Debtor-in-possession financing: Size does matter

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Abstract

Debtor-in-possession (DIP) financing is new financing that arises through lending to bankrupt firms. Many scholars have discussed the theoretical implications of DIP financing in terms of its contribution to the value of the companies. Recently, Dhillon et al. (1996) and Chatterjee et al. (1998) analysed the effect of DIP financing in the stock and bond markets and found a positive impact.

In this paper I use a different approach to analyse the role of DIP financing in the bankruptcy process. I examine the plans of reorganisation of a large sample of 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing that went bankrupt in the United States over the period 1986-1997. I find that successful reorganisations benefited from DIP financing. This positive impact is, however, reduced in two circumstances: when the new loans are secured by a lien on already encumbered assets with equal or senior priority to the existing liens; when the new lenders obtain an increase in the seniority of their pre-petition debt. Also, a fast Court approval of DIP financing decreases the probability of success. The concession of DIP financing does not seem to significantly affect investment incentives, recovery rates and deviations from absolute priority. However, the size of DIP financing impacts on recovery rates.

I also find that claimants of firms that were acquired in bankruptcy exhibit lower recovery rates, due to the potentially strong bargaining position of the acquirer.

Key words: Bankruptcy; Debtor-in-possession financing; Successful reorganisation; Recovery rates; Deviations from absolute priority; Mergers & acquisitions.
JEL classification: G32, G33, G34.

1. Introduction

The market for debtor-in-possession financing (DIP financing) in Chapter 11 filings has seen great development since 1984, when Chemical Bank created a separate DIP financing unit. Other banks have entered this market, namely Bankers Trust New York, Citibank and General Electric Capital Corp., and they have experienced minimal losses on these loans since that time.

DIP financing is new financing that arises through lending to troubled companies in Chapter 11 a short term lifeline usually in the form of working capital. The Code essentially wants to induce lenders to provide credit to the debtor and at the same time encourages the trustee or debtor-in-possession to incur expenses to maintain the collateral securing a claim.

In this paper I examine the contribution of DIP financing to a successful reorganisation and to the wealth of all the stakeholders involved in the reorganisation of the distressed firms.

Dhillon et al. (1996) and Chatterjee et al. (1998) studied DIP financing in some detail. In particular, they were concerned with stock and bond price responses and likelihood of a successful reorganisation. They observed that new financing in bankruptcy is a positive signal to the market and DIP firms have more successful reorganisations. In this paper I find that there is no significant relation between the presence of DIP financing and recovery rates, unless its size is big, but this form of new financing does contribute to successful emergence from bankruptcy. This implies that firms with larger new loans (in proportion to firm size) will be subject to more monitoring from the lenders and so less likely to over-invest. This indicates that DIP financing should be considered as a positive signal for creditors only when the size of the loan is considerably high, which contrasts with evidence presented by Dhillon et al. (1996) and Chatterjee et al. (1998). However, they considered larger loans than I did, and so there were not many cases where obtaining a small amount of DIP financing or not getting anything at all would not make much difference in terms of the abnormal returns of the securities of such firms. However, if firms are not able to obtain much needed DIP financing, the alternative may be a liquidation, which will be worse for everyone. In this way, since getting DIP

financing improves the probabilities of a successful reorganisation, it is possible that the market might be reacting to a smaller probability of liquidation and not necessarily to higher recovery rates when compared with other bankrupt companies without DIP financing. I also find some evidence of larger management turnover for DIP firms, contrasting with Chatterjee et al. (1998).

I start with a rich sample of 389 large US firms that filed for Chapter 11 during 1986-1997 (252 reorganisations, 4 dismissals, 70 liquidations and 63 unknown or pending cases) and follow closely the same methodology as Franks & Torous (1989, 1994), LoPucki & Whitford (1990), Weiss (1990), Eberhart et al. (1990), Fabozzi et al. (1993) and Tashjian et al. (1996). This analysis takes into account the type of filing (voluntary vs involuntary, pre-pack vs traditional Chapter 11) and outcome (liquidation vs successfully reorganised firms that preserved their identity vs firms that merged or were acquired).

The paper is organised as follows: The next section describes some legal issues related with the type of filing, acquisitions and DIP financing. The hypotheses are introduced in Section 3. The methodology and the sample selection are presented in Section 4 and the data analysis in Section 5. Section 6 examines the determinants of DIP financing and how to predict whether a firm will get it or not. Section 7 tries to assess probabilities of a successful reorganisation. Section 8 examines the claimants settlement in terms of the composition of the payments, recovery rates, deviations from absolute priority, time in bankruptcy and its determinants. Section 9 describes the post-bankruptcy performance for firms with DIP financing and without DIP financing and Section 10 concludes.

2. Legal issues

This section elaborates on some legal aspects concerning firms that file for Chapter 11, namely the type of filing, acquisitions in bankruptcy and new loans that are incurred during the bankruptcy process.

2.1. Type of filing

When a firm commences a Chapter 11 proceeding, it is usually the result of a voluntary

action of the management of the distressed company. However, creditors can also file an involuntary bankruptcy petition or even ask for the immediate liquidation of the firm instead, if the company is not paying its debts as they come due. There is no requirement, though, that the debtor be insolvent or unable to pay his debts as they mature, as pointed out by Saft (1993). The firm will then either agree to the filing and file a voluntary petition, or ask the Court to move for dismissal, if the management thinks the creditors have no just cause.

Another possible classification of different bankruptcies is in terms of pre-packaged bankruptcies (pre-packs) and the more traditional Chapter 11 cases.

A pre-pack bankruptcy is a form of corporate restructuring where the terms of the reorganisation are negotiated outside the Court, between the debtor and the creditor (under Subsection 1126(b) of the Bankruptcy Code, that permits negotiation between debtor and creditors prior to filing for bankruptcy). In order to become effective, the company must file a bankruptcy petition and a plan of reorganisation that has to be ratified by the Court, like a traditional Chapter 11. A pre-pack eliminates the minority hold-out problem present in distressed restructuring: instead of an approval by 85-90% of all creditors, the rules of Chapter 11 apply and only at least half the creditors in number and 2/3 in amount, in each class, need to vote favourably for a plan to be approved.

2.2. Acquisitions in bankruptcy

A Chapter 11 firm can sell a significant part of its assets either through a Section 363 sale or as part of a plan of reorganisation approved by the Court (see Goldberger & Tepner, 1996).

Section 363 rules acquisitions of assets out of bankruptcy as an outright purchase. The process is initiated by the trustee or the debtor-in-possession that gets an offer, and then the conditions of the sale must be notified to the Court and also to all creditors with at least 20 days notice. Considerable marketing effort should be made by the debtor in order to give creditors an opportunity to object the sale and seek alternative buyers, at the expenses of the firm, with the approval of the Court. If there are no objections or competing offers there is no need for a Court order for the sale to be

consummated, unless the sale is being accomplished free and clear of interests in the property; otherwise, the Court has to approve any sale in bankruptcy, and in the case of competing bids, an auction will have to take place in the courtroom.

A plan of reorganisation is an alternative to a Section 363 sale. The bid can either be incorporated in a plan of reorganisation, together with competing bids, or the potential acquirers can present their own plans of reorganisation, after the exclusivity period. In this case, they benefit from cram-down provisions, where they can bargain with the creditors over the liquidation value of their claims and offer them an amount that is no less than what they would otherwise receive under a Chapter 7 liquidation, provided there are no deviations from absolute priority. In addition, the Court can authorise the acquirer to operate the business for some time before making the final decision about whether to acquire the assets of the bankrupt firm or acquire it by funding a reorganisation plan.

2.3. Debtor-in-possession financing

Upon or right after the commencement of a Chapter 11 filing, the debtor in possession[1] that needs new financing has to file a motion for authorisation, which involves a two-step process. First, there is an interim financing order authorising the borrowing of a limited amount to enable the company to operate for a few weeks.[2] Then, the entry of a permanent (final) order will grant borrowing up to the full amount of the lender's commitment.

The conditions of new financing are considered in Section 364 of the Bankruptcy Code. There is a hierarchy for obtaining post-petition financing, implying that the debtor first has to seek unsecured credit before actually granting any kind of greater protection to a

[1] The debtor's liabilities outstanding on the date of the commencement of the Chapter 11 process - the filing date - are frozen. Creditors are prevented from initiating or continuing collections or any legal action without the approval of the bankruptcy Court by means of an automatic stay (suspension on pre-petition liabilities), under Section 362 of the Code, while the firm is under the Court's protection. In this way the company remains in possession of its assets as a debtor-in-possession until the end of the process, and is so prevented from spending time fighting with creditors or even having the continuation of its operation threatened.

[2] R. H. Macy & Co., for instance, received an interim DIP financing of $60 million two days after filing for bankruptcy, and two weeks later the Court approved its $600 million DIP financing line; Wherehouse Entertainment, Inc., on the other hand, got its interim financing of $30 million 50 days after the filing, and the final approval one month later.

lender (see Rochelle, 1990). Following the legal fiction that a Chapter 11 is a new legal entity, the Court can permit new financing with priority over pre-petition unsecured creditors, with super-priorities over other post-petition creditors (even post-petition priority administrative expenses and taxing authorities), and secured by liens that have priority over pre-petition liens (priming liens) where the holders of such claims are adequately protected[3]. However, there must be assets sufficient enough to cover both the new loan and all pre-petition secured debt not expressly subordinated by the Court's order to the debtor-in-possession lender's lien (Fitch Research, 1991).[4]

3. Hypotheses

Chatterjee et al. (1998) found that DIP firms are in less economic distress than non-DIP firms, suggesting that they are in better shape. So, one condition to obtain DIP financing seems to be profitability, measured quantitatively by strong financial ratios and qualitatively by the appointment of an equity committee. When a firm has a large proportion of its assets encumbered, it should be more difficult to obtain new financing, as it is essentially asset-based. Firms that are in the retail industry should show higher levels of DIP financing, due to the nature of their business, as documented by Chatterjee et al. (1998). Pre-packs reorganise faster than traditional Chapter 11s (see Tashjian et al., 1996), and so there should be less need for new financing while in reorganisation.

Hypothesis 1: DIP financing is positively associated with profitable firms, equity committees and retail industries; it is negatively related with pre-packs and the proportion of secured debt in terms of fixed assets.

Ostrow (1994) defends that the decision whether to approve new financing is directly related to the likelihood that creditors will get more from the distribution under the plan of reorganisation. However, sometimes there is little time to consider that an immediate liquidation could be more profitable for the creditors, and the focus is instead on

[3] The Court can grant a first priority security interest in specific assets, like the debtor's inventory and receivables, for instance.

