ Billions)	Market/ Face Ratio
1987	53	18	5.7	4.2	0.74
1988	91	34	5.2	2.7	0.52
1989	111	35	8.7	3.4	0.39
1990	173	68	18.7	5.1	0.27
1991	207	80	19.6	6.1	0.31
1992	231	90	21.7	11.1	0.51
1993	151	77	11.8	5.8	0.49
1994	93	35	6.3	3.3	0.52
1995	50	27	5.0	2.3	0.46
1996	39	28	5.3	2.4	0.45
1997	37	26	5.9	2.7	0.46
1998	36	30	5.5	1.4	0.25
1999	83	60	16.3	4.1	0.25
2000	129	72	27.8	4.3	0.15
2001	202	86	56.2	11.8	0.21
2002	166	113	61.6	10.4	0.17
2003	128	63	36.9	17.7	0.48
2004	104	54	32.1	16.9	0.53
2005	98	35	29.9	17.5	0.59
2006	85	36	31.2	23.3	0.75
2007	48	17	13.8	6.3	0.46
2008	77	28	29.6	4.5	0.15
2009	91	34	45.5	15.1	0.33
2010	53	16	26.4	8.3	0.31
2011	57	19	18.0	6.1	0.34
2012	62	21	14.6	5.2	0.36

Source: NYU Salomon Center.

Figure 2. Size of the Altman-Kuehne Defaulted Bank Loan Index, 1995–2012

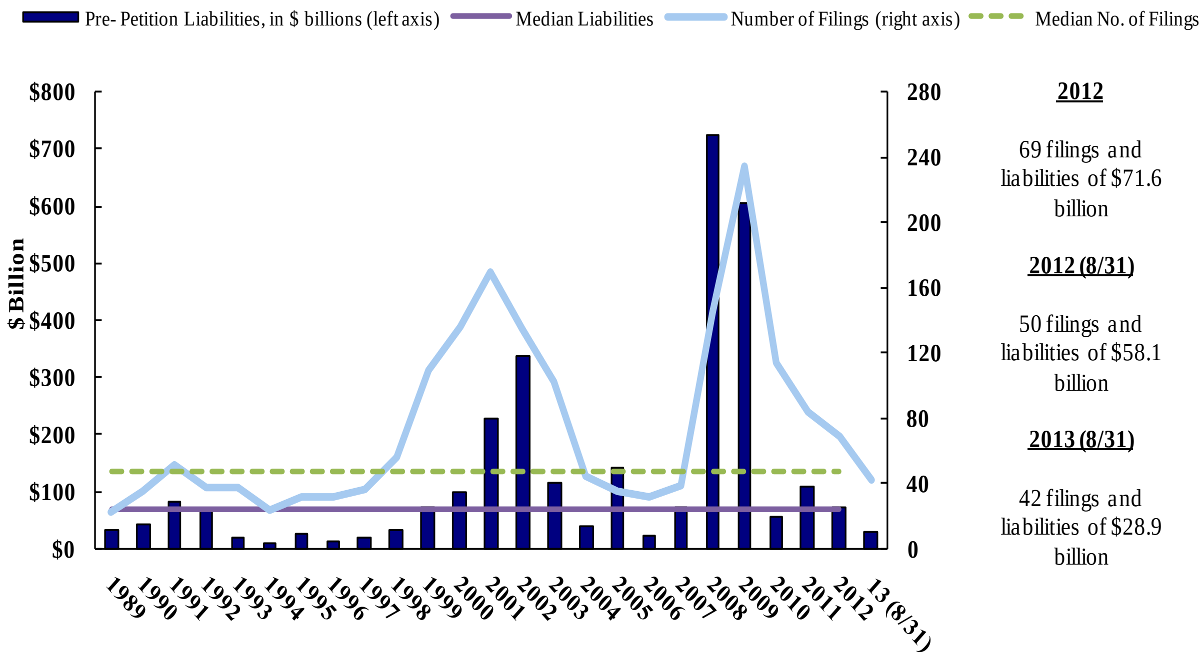
Year-End	Number of Facilities	Number of Firms	Face Value ($ Billions)	Market Value ($ Billions)	Market/ Face Ratio
1995	17	14	2.9	2.0	0.69
1996	23	22	4.2	3.3	0.79
1997	18	15	3.4	2.4	0.71
1998	15	13	3.0	1.9	0.63
1999	45	23	12.9	6.8	0.53
2000	100	39	26.9	13.6	0.51
2001	141	56	44.7	23.8	0.53
2002	64	51	37.7	17.4	0.46
2003	76	43	39.0	23.9	0.61
2004	45	26	22.9	18.2	0.80
2005	41	21	18.7	16.2	0.86
2006	27	23	11.2	10.0	0.89
2007	31	13	13.0	10.4	0.79
2008	71	31	27.5	10.7	0.39
2009	67	27	57.6	34.1	0.59
2010	20	12	11.3	5.9	0.52
2011	28	15	9.1	4.7	0.52
2012	34	21	10.5	5.8	0.55

Source: NYU Salomon Center

liabilities greater than $100 million from 1989-2013 (8/31). These filings total a staggering almost $3.0 trillion (2.4 trillion without Lehman) requiring substantial efforts on the part of debtors and creditors, and their advisors, to be restructured so that firms can attempt to emerge from the process as a going-concern. In my opinion, the combined efforts of the Bankruptcy Law Profession and Restructuring Specialists, including investment bankers and turnaround-management consultants, along with the coincident growth of institutional investors (buy-side) and broker-dealers (sell-side), have enabled this enormous amount of defaulted debt to be restructured reasonably effectively. We will return to the Chapter 11 time-series of filings statistics at a later point for a more in-depth discussion of their trends.

The original creditors of the debtors and subsequent investors in the distressed debt, as well as the Bankruptcy Bench, and the debtor and its advisors, must share the burden of reaching an agreement on the plan of reorganization (POR). All parties involved can now, especially in the last 20-25 years, continuously and clearly observe the market's assessment of the debtor's liabilities so as to determine whether to sell or retain their interests, and can assess the implied values of the debtors' assets from these market prices. Distressed asset securities' prices also provide important benchmarks for negotiating the POR. This enhanced price discovery, compared to pre-1990 experience, helps to provide a more liquid market for the debt as the firm works its way through the restructuring. Price discovery and enhanced transparency are not only important for the major stakeholders in the bankruptcy process, they also make markets more efficient and provide important benchmarks for the future value of those securities and the debtor, itself. Indeed, Altman, Gande and Saunders (2010) found that bank loan prices provide an even earlier warning that a firm is likely to default than corporate bonds, enabling creditors to monetize their holdings before values decrease even further and to motivate restructuring efforts

Figure 3. Total Filings and Liabilities[a] of Companies Filing for Chapter 11 Bankruptcy, 1989-2013 (8/31)



[a] Minimum $100 million in liabilities.
Source: NYU Salomon Center Bankruptcy Filings Database.

Figure 4. Chapter 11 Filing Statistics[a]

Year	Number of Filings	Pre-Petition Liabilities ($ millions)	Number of Filings ≥ $1B	≥$1B/Total Filings (%)
1989	22	33,539	10	45
1990	35	41,115	10	29
1991	51	81,158	11	22
1992	37	64,224	14	38
1993	37	17,701	4	11
1994	24	8,396	1	4
1995	32	27,153	7	22
1996	32	11,687	0	0
1997	36	18,866	5	14
1998	56	32,038	6	11
1999	109	70,957	19	17
2000	136	98,896	23	17
2001	169	228,604	38	22
2002	135	336,612	41	30
2003	102	115,172	26	25
2004	44	39,550	11	25
2005	35	142,625	11	31
2006	32	22,322	4	13
2007	38	72,646	8	21
2008	145	724,010	24	17
2009	234	603,992	50	21
2010	114	56,981	14	12
2011	84	109,119	7	8
2012	69	71,613	14	20
2013 (8/31)	42	28,908	9	21
Mean No. of Filings, 1989-2012	75		15	20%
Median No. of Filings, 1989-2012	48		11	19%
Median No. of Filings, 1998-2012	102		14	
Mean Liabilities, 1989-2012		$126,207		
Median Liabilities, 1989-2012		$67,591		

[a] Minimum $100 million in liabilities.
Source: NYU Salomon Center Bankruptcy Filings Database.

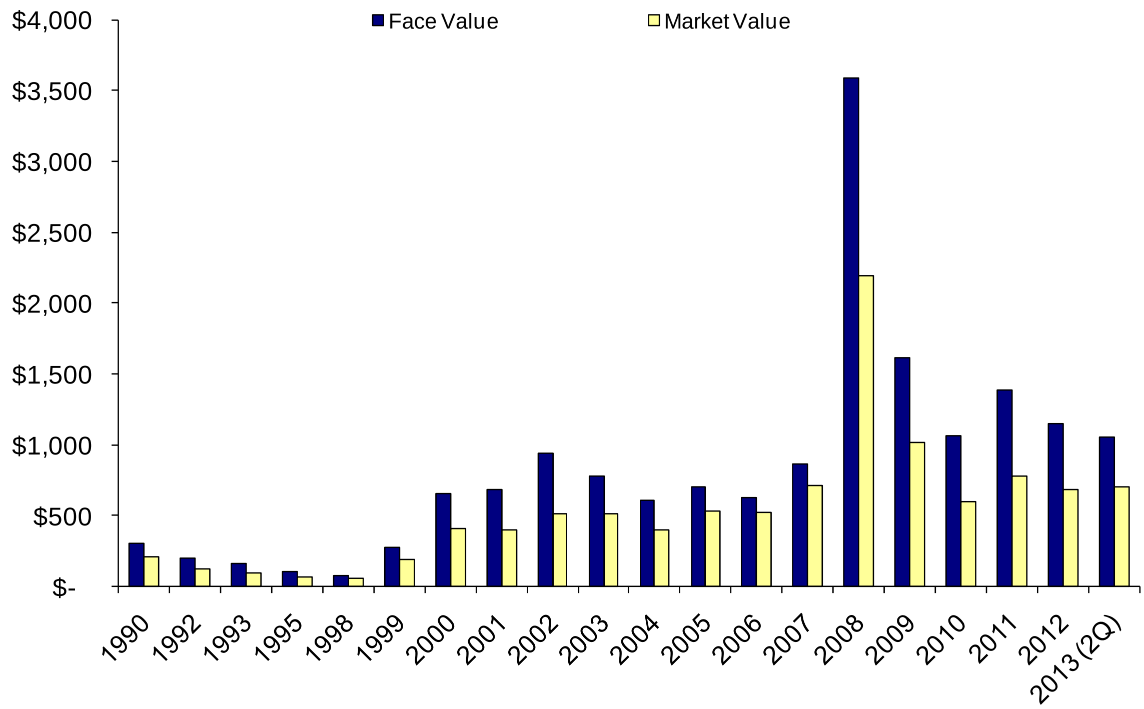
and turnaround strategies earlier than would be the case if these markets were less developed. Studies have also found that the prices of debt securities at the time of default are efficient predictors of future levels of recoveries and reorganization values. For example, see Altman and Eberhart (1994).