[4] The debtor-in-possession can also use his cash that is collateral for the secured claims. Miller et al. (1990) say that the debtor has to prove that the secured parties' interests in the cash are or can be adequately protected.

whether the debtor should be permitted an opportunity to reorganise. This implies that the total value of the firm available for distribution to the claimants may be smaller than without this new financing. Datta & Iskandar-Datta (1995) point out that with DIP financing the firm value is refrained from diminishing, as there is an opportunity to invest in positive NPV projects. Pomykala (1997) defends that DIP financing makes the overall "pie" for claimants to be smaller because of inefficient investment decisions.[5] The firm will tend to over-invest in (risky) projects in order to increase the option value retained by the equity-holders. However, Chatterjee et al. (1998) found that DIP loans are restricted to working capital use, thus refraining managers from over-investing. This implies that investment decisions and recovery rates upon emergence from bankruptcy should not be affected by DIP financing. Adams (1995) points out that it is not the concession of DIP financing *per se* that matters, but its size, suggesting that small loans should not make much of a difference. When the post-petition lender is also a pre-petition (secured) creditor, one should expect higher recovery rates and more cash as a means of claim settlement for this creditor, due to his increased bargaining power.

Hypothesis 2: Recovery rates for creditors in DIP financing firms and non-DIP financing firms should not be significantly different, on average, but they should increase with the size of DIP financing; secured lenders that provided DIP financing are expected to recover more, with a larger proportion of cash as a means of payment.

Dhillon et al. (1996) argue that DIP financing is a positive signal to the market. The announcement of DIP financing is related with positive abnormal returns on equity securities and may induce positive abnormal returns on debt securities. Chatterjee et al. (1998) support the benefits of the certification and monitoring role provided by DIP lenders. In fact, DIP financing is associated with a positive stock and bond price response, which suggests the absence of wealth transfer from pre-petition creditors to high priority DIP lenders.

Hypothesis 3: DIP financing is not associated with deviations from absolute priority.

Dhillon et al. (1996) argue that firms with DIP financing have more successful reorganisations. Chatterjee et al. (1998) add that they display a larger probability of not

[5] i.e. the investment level will be sub-optimal.

being involved in posterior filings. They support the benefits of the certification and monitoring role provided by DIP lenders. Schwarcz (1985) defends that obtaining new financing can act as a good signal to trade creditors and have them re-establish the terms of the trade credit with the company, thus increasing the likelihood of a successful reorganisation.[6] These studies do emphasise the role of DIP financing in a successful reorganisation. But, if there is a situation of priming liens or increased seniority of pre-petition loans, when the DIP lender is an old creditor, this is bad news. In fact, it shows little confidence of that lender, with a pre-existing relation with the firm and so with better information than an outsider, in a successful emergence. Also, when DIP financing is granted by the Court shortly after filing for bankruptcy, this should not be taken as any indication of a higher probability of reorganising in Chapter 11, as far as there was not enough time to examine the financial situation of the firm, and so its true needs. Thus, successful reorganisations should be associated with more time to obtain DIP financing upon filing for bankruptcy.

However, there are some other ingredients that should also be considered. If the firm filed a pre-pack, one should expect the firm not to be liquidated, because most of the (successful) bargaining already took place. With an involuntary filing, as there was not much time for firm value depletion, the firm should be in better condition than firms that voluntarily filed for bankruptcy. Along the same lines, higher profitability and the existence of an equity committee should be good news, whereas the appointment of a trustee should imply worsen perspectives for a successful reorganisation. The bigger the insolvent firm, the more likely it is to reorganise, as all claimants stand to lose much more in case of liquidation.

Hypothesis 4: The probability of success in Chapter 11 is a positive function of DIP financing, time to obtain DIP financing, firm size, pre-packs, involuntary filings, equity committees and firm profitability prior to bankruptcy; it decreases with the appointment of a trustee and DIP financing with priming liens or increased seniority of pre-petition loans.

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[6] After all, if a financial institution is lending to the debtor, the event of a reorganisation is highly probable.

Chapter 11 firms are usually a good target for acquisition. On one hand, bankrupt firms are usually undervalued due to the distressed situation they are going through. On the other hand, both secured and unsecured creditors may be willing to accept write-downs in their claims, the first due to "lender fatigue", wishing to exit this situation as soon as possible, the latter as a means to continue doing business with the firms upon reorganisation. Because acquirers can benefit from cram-down provisions, and the alternative to the acquisition may be a liquidation, we should expect lower recovery rates for all claimants and no deviations from absolute priority.

Hypothesis 5: Acquisitions and mergers in Chapter 11 imply lower recovery rates for all stake-holders and no deviations from absolute priority.

The bankruptcy venue has been the subject of some discussions in the past. Weiss' (1990) evidence suggests that it can actually pay the debtors to "shop around" and choose the jurisdiction they think will be more favourable for them, like the Southern District of New York, for instance. Betker (1995) argues that the venue of the case in New York does not affect the distribution that equity gets, when other firm characteristics are taken into account. Skeel (1998) talks about the district of Delaware and the Southern District of New York. He says that in New York, the bankruptcy processes are extremely slow as opposed to Delaware, where it takes the firms less time to emerge. Other important variables that can explain the time in bankruptcy seem to be the type of filing. Pre-packs and involuntary filings should be resolved quicker, as opposed to other forms of filings.

Hypothesis 6: Time in bankruptcy is a decreasing function of pre-packs, involuntary filings and the choice of Delaware as the bankruptcy venue; it is longer in New York.

4. Methodology and sample selection

The main source for the data used in this paper was the Bankruptcy DataSource. This database includes bankruptcy information for every publicly-traded company with assets in excess of $50 million[7] that are in bankruptcy proceedings, have defaulted on

[7] This restriction conditions the results of my analysis to large publicly-traded Chapter 11s.

public debt, or have issued a distressed exchange offer. The coverage of the database is from 1986 onwards.

I compiled a list of 389 firms that went bankrupt from the 1st January 1986 to the 31st December 1997.[8] [9] Of these firms, 212 reorganised independently, 40 were acquired in bankruptcy, 57 were liquidated in Chapter 11, 13 were converted to Chapter 7 and 4 were dismissed; the result is unknown or still pending in 63 cases. The Bankruptcy DataSource (BKRDATA - Plans of Reorganization) supplied complete plans of reorganisation, with data concerning the satisfaction of all the claims, for 172 firms, including 72 debtors that incurred DIP financing during the bankruptcy process. Also, complete plans of liquidation were compiled for 22 firms, including 5 cases of DIP financing. Sometimes, the estimated allowed claims were missing, and the SEC (Securities Exchange Commission) filings were used to "fill in the gaps", namely the 8Ks[10], 10Ks and 10Qs. In other cases, the amounts that the claimants received upon reorganisation were missing; the estimated recovery rates in the plans of reorganisation were then applied to the estimated allowed claims to obtain the values concerning the satisfaction of these claims. It should be noted, however, the limitations that the use of the estimated allowed claims bring about. As pointed out by Weiss (1992), these values usually rely on management valuations that the Court accepts, unless a creditor manages to establish another amount through costly hearings; sometimes, the quantities involved are understated, as the Court might fail to provide the appropriate interest; also, the Court generally accepts management's view on whether the classes of creditors are impaired, and so the creditors may think it is not worth the effort and cost to show otherwise.

The stock prices and the number of outstanding shares were extracted from CRSP, Bloomberg and Datastream, upon emergence from Chapter 11. Occasionally there was

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[8] I used the search code *(("BANKRUPTCY FILING DATE" "BANKRUPTCY DATE OF FILING") /S (86 87 88 89 90 91 92 93 94 95 96 97)) & (FIL! /S "CHAPTER 11")* in the BKRDATA subset of the Bankruptcy DataSource.

[9] When a firm filed for Chapter 11 more than once, all its filings were treated separately.

[10] They include the disclosure statements. Under Subsection 1125(a) of the Bankruptcy Code, the disclosure statement should contain "adequate information… that would enable a hypothetical reasonable investor… to make an informed judgement about the plan." Usually, the disclosure statement is disseminated with the plan, a ballot and an order that schedules the hearing for the confirmation of the plan (Smith, 1993).

no market value for the stock because the firm might have become private. In these cases, I used the estimates provided in the plans of reorganisation, when available.[11] The same criteria was applied to the prices of debt securities, preferred stock, rights and warrants, where the sources included Bloomberg and DataStream, and ultimately the plans of reorganisation themselves. In the absence of market values or estimates for debt and preferred stock, the face value and the liquidation preferrence value were used instead, respectively; as for rights and warrants, I used the Black-Scholes valuation model to price these securities.[12]

In order to obtain values for recovery rates and deviations from absolute priority a table for each company was constructed, containing a summary of its plan of reorganisation: 1) A description of the claims in terms of "secured", "unsecured" and "equity"[13]; 2) The estimated allowed claims; 3) The amounts received upon reorganisation, distributed by the subclasses "cash", "debt", "preferred stock", "shares" and "options"[14]; 4) The amounts that should have been distributed by all claimants, had the absolute priority rules been enforced. This was calculated by distributing the total amount received upon reorganisation first to the more senior creditors, the remaining to the more junior creditors and then, if anything left, to the equity class. So, the formula for claim j, if there are m classes, is

$$CS_j = \min\left[CE_j, \max\left(\sum_{i=1}^{m} CR_i - \sum_{i=1}^{j-1} CE_i, 0\right)\right] \qquad (1)$$

where CS is the amount that claimant j should receive once the company emerges from bankruptcy, CE is the estimated allowed claim and CR is the amount received by that particular claimant. The claims are in decreasing order of priority, where 1 is the senior creditors and m the equity-holders; 5) The percentage recovery[15], given by

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[11] When a range of values was provided, I used the mid point.

[12] It should be noted, although, that this procedure provides only a lower bound estimate in the majority of the cases, as far as the options under consideration are essentially American and not European. However, the absence of dividends until maturity makes this point irrelevant.

[13] The category "Equity" includes preferred stock, options, warrants and common stock.

[14] The category "Options" includes both options and warrants.