In addition, the debtor-in-possession (D.I.P.) financing provided by banks, original investors and, in many cases, by institutional investors, as well as the critical component of exit-financing (both debt and equity), are unique aspects of the U.S. Chapter 11 process, helping to ensure that the debtor can carry on its business both during and after bankruptcy. In most cases, all of the players, even if they are adversaries in the assessed valuation of the debtor, are interested in the long-term viability of the bankrupt entity.[2]

Figure 5 shows my estimate of the size of the Defaulted and Distressed Debt Market from 1990-2013 (some years missing in the time series). “Defaulted Debts” are publicly registered and traded liabilities, while “Distressed Debts” are bonds selling at yields at least 1,000 basis points (bps) over comparable duration U.S. Treasuries as well as our estimate of private (loans, mortgages, and trade) distressed, not defaulted, debt. The data includes public and private debt, both their face and market values. As far as I know, we (at the NYU Salomon Center) are the only analysts providing these statistics. These amounts have totaled close to $1 trillion (face value) each year

[2] I am well aware that some of these major “players” are adversaries in the process and that too often, in my opinion, the firm has to undergo a second or third distressed restructuring. This recidivism issue is perhaps best left to discuss in another hearing, but for those interested, see Altman, Kant and Rattanaruengyot, 2009, in their discussion of “Avoiding Chapter 22,” and the proceedings of a forthcoming Symposium on this issue at the Zaretsky Roundtable on “Avoiding Chapter 22-Predicting Success in Chapter 11” at the Brooklyn Law School, November 19, 2013. Updated statistics on Chapter 22, 33 and even 44 filings are available from the author and will be discussed at the Zaretsky Roundtable Symposium. Indeed, since 1984, there are at least 260 recidivism cases involving multiple chapter 11 filings.

Figure 5. Size of the US Defaulted and Distressed Debt Market, 1990-2Q 2013 (Dollars in Billions)



Source: Professor Edward I. Altman estimates and NYU Salomon Center.

since 2000 and more than that figure since 2008. Market values have totaled from about $500 billion to close to $1 trillion each year for the last dozen years. Together, with our estimate of the amount of distressed debt under management, discussed above, these statistics form the demand and supply dynamics so critical for any viable financial market. These dynamics have provided the incentive for a special breed of investors, experienced in distressed investing, to attract capital and, as mentioned earlier, provide a potential outlet for original investors to monetize their troubled assets over a period that can stretch from a year or more before the bankruptcy filing, and lasting throughout the duration of the bankruptcy process. The length of this bankruptcy-restructuring process will be discussed shortly. This liquidity is crucial to those other investors who do not have the resources expertise or desire to hold their claims until the resolution of the reorganization. Also, having the ability to estimate residual values in the event of default, is crucial for non-investment grade firms to raise capital from the so-called “junk bond and loan,” or leveraged-finance market, a market that is estimated now to be over $2 trillion; see Mead and Natarjan (2013).

Distressed Debt investing, and in some cases, additional investments into the equity of distressed companies, generally can be categorized as (1) Passive, (2) Active and (3) Active-Control. Passive investing generally involves the trading of distressed securities without any direct influence on the bankruptcy process. Active-non-control investing can involve activities whereby the investor, usually with a significant amount of the claims, can attempt to influence the outcome of the bankruptcy process by directly or indirectly acting as a member of the Creditors Committee or by any means that impacts the valuation of the debtor and its securities, both before and after emerging from the bankruptcy process. The Active-Control strategy involves having a direct impact on the management of the debtor, usually by owning a significant amount of the post-restructured equity of the emerged entity. This sometimes results in the distressed investor becoming the CEO or Chairman, or simply by owning a significant enough stake in the company to gain control of the emerged firm. The latter strategy, in some cases, is known as "loan to own" by the distressed investor.

Academic Literature

At this point, we introduce briefly the academic literature on the role and effectiveness of the Active-Control, Distressed Investors. These works further support the role of distressed investors in the governance of the firm and the reorganization process.

Hotchkiss and Mooradian (1997) investigated the role of "vulture investors" in the governance and reorganization of a sample of 288 firms that defaulted on their public debt over the period 1980-1993. They found evidence of vulture investing in 172 firms (60% of the sample), whereby much of the time the investors held more than one-third of the amount of the debt outstanding and/or pumped new equity into the restructured firms, thereby giving them influence over the terms of the restructuring. The authors concluded that the improvement in post-restructuring operations performance relative to pre-default levels was greater when the vulture investor became CEO or Chairman or gained control of the target firm than compared to when these Active-Control investors were not involved. My own observations and experience tend to support their findings.[3]

A more recent study of the presence of hedge funds in the Chapter 11 process and their impact on bankruptcy outcomes was provided by Jing, Li and Wang (2012). Their study analyzed hedge funds (HF) involved in a comprehensive sample of 474 Chapter 11 cases from

[3] See Professor Hotchkiss' testimony before the ABI Sub-Committee's Hearing on "Financing Chapter 11" (October 17, 2012).

1996-2007 and concluded that in close to 90% of the cases, there was clear evidence of publicly observable involvement by HFs, confirming the general conclusion that HFs have become the most active investors in the distressed debt market. The authors also updated earlier studies on bankruptcy and provided additional insights on HFs as an emerging force in the Chapter 11 process.

As noted earlier, one of the unique aspects of the Bankruptcy process in the U.S. is the post-Chapter 11 performance of the debtor and its owners. Usually, the new owners of the equity are the "old" creditors, based on either the conversion of debt to equity or the injection of new equity financing, the latter providing critical new liquidity for the debtor to compete. Eberhart, Altman and Aggarwal (1999) conducted the first study on the performance of the new equity in the post-reorganization period. We analyzed the stock return performance of 131 firms emerging from Chapter 11 over the period 1980-1993 for 200 days, post-emergence and found consistent evidence of significant abnormal (excess) returns on the 131- firm portfolio, averaging about 28% excess return over the appropriate stock index. Results such as these help to motivate distressed investors to provide needed financing to firms exiting Chapter 11. We attributed the significant positive returns to the fact that these firms performed far better than what the market had expected. While these excess returns did not continue to manifest in all successive periods to our initial study period, we have continued to observe extraordinary examples of positive post-Chapter 11 performances for several years, e.g., K-mart, Lyondell, Delphi Corporation, GM.

Trends in Bankruptcy

Many of the issues and discussions at the ABI hearings these past several months center on the impact of the New Bankruptcy Code (BAPCPA) of 2005 and the role of various stakeholders, debtors and creditors, during the Chapter 11 proceedings. Questions such as the trend in the number and size of filings, the duration of the reorganization process, whether the result of the process was successful or not, the role of the prepackaged type of filing and the recovery rate to various creditors and owners, seem to me, particularly relevant. While we will make some observations from our trend data, the main purpose of the next sections is to provide a comprehensive statistical backdrop for careful analysis and discussion of the bankruptcy industry as it analyzes potential changes to our reorganization process.

I have chosen the period of 1981-2013 to analyze the above questions and, by necessity, will concentrate only on publicly held firms for many of the data points. The number and size of Chapter 11 filings for the more recent period 1989-2013 (8/31) is also analyzed for Chapter 11 filings greater than $100 million in liabilities, regardless if the firm was public or not when the filing took place.[4] Hence, LBO filings, sponsored by private equity firms, are also included. In addition, we utilize the extensive database of **New Generation Research** on 3,460 Chapter 11 filings from 1978-2013 (really since 1981) for all filings and also a subset of 1,760 filings where the assets (not liabilities) of publicly held firms were equal to or exceeded $100 million. The sample period essentially covers Chapter 11 activity since the enactment of the modern Code in 1978, as well as the latest revision in October 2005.

Figures 3 and 4, presented earlier, showed the number of Chapter 11 filings by year from 1989-2013, as well as the amount of liabilities at the time of the bankruptcy petition. All of these

[4] Our own database of Chapter 11 filings at the **NYU Salomon Center** has always analyzed relatively large filings of equal to or greater than $100 million of liabilities (not assets).

filings involve total liabilities equal to or greater than $100 million, as well as those greater than $1 billion. For the period 1989-2012, the average annual number of filings was 75 per year and the median was 48. Certain periods representing high economic stress, like 1999-2003 and again 2008-2010, are particularly noteworthy as involving more than 100 per year of these large filings, as well as more than about $100 billion per year in liabilities in most years. The average annual liability amount for the last 14 years was $126 billion and the median amount, lower at $67.6 billion. In total, more than $1.75 trillion of liabilities have been restructured or liquidated over this sample period. Of note, about 15 filings, on average, per year were greater than $1 billion in liabilities, representing about 20% of all Chapter 11 filings greater than $100 million in liabilities, with 11 per year being the median.

As for trends, there is no surprise that both the number and liabilities amount of filings has decreased since the "heady" years of 2008/2009, dropping to 114, 84, and 69 for 2010, 2011 and 2012, respectively. And, so far in 2013 through August (2/3 of the year), the number is 42, so we can probably expect about 50-55 for the entire year 2013, again a decrease from 2012. Still, the number, and amount of liabilities as well, has been greater in each of the last three to four years than the median number (48) and median amount ($67.6 billion) compared to the period 1989-2012, albeit slightly so. This can be seen graphically in Figure 3 wherein the horizontal lines represent the median number and amount of liabilities. The largest bankruptcies, those with liabilities equal to or greater than $1 billion, were just slightly below the average, but mostly above the medians, in the last three years. So, the numbers do not support the contention by some commentators that the Chapter 11 mechanism is either permanently, or even temporarily, "dead" due to the incredible amounts of liquidity to refinance struggling entities since 2010 or to the popular increase in out-of-court distressed exchanges since 2008.[5] Not surprisingly, almost half of these distressed exchanges only temporarily avoid a bankruptcy filing since the restructurings do not affect operating problems.