[15] Recoveries for equity were obtained as a percentage of the ownership upon reorganisation, allowing for dilution.

$$\%R_j = \frac{CR_j}{CS_j} \tag{2}$$

6) The percentage deviation from absolute priority rule, calculated as

$$\%DAPR_j = \frac{CR_j - CS_j}{\sum_{i=1}^{m} CR_i} \tag{3}$$

All the news concerning the evolution of the bankruptcy process for the Chapter 11 firms were picked from the Dow Jones News Retrieval and also from the Bankruptcy DataSource (BKRDATA - DataPage and News Notes, and BKRNEWS). The DataPage covers such aspects as filing data, business reports, five year summary financials, descriptions of outstanding securities and schedules of assets and liabilities; it also provides the creditors and equity-holders committees, the twenty largest unsecured creditors list and lists of attorneys and other appointed professionals. The News Notes is a search base that compiles significant news and developments (i.e. scheduled hearings), including some relevant dates (filing date, confirmation date and effective date), DIP financing and exit financing (amounts, dates, agents), reasons and type of filing, industry, trustees, previous LBOs, acquisitions and mergers, top management, etc.

Firm financials during bankruptcy and upon emergence were compiled from Bloomberg and DataStream, and include issues like balance sheet information and cash-flows from investment.

5. Data analysis

Table 1 - Panel A describes the time-series distribution by filing date for the sample of 389 Chapter 11s, consisting of 135 firms with DIP financing, 191 firms without DIP financing and 63 cases where the result is unknown or still pending. For the complete cases, the companies were classified by type of bankruptcy outcome: independence preserved (65%), acquired or merged (13%), liquidated in Chapter 11 (17%), converted to Chapter 7 (4%) and dismissed (1%).

Table 1 - Panel B shows the distribution per filing district. We can see that the District of Delaware accounts for one fifth of the sample, followed by the District of New York, with 17% of the companies. This feature is observed for both firms with DIP financing and without DIP financing.

The distribution of bankrupt companies per SIC (Standard Industrial Classification) is shown in Table 1 - Panel C. The classification is made according to seven categories: construction and mining (4%), manufacturing-industrial (11%), manufacturing-consumers (16%), air transportation (6%), retail (29%), others (33%) and unknown (1%). "Others" include real estate, electric, gas and sanitary services, health and legal services.[16] These values are not substantially different from those of Chatterjee et al. (1998), with 15% for manufacturing-industrial, 24% for manufacturing-consumers, 7% for air transportation, 47% for retail and 7% for others.

Table 1 - Panel D presents the distribution of bankrupt companies by type of filing and bankruptcy outcome. There are 90% of voluntary filings and 22% of pre-packs. The most common case is a voluntary filing that is non pre-pack (69%) and the most unusual is an involuntary filing that is accepted by the company and followed by a pre-pack (1%).

Table 2 compares firms that obtained DIP financing with firms that did not get DIP financing, by type of filing and bankruptcy outcome. The values are given as a proportion of the total number of DIP firms and non-DIP firms. Firms with DIP financing are more prone to voluntary filings for bankruptcy and non-pre-packs than firms without DIP financing, regardless of the outcome. This last feature is particularly true for firms whose independence was preserved upon emergence from bankruptcy. The fact that pre-packaged bankruptcies are less lengthy[17] makes new financing during the reorganisation state not so vital as with traditional Chapter 11s.

There is some weak evidence of the association between DIP financing and successful reorganisations (significant at 10%), especially for firms that were acquired or merged as a result of their bankruptcy process. Chatterjee et al. (1998) found significantly more

[16] I followed closely the classification in Chatterjee et al. (1998).

[17] We should, note, however that in pre-packs there is a substitution of time spent in the Court by time spent negotiating prior to the filing, as documented by Tashjian et al. (1996).

reorganisations with the independence preserved for firms with DIP financing than without DIP financing (72% and 54%, respectively, with Z-ratio=2.25); more acquisitions or mergers for firms without DIP financing (18%, as opposed to 8%, Z-ratio=1.86); less liquidations with DIP financing (10%, as opposed to 16%, Z-ratio=1.08). Dhillon et al. (1996) got more reorganisations with DIP financing than without (medians of 85% and 50%, respectively, with t-statistic=2.58).

So, is DIP financing indeed important to grant a successful reorganisation? This question will be answered in Section 7, after discussing the determinants of DIP financing in the next section.

6. Determinants of DIP financing

Table 3 lists the DIP lenders for a sub-sample of 124 firms that obtained DIP financing. Chemical, GECC and CIT are the banks that are more involved in this market, although some financial institutions, like Foothill Capital, for example, are also well represented (with smaller average loans). This distribution agrees with the study by Chatterjee et al. (1998) of a sample of 55 firms with DIP financing, where those three banks were the most important ones as well. Also, Dhillon et al. (1996) report that, for 25 Chapter 11s with new financing in 1990-1993, 5.8% in value and 20.0% in number of new loans came from one bank only, Chemical, and 64.7% in value and 48.0% in number from three banks (General Electric Capital Corporation and CIT Group, besides Chemical), whereas my sample is more diversified with respect to the sources of funding.

Table 4 evidences the importance of DIP financing in terms of some selected financials by type of filing. The average (median) loan considered in the sub-sample of firms with DIP financing is $91.0 ($35.0) million and its proportion on the total assets of the firm, measured at the year end prior to filing for Chapter 11, has a mean of 15.6% and a median of 11.3%. This compares with the study by Chatterjee et al. (1998) with an higher average loan size of $121.6 million. Dhillon et al. (1996) obtained a mean loan size of $75.0 million (median of $125.9 million) and the percentage of DIP financing on total assets of 11.1% (17.5%). Their sample has negative skewness, as oposed to the positive skewness of my sample, which implies that they have many higher values than I do, not only in size of DIP financing, but also in terms of its proportion on the firm's

assets[18]. Pre-packs show lower levels of DIP financing, with an average (median) loan of $54.9 ($35.0).

Sometimes the debtor-in-possession lender already has a pre-petition relationship with the debtor. By providing new financing, he is trying to both protect his collateral base and give an appearance of normality towards the debtor's customers and suppliers, to ensure that the going concern of the collateral is maintained. At the same time, he is avoiding the concession of a stronger negotiating position to the manager resulting from the possibility of a new lender, while avoiding making concessions to the debtor that might weaken his existing claims. DIP lenders are often pre-petition creditors, well informed with respect to the value of the firm. In Table 4 we can see that an average (median) of 42.7% (0.0%) of DIP lenders were pre-petition (usually secured) creditors. In pre-packs the mean and median are much higher, at 63.2% and 100.0%, respectively.

The most advantageous aspect of DIP financing for a DIP lender is perhaps the possibility of collateralising his pre-petition claims with property collateralising his post-petition claims (Cott, 1992). In this way, the collateral for the lender's pre-petition claims secures the collateral for his post-petition claims and vice-versa, and he can effectively condition post-petition financing on the concession of additional collateral for his pre-petition loan.[19] Also, when the new financing is provided by existing secured lenders, they sometimes have to prime themselves (Kleiman, 1992); in exchange, they can ask for (a) the conversion of their pre-petition claim into post-petition and (b) the interest payments on pre-petition debt to be continuously paid. For example, Servam Corp./Service America Corp. had a pre-existing credit agreement of $70 million with General Electric Capital Corp.. This lender agreed to provide post-petition financing of an additional $35 million conditional on the consideration of the full amount of the loans - $105 million - as DIP financing. Another different concession was made to F&C International, where Star Bank NA, a former creditor, lent $17.65 million as DIP financing in exchange for a quicker payment of his pre-petition loan. This evidence

[18] This extends to the value of the assets as well, where the means (medians) are $875.2 ($243.8) million in my sample and $461.0 ($1,318.0) million in their sample.

[19] The Court generally performs a test for the approval of cross-collateralisation clauses: (a) the debtor's business operations would not survive if it were not for the proposed financing; (b) the debtor cannot obtain alternative financing on acceptable terms; (c) the lender would not accept less preferential terms; (d) the proposed financing is in the best interest of the creditors.

supports LoPucki & Whitford's (1990) suggestion that if the post-petition lender is a former creditor, his bargaining power will be strengthened. Table 4 reveals that in 7.3% of the firms with DIP financing there was either a situation where some liens were primed as a result of the new loans, or the DIP lenders benefited from increased seniority of their pre-petition loans.

The amount of the lender's commitment is not necessarily constant throughout the bankruptcy process, as either the firm or the lender may decide to change it. Here are a few examples: CSC Industries, Inc./Copperweld Steel Co. increased a loan from Congress Financial from $15 million to $20 million; Value Merchants, Inc. obtained a loan from the same institution and raised it from $60 million to $65 million; Smith Corona Corp. reduced its loan from Chemical Bank and Bank of America Illinois from $24 million to $10 million; MEI Diversified saw its $10 million loan cancelled by LaSalle National Bank; Leslie Fay Companies, Inc. got two debtor-in-possession loans in different times and from separate institutions. Citibank granted it $150 million loan, reduced to $80 million, at the time the company got a new $80 million loan from First National Bank of Boston, also reduced to $70 million, and later raised back to $80 million. Table 4 indicates that in 8.9% of the DIP firms, the new loan was either terminated or the provider was replaced.

In some cases, however, the new lender with a previous relationship with the debtor may voluntarily agree to forgive the post-petition loan. This happened with Physicians Clinical Laboratories, Inc., where a group of pre-petition secured lenders forgave $9.8 million in DIP financing. Also, Trans World Airlines, Inc. obtained a loan of $251 million from Icahn & Co. units (belonging to his CEO) and never paid it back. In this case, however, the loan did not get super-priority status.

Curiously, in pre-packs there were no situations of DIP financing terminated or provider changed, nor DIP financing with priming liens or increased seniority of pre-petition loans.

Table 4 also refers to the days in bankruptcy until the firm gets DIP financing, with a mean of 78.6 and a median of 30.0 days. Though the variation is quite high (standard deviation=174.6), there is a concentration on the left side of the distribution, implying that most of the firms are given the new loans shortly after filing for Chapter 11. This is

corroborated by the first and third quartiles of the distribution.

Table 5 - Panel A compares the two sub-samples, with DIP financing and without DIP financing, in terms of some selected financial characteristics, measured at the accounting year end prior to filing for Chapter 11. Firms that obtained new financing are generally more liquid than the other ones.[20] They exhibit significantly higher current ratio[21] and solvency ratio[22], particularly in the case of liquidations. Also, they are more profitable[23], with larger values for revenue and income in terms of total assets and revenue over total assets. It seems that, on average, firms do not declare bankruptcy when the book value of equity goes negative, but when the income[24] is negative, as we can see in Table 5 - Panel A.

The time spent in reorganisation is measured from the filing date to the date that the plan of reorganisation is confirmed by the judge of the bankruptcy Court, regardless of the outcome. The time in bankruptcy does not appear to be (significantly) much higher for firms with DIP financing (only in terms of medians), but these firms account for a smaller proportion of the pre-packs in the sample, that are less lengthy than traditional Chapter 11s. Subsection 8.6 will discuss the determinants of the time spent in bankruptcy.