To analyze a number of important characteristics and trends in Chapter 11 filings, we have carefully examined the **New Generation Research** database on publicly held firms filing for protection under Chapter 11, effectively from 1981-2013 (thru June). In this period, we observe 3,460 filings of all sizes and 1,760 filings with assets greater than $100 million. We will carefully point out that for some of our metrics, such as success or not, or time in bankruptcy, the most recent two-three years (2011-2013) or, in some cases, even from further in the past, have not had enough completed Chapter 11s to make any definitive statements. Still, we will attempt to make some practical adjustments to analyze these most recent crucial years as well as data from 2006 onward, where there are still many "unknown outcomes" of the reorganization process.

In Figure 6, we see that about 20% of all Chapter 11 filings were either dismissed (7.3%) or that the outcome of the process is unknown (12.9%). Hence, for most of our results, we analyzed 2,746 net filings, representing about 80% of all filings over the period and 100% of all filings where we can ascertain the actual result of the Chapter 11 process. We also can observe that 318 of net filings were characterized as either prepackaged or prearranged. In all of the last five years (except 2011), the percent of filings that were either prepackaged or prearranged ("Prepacks") were greater than the 11.6% annual average. Indeed, in each year over 20% of all

[5] About 60% of all distressed exchanges from 1984-2012 have occurred in the last five years. See E. Altman and B. Kuehne (2013).

net filings, except 2011, were prepacks.[6] We will now discuss the success or not of Chapter 11 filings and their time-in-bankruptcy.

Success or Not

It is somewhat tricky to characterize the outcome of a Chapter 11 filing as successful or not. For example, as we have written about several times, a Chapter 11 that emerges as a going-concern, but slips after emergence and files again within a relatively short period of time (say, five years) is in many ways an unsuccessful Chapter 11.[7] For this study, however, we will first characterize a Chapter 11 that either results in an emergence as a continuing entity or involving an acquisition of all or most of the assets as successful.[8] From Figure 6, we see that of the 2,746 net filings, 1775 (64.6%) either emerged (1,501) or were "acquired" (274); hence were successful; 441 (16.1%) were converted to a Chapter 7 liquidation and 543 (19.8%) were liquidated under Chapter 11, for a total of 984 or 35.8% of net filings that were "unsuccessful". Only 8 of the 318 "prepacks" were among these unsuccessful Chapter 11s, and none of these since 2010.[9]

An Adjustment to the "Success Rate" of Chapter 11 Reorganizations

As discussed above, we define success of a Chapter 11 reorganization as either an emergence from the bankruptcy as a continuing entity or an acquisition of the assets of the debtor. Liquidations under either Chapter 7 or 11 constitute our "unsuccessful" outcomes.

[6] When most of the "outcome unknown" filings will be resolved , i.e., the outcome becomes "known," the percentage of filings that were prepackaged will decrease.
[7] Our updated number of firms that have filed for Chapter 11 protection twice (Chapter 22), three times (Chapter 33) or four times (Chapter 44) is not trivial (about 260 since 1984). I will return to this factor in our adjusted "success" statistics.
[8] The latter include 363 sales, such as Chrysler Corp. in 2009.
[9] Three of the 8 unsuccessful prepacks were from the class of 2000.

However, as noted in footnote 7 and the earlier discussion, when an emerged entity has to file again (the recidivism problem) one could conclude that the original Chapter 11 was not very successful. In order to account for recidivism, we can adjust the 65% success rate for those cases.

Since 1981, through June 2013, there have been approximately 260 cases of a Chapter 22, 33, or 44 among publicly held firms. If we add those 260 multi-filers to the number of unsuccessful Chapter 11s and subtract from the successful ones, the percentage of successful Chapter 11s drops to 55.2%. While still a majority of net Chapter 11 filings result in a successful outcome, the results are less impressive and, in our opinion, can be improved by a more diligent assessment of the recidivism potential by all parties involved.

Time in Bankruptcy

For all of the "Net Filings" (2,746) since 1981, the *median* time spent reorganizing or liquidating was approximately one year (1.02 years). The *average* time was 1.38 years (16.6 months), with prepacks taking just 0.34 years (4 months), on average, and non-prepacks about one and a half years (18.4 months). The duration of time spent in bankruptcy is significantly lower for "successful" Chapter 11s, than for all filings and also less than for "unsuccessful" ones. For example, the median time for successful Chapter 11s was 0.95 years compared to 1.21 years for unsuccessful ones. The average time was 1.27 years vs. 1.71 years. So, the data clearly show that successful Chapter 11s are also shorter in duration than unsuccessful ones and, of course, prepackaged or prearranged filings are much shorter. This is the case even when we adjust for the fact that in the most recent years, especially since 2009, many Chapter 11 outcomes are still unknown.

Recent Trends of Time in Bankruptcy

At first glance, from Figure 6, it appears that the recent trend from 2009 to the present indicates that the time spent in bankruptcy of all filings, as well as successful Chapter 11s, has been noticeably diminishing, except possibly for 2011. But, it is obvious that the median and mean outcomes' time in bankruptcy will increase, perhaps significantly, once those firms still in bankruptcy reorganization complete their process. Right now, for those outcomes completed, the median time in bankruptcy was about one year, even just about one-half of a year in some years, i.e., in 2006, 2009, 2010, 2012 and so far in 2013, and slightly below one year in 2008, 2009 and 2011. However, the percent completed (net filings, outcome known) ranged from just 26.5% (2013) and 32.8% (2012) to 85.7% in 2006, leaving many reorganizations still unfinished.

While we cannot estimate the average time in bankruptcy for those "unknown outcomes," we can estimate the *median* time in bankruptcy by simply taking one-half of the unknown outcomes in a particular year, e.g., 24 (47/2) in 2011, and adding those observations to the median we have already calculated from the known outcomes (0.91 years). The result is an estimated median for 2011 of 1.54 years. In another example, for 2010, we add the 11th observation (21/2) above the existing median (0.56 years) to get our estimated median of 0.77 years. All of the adjustments are in parentheses for the period 2006-2011. When we perform this estimate for the years 2006-2011 (we cannot as yet do this for 2012 and 2013 due to insufficient known observations), we get a revised median time in bankruptcy for the entire time series of 1.04 years. When we finally are able to assess those reorganizations from 2012/2013, the median time overall will increase but more than likely to no more than 1.06 years (12.7 months).

Figure 6. Chapter 11 Public Firm Bankruptcy Filings (Outcomes and Time in Bankruptcy)

1978 – 2013: All filings of publicly-held firms

	Total	***Dismissed***		***Outcome Unknown***		***Net Filings***		**All Outcomes**				
									Median Time (yrs) in Bankruptcy*	**Average Time in Bankruptcy (in years)**		
Year	*No.*	*No.*	*% of Total*	*No.*	*% of Total*	*No.*	*% of Total*	*No. of Prepacks (% of net filings)***	*Overall*	*Overall*	*Prepacks*	*Non-Prepacks*
1978	1			1	100%							
1981	5			1	20.00%	4	80.00%		4.14	4.39		4.39
1982	6					6	100%		4.57	4.87		4.87
1983	4					4	100%	1 (25.0%)	2.78	3.78	2.69	4.15
1984	10	1	10.00%	1	10.00%	8	80.00%		2.18	3.14		3.14
1985	25			4	16.00%	21	84.00%		2.02	2.37		2.37
1986	26	1	3.85%	2	7.69%	23	88.46%	1 (4.3%)	1.68	1.96	0.25	2.03
1987	23			4	17.39%	19	82.61%		1.62	2.26		2.26
1988	36			2	5.56%	34	94.44%	1 (2.9%)	1.44	1.64	0.12	1.69
1989	67	1	1.49%	11	16.42%	55	82.09%	2 (3.6%)	1.44	2.66	0.56	2.76
1990	84	4	4.76%	19	22.62%	61	72.62%	2 (3.3%)	1.69	2.13	0.25	2.21
1991	110	3	2.73%	11	10.00%	96	87.27%	7 (7.3%)	1.45	1.97	0.25	2.14
1992	79	3	3.80%	5	6.33%	71	89.87%	12 (16.9%)	1.05	1.35	0.35	1.58
1993	70	3	4.29%	1	1.43%	66	94.29%	18 (27.3%)	1.11	1.18	0.20	1.61
1994	56	1	1.79%	2	3.57%	53	94.64%	12 (22.6%)	1.07	1.33	0.17	1.70
1995	68	7	10.29%	1	1.47%	60	88.24%	6 (10.0%)	1.32	1.51	0.14	1.70
1996	64	6	9.38%			58	90.63%	11 (19.0%)	0.94	1.23	0.24	1.49
1997	65	6	9.23%	2	3.08%	57	87.69%	9 (15.8%)	1.00	1.45	0.37	1.70
1998	109	13	11.93%	2	1.83%	94	86.24%	12 (12.8%)	0.96	1.52	0.35	1.76
1999	150	13	8.67%	4	2.67%	133	88.67%	11 (8.3%)	1.03	1.30	0.38	1.40
2000	231	24	10.39%	10	4.33%	197	85.28%	16 (8.1%)	1.21	1.51	0.54	1.61
2001	383	38	9.92%	17	4.44%	328	85.64%	11 (3.4%)	1.18	1.49	0.36	1.54
2002	292	24	8.22%	19	6.51%	249	85.27%	28 (11.2%)	0.99	1.25	0.34	1.38
2003	209	14	6.70%	17	8.13%	178	85.17%	10 (5.6%)	0.98	1.22	0.84	1.24
2004	113	9	7.96%	10	8.85%	94	83.19%	14 (14.9%)	0.87	1.17	0.34	1.34
2005	99	12	12.12%	2	2.02%	85	85.86%	6 (7.1%)	0.99	1.14	0.26	1.21
2006	77	4	5.19%	7	9.09%	66	85.71%	9 (13.6%)	0.78 (0.86)	0.94	0.35	1.06
2007	99	9	9.09%	12	12.12%	78	78.79%	4 (5.1%)	0.98 (1.05)	1.10	0.11	1.17
2008	237	23	9.70%	55	23.21%	159	67.09%	16 (10.1%)	0.99 (1.23)	1.11	0.31	1.24
2009	255	12	4.71%	46	18.04%	197	77.25%	41 (20.8%)	0.75 (0.95)	0.93	0.35	1.11
2010	122	9	7.38%	21	17.21%	92	75.41%	27 (29.3%)	0.56 (0.77)	0.68	0.23	0.92
2011	117	9	7.69%	47	40.17%	61	52.14%	8 (13.1%)	0.91 (1.54)	0.86	0.23	0.98
2012	119	5	4.20%	75	63.03%	39	32.77%	13 (33.3%)	0.51 (-)	0.51	0.19	0.71
2013	49			36	73.47%	13	26.53%	10 (76.9%)	0.12 (-)	0.16	0.13	0.34
Grand Total	**3460**	**254**	**7.34%**	**447**	**12.92%**	**2746**	**79.36%**	**318 (11.6%)**	**1.02 (1.04)**	**1.38**	**0.34**	**1.53**

*Those years (2006-2011) in parentheses for Median time in bankruptcy include our adjusted estimates for the "Outcome Unknown" category. Average time in bankruptcy is not adjusted.

**Prepacks includes pre-packaged and pre-arranged Chapter 11 filings.

Figure 6. Chapter 11 Public Firm Bankruptcy Filings (Outcomes and Time in Bankruptcy) (continued)

1978 – 2013: All filings of publicly-held firms: Successful Results

	Net Filings		*Emerged and Reorganized*		*Acquired*		Emerged and Reorganized + Acquired (Successful Bankruptcies)						
										*Median Time (yrs) in Bankruptcy**	Average Time in Bankruptcy (in years)		
Year	*No.*	*% of Total*	*No.*	*% of Net*	*No.*	*% of Net*	*No.*	*% of Net*	*No. of Prepacks (% of net filings)***	*Overall*	*Overall*	*Prepacks*	*Non-Prepacks*
1978													
1981	4	80.00%	4	100%			4	100%		4.14	4.39		4.39
1982	6	100%	6	100%			6	100%		4.57	4.87		4.87
1983	4	100%	4	100%			4	100%	1 (25.0%)	2.78	3.78	2.69	4.15
1984	8	80.00%	8	100%			8	100%		2.18	3.14		3.14
1985	21	84.00%	16	76.19%	1	4.76%	17	80.95%		2.02	2.37		2.37
1986	23	88.46%	20	86.96%	3	13.04%	23	100%	1 (4.3%)	1.68	1.96	0.25	2.03
1987	19	82.61%	14	73.68%	2	10.53%	16	84.21%		1.58	1.77		1.77
1988	34	94.44%	22	64.71%	6	17.65%	28	82.35%	1(2.9%)	1.43	1.52	0.12	1.57
1989	55	82.09%	33	60.00%	6	10.91%	39	70.91%	2 (3.6%)	1.37	2.64	0.56	2.75
1990	61	72.62%	41	67.21%	3	4.92%	44	72.13%	2 (3.3%)	1.50	1.84	0.25	1.91
1991	96	87.27%	70	72.92%	2	2.08%	72	75.00%	7 (7.3%)	1.32	1.63	0.25	1.77
1992	71	89.87%	53	74.65%	4	5.63%	57	80.28%	12 (16.9%)	1.05	1.29	0.35	1.54
1993	66	94.29%	51	77.27%	3	4.55%	54	81.82%	17 (25.8%)	1.11	1.20	0.20	1.66
1994	53	94.64%	39	73.58%	6	11.32%	45	84.91%	12 (22.6%)	0.96	1.14	0.17	1.50
1995	60	88.24%	40	66.67%	5	8.33%	45	75.00%	6 (10.0%)	1.32	1.44	0.14	1.64
1996	58	90.63%	37	63.79%	7	12.07%	44	75.86%	11 (19.0%)	0.80	1.02	0.24	1.28
1997	57	87.69%	37	64.91%	6	10.53%	43	75.44%	9 (15.8%)	0.97	1.23	0.37	1.46
1998	94	86.24%	50	53.19%	7	7.45%	57	60.64%	12 (12.8%)	0.84	1.15	0.35	1.36
1999	133	88.67%	67	50.38%	14	10.53%	81	60.90%	11 (8.3%)	0.91	1.12	0.38	1.23
2000	197	85.28%	96	48.73%	18	9.14%	114	57.87%	13 (6.6%)	1.09	1.32	0.55	1.41
2001	328	85.64%	131	39.94%	36	10.98%	167	50.91%	11 (3.4%)	1.04	1.40	0.36	1.47
2002	249	85.27%	121	48.59%	43	17.27%	164	65.86%	27 (10.8%)	0.80	1.09	0.34	1.24
2003	178	85.17%	95	53.37%	24	13.48%	119	66.85%	10 (5.6%)	0.96	1.16	0.84	1.19
2004	94	83.19%	50	53.19%	16	17.02%	66	70.21%	14 (14.9%)	0.82	1.07	0.34	1.28
2005	85	85.86%	48	56.47%	16	18.82%	64	75.29%	6 (7.1%)	0.99	1.15	0.26	1.24
2006	66	85.71%	29	43.94%	5	7.58%	34	51.52%	9 (13.6%)	0.49 (0.79)	0.67	0.35	0.78
2007	78	78.79%	24	30.77%	6	7.69%	30	38.46%	4 (5.1%)	0.63 (1.07)	0.84	0.11	0.95
2008	159	67.09%	70	44.03%	8	5.03%	78	49.06%	16 (10.1%)	0.92 (1.78)	1.03	0.31	1.22
2009	197	77.25%	112	56.85%	15	7.61%	127	64.47%	39 (19.8%)	0.69 (0.98)	0.83	0.34	1.04
2010	92	75.41%	52	56.52%	4	4.35%	56	60.87%	26 (28.3%)	0.40 (0.74)	0.60	0.23	0.93
2011	61	52.14%	31	50.82%	5	8.20%	36	59.02%	8 (13.1%)	0.66 (0.95)	0.80	0.23	0.97
2012	39	32.77%	19	48.72%	2	5.13%	21	53.85%	13 (33.3%)	0.33 (-)	0.37	0.19	0.65
2013	13	26.53%	11	84.62%	1	0.08	12	92.31%	10 (76.9%)	0.12 (-)	0.16	0.13	0.34
Grand Total	**2746**	**79.36%**	**1501**	**54.66%**	**274**	**9.98%**	**1775**	**64.64%**	**310 (11.3%)**	**0.95 (0.97)**	**1.27**	**0.34**	**1.45**

*Those years (2006-2011) in parentheses for Median time in bankruptcy include our adjusted estimates for the "Outcome Unknown" category. Average time in bankruptcy is not adjusted.
**Prepacks includes pre-packaged and pre-arranged Chapter 11 filings.

Figure 6. Chapter 11 Public Firm Bankruptcy Filings (Outcomes and Time in Bankruptcy) (continued)

1978 – 2013: All filings of publicly-held firms: Unsuccessful Results

	Net Filings		***Liquidated in Chapter 11***		***Converted to Chapter 7***		**Converted + Liquidated (Unsuccessful)**						
										Median Time (yrs) in Bankruptcy*	**Average Time in Bankruptcy (in years)**		
Year	*No.*	*% of Total*	*No.*	*% of Net*	*No.*	*% of Net*	*No.*	*% of Net*	*No. of Prepacks (% of net filings)***	*Overall*	*Overall*	*Prepacks*	*Non-Prepacks*
1978													
1981	4	80.00%											
1982	6	100%											
1983	4	100%											
1984	8	80.00%											
1985	21	84.00%			4	19.05%	4	19.05%					
1986	23	88.46%											
1987	19	82.61%	1	5.26%	2	10.53%	3	15.79%		10.00	10.00		10.00
1988	34	94.44%	1	2.94%	5	14.71%	6	17.65%		5.08	5.08		5.08
1989	55	82.09%	7	12.73%	9	16.36%	16	29.09%		2.40	2.77		2.77
1990	61	72.62%	6	9.84%	11	18.03%	17	27.87%		2.09	4.75		4.75
1991	96	87.27%	11	11.46%	13	13.54%	24	25.00%		2.51	4.49		4.49
1992	71	89.87%	6	8.45%	8	11.27%	14	19.72%		1.20	1.88		1.88
1993	66	94.29%	5	7.58%	7	10.61%	12	18.18%	1 (1.5%)	0.75	0.99	0.12	1.20
1994	53	94.64%	5	9.43%	3	5.66%	8	15.09%		3.27	3.06		3.06
1995	60	88.24%	6	10.00%	9	15.00%	15	25.00%		1.28	2.03		2.03
1996	58	90.63%	8	13.79%	6	10.34%	14	24.14%		1.74	2.36		2.36
1997	57	87.69%	4	7.02%	10	17.54%	14	24.56%		3.22	3.81		3.81
1998	94	86.24%	14	14.89%	23	24.47%	37	39.36%		2.15	3.05		3.05
1999	133	88.67%	33	24.81%	19	14.29%	52	39.10%		1.19	1.75		1.75
2000	197	85.28%	42	21.32%	41	20.81%	83	42.13%	3 (1.5%)	1.93	2.05	0.31	2.09
2001	328	85.64%	85	25.91%	76	23.17%	161	49.09%		1.41	1.67		1.67
2002	249	85.27%	55	22.09%	30	12.05%	85	34.14%	1 (0.4%)	1.29	1.71	0.26	1.74
2003	178	85.17%	38	21.35%	21	11.80%	59	33.15%		1.00	1.39		1.39
2004	94	83.19%	18	19.15%	10	10.64%	28	29.79%		1.33	1.52		1.52
2005	85	85.86%	14	16.47%	7	8.24%	21	24.71%		1.13	1.11		1.11
2006	66	85.71%	20	30.30%	12	18.18%	32	48.48%		0.94 (1.27)	1.41		1.41
2007	78	78.79%	27	34.62%	21	26.92%	48	61.54%		1.15 (1.31)	1.37		1.37
2008	159	67.09%	40	25.16%	41	25.79%	81	50.94%		1.09 (1.93)	1.28		1.28
2009	197	77.25%	49	24.87%	21	10.66%	70	35.53%	2 (1.0%)	0.94 (1.78)	1.21	0.50	1.24
2010	92	75.41%	21	22.83%	15	16.30%	36	39.13%	1 (1.1%)	0.87 (1.30)	0.91		0.91
2011	61	52.14%	14	22.95%	11	18.03%	25	40.98%		0.99 (-)	1.01		1.01
2012	39	32.77%	13	33.33%	5	12.82%	18	46.15%		0.71 (-)	0.75		0.75
2013	13	26.53%			1	7.69%	1	7.69%					
Grand Total	**2746**	**79.36%**	**543**	**19.77%**	**441**	**16.06%**	**974**	**35.46%**	**8 (2.9%)**	**1.21 (1.26)**	**1.74**	**0.34**	**1.75**

*Those years (2006-2011) in parentheses for Median time in bankruptcy include our adjusted estimates for the "Outcome Unknown" category. Average time in bankruptcy is not adjusted.
**Prepacks includes pre-packaged and pre-arranged Chapter 11 filings.
Source: New Generation Research, Boston Mass; compilation by E. Altman, NYU Salomon Center.