Table 5 - Panel B shows some qualitative characteristics for firms with and without DIP financing. We can see that there is significantly more CEO and chairman turnover with DIP firms, in three different circumstances: before & during, during and after bankruptcy.[25] This result contrasts with Chatterjee et al. (1998), who compared CEO turnover (and also president turnover) for 16 cases of DIP financing with Hotchkiss

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[20] Rohman & Policano (1990) defend that even when the debtors are not confronted with imminent default, they may choose to file for Chapter 11 as a means to secure new financing and so preserve their flexibility to accommodate future growth. In this way, rather than the last resort, DIP financing can be viewed as a "pro-active" strategy. Perhaps surprisingly, the bankrupt companies can actually see their terms of credit improve, both in accessibility and in cost, because there is only one post-petition creditor - the debtor-in-possession bank (Millman, 1990).

[21] Current assets over current liabilities.

[22] Total assets over total liabilities.

[23] Chatterjee et al. (1998) also noted that DIP firms are in less economic distress than non-DIP firms.

[24] Income is given by earnings before interest, depreciation and taxes (EBIDT).

[25] CEO and chairman turnover before filing for bankruptcy are not significantly different for my sample of bankrupt firms with and without DIP financing.

(1995) results, and obtained a significant lower level for this characteristic in study.[26] Equity committees seem to be more abundant in Chapter 11s with DIP financing, supporting the evidence that these companies are more profitable.

6.1. Prediction of DIP financing

Table 6 presents the results of two regressions. The first one is logistic and tries to assess the determinants of DIP financing. The second one is OLS and explains the magnitude of DIP financing in proportion of the estimated total debt in terms of some relevant variables.

In the logistic regression, we can see that the more profitable a firm is, measured in terms of the proportion of income and revenue in the total assets, the more likely it is to obtain DIP financing. Along the same lines, if an equity committee is appointed, new financing is more likely.

Pre-packs and changes in chairman are negatively associated with DIP financing. However, some other qualitative values increase the probability of DIP financing. Changes of CEO during bankruptcy are positively related with DIP financing, and also the choice of Delaware as the bankruptcy venue. During the 80's the New York district was very popular amongst large debtors as the choice for the bankruptcy venue. Skeel (1998) refers that since the beginning of 1990, Delaware has surpassed New York as the bankruptcy venue choice for large companies. Delaware is a "debtor-friendly" district, as far as judges usually approve "first day orders"[27] almost immediately, without holding a hearing to give creditors an opportunity to respond. In fact, the coefficient of correlation between a venue in Delaware and time to DIP financing is -17.1% (p-value=0.074; N=110)[28].

This logistic model has an overall accuracy of 71.1%, with 73.5% correct predictions for firms with DIP financing and 69.5% correct predictions for firms without DIP financing, using a cut-off of 40%.

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[26] One should note that this comparison may not be fair, as Hothckiss' sample might have some cases of DIP financing as well, and so the samples are not necessarily independent.

[27] e.g. use of cash collateral, payment to employees and DIP financing.

[28] New York displays an insignificant positive correlation of 10.8% (p-value=0.264, N=110).

In the OLS regression, the size of DIP loans in terms of the estimated total debt decreases with the firm size, given by its log-liabilities, and increases with the profitability of the firm, measured by its current ratio and income as a proportion of the assets.

When a firm has a large proportion of its assets encumbered, it should be more difficult to obtain new financing once in Chapter 11, as this is essentially asset-based. The negative coefficient for the proportion of secured debt in terms of fixed assets corroborates this idea. Again, priming liens and pre-petition lender granting the new financing are positively associated with the size of DIP financing, and the activities that need larger amounts of DIP financing seem to be manufacturing consumers and retail. This agrees with Chatterjee et al. (1998), who found that the companies with DIP financing are mostly wholesale and retail firms, as they need working capital to continue their activities.

7. Prediction of successful reorganisations

Since Altman' s (1968) Z-score model a whole panoply of authors have studied different distress classification models. These studies concentrate on the assessment of probabilities of a firm going bankrupt, according to some relevant financial ratios. In this section I examine a different issue: Once in Chapter 11, what is the probability that a firm will reorganise successfully (either with the independence preserved or through an acquisition in bankruptcy)? What are the main ingredients for a successful reorganisation?

Table 7 presents two logistic regressions that try to assess the probability of a firm successfully emerge from bankruptcy. The first one is for the whole sample of both firms with DIP and without DIP financing. The second one is for firms with DIP financing only.

The first logistic regression shows that the probability of success increases with the size of the firm, in particular of its liabilities, which suggests that the claimants stand to lose a lot if it does not reorganise successfully. Obtaining DIP financing is a positive factor, as defended by Dhillon et al. (1996) and Chatterjee et al. (1998), but if there is any need to prime existing liens or the seniority of pre-petition loans has to be increased, the

overall effect is negative. Pre-packs and involuntary filings usually have positive outcomes, implying that the firm filed for bankruptcy before there was much time to erode its value. Chairman changes during bankruptcy and equity committee appointments impact positively in the likelihood of success of a bankrupt firm. However, the appointment of a trustee suggests that the firm is not very sound.

The overall accuracy of this logistic model is 90.8%, with 93.0% correct predictions for firms that successfully emerged from bankruptcy and 82.5% correct predictions for firms that were liquidated, with a cut-off of 50%.

The second logistic regression discards some qualitative variables and contemplates the time it takes for DIP financing to be approved in a Court hearing. The striking result is that the more time it takes to obtain DIP financing, the more likely is a firm to reorganise successfully in Chapter 11. This implies that judges should not grant new loans without careful analysis of the situation of the bankrupt firms. Changes of chairman, the appointment of an equity committee and involuntary filings do not seem to explain successful reorganisations with DIP financing. This logistic model has an overall accuracy of 91.2%, with 96.0% correct predictions for firms that successfully emerged from bankruptcy and 70.6% correct predictions for firms that were liquidated, using a cut-off of 45%.

8. How claimants fare

The Bankruptcy Code provides a classification for the different types of creditors, and the treatment of their claims as well (see Miller et al.,1990).

Secured creditors have a security interest granted by the debtor for certain of his assets to collateralise the obligation to repay the amount of the claim. The claim is deemed secured only up to the extent of the value of the collateral. If the claim is under-secured[29], interest on the indebtedness stops accruing on the day the petition is filed. If

[29] When the market value of the collateral is less than the face value of the claim of a secured creditor, he is actually under-secured; he is secured up to the value of the collateral and unsecured with respect to the balance of his claim. According to Subsection 1111(b) of the US Bankruptcy Code, an under-secured creditor may actually elect to have his separate secured and unsecured claims allowed as one single secured claim for the full face value of his debt. This

the claim is over-secured[30], post-petition interest may accrue but not necessarily be paid during the bankruptcy process; instead, it will add up to the creditor's secured claim, until the value of the collateral is reached. Also, debt service payments cease until the end of the process.

Administrative creditors arise during the bankruptcy process and their claims include taxes, professional fees, expenses and purchases of supplies, for instance. Administrative claims are paid right after secured claims are satisfied, and ahead of all the other claims, in the event of a reorganisation or liquidation of the company. These claims were not considered in the analysis for two reasons: first, in most of the cases their value is still unknown as of the confirmation date; second, these claims always get paid, thus not incurring in deviations from absolute priority (see Tashjian et al., 1996).

Unsecured creditors hold claims without a collateral security. There are two classes of unsecured creditors. Unsecured creditors with priority claims are paid after the administrative claims and consist of employees, pension plans, consumers' deposit and the federal government. General unsecured creditors are the last ones to get paid upon the reorganisation or liquidation of the debtor.

8.1. The medium of exchange in the reorganisations

Table 8 sets out for each class of claimants in both Chapter 11s with DIP financing and without DIP financing, the percentage of the total payments received in the form of cash, debt, preferred stock, options[31] and common stock. The classes that are considered are secured creditors, unsecured creditors and equity (includes preferred stock, options, warrants and common stock). The majority of payments in firms with DIP financing are in the form of common stock (36.3%) and debt (32.5%), whereas in firms without DIP financing the bulk of the payments is in the form of debt (44.8%) and cash (27.1%). Unsecured creditors receive significantly more common stock and less debt in firms with DIP financing, showing their confidence in the performance of these firms after

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election can only take place when the collateral has consequential value or the plan of reorganisation provides that the collateral should be sold free and clear of the secured parties interests.

[30] When the value of the collateral is greater than the full amount of the claim.

[31] This class includes options, rights and warrants.

bankruptcy. However, this equity is bound to be overvalued, as far as when the insider information on the perspectives of a firm is bad, one should give equity and keep the cash instead. Equity-holders get more options but less cash and common stock in the event of DIP financing.

8.1.1. Determinants of payments composition

Table 9 displays six OLS regressions for the proportion of cash, debt and equity received by secured and unsecured creditors as a means of claims settlement.

Higher recovery rates for the firm are associated with less equity for all creditors and more debt for unsecured creditors. The larger the estimated total debt, the more equity secured creditors are willing to accept instead of debt. In this way, unsecured creditors get more debt, though less cash. DIP financing does not seem to affect the distribution to secured creditors, whereas unsecured creditors tend to replace debt with equity. With acquisitions and mergers there is less equity involved for unsecured creditors and the reverse with pre-packs. However, if the DIP lender is a pre-petition (secured) creditor, there is a natural substitution of debt for cash for secured creditors, that have more bargaining power. Time in bankruptcy and acquisitions and mergers are associated with more cash for all creditors and significantly less debt and equity for secured creditors. If there is a pre-pack with an acquisition or merger involved, unsecured creditors receive less cash.

When the bankrupt firms were the subject of a past LBO, creditors get less cash. Secured creditors get more debt and unsecured creditors receive more equity. This shows some confidence in the future performance of these firms. Changes of chairman before bankruptcy give more debt to unsecured creditors; if during bankruptcy, less cash. Secured creditors receive more equity with a new CEO during bankruptcy and less with the existence of an equity committee. The bankruptcy venue also impacts the payments composition. In Delaware creditors accept less equity and in New York unsecured creditors receive less debt.