If we analyze the trend since the new Bankruptcy Code was put in place in late 2005 (2006-2013), we do observe a small reduction (perhaps one month) in the time in bankruptcy, except in 2008 and 2011. This is to be expected since the new Code established a cap of 18 months in which a debtor has the exclusive right to file a plan that then needs to be ratified by the various creditor classes. Again, we are not able to completely assess the results for 2012/2013.

The percentage of Chapter 11 filings that have been completed with a successful result seems to be diminishing slightly in the period 2010-2012 compared to the longer-time median over the period 1981-2012. For example, the percent of successful outcomes were 60.9%, 59.0%, and 53.9% in 2010, 2011 and 2012, respectively, of the known outcomes, and only 51.5%, 38.5% and 49.1% in 2006-2008, compared to about 65.0% for the entire period, 1978-2013. Assuming that the proportion of successful vs. unsuccessful outcomes will not change from the already calculated means, once the unknown cases become known, the proportion of successful outcomes will probably decrease slightly from what appears now in Figure 6.

Results for Larger Chapter 11 Filings

The results reported above are for all Chapter 11 filings of publicly-held firms and number 3,460 events. Of those, 1,760 were for firms with total assets greater than $100 million (about 50%). Next, we will observe if the results discussed above for all filings, regardless of size, vary at all for larger Chapter 11s. We do have several expectations, or hypotheses, with respect to larger vs. smaller corporate bankruptcies on such issues as case dismissals, whether the outcome becomes known or not, whether the outcome of a reorganization in bankruptcy will be successful or not and time that these filings spend in the bankruptcy process.

Figure 7 lists the results of bankruptcy filings of firms with at least $100 million in assets at the time of filings from 1981-2013. While we believe that, in many ways, total liabilities is a more meaningful measure of corporate size when it comes to a bankrupt firm, total assets is also a reasonable metric in many cases and, more importantly, is the one used by **New Generation Research** in their categorization of bankruptcy statistics. As noted above, about half of all filings of publicly-held firms were for firms with at least $100 million in assets since the Bankruptcy Act of 1938.

Dismissals and Unknown Outcomes

Comparing our results for all filings in Figure 6 with those for the larger-firm sample in Figure 7, we find, not surprisingly, that a smaller proportion of the gross filings (1760 firms) were Dismissed (3.6%) or the outcome is Unknown at this time (10.5%), for a total of 14.1%, vs. about 20.4% for all filings (7.3% + 12.9%). It is reasonable that firms with more substantial assets have a better chance of moving ahead in the bankruptcy reorganization process than do smaller entities and it is more likely that the proceedings will be more easily traced as to the outcome. The latter may not be the case for the most recent filings in 2011-2013, which simply have not had enough time to finish the process, except in the case of Prepacks. A prepackaged or prearranged filing is far more likely for larger firms than smaller ones. Indeed, for the entire time series from 1981-2013, 285 of the 318 Prepacks (89.6%) were from our larger firm sample. Indeed, all but five (5) of the 99 Prepacks since 2009 are from firms with assets greater than $100 million. So, for these firms, the outcome is essentially always known.

Successful vs. Unsuccessful Outcomes

We observe that 71.2% of the Net Filings result in a successful outcome (1,076/1,511) for firms with assets >$100 million vs. just 64.64% (974/2,746) for all firms. The differential is, of course, considerably greater when you compare those successful filings with less than $100 million (56.62%) vs. those >$100 million in assets (71.21%). The opposite is the case with respect to unsuccessful Chapter 11s by size of firm, with only 28.8% unsuccessful for larger firms vs. 43.4% for smaller publicly-held entities. Recall that our definition of a successful Chapter 11 is either a reorganization that ends in an emerged firm or the debtor is acquired. The unsuccessful process is either a filing converted into a Chapter 7 liquidation or a liquidation under Chapter 11.

Time in Bankruptcy

While we find distinct differences for several of our metrics between larger and smaller firm Chapter 11s, the time in bankruptcy metric is very similar across the firms of different size. Indeed, the adjusted median time in bankruptcy for all outcomes, whether successful or not, was essentially the same for all filings (1.04 years, Figure 6) vs. 1.05 years for firms with assets greater than $100 million (Figure 7). Average (not median) time in bankruptcy was slightly longer for the larger firms for both Prepacks (0.35 years) and Non-Prepacks (1.64 years).

Creditor Recoveries

One important indicator of the effectiveness of the Bankruptcy process, and the relative influence of the various stakeholders in the process, is the default recovery rate, especially if we evaluate recoveries by seniority over time. There are two main types of recoveries to creditors - the value of the outstanding securities just after default/bankruptcy and the value when the

Figure 7. Chapter 11 Public Firm Bankruptcy Filings (Outcomes and Time in Bankruptcy)

1981 – 2013: All filings of publicly-held firms with Assets > $100 million

	Total	***Dismissed***		***Outcome Unknown***		***Net Filings***		**All Outcomes***				
									Median Time (yrs) in Bankruptcy*	**Average Time in Bankruptcy (in years)**		
Year	*No.*	*No.*	*% of Total*	*No.*	*% of Total*	*No.*	*% of Total*	*No. of Prepacks (% of net filings)***	*Overall*	*Overall*	*Prepacks*	*Non - Prepacks*
1981	2					2	100.00%		4.88	4.88		4.88
1982	5					5	100.00%		6.18	5.25		5.25
1983	2					2	100.00%	1 (50.0%)	2.78	2.78	2.69	2.87
1984	3					3	100.00%		2.97	5.29		5.29
1985	5					5	100.00%		3.14	3.21		3.21
1986	10					10	100.00%	1 (10.0%)	2.08	2.45	0.25	2.70
1987	10			1	10.00%	9	90.00%		1.65	2.00		2.00
1988	14					14	100.00%		1.89	1.97		1.97
1989	25			3	12.00%	22	88.00%	2 (9.1%)	2.03	2.53	0.56	2.73
1990	39			3	7.69%	36	92.31%	1 (2.8%)	1.98	2.14	0.33	2.20
1991	67			3	4.48%	64	95.52%	6 (9.4%)	1.33	2.02	0.25	2.21
1992	47	1	2.13%			46	97.87%	11 (23.9%)	0.82	1.14	0.37	1.40
1993	42					42	100.00%	17 (40.5%)	0.86	0.92	0.20	1.45
1994	22					22	100.00%	9 (40.9%)	0.78	1.29	0.19	2.11
1995	31	2	6.45%			29	93.55%	5 (17.2%)	1.32	1.52	0.15	1.81
1996	30	2	6.67%			28	93.33%	9 (32.1%)	0.68	1.26	0.23	1.84
1997	30	2	6.67%			28	93.33%	8 (28.6%)	0.91	1.54	0.39	2.08
1998	48	3	6.25%			45	93.75%	12 (26.7 %)	0.91	1.53	0.35	2.01
1999	80	2	2.50%	2	2.50%	76	95.00%	11 (14.5%)	1.02	1.22	0.38	1.39
2000	124	7	5.65%			117	94.35%	15 (12.8%)	1.25	1.62	0.56	1.77
2001	171	14	8.19%	6	3.51%	151	88.30%	10 (6.6%)	1.22	1.64	0.38	1.74
2002	140	3	2.14%	1	0.71%	136	97.14%	26 (19.1%)	0.80	1.12	0.29	1.33
2003	91	3	3.30%	1	1.10%	87	95.60%	8 (9.2%)	0.97	1.27	0.99	1.31
2004	57	2	3.51%	2	3.51%	53	92.98%	14 (26.4%)	0.85	1.21	0.34	1.56
2005	46	2	4.35%	2	4.35%	42	91.30%	5 (11.9%)	1.08	1.16	0.24	1.29
2006	34			1	2.94%	33	97.06%	8 (24.2%)	0.86 (0.86)	0.98	0.36	1.19
2007	43			6	13.95%	37	86.05%	4 (10.8%)	1.15 (1.31)	1.24	0.11	1.40
2008	152	11	7.24%	38	25.00%	103	67.76%	14 (13.6%)	1.04 (1.27)	1.17	0.31	1.34
2009	164	6	3.66%	24	14.63%	134	81.71%	35 (26.1%)	0.85 (1.05)	0.98	0.37	1.21
2010	68	1	1.47%	13	19.12%	54	79.41%	25 (46.3%)	0.39 (0.61)	0.60	0.23	0.92
2011	61	2	3.28%	24	39.34%	35	57.38%	7 (20.0%)	0.83 (1.32)	0.80	0.23	0.96
2012	67	1	1.49%	38	56.72%	28	41.79%	11 (39.3%)	0.46 (-)	0.51	0.18	0.78
2013	30			17	56.67%	13	43.33%	10 (76.9%)	0.12 (-)	0.16	0.13	0.34
Totals	**1760**	**64**	**3.64%**	**185**	**10.51%**	**1511**	**85.85%**	**285 (18.9%)**	**1.03 (1.05)**	**1.39**	**0.35**	**1.64**

*Those years (2006-2011) in parentheses for Median time in bankruptcy include our adjusted estimates for the "Outcome Unknown" category. Average time in bankruptcy is not adjusted.
**Prepacks includes pre-packaged and pre-arranged Chapter 11 filings.