8.2. Recovery rates

Recovery rates give the percentage of the face value of a creditor's claim that is repaid

upon reorganisation. In order to assess the role of DIP financing in terms of its contribution to the value of the firm, recovery rates were calculated for the several stakeholders involved - secured creditors, unsecured creditors and equity-holders. Table 10 reports the results for the two groups of firms, with and without DIP financing. We can see for the total sample that recovery rates are usually higher for firms without DIP financing than for firms with DIP financing, but these values are only significant in the case of the medians of unsecured creditors and equity-holders. Average recovery rates for firms with DIP financing and without are, respectively, 93.3% and 90.7% for secured creditors, 48.0% and 55.5% for unsecured creditors, 10.9% and 20.8% for equity-holders. These values compare with the study of Franks & Torous (1989), with 80.1% for secured debt, 28.9% for junior debt, 47.0% for senior debt and 86.4% for bank debt. These results support the evidence that secured claims and higher seniority are associated with higher recovery rates (see also Tashjian et al. (1996), Eberhart & Sweeney (1992), Fabozzi et al. (1993), Altman & Eberhart's (1994) and Wagner (1996)).

However, if we analyse non pre-packs only and choose those where the value of DIP financing was significant, we get strikingly different results. For a sub-sample of 25 firms with DIP financing in the amount of at least 20% of the estimated total debt, and 68 firms without DIP financing, we can see that creditors recover significantly more in the former firms. This result suggests that the size of DIP financing does seem to be crucial. Adams (1995) points out that more critical than the source or form of the new financing while in bankruptcy, it is the size that matters.

8.2.1. Determinants of recovery rates

Table 11 displays three OLS regressions of the determinants of recovery rates. All the claimants recover more when the firm recovery is higher, but equity-holders get less if the estimated total debt is big, as far as there is less left for them after paying all the creditors.

Unsecured debt recoveries are negatively associated with the concession of new financing. But the proportion of DIP financing in terms of the estimated total debt has a positive impact for unsecured creditors recoveries (negative for equity-holders), suggesting that the size of the new financing is indeed an issue.

When the new lender is also a pre-petition creditor, usually secured, both unsecured creditors and equity-holders fare worse, as should be expected. Involuntary filings penalise unsecured creditors and favour equity-holders. All claimants seem to fare worse in the case of an acquisition or merger, putting in evidence the bargaining power of the acquirer and the fact that both secured and unsecured creditors may be willing to accept write-downs in their claims, as discussed in Section 3. However, when the acquisition and the involuntary filing are associated with DIP financing, the positive effects outweigh the negative ones for unsecured creditors and penalise equity-holders in the case of an involuntary filing with DIP financing. Changes in chairman and the choice of Delaware as the bankruptcy venue seem to benefit secured creditors recoveries, whereas the appointment of an equity-holders committee reduces recovery rates for unsecured creditors.

Secured creditors recover more when they get less equity and unsecured creditors get more equity, suggesting that the stock may be overvalued. Equity-holders, on the contrary, recover less the larger the proportion of new equity received by unsecured creditors in terms of their total payment. This negative effect is substantially reduced in DIP firms, again emphasising the possibility that the stock in these firms may be overvalued.

8.2.2. Reorganisation vs Liquidation

In theory, one dissenting creditor can effectively prevent confirmation of a plan if he shows that it does not grant him at least what he would get in a liquidation; in practice, however, this is very difficult to prove. Moreover, because the valuations are based on a going concern framework, and so higher than in a liquidation setting, it is unlikely that the creditor could get more otherwise. In this way a cram-down is very important as a threat to induce junior classes to accept a plan of reorganisation proposed by more senior creditors or the debtor-in-possession because of this risk of actually ending up getting less. So, do creditors really get less in a liquidation?

I compared recovery rates between 172 firms that reorganised successfully from Chapter 11 and 22 firms[32] that were liquidated. In all 22 cases of liquidation, secured creditors

[32] The presence of DIP financing was not found important in terms of recovery rates for these

always received full payment and equity-holders always got nothing, except for Sprouse-Reitz Stores, where the latter got some cash consideration, following absolute priority rules. Unsecured creditors recover substantially more when firms reorganise (mean=52.3%, median=45.2%) than when they get liquidated (mean=31.9%, median=15.1%), which legitimates the credibility of the cram-down threat.[33]

8.2.3. Investment incentives

Chen et al. (1995) found that when the new debt is granted seniority, the firm is more likely to make new investments. As is well known, the shareholders would have been reluctant to provide for additional investments as they would basically be contributing to more senior claimants' wealth enhancement (Myers (1977), Gertner & Scharfstein (1991)). Stulz & Johnson (1985) also demonstrate that it is possible that a firm will undertake a project with secured debt but not with unsecured debt or equity.

Chatterjee et al. (1998) examined 55 DIP loans to bankrupt firms. They found that these loans are usually short-term, the funds are restricted to working capital use and are provided as a revolving line of credit and letter of credit. The fact that most of these funds cannot be used for investment in projects restrains managers from over-investing. There is a significant incidence of both affirmative (financial reporting, transmission of information) and negative (restrictions) covenants, which shows a broad monitoring role by DIP providers. In my sample of 135 firms with DIP financing I found only one case, Spectravision, where the new financing was meant for capital expenditures, instead of inventory and day-to-day expenses. This means that one should not expect firms with DIP financing to have a more active role in terms of investment than firms without DIP financing. Table 12 shows that net asset sales and its components (asset sales and capital expenditures) are not significantly different amongst the two groups of firms. The small p-value for the difference in the medians for net asset sales plus DIP financing suggests that there is more cash in DIP firms (however, the result is not significant for the comparison of the means).

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firms, maybe because of the small number of DIP firms (only 5).

[33] P-value=0.020 for difference in means and p-value=0.008 for difference in medians.

8.3. Deviations from absolute priority

The fair and equitable requirement mentioned in Subsection 1129(b) of the Code is usually referred to as the absolute priority rule. Under this rule, a plan should be fair and equitable even if unsecured classes of creditors do not realise the full value of their claims, providing no class junior to them receives or retains anything on account of their claims or interests. This rule is however qualified, as far as it only applies when there is a class of claimants that is impaired under the reorganisation plan and has not accepted it.

Deviations from absolute priority appear to be very frequent in Chapter 11, especially in favour of equity. One can say, using Bebchuk & Fried's (1996) terminology, that the current regime of bankruptcy implements a *de facto* rule of partial priority, due to a number of features of Chapter 11 reorganisations that favour the erosion of full priority of secured claims, such as the powers that the Court confers to the debtor-in-possession. The fact that the firm has a period of exclusivity where it has the sole right to propose a plan of reorganisation, together with the preservation of the control of the firm, act as an implicit threat to impose costs (paid out of the firm's cash flows) that are borne by the creditors, especially the unsecured claimants. This is basically an equity option argument (Franks & Torous, 1989), where violations of absolute priority reflect the purchase of the stockholders' option to delay the reorganisation, and so further costs are avoided in this way. Bergman & Callen (1995) developed an analytical model on deviations from absolute priority rules that supports this explanation. In their bargaining process the bondholders rationally agree to write-down part of their claims in an amount that equals the potential cumulative damage due to the firm value deterioration.[34] This means that the key factor is the shareholders' ability to cause deterioration of the assets of the firm and not the risk of the firm itself, that increases the value of the option to delay.[35]

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[34] With complete information the agreement will be reached in the first round, with no firm value dissipation; inefficiencies will arise in the context of incomplete information, and the bargaining process will last much longer.

[35] In fact, they state that there is no direct relationship between firm risk and absolute priority rules deviation.

8.4. Deviations from absolute priority by class of claimant

In the sub-sample of 135 Chapter 11s with DIP financing there are 81 cases where priority was held, 27 cases where priority was violated for unsecured creditors only and 22 cases where priority was violated for secured creditors.[36] [37] This results give an average incidence of deviations from absolute priority rules of 36%, including 35 cases (71%) where shareholders actually received some consideration. The pattern for the 191 Chapter 11s that did not obtain DIP financing is very similar: priority was held in 113 cases, priority was violated for unsecured creditors in 37 cases and for secured creditors in 35 cases. The average incidence of deviations from absolute priority is 38%, with equity receiving some consideration in 53 cases (74%). This compares with 77.8% and 85.7% cases, respectively, in Frank & Torous (1989), 78.4% and 93.1% in Weiss (1990), 96.2% and 80% in Fabozzi et al. (1993). These results suggest that there are less violations of absolute priority in large companies, that constitute the sample in the present study.

DIP financing does not seem to impact in the incidence of deviations from absolute priority. This observation supports Chatterjee et al. (1998), who showed that DIP financing is associated with a positive stock and bond price response, suggesting the absence of wealth transfer from pre-petition creditors to high priority DIP lenders.

The magnitude of deviations from absolute priority rules is also not significantly different between the two groups of firms, as reported in Table 13. Unsecured creditors and equity-holders gain on average, to the detriment of secured creditors. On average, deviations in DIP firms and non-DIP firms are, respectively, -4.2% and -3.3% for secured creditors, 3.6% and 0.2% for unsecured creditors, 0.6% and 3.1% for equity-holders. There is some weak evidence of a less positive deviation for equity-holders in DIP firms, which suggests that shareholders in firms without new financing tend to fare better than the other ones. This implies that there is no coalition between old shareholders and the new lender in order to extract value from the other claimants. The consideration of non pre-packs only does not affect the results. A pseudo-median company does not exhibit deviations from absolute priority.

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[36] Using Weiss' (1990) classification.

[37] In the sub-sample of 22 firms that were liquidated I was unable to detect any violation from

This analysis compares with Franks & Torous' (1989) deviations of -1.7% for secured debt, 1.0% for junior debt, -1.4% for senior debt and -1.0% for bank debt, 2.3% for equity and 0.8% for preferred stock. Eberhart et al. (1990) and Betker (1995) report an average of 7.6% and 2.86% for equity deviations, respectively.

8.5. Determinants of deviations from absolute priority

The results from the previous subsection suggest that the decision to obtain DIP financing does not influence the nature of violations from absolute priority rules. However, some other aspects, like the characteristics of the firms and the reorganisation process, may provide some explanation for the observed deviations.

Table 14 shows the outcome of three OLS regressions for secured debt deviations, unsecured debt deviations and equity deviations.

Secured debt deviations appear to be positively related with the firm recovery ratio and negatively related with the amount of the estimated total debt. This fact indicates that they benefit from an eventual less intensive bargaining when the total recovery is high, but if the debt burden is large, secured creditors and equity-holders get less than what they should, in order for unsecured creditors to attain some contemplation. In fact, these effects are symmetrical for unsecured creditors. Changes of chairman and the choice of Delaware as the bankruptcy venue seem to favour secured creditors to the detriment of unsecured ones, whereas the appointment of a trustee has the opposite effect. Secured creditors benefit from a higher proportion of the unsecured claimants paid in equity, suggesting that the latter may be getting overvalued stock.