Figure 7. Chapter 11 Public Firm Bankruptcy Filings (Outcomes and Time in Bankruptcy) (continued)

1981 – 2013: All filings of firms with Assets > $100 million: Successful Results

	Net Filings		*Emerged and Reorganized*		*Acquired*		**Emerged and Reorganized + Acquired (Successful Bankruptcies)**						
										Median Time (yrs) in Bankruptcy*	**Average Time in Bankruptcy (in years)**		
Year	*No.*	*% of Total*	*No.*	*% of Net*	*No.*	*% of Net*	*No.*	*% of Net*	*No. of Prepacks (% of net filings)***	*Overall*	*Overall*	*Prepacks*	*Non-Prepacks*
1981	2	100.00%	2	100.00%			2	100.00%		4.88	4.88		4.88
1982	5	100.00%	5	100.00%			5	100.00%		6.18	5.25		5.25
1983	2	100.00%	2	100.00%			2	100.00%	1 (50.0%)	2.78	2.78	2.69	2.87
1984	3	100.00%	3	100.00%			3	100.00%		2.97	5.29		5.29
1985	5	100.00%	5	100.00%			5	100.00%		3.14	3.21		3.21
1986	10	100.00%	9	90.00%	1	10.00%	10	100.00%	1 (10.0%)	2.08	2.45	0.25	2.70
1987	9	90.00%	7	77.78%	2	22.22%	9	100.00%		1.65	2.00		2.00
1988	14	100.00%	8	57.14%	5	35.71%	13	92.86%		1.89	1.97		1.97
1989	22	88.00%	15	68.18%	1	4.55%	16	72.73%	2 (9.1%)	1.71	2.40	0.56	2.66
1990	36	92.31%	27	75.00%	3	8.33%	30	83.33%	1 (2.8%)	1.98	2.13	0.33	2.20
1991	64	95.52%	55	85.94%			55	85.94%	6 (9.4%)	1.31	1.66	0.25	1.83
1992	46	97.87%	38	82.61%	3	6.52%	41	89.13%	11 (23.9%)	0.78	1.15	0.37	1.43
1993	42	100.00%	36	85.71%	3	7.14%	39	92.86%	17 (40.5%)	0.93	0.92	0.20	1.48
1994	22	100.00%	15	68.18%	3	13.64%	18	81.82%	9 (40.9%)	0.49	1.11	0.19	2.02
1995	29	93.55%	23	79.31%	4	13.79%	27	93.10%	5 (17.2%)	1.32	1.48	0.15	1.78
1996	28	93.33%	16	57.14%	4	14.29%	20	71.43%	9 (32.1%)	0.42	0.79	0.23	1.25
1997	28	93.33%	20	71.43%	2	7.14%	22	78.57%	8 (28.6%)	0.68	1.08	0.39	1.48
1998	45	93.75%	30	66.67%	5	11.11%	35	77.78%	12 (26.7%)	0.85	1.21	0.35	1.66
1999	76	95.00%	40	52.63%	12	15.79%	52	68.42%	11 (14.5%)	0.80	1.08	0.38	1.27
2000	117	94.35%	60	51.28%	13	11.11%	73	62.39%	12 (10.3%)	1.18	1.39	0.58	1.55
2001	151	88.30%	64	42.38%	18	11.92%	82	54.30%	10 (6.6%)	1.10	1.53	0.38	1.69
2002	136	97.14%	79	58.09%	24	17.65%	103	75.74%	25 (18.4%)	0.65	0.98	0.29	1.20
2003	87	95.60%	53	60.92%	7	8.05%	60	68.97%	8 (9.2%)	0.83	1.13	0.99	1.16
2004	53	92.98%	35	66.04%	7	13.21%	42	79.25%	14 (26.4%)	0.76	1.09	0.34	1.46
2005	42	91.30%	29	69.05%	7	16.67%	36	85.71%	5 (11.9%)	0.99	1.15	0.24	1.29
2006	33	97.06%	19	57.58%	2	6.06%	21	63.64%	8 (24.2%)	0.45 (0.46)	0.64	0.36	0.81
2007	37	86.05%	11	29.73%			11	29.73%	4 (10.8%)	0.48 (1.35)	0.72	0.11	1.07
2008	103	67.76%	55	53.40%	3	2.91%	58	56.31%	14 (13.6%)	0.99 (1.65)	1.05	0.31	1.29
2009	134	81.71%	84	62.69%	7	5.22%	91	67.91%	34 (25.4%)	0.70 (0.96)	0.84	0.35	1.13
2010	54	79.41%	39	72.22%	3	5.56%	42	77.78%	24 (44.4%)	0.35 (0.45)	0.53	0.23	0.93
2011	35	57.38%	22	62.86%	3	8.57%	25	71.43%	7 (20.0%)	0.62 (1.83)	0.70	0.23	0.89
2012	28	41.79%	16	57.14%			16	57.14%	11 (39.3%)	0.23 (-)	0.36	0.18	0.74
2013	13	43.33%	11	84.62%	1	7.69%	12	92.31%	10 (76.9%)	0.12 (-)	0.16	0.13	0.34
Totals	**1511**	**85.85%**	**933**	**61.75%**	**143**	**9.46%**	**1076**	**71.21%**	**279 (18.5%)**	**0.90 (0.94)**	**1.25**	**0.35**	**1.55**

*Those years (2006-2011) in parentheses for Median time in bankruptcy include our adjusted estimates for the "Outcome Unknown" category. Average time in bankruptcy is not adjusted.
**Prepacks includes pre-packaged and pre-arranged Chapter 11 filings.

Figure 7. Chapter 11 Public Firm Bankruptcy Filings (Outcomes and Time in Bankruptcy) (continued)

1981 – 2013: All filings of firms with Assets > $100 million: Unsuccessful Results

	Net Filings		***Liquidated in Chapter 11***		***Converted to Chapter 7***		**Converted + Liquidated (Unsuccessful)**						
										Median Time (yrs) in Bankruptcy*	**Average Time in Bankruptcy (in years)**		
Year	*No.*	*% of Total*	*No.*	*% of Net*	*No.*	*% of Net*	*No.*	*% of Net*	*No. of Prepacks (% of net filings)***	*Overall*	*Overall*	*Prepacks*	*Non-Prepacks*
1981	2	100.00%											
1982	5	100.00%											
1983	2	100.00%											
1984	3	100.00%											
1985	5	100.00%											
1986	10	100.00%											
1987	9	90.00%											
1988	14	100.00%			1	7.14%	1	7.14%					
1989	22	88.00%	6	27.27%			6	27.27%		2.62	2.89		2.89
1990	36	92.31%	5	13.89%	1	2.78%	6	16.67%		1.89	2.21		2.21
1991	64	95.52%	6	9.38%	3	4.69%	9	14.06%		2.78	5.30		5.30
1992	46	97.87%	3	6.52%	2	4.35%	5	10.87%		0.94	1.08		1.08
1993	42	100.00%	1	2.38%	2	4.76%	3	7.14%		0.75	0.75		0.75
1994	22	100.00%	3	13.64%	1	4.55%	4	18.18%		2.14	2.39		2.39
1995	29	93.55%	2	6.90%			2	6.90%		2.09	2.09		2.09
1996	28	93.33%	5	17.86%	3	10.71%	8	28.57%		2.67	3.16		3.16
1997	28	93.33%	3	10.71%	3	10.71%	6	21.43%		3.55	4.88		4.88
1998	45	93.75%	6	13.33%	4	8.89%	10	22.22%		1.68	3.39		3.39
1999	76	95.00%	15	19.74%	9	11.84%	24	31.58%		1.19	1.71		1.71
2000	117	94.35%	29	24.79%	15	12.82%	44	37.61%	3 (2.6%)	2.13	2.18	0.31	2.25
2001	151	88.30%	51	33.77%	18	11.92%	69	45.70%		1.44	1.81		1.81
2002	136	97.14%	25	18.38%	8	5.88%	33	24.26%	1 (0.7%)	1.24	1.72	0.26	1.78
2003	87	95.60%	23	26.44%	4	4.60%	27	31.03%		1.25	1.64		1.64
2004	53	92.98%	8	15.09%	3	5.66%	11	20.75%		1.85	1.89		1.89
2005	42	91.30%	4	9.52%	2	4.76%	6	14.29%		1.34	1.25		1.25
2006	33	97.06%	10	30.30%	2	6.06%	12	36.36%		1.18 (1.32)	1.69		1.69
2007	37	86.05%	21	56.76%	5	13.51%	26	70.27%		1.28 (1.40)	1.51		1.51
2008	103	67.76%	26	25.24%	19	18.45%	45	43.69%		1.15 (2.33)	1.42		1.42
2009	134	81.71%	34	25.37%	9	6.72%	43	32.09%	1 (0.7%)	1.15 (1.77)	1.35	0.85	1.36
2010	54	79.41%	9	16.67%	3	5.56%	12	22.22%	1 (1.9%)	0.94 (0.94)	0.91		0.91
2011	35	57.38%	6	17.14%	4	11.43%	10	28.57%		1.06 (-)	1.20		1.20
2012	28	41.79%	9	32.14%	3	10.71%	12	42.86%		0.75 (-)	0.79		0.79
2013	13	43.33%			1	7.69%	1	7.69%					
Totals	**1511**	**85.85%**	**310**	**20.52%**	**125**	**8.27%**	**435**	**28.79%**	**6 (0.4%)**	**1.30 (1.35)**	**1.86**	**0.48**	**1.87**

*Those years (2006-2011) in parentheses for Median time in bankruptcy include our adjusted estimates for the "Outcome Unknown" category. Average time in bankruptcy is not adjusted.
**Prepacks includes pre-packaged and pre-arranged Chapter 11 filings.
Source: New Generation Research, Boston Mass; compilation by E. Altman, NYU Salomon Center.

reorganization process is completed. The latter is often referred to as the "ultimate recovery" in the emergence-year from bankruptcy. One can also postulate that the value of corporate bonds and loans at the time of bankruptcy is an unbiased estimate of the present value of the ultimate recovery, although one of the important unknowns is the expected time in bankruptcy. Earlier, we showed that the expected time for non-prepackaged Chapter 11s is about one and a half years and for prepacks, about four months.