Unsecured creditors and equity-holders show symmetrical effects in terms of some variables. Involuntary filings and the appointment of equity committees penalise unsecured creditors and favour equity-holders. Betker (1995) did not find a relation between equity deviations and the existence of equity committees.

High values of DIP financing in terms of the estimated total debt benefit unsecured creditors and penalise equity-holders, showing the importance of the DIP loans size. As expected, acquisitions and mergers do not imply deviations from absolute priority rules,

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absolute priority.

as it is through a plan of reorganisation where priority is held that acquirers can induce claimants to write-down their claims, under the threat of a cram-down.

8.6. Time in bankruptcy

Pre-packs are associated with quick bankruptcy resolution. There are however other factors that impact on the time spent in bankruptcy. Table 15 shows the results of an OLS regression with the time in bankruptcy as the dependent variable. We can see that pre-packs contribute to quicker processes, but if associated with DIP financing their positive contribution is halved. This suggests that with pre-packs, more money available induces less incentives to reorganise faster. Involuntary filings are also connected with fast bankruptcy processes, as the companies are usually in better shape. Larger companies tend to reorganise more slowly, measured by log-assets, but when the total liabilities are big, creditors try to get quicker reorganisations, so they do not lose much in the process. Changes of chairman and a larger proportion of cash in the total distribution contribute to more time in bargaining activities. However, in DIP firms this cash pressure is less important, because there may be more confidence in other alternative forms of payment. Retail industries reorganise faster. New York, in particular the Southern District of New York, has long been known for encouraging long bankruptcy cases due to the willingness to extend the exclusivity period (see Skeel, 1998). Delaware's specialities are pre-packs and speed. Yet, Delaware does not appear to explain time spent in bankruptcy. The reason is because there is a high correlation of 35.2% (p-value=0.000; N=326) between a venue in Delaware and pre-packs, that appear in the regression. If we calculate the coefficient of correlation between a venue in Delaware and time in bankruptcy it is a significant -28.9% (p-value=0.000; N=284).

9. Post-bankruptcy performance

Table 16 - Panel A shows some selected financial characteristics for firms that reorganised independently from Chapter 11. There are no significant differences amongst DIP and non-DIP firms. If we compare their performance before and after filing for bankruptcy, in Table 16 - Panel B, all firms seem to have better financial ratios after bankruptcy than before, though DIP firms have not significantly higher current ratios.

Dhillon et al. (1996) obtained a better post-bankruptcy performance for DIP firms.

Chatterjee et al. (1998) found that firms with DIP financing show a significant larger probability of successfully emerging from Chapter 11 and not being involved in posterior filings. In the sample of 135 firms with DIP financing and 191 firms without DIP financing, seven DIP firms and eight non-DIP firms filed for bankruptcy again, suggesting no meaningful differences in the probability of subsequent filings for Chapter 11.

10. Conclusion

Debtor-in-possession financing does seem to have a positive role in the bankruptcy process. Its presence does not significantly affect investment decisions, recovery rates and deviations from absolute priority, unless its size is considerable. But the fact that it contributes decisively towards a successful reorganisation in Chapter 11s explains the positive stock and bond price response found by Chatterjee et al. (1998) and also by Dhillon et al. (1996).

Judges should be more careful when agreeing to DIP financing. They should refrain from hastening their (favourable) decision, as quick approvals have been proved to be associated with liquidations.

Claimants should expect lower recovery rates when the bankrupt firm is acquired. For some authors an acquisition is like a liquidation (e.g. Chatterjee et al., 1998), as far as it shows that the firm is not able to reorganise independently. In this way, the bargaining power of the acquirer is quite strong, and stake-holders are bound to accept low recoveries in order to avoid costly cram-down hearings.

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Table 1

Panel A:

Firm bankruptcies by year, type of filing and bankruptcy outcome. The figures are based on 135 Chapter 11s with DIP financing, 191 Chapter 11s without DIP financing and 63 unknown or pending cases. The sample period is from January 1986 to December 1997.

Years	Independence preserved		Acquired or merged		Liquidated in Chapter 11		Converted to Chapter 7		Dismissed		Sub-total		Unkn/ Pending	Total
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP		
1986	1	-	-	-	-	-	-	-	-	-	1	0	1	2
1987	-	1	-	-	-	-	-	-	-	-	0	1	2	3
1988	-	-	1	1	-	3	-	-	-	-	1	4	0	5
1989	1	8	-	-	-	6	-	-	-	-	1	14	4	19
1990	8	13	1	2	-	3	-	2	-	1	9	21	2	32
1991	15	28	1	5	4	7	1	1	-	-	21	41	8	70
1992	10	24	1	2	2	7	-	2	1	-	14	35	2	51
1993	12	18	6	4	-	4	-	2	-	-	18	28	4	50
1994	10	8	1	2	4	3	3	-	-	-	18	13	2	33
1995	13	10	6	1	4	3	-	-	1	-	24	14	6	44
1996	12	9	4	1	3	1	2	-	1	-	22	11	9	42
1997	5	6	1	-	-	3	-	-	-	-	6	9	23	40
Total	87	125	22	18	17	40	6	7	3	1	135	191	63	389

Table 1 (cont.)

Panel B:

Firm bankruptcies by jurisdiction and bankruptcy outcome. The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997.

Courts	Independence preserved		Acquired or merged		Liquidated in Chapter 11		Converted to Chapter 7		Dismissed		Sub-total		Total
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	
CA	6	13	-	1	-	4	-	-	-	-	6	18	24
DE	24	22	10	5	2	2	1	-	-	-	37	29	66
FL	3	7	-	1	-	4	-	-	-	-	3	12	15
NJ	4	6	1	-	-	-	-	-	-	-	5	6	11
NY	14	25	2	1	4	7	2	-	1	1	23	34	57
TX	9	9	-	3	1	3	1	1	1	-	12	16	28
Others[a]	18	34	5	5	7	17	1	5	-	-	31	61	92
Unk	9	9	4	2	3	3	1	1	1	-	18	15	33
Total	87	125	22	18	17	40	6	7	3	1	135	191	326

[a] "Others" include AL, AR, AZ, CO, CT, DC, GA, ID, IL, IN, KY, LA, MA, MD, MI, MN, MO, MS, NC, NH, NV, OH, OK, OR, PA, PO, RI, SC, TN, UT, VA, WA and WI.

Table 1 (cont.)

Panel C:

Firm bankruptcies by SIC code and bankruptcy outcome: Construction & Mining (CM), Manufacturing-Industrial (MI), Manufacturing-Consumers (MC), Air Transportation (AT), Retail (RE) and Others[a] (OT). The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997.

SIC	Independence preserved		Acquired or merged		Liquidated in Chapter 11		Converted to Chapter 7		Dismissed		Sub-total		Total
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	
CM	3	4	2	3	-	-	-	-	-	-	5	7	12
MI	14	9	6	2	1	2	-	3	-	-	21	16	37
MC	15	19	3	2	4	6	1	1	1	-	24	28	52
AT	3	13	2	-	1	1	-	1	-	-	6	15	21
RE	32	29	4	2	9	15	2	1	2	-	49	47	96
OT	20	51	5	8	2	15	3	1	-	1	30	74	106
Unk	-	-	-	1	-	1	-	-	-	-	0	2	2
Total	87	125	22	18	17	40	6	7	3	1	135	191	326

[a] "Others" include real estate, electric, gas and sanitary services, health and legal services.

Table 1 (cont.)

Panel D:

Firm bankruptcies by type of filing and bankruptcy outcome. The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997.

Type of filing	Independence preserved		Acquired or merged		Liquidated in Chapter 11		Converted to Chapter 7		Dismissed		Sub-total		Total
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	
Voluntary													
Pre-Pack	15	40	6	6	-	1	1	-	-	-	22	47	69
No Pre-Pack	66	65	14	12	17	34	5	7	3	1	105	119	224
Total	81	105	20	18	17	35	6	7	3	1	127	166	293
Involuntary													
Pre-Pack	1	3	-	-	-	-	-	-	-	-	1	3	4
No Pre-Pack	5	17	2	-	-	5	-	-	-	-	7	22	29
Total	6	20	2	0	0	5	0	0	0	0	8	25	33

Table 2

Firm bankruptcies by type of filing and bankruptcy outcome. The values are given as a proportion of the total cases with DIP financing and without DIP financing. The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997. P-values are shown in brackets.

Type of filing	Independence preserved A		Acquired or merged B		Sub-total A+B		Dismissed C		Sub-total A+B+C		Liquidated in Chapter 11 D		Converted to Chapter 7 E		Sub-total D+E		Total A+B+C+D+E	
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP
Voluntary	135	191	135	191	135	191	135	191	135	191	135	191	135	191	135	191	135	191
Mean	60.0	55.0	14.8	9.4	74.8	64.4	2.2	0.5	77.0	64.9	12.6	18.3	4.4	3.7	17.0	22.0	94.1	86.9
	(0.368)		(0.150)		(0.046)		(0.219)		(0.019)		(0.165)		(0.724)		(0.272)		(0.025)	
Median	100.0	100.0	0.0	0.0	100.0	100.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	100.0
	(0.368)		(0.136)		(0.046)		(0.172)		(0.019)		(0.165)		(0.725)		(0.271)		(0.035)	
Pre-Pack	135	191	135	191	135	191	135	191	135	191	135	191	135	191	135	191	135	191
Mean	11.9	22.5	4.4	3.1	16.3	25.7	-	-	16.3	25.7	-	0.5	0.7	-	0.7	0.5	17.0	26.2
	(0.010)		(0.551)		(0.038)		-		(0.038)		-		-		(0.811)		(0.051)	
Median	0.0	0.0	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	0.0	0.0	-	0.0	0.0	0.0	0.0
	(0.014)		(0.540)		(0.044)		-		(0.044)		-		-		(0.808)		(0.052)	
Total	135	191	135	191	135	191	135	191	135	191	135	191	135	191	135	191	135	191
Mean	64.4	65.4	16.3	9.4	80.7	74.9	2.2	0.5	83.0	75.4	12.6	20.9	4.4	3.7	17.0	24.6	-	-
	(0.853)		(0.074)		(0.214)		(0.219)		(0.102)		(0.043)		(0.724)		(0.102)		-	
Median	100.0	100.0	0.0	0.0	100.0	100.0	0.0	0.0	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-
	(0.853)		(0.063)		(0.214)		(0.172)		(0.102)		(0.051)		(0.725)		(0.102)		-	

Table 3

DIP financing providers by amount, number of loans and average. The figures are based on 124 Chapter 11s with DIP financing from January 1986 to December 1997.