A relevant and also somewhat controversial aspect of the revised Bankruptcy Code is the relative influence of creditors vs. debtors in the bankruptcy reorganization process. The U.S. Corporate Bankruptcy process has for a long time been known as relatively more debtor-friendly compared to other countries' bankruptcy experience as well as when compared to earlier years in the 20th century. That perception has changed somewhat with the revisions to the Bankruptcy Code in the BAPCPA Act of 2005, and the pendulum, it is alleged by some, has swung toward the creditor in the U.S. In other countries, however, particularly European nations, Bankruptcy revisions seem to have shifted toward being more debtor-friendly as many countries, e.g., Germany, France, and Italy, have adopted new provisions similar to the U.S. Chapter 11 system.[10]

Figure 8 shows the time series of default recoveries by seniority of bond creditor claims at the time of default from 1978-2013 (Q2). Not surprisingly, the median annual recovery rate on senior secured bonds (59.05%) is greater than senior unsecured (47.52%), than senior-subordinated (34.00%) and subordinated (32.91%). Effectively, the last category has

[10] For example, a recent conference in Florence on "Comparing Chapter 11 in the U.S. to the new Italian Bankruptcy Code" sponsored by the city of Florence and the CESIFIN Foundation, explored those issues now that the Italian Bankruptcy system adopted significant changes in September 2012.

Figure 8. Weighted Average (by Issue) Recovery Rates on Defaulted Debt by Seniority per $100 Face Amount, 1978- 2Q 2013

	Senior Secured			Senior Unsecured			Senior Subordinated			Subordinated			Discount and Zero Coupon			All Seniorities	
Default Year	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**%**	**$**	**No.**	**$**
2013 (2Q)	14	64	70.80	7	32	57.62	1	11	41.50	0	0	0.00	0	0	0.00	22	66.83
2012	14	26	74.03	31	57	47.34	8	15	50.62	0	0	0.00	1	2	84.42	54	57.84
2011	15	23	59.02	45	69	64.01	3	5	42.76	2	3	19.98	0	0	0.00	65	60.28
2010	6	24	39.46	12	48	57.86	5	20	30.64	2	8	12.67	0	0	0.00	25	46.62
2009	28	9	43.35	226	76	37.22	31	10	24.06	4	1	12.57	7	2	16.84	296	36.08
2008	18	14	30.52	79	63	49.56	23	18	30.25	4	3	21.09	1	1	2.71	125	42.52
2007	10	36	87.24	10	36	47.70	6	21	63.98	2	7	46.53	0	0	0.00	28	66.65
2006	9	18	90.60	26	52	60.90	8	16	50.24	1	2	60.33	6	12	78.31	50	65.32
2005	67	54	76.50	44	36	45.88	7	6	32.67	0	0	0.00	5	4	74.21	123	61.10
2004	27	39	63.67	33	48	56.77	2	3	37.44	0	0	0.00	7	10	43.06	69	57.72
2003	57	28	53.51	108	53	45.40	29	14	35.98	1	0	38.00	8	4	32.27	203	45.58
2002	37	11	52.81	254	75	21.82	21	6	32.79	0	0	0.00	28	8	26.47	340	25.30
2001	9	3	40.95	187	67	28.84	48	17	18.37	0	0	0.00	37	13	15.05	281	25.62
2000	13	8	39.58	47	29	25.40	61	37	25.96	26	16	26.62	17	10	23.61	164	26.74
1999	14	11	26.90	60	47	42.54	40	31	23.56	2	2	13.88	11	9	17.30	127	27.90
1998	6	18	70.38	21	62	39.57	6	18	17.54	0	0	0.00	1	3	17.00	34	40.46
1997	4	16	74.90	12	48	70.94	6	24	31.89	1	4	60.00	2	8	19.00	25	57.61
1996	4	17	59.08	4	17	50.11	9	38	48.99	4	17	44.23	3	13	11.99	24	45.44
1995	5	15	44.64	9	27	50.50	17	52	39.01	1	3	20.00	1	3	17.50	33	41.77
1994	5	23	48.66	8	36	51.14	5	23	19.81	3	14	37.04	1	5	5.00	22	39.44
1993	2	6	55.75	7	22	33.38	10	31	51.50	9	28	28.38	4	13	31.75	32	38.83
1992	15	22	59.85	8	12	35.61	17	25	58.20	22	33	49.13	5	7	19.82	67	50.03
1991	4	3	44.12	69	44	55.84	37	24	31.91	38	24	24.30	9	6	27.89	157	40.67
1990	12	10	32.18	31	27	29.02	38	33	25.01	24	21	18.83	11	9	15.63	116	24.66
1989	9	12	82.69	16	21	53.70	21	28	19.60	30	39	23.95				76	35.97
1988	13	21	67.96	19	31	41.99	10	16	30.70	20	32	35.27				62	43.45
1987	4	13	90.68	17	55	72.02	6	19	56.24	4	13	35.25				31	66.63
1986	8	14	48.32	11	20	37.72	7	13	35.20	30	54	33.39				56	36.60
1985	2	7	74.25	3	11	34.81	7	26	36.18	15	56	41.45				27	41.78
1984	4	29	53.42	1	7	50.50	2	14	65.88	7	50	44.68				14	50.62
1983	1	13	71.00	3	38	67.72				4	50	41.79				8	55.17
1982				16	80	39.31				4	20	32.91				20	38.03
1981	1	100	72.00													1	72.00
1980				2	50	26.71				2	50	16.63				4	21.67
1979										1	100	31.00				1	31.00
1978				1	100	60.00										1	60.00
Total/Avg	437	16	58.55	1,427	51	39.05	491	18	31.00	263	9	30.63	165	6	25.80	2,783	48.95
Median			59.05			47.52			34.00			32.91			19.41		42.98
Standard Dev[a]			17.70			13.21			13.53			13.50			23.48		14.01

[a]Standard deviations are calculated based on the yearly averages.
Sources: NYU Salomon Center and various dealer quote.

disappeared, of late, and even the senior-subordinated claim has become a rare occurrence.

At first glance, it appears that in most years since the enactment of the recent Code in 2005, the recovery rate on the senior secured category is greater than the historic average, or median, of 59%. This is also the case, for the senior unsecured claims. One cannot jump to the conclusion, however, that the most senior claimants have been favored by the new Code since many of these recent years are coincident with benign credit periods (e.g., 2006/2007 and 2011/2013). We have established that recovery rates are substantially influenced by the credit cycle and default rates (see Altman, Brady, Resti and Sironi, 2005). Thus, in benign periods like 2006/2007 and 2011/2013, we should expect high recoveries across the board of the seniority spectrum and the reverse during stressed period, like 2008/2009, when recovery rates were, as expected, below the norm.

In order to assess whether the recovery rate on high-yield corporate defaults has been different in the years since the Bankruptcy Code was revised in late 2005, we can observe the trend-line-regression analytic results from our default rate-recovery rate model of 2005 (Altman, et.al, 2005), updated for data through 2012 in Figure 9. Note that the recovery rate used in this model is the weighted-average price of defaults just after the default date - - not the ultimate recovery rate. Essentially, these linear and non-linear representations show the “expected” relationship between default and recovery rates, based on data since 1982. So, if we observe consistent patterns of above (or below) recovery rates on creditor securities in recent years, we can conclude that bond creditors, in this case, are doing better than what one would have expected given the typical demand-supply induced relationship. From Figure 9, we can observe that the weighted average recovery rate on corporate bond defaults in every year since 2005, with the exceptions of 2008 and 2010, has been higher than one would have expected from the longer term historical relationship between default and recovery rates. In 2008, the recovery rate (42.5%) was just about what one should expect in an average default year. And in 2010, the recovery rate (46.6%) was slightly below what one could expect in a benign, low default rate year. Since 2010, and continuing into 2013, the recovery rates have been above expectations, as they also were in 2006/2007. Even in 2009, when the recovery rate was "only" 36%, it was above what one normally recovers in very stressful years; in this case when the default rate was the second highest ever, almost 11% (see Altman & Kuehne, 2013 for a more complete analysis of default and recovery rates in the high-yield bond market.[11]

We have also observed ultimate recovery rates on corporate bonds and loans based on **Moody's** estimates in Figure 10. We list the annual ultimate recovery rate based on both the year of default and the ultimate recovery year. If we are trying to assess the impact of the Revised Bankruptcy Code of 2005 on creditor recoveries, perhaps the data based on the "default-years" is more relevant, e.g., 2006-2013. This is particularly true for those years just after 2005, because if we assessed data based on the "ultimate-years," it was likely that the relevant Bankruptcy Code that guided the proceedings was from prior to the Revisions of 2005. Probably, both the default-years and the ultimate-years are relevant since 2009, since the bankruptcy more than likely took place after October 2005.

From Figure 10, the strongest evidence on ultimate recoveries at the time of emergence is that for bankruptcies since 2005, the bank loan recoveries were above the average over the period 1987-2012 (77.5%) in every year except 2008 when recoveries (67.3%) were below the average. These loans are essentially senior secured, although the number of loans that have emerged in the most recent years of 2011 and 2012 are very small (8 and 1 respectively). For

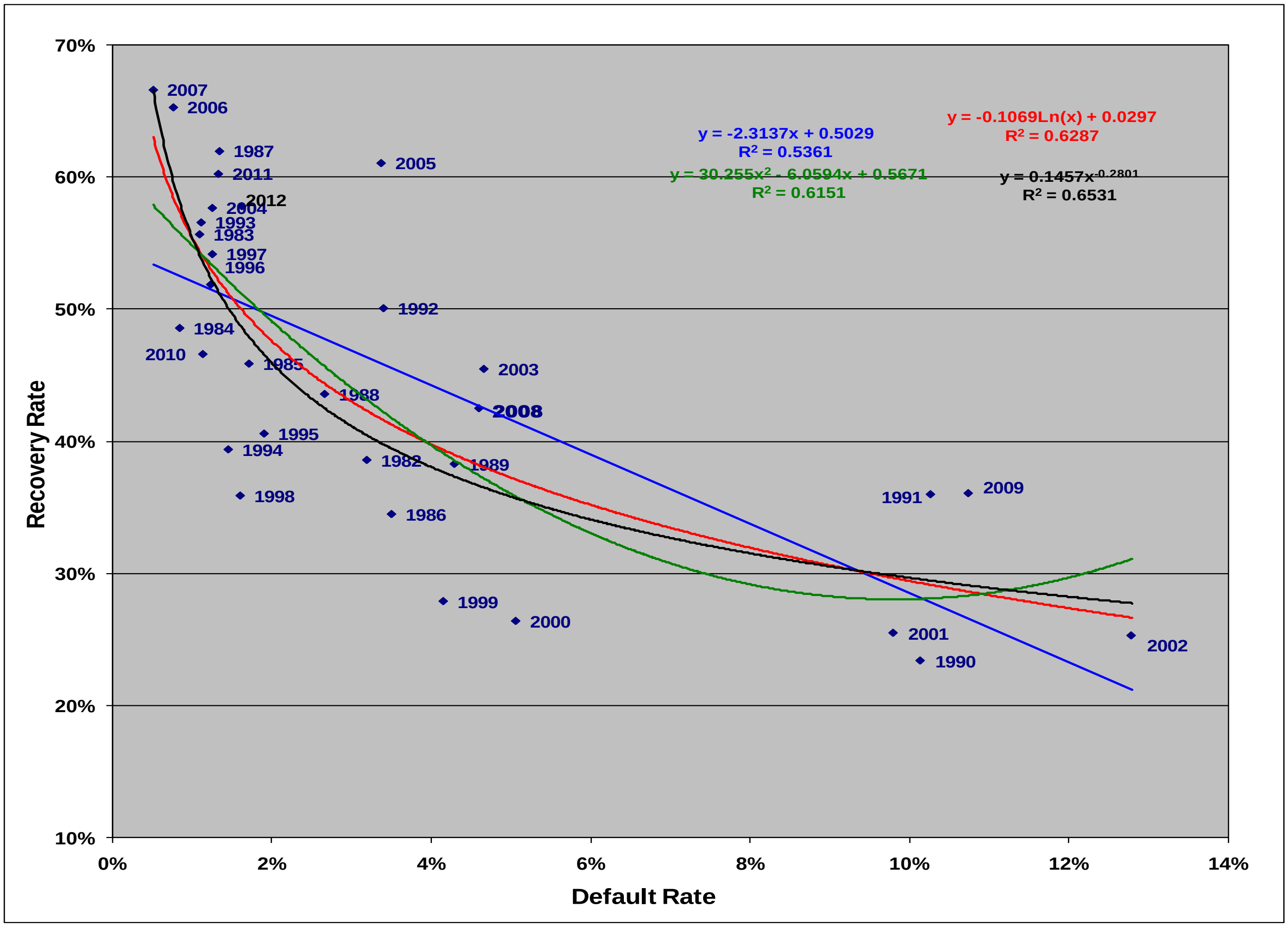
[11] In order to see if these relationships hold across the seniority spectrum, we plan to run similar regressions of the relationship between default and recovery rates.

senior secured bonds, the results are mixed, with above (90.7%) average (61.5%) recoveries in 2006, 2007 (70.4%) and 2011 (68.7%), about average in 2009 (59.2%) and 2012 (59.1%), and below the average in 2008 (49.2%) and 2010 (43.9%). Senior unsecured bonds' ultimate recoveries since 2005 seem to be below average (41.4%) in five of the seven years. Subordinated bonds, essentially non-existent since 2011, had a noticeable decline in recoveries to below average (20.6%) levels in 2008-2010, although above average in 2006 and 2007. Again, all of these are ultimate recoveries in the default year from bankruptcies since the new Code went into effect. We also list ultimate recoveries based on the year of emergence in Figure 10.

Some Conclusions

The main objectives of this paper were to present comprehensive and relevant statistics over the past several decades on corporate bankruptcy filings under Chapter 11 of the Bankruptcy Code and for the growth of distressed and defaulted debt markets. The latter's bond and loan markets play an increasingly important role in the eventual performance of the bankruptcy process and impact both the wealth of the relevant stakeholders of bankrupt firms and the functioning of our economic system where leveraged-financings now exceed $2 trillion in the corporate sphere. We have also, when relevant, attempted to comment on recent trends of Chapter 11 filings, especially since there is much discussion about what impact the revisions to the Bankruptcy Code of 2005 have had on the functioning of the Bankruptcy system and on recoveries to creditors of bankrupt entities. More important than my commentaries, however, is the objective to provide the bankruptcy community with comprehensive and objective data to reach informed opinions and suggestions, if any, to improve upon the Chapter 11 process.

Figure 9. Recovery Rate/Default Rate Association, Dollar Weighted Average Recovery Rates to Dollar Weighted Average Default Rates, 1982-2012



Regression equations are based on data from 1982–2003, with later years data points inserted to show the model's effectiveness.

Sources: "The Link Between Default and Recovery Rates: Theory, Empirical Results and Implications," Altman, Brady, Resti, and Sironi, Journal of Business, November 2005, and NYU Salomon Center.

Figure 10. Average Recovery Rates on Defaulted U.S. Corporate Loans and Bonds (By Emergence and Default Years: 1987-2012)

	Emergence Year																										
Lien Position	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**	**1993**	**1992**	**1991**	**1990**	**1989**	**1988**	**1987**	**1987-2012**
Loans	100.0%	63.1%	82.3%	67.0%	74.5%	93.2%	86.9%	86.6%	73.4%	66.2%	72.1%	74.9%	84.7%	72.2%	93.8%	80.1%	92.6%	84.4%	80.7%	90.4%	87.6%	83.2%	75.2%	71.7%	100.0%	N/A	77.5%
Bonds																											
Senior Secured Bonds	73.1%	51.7%	54.2%	56.1%	73.9%	82.1%	61.2%	60.4%	84.1%	27.2%	64.5%	38.2%	46.0%	42.3%	69.4%	51.3%	76.6%	62.3%	59.1%	66.1%	74.2%	96.0%	40.3%	N/A	53.6%	N/A	61.5%
Senior Unsecured Bonds	23.7%	7.4%	44.1%	18.1%	62.5%	58.2%	44.2%	37.1%	59.6%	21.4%	30.3%	25.0%	24.5%	43.5%	40.4%	72.3%	45.9%	88.9%	33.1%	28.7%	40.0%	63.4%	39.8%	N/A	N/A	N/A	41.4%
Subordinated Bonds	N/A	0.0%	23.2%	10.5%	16.3%	42.5%	31.6%	14.1%	21.9%	15.4%	12.2%	17.0%	26.5%	12.9%	14.0%	16.7%	47.8%	26.1%	18.4%	28.0%	24.9%	18.2%	14.1%	28.4%	18.1%	N/A	20.6%

Count of Instruments (Sample Size)

	Emergence Year																										
Lien Position	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**	**1993**	**1992**	**1991**	**1990**	**1989**	**1988**	**1987**	**1987-2012**
Loans	6	23	132	120	50	69	68	96	176	211	204	99	68	33	30	29	26	18	30	44	69	21	15	2	3	0	1642
Bonds																											
Senior Secured Bonds	3	3	9	19	20	62	52	17	43	101	31	5	13	5	9	6	29	18	13	27	41	16	6	0	1	0	549
Senior Unsecured Bonds	7	6	55	62	32	56	55	30	202	161	116	35	29	20	23	14	3	39	30	34	21	14	13	0	0	0	1057
Subordinated Bonds	0	1	32	32	10	17	18	16	58	81	90	37	41	11	16	23	20	26	50	70	80	28	43	4	1	0	805

	Default Year																										
Lien Position	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**	**1993**	**1992**	**1991**	**1990**	**1989**	**1988**	**1987**	**1987-2012**
Loans	100.0%	80.7%	76.4%	75.1%	67.3%	93.0%	92.3%	85.4%	85.9%	76.4%	71.1%	68.9%	74.8%	84.2%	70.9%	86.7%	83.7%	89.0%	88.6%	85.0%	87.0%	86.4%	79.9%	80.3%	87.4%	89.8%	77.5%
Bonds																											
Senior Secured Bonds	59.7%	68.7%	43.9%	59.2%	49.2%	70.4%	90.7%	91.2%	82.7%	74.6%	38.1%	68.5%	35.2%	49.7%	41.3%	57.1%	65.4%	65.7%	69.6%	88.3%	88.3%	69.2%	51.3%	42.5%	97.1%	N/A	61.5%
Senior Unsecured Bonds	47.3%	24.4%	19.9%	32.9%	13.2%	68.4%	41.7%	56.2%	37.8%	66.7%	28.9%	43.4%	27.2%	36.3%	36.7%	60.7%	21.0%	71.8%	41.2%	53.7%	40.1%	76.8%	12.1%	35.8%	72.5%	N/A	41.4%
Subordinated Bonds	N/A	N/A	19.9%	16.3%	14.6%	25.1%	49.8%	24.9%	26.2%	29.9%	13.1%	10.2%	16.2%	25.2%	3.8%	25.1%	34.3%	15.7%	38.4%	37.6%	28.2%	15.4%	16.1%	15.9%	16.1%	18.5%	20.6%

Count of Instruments (Sample Size)

	Default Year																										
Lien Position	**2012**	**2011**	**2010**	**2009**	**2008**	**2007**	**2006**	**2005**	**2004**	**2003**	**2002**	**2001**	**2000**	**1999**	**1998**	**1997**	**1996**	**1995**	**1994**	**1993**	**1992**	**1991**	**1990**	**1989**	**1988**	**1987**	**1987-2012**
Loans	1	8	54	165	75	22	36	63	95	157	215	210	142	68	24	28	39	36	21	29	49	48	32	12	9	4	1642
Bonds																											
Senior Secured Bonds	2	2	6	20	10	9	9	52	18	37	150	34	14	14	7	3	17	16	7	17	21	29	24	15	16	0	549
Senior Unsecured Bonds	1	6	8	97	18	6	14	48	35	92	238	190	47	45	23	12	6	20	10	37	22	39	20	14	9	0	1057
Subordinated Bonds	0	0	14	36	15	9	15	12	17	50	70	88	69	37	9	17	18	20	13	44	70	76	43	31	27	5	805

Source: Moody's Ultimate Recovery Database.

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