DIP financing providers	Amount ($m)	Number of loans	Average loan ($m)
Bank America Bus Cred	220.000	2	110.000
Bank of NY	199.000	3	66.333
Bankers Trust	605.000	5	121.000
Chase Manhatan	275.900	4	68.975
Chemical Bank	4,586.000	10	458.600
CIT Group/Bus Cred	1,081.000	16	67.563
Citibank	225.000	2	112.500
Citicorp USA, Inc.	110.000	2	55.000
Congress Financial Corp.	204.973	8	25.622
First Nat Bank Boston	69.000	3	23.000
Foothill Capital Corp.	489.550	13	37.658
General Electric Capital Corp.	1,439.000	10	143.900
LaSalle National Bank	25.000	2	12.500
Manufacturers Hanover Trust Co.	238.200	4	59.550
Wells Fargo	202.000	2	101.000
Secured Lenders	70.800	4	17.700
Others[a]	1,130.300	30	37.677
Unknown	110.000	4	27.500
Total	11,280.723	124	90.974

[a] "Others" include BT Commercial Corp., Canadian Imperial Bank of Commerce, CIBC, Continental Bank, ITT Comm Fin Corp, LTCB Japan, Mellon Bank NA, Morgan Guaranty Trust, National Bank of Canada, NCNB, Norwest Business Credit, Inc, Pittsburgh National Bank, Societe Generale SA, Star Bank NA, Sterling National Bank & Trust Co NY and Transamerica Bus Cred Corp.

Table 4

DIP financing and its importance in terms of some selected characteristics. Total assets and total liabilities are measured at year end prior to filing for Chapter 11. Estimated total debt and total distribution are measured at the time of the reorganisation. The figures are based on 135 Chapter 11s with DIP financing from January 1986 to December 1997.

Panel A: Pre-Packs	Mean	Stand. deviation	Lower quartile	Median	Upper quartile	Sample size
DIP financing ($m)	54.9	54.4	17.0	35.0	85.0	19
DIP financing / Total assets (%)	17.2	14.7	6.8	10.8	23.5	18
DIP financing / Total liabilities (%)	14.6	12.5	6.7	9.1	23.4	18
DIP financing / Estimated total debt (%)	21.2	15.0	10.2	17.2	33.1	12
Days until DIP financing	42.1	80.9	1.0	21.0	30.0	17
DIP financing from pre-petition lenders (%)	63.2	49.6	0.0	100.0	100.0	19
DIP financing terminated or provider changed (%)	-	-	-	-	-	19
DIP financing with priming liens or increased seniority of pre-petition loans (%)	-	-	-	-	-	19
Panel B: No Pre-Packs	**Mean**	**Stand. deviation**	**Lower quartile**	**Median**	**Upper quartile**	**Sample size**
DIP financing ($m)	97.5	255.4	15.0	35.0	80.0	105
DIP financing / Total assets (%)	15.2	13.5	5.1	12.1	22.1	87
DIP financing / Total liabilities (%)	20.7	22.6	5.8	13.1	31.0	87
DIP financing / Estimated total debt (%)	29.8	46.2	6.4	19.2	37.1	60
Days until DIP financing	85.7	186.8	21.5	34.0	57.0	88
DIP financing from pre-petition lenders (%)	39.0	49.0	0.0	0.0	100.0	105
DIP financing terminated or provider changed (%)	10.5	30.8	0.0	0.0	0.0	105
DIP financing with priming liens or increased seniority of pre-petition loans (%)	8.6	28.1	0.0	0.0	0.0	105
Panel C: Total	**Mean**	**Stand. deviation**	**Lower quartile**	**Median**	**Upper quartile**	**Sample size**
DIP financing ($m)	91.0	236.3	15.0	35.0	82.5	124
DIP financing / Total assets (%)	15.6	13.7	5.2	11.3	22.2	105
DIP financing / Total liabilities (%)	19.7	21.3	5.9	11.5	24.5	105
DIP financing / Estimated total debt (%)	28.4	42.7	6.6	18.9	37.0	72
Days until DIP financing	78.6	174.6	18.0	30.0	54.0	105
DIP financing from pre-petition lenders (%)	42.7	49.7	0.0	0.0	100.0	124
DIP financing terminated or provider changed (%)	8.9	28.5	0.0	0.0	0.0	124
DIP financing with priming liens or increased seniority of pre-petition loans (%)	7.3	26.1	0.0	0.0	0.0	124

Table 5

Panel A:

Selected financial characteristics measured by bankruptcy outcome at year end prior to filing for Chapter 11. The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997. P-values are shown in brackets.

Bankruptcy outcome	Current assets over current liabilities		Total assets over total liabilities		Face value of long-term debt ($m)		Face value of total liabilities ($m)		Revenue over total assets		Income[a] over total assets		Time in bankruptcy (days)	
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP
Reorganisation	94	131	95	134	94	133	135	191	93	132	94	132	108	140
Mean	1.4	1.2	1.2	1.1	339.0	264.3	726.7	1,052.970	1.4	0.9	-0.1	-0.2	506.3	433.2
	(0.430)		(0.446)		(0.360)		(0.219)		(0.000)		(0.081)		(0.184)	
Median	1.1	0.8	1.1	1.0	92.1	81.1	191.2	225.0	1.3	0.7	-0.1	-0.1	457.0	313.5
	(0.030)		(0.259)		(0.432)		(0.133)		(0.000)		(0.070)		(0.050)	
Liquidation	18	40	18	42	18	41	109	143	18	42	18	42	12	23
Mean	2.0	1.2	1.5	1.3	92.4	140.7	858.6	847.5	2.1	1.2	-0.1	-0.2	690.3	694.7
	(0.027)		(0.510)		(0.364)		(0.961)		(0.003)		(0.082)		(0.980)	
Median	1.8	1.0	1.3	1.0	29.7	75.0	242.7	249.8	2.0	1.1	-0.1	-0.1	675.5	517.0
	(0.014)		(0.019)		(0.531)		(0.498)		(0.002)		(0.123)		(0.566)	
Total	114	172	115	177	114	175	23	47	113	175	114	175	121	163
Mean	1.6	1.2	1.2	1.2	296.3	233.9	182.6	1,699.910	1.5	0.9	-0.1	-0.2	527.0	470.1
	(0.101)		(0.456)		(0.354)		(0.066)		(0.000)		(0.012)		(0.283)	
Median	1.2	0.9	1.1	1.0	83.8	80.3	60.3	172.4	1.4	0.8	-0.1	-0.1	466.0	357.0
	(0.003)		(0.062)		(0.424)		(0.022)		(0.000)		(0.015)		(0.052)	

[a] Income is earnings before interest, depreciation and taxes (EBIDT).

Table 5 (cont.)

Panel B:

Selected qualitative characteristics for firms that reorganised by bankruptcy outcome measured at year end prior to filing for Chapter 11. The figures are based on 112 Chapter 11s with DIP financing and 144 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997. P-values are shown in brackets.

Bankruptcy outcome	New CEO before and during Chapter 11		New CEO during Chapter 11		New CEO right after Chapter 11		New Chairman before and during Chapter 11		New Chairman during Chapter 11		New Chairman right after Chapter 11		Equity committee appointed	
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP
Reorganisation	109	143	109	143	109	143	109	143	109	143	109	143	109	143
Mean	34.9	18.9	25.7	9.8	21.1	12.6	19.3	14.7	12.8	6.3	18.3	8.4	20.2	9.8
	(0.009)		(0.001)		(0.078)		(0.362)		(0.087)		(0.025)		(0.025)	
Median	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	(0.002)		(0.001)		(0.070)		(0.350)		(0.075)		(0.019)		(0.020)	
Liquidation	23	47	23	47	-	-	23	47	23	47	-	-	23	47
Mean	56.5	10.6	39.1	4.3			17.4	10.6	8.7	2.1			8.7	2.1
	(0.004)		(0.003)				(0.603)						(0.312)	
Median	0.0	0.0	0.0	0.0			0.0	0.0					0.0	0.0
	(0.000)		(0.000)				(0.904)		(0.212)				(0.212)	
Total	135	191	135	191	109	143	135	191	135	191	109	143	135	191
Mean	40.0	16.8	28.1	8.4	21.1	12.6	19.3	13.6	12.6	5.2	18.3	8.4	17.8	7.9
	(0.000)		(0.000)		(0.078)		(0.226)		(0.026)		(0.025)		(0.010)	
Median	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	(0.000)		(0.000)		(0.070)		(0.299)		(0.018)		(0.019)		(0.007)	

Table 6

Determinants of debtor-in-possession financing and of its magnitude in terms of the estimated total debt. The first regression is logistic and the second one is OLS. The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing that reorganised as independent firms. The sample period is from January 1986 to December 1997.

Independent variables	Dependent variables (p-values in brackets)	
	DUDIP	DIP Fin. / Estim. total debt (%)
Constant intercept	-0.444	18.237
		(0.128)
Log(Total liabilities)		-3.291
		(0.043)
Current assets / Current liabilities (%)		0.059
		(0.014)
Income / Total assets (%)	0.022	0.279
	(0.001)	(0.040)
Log(Revenue / Total assets)	0.676	
	(0.000)	
Log(Secured debt / Fixed assets)		-4.725
		(0.000)
DUPP	-0.831	
	(0.024)	
DUPRIMING		31.124
		(0.005)
DULENDER		9.774
		(0.041)
DUCHAIR	-1.040	
	(0.093)	
DUCEO	1.774	
	(0.000)	
DUEQCOM	0.992	
	(0.032)	
DUDE	1.444	
	(0.000)	
DUMC		18.214
		(0.005)
DURE		9.716
		(0.046)
R^2	19.522	54.956
Sample size	287	54

Table 7

Logistic regression of the determinants of a successful reorganisation in Chapter 11. The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997.

Independent variables	Dependent variable (p-values in brackets)	
	DUSUCCESS (1)[a]	DUSUCCESS (2)[b]
Constant intercept	1.146	-1.256
Log(Total liabilities)	0.247	0.749
	(0.069)	(0.020)
TimeDIP		0.021
		(0.082)
DUDIP	0.911	
	(0.047)	
DUPRIMING	-1.778	-2.042
	(0.086)	(0.059)
DUPP	2.034	12.526
	(0.003)	(0.053)
DUINV	1.314	
	(0.077)	
DUCHAIR	2.150	
	(0.036)	
DUEQCOM	2.131	
	(0.009)	
DUTRUSTEE	-3.786	-3.447
	(0.000)	(0.000)
R^2	49.433	50.560
Sample size	292	91

[a] Logistic regression for all the firms.

[b] Logistic regression for DIP firms only.

Table 8

Percentage of the total payments received by all stake-holders in the form of cash, debt, preferred stock, options[a] or common stock, by type of filing. The figures are based on 72 Chapter 11s with DIP financing and 100 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997.

Claimants	Cash		Debt		Preferred stock		Options		Common stock	
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP
Secured creditors	67	88	67	88	67	88	67	88	67	88
Mean	31.4	23.3	58.6	66.6	-	0.6	0.1	0.0	9.9	9.5
	(0.176)		(0.228)		-		(0.585)		(0.922)	
Median	9.9	2.4	76.0	87.2	-	0.0	0.0	0.0	0.0	0.0
	(0.267)		(0.318)		-		(0.996)		(0.607)	
Unsecured creditors	71	99	71	99	71	99	71	99	71	99
Mean	31.8	36.0	16.5	29.8	2.7	1.4	1.3	1.3	47.7	31.5
	(0.487)		(0.009)		(0.357)		(0.981)		(0.006)	
Median	18.3	13.7	0.0	6.6	0.0	0.0	0.0	0.0	46.1	10.8
	(0.660)		(0.036)		(0.213)		(0.140)		(0.007)	
Total creditors	72	100	72	100	72	100	72	100	72	100
Mean	30.2	29.3	34.0	47.3	1.7	1.0	0.5	0.9	33.7	21.5
	(0.870)		(0.006)		(0.506)		(0.478)		(0.003)	
Median	17.1	12.4	25.9	49.7	0.0	0.0	0.0	0.0	30.5	14.1
	(0.417)		(0.014)		(0.669)		(0.226)		(0.002)	
Equity-holders[b]	42	65	42	65	42	65	42	65	42	65
Mean	1.0	10.0	3.4	0.7	-	1.9	43.3	12.9	52.4	74.5
	(0.019)		(0.317)		-		(0.000)		(0.009)	
Median	0.0	0.0	0.0	0.0	-	0.0	21.2	0.0	70.1	100.0
	(0.047)		(0.332)		-		(0.000)		(0.012)	
Total	72	100	72	100	72	100	72	100	72	100
Mean	27.9	27.1	32.5	44.8	1.5	1.6	1.8	1.0	36.3	25.5
	(0.854)		(0.010)		(0.935)		(0.326)		(0.008)	
Median	16.1	11.6	25.0	46.1	0.0	0.0	0.0	0.0	34.9	18.0
	(0.366)		(0.023)		(0.974)		(0.001)		(0.005)	

[a] The category "Options" includes options, rights and warrants.

[b] Include preferred stock, options, warrants and common stock.

Table 9

OLS regressions of proportion of Cash, Debt, Shares and Options on the total of secured and unsecured creditors on some selected variables. The results are based on 72 Chapter 11s with DIP financing and 100 Chapter 11s without DIP financing. The sample period is from January 1986 to October 1997.

Independent variables	Dependent variables (p-values in brackets)					
	Secured			Unsecured		
	% Cash	% Debt	% Equity	% Cash	% Debt	% Equity
Constant intercept	13.269	100.061	-1.146	55.524	14.574	21.362
	(0.005)	(0.000)	(0.884)	(0.000)	(0.188)	(0.000)
Log(Firm recovery)			-5.174		10.786	-8.503
			(0.035)		(0.002)	(0.030)
Log(Estim. total debt)		-4.982	2.549	-4.680	4.008	
		(0.059)	(0.078)	(0.056)	(0.047)	
DIP Fin. / Estim. total debt (%)						0.201
						(0.052)
DUDIP					-12.912	19.609
					(0.011)	(0.004)
DULENDER	17.790	-17.721				
	(0.015)	(0.031)				
Time in bankruptcy (days)	0.025	-0.017	-0.008	0.018		
	(0.000)	(0.020)	(0.055)	(0.006)		
DUMA	11.918	-14.850		22.950		
	(0.086)	(0.058)		(0.007)		
DUDIP*DUMA						-18.829
						(0.075)
DUPP						23.134
						(0.001)
DUPP*DUMA				-25.836		
				(0.069)		
DULBO	-20.578	24.870		-24.855		16.779
	(0.003)	(0.002)		(0.001)		(0.015)
DUCHAIRBEF					31.053	
					(0.005)	
DUCHAIR				-20.739		
				(0.034)		
DUCEO			9.318			
			(0.050)			
DUEQCOM			-11.162			
			(0.034)			
DUNY					-13.009	
					(0.048)	
DUDE			-8.047			-13.502
			(0.063)			(0.058)
R^2	18.126	14.642	11.824	21.067	15.469	18.911
Sample size	154	154	154	169	169	169

Table 10

Percentage recovery rates for each claimant class[a], by type of filing. The figures are based on 72 Chapter 11s with DIP financing and 100 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997. P-values are shown in brackets.

Type of filing	DIP Fin. ($m)	Secured creditors		Unsecured creditors		Equity[b]	
		DIP	No DIP	DIP	No DIP	DIP	No DIP
Pre-Packs	14	14	32	14	32	14	32
Mean	39.1	94.0	93.3	43.2	68.8	6.3	12.0
	-	(0.885)		(0.014)		(0.219)	
Median	28.5	100.0	100.0	51.1	70.5	2.1	4.4
	-	(0.548)		(0.024)		(0.333)	
No Pre-Packs	58	58	68	58	68	58	68
Mean	120.9	93.1	89.4	49.1	49.2	12.0	24.9
	-	(0.344)		(0.990)		(0.020)	
Median	37.5	100.0	100.0	36.1	42.5	1.8	1.6
	-	(0.227)		(0.752)		(0.420)	
No Pre-Packs[c]	25	25	68	25	68	25	68
Mean	199.6	96.0	89.4	72.6	49.2	15.7	24.9
	-	(0.078)		(0.050)		(0.161)	
Median	75.0	100.0	100.0	68.3	42.5	5.1	1.6
	-	(0.047)		(0.048)		(0.741)	
Total	72	72	100	72	100	72	100
Mean	105.0	93.3	90.7	48.0	55.5	10.9	20.8
	-	(0.401)		(0.212)		(0.019)	
Median	35.0	100.0	100.0	36.8	53.0	1.9	2.9
	-	(0.440)		(0.076)		(0.264)	

[a] Recovery rates for each class are given by the amount received by all the creditors of that class divided by the estimated allowed claim at face value for that class. Recovery rates for equity were obtained as a percentage of the ownership retained by pre-existing share-holders, after dilution.

[b] "Equity" includes preferred stock, options, warrants and common stock.

[c] The proportion of DIP financing in the estimated total debt is at least 20%.

Table 11

OLS regressions of percentage recovery rates on some selected variables. The results are based on 72 Chapter 11s with DIP financing and 100 Chapter 11s without DIP financing. The sample period is from January 1986 to October 1997.

Independent variables	Dependent variables (p-values in brackets)		
	Secured recovery	Unsecured recovery	Equity recovery
Constant intercept	92.399	81.732	63.374
	(0.000)	(0.000)	(0.000)
Log(Firm recovery)	10.958	35.441	14.887
	(0.000)	(0.000)	(0.000)
Log(Estim. Total debt)			-5.169
			(0.002)
DIP Fin. / Estim. total debt (%)		0.479	-0.130
		(0.000)	(0.070)
DUDIP		-17.988	
		(0.001)	
DULENDER		-11.073	-10.331
		(0.050)	(0.065)
DUMA	-6.884	-16.405	-10.216
	(0.064)	(0.009)	(0.034)
DUDIP*DUMA		26.959	
		(0.003)	
DUINV		-32.674	16.698
		(0.000)	(0.054)
DUDIP*DUINV		28.291	-25.704
		(0.032)	(0.059)
DUCHAIR	13.930		
	(0.004)		
DUEQCOM		-11.254	
		(0.026)	
DUDE	6.323		
	(0.064)		
Sec Equity / Sec Total (%)	-0.179		
	(0.006)		
Uns Equity / Uns Total (%)	0.120		-0.201
	(0.001)		(0.001)
Uns Equity / Uns Total * DUDIP (%)			0.141
			(0.066)
R^2	33.220	71.758	38.684
Sample size	152	152	152

Table 12

Asset sales and capital expenditures during bankruptcy in proportion of fixed assets measured at year end prior to filing for bankruptcy. Also, net assets sales[a] and asset sales plus new financing in proportion of the total estimated allowed claims. The figures are based on 48 Chapter 11s with DIP financing and 45 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997. P-values are shown in brackets.

	Asset sales over fixed assets		Capital expenditures over fixed assets		Net asset sales over fixed assets		Net asset sales + DIP Fin. over fixed assets	
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP
Sample size	40	39	40	39	40	39	40	39
Mean	0.1	0.8	0.8	0.2	-0.7	0.7	-0.1	0.7
	(0.337)		(0.255)		(0.140)		(0.414)	
Median	0.0	0.0	0.2	0.1	-0.1	-0.1	0.2	-0.1
	(0.916)		(0.159)		(0.125)		(0.000)	

[a] Net asset sales is measured as asset sales minus capital expenditures.

Table 13

Deviations from absolute priority for each claimant class[a], by type of filing. The figures are based on 72 Chapter 11s with DIP financing and 100 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997. P-values are shown in brackets.

Type of filing	DIP Fin. ($m)	Secured creditors		Unsecured creditors		Equity[b]	
		DIP	No DIP	DIP	No DIP	DIP	No DIP
Pre-Packs	14	14	32	14	32	14	32
Mean	39.1	-1.6	-1.5	-0.2	-0.4	1.8	1.9
	-	(0.882)		(0.899)		(0.969)	
Median	28.5	0.0	0.0	-0.2	0.0	0.9	0.9
	-	(0.738)		(0.534)		(0.952)	
No Pre-Packs	58	58	68	58	68	58	68
Mean	120.9	-4.9	-4.2	4.6	0.5	0.3	3.7
	-	(0.803)		(0.206)		(0.080)	
Median	37.5	0.0	0.0	0.0	0.0	0.0	0.0
	-	(0.357)		(0.295)		(0.303)	
No Pre-Packs[c]	25	25	68	25	68	25	68
Mean	199.6	-1.9	-4.2	3.6	0.5	-1.7	3.7
	-	(0.200)		(0.409)		(0.056)	
Median	75.0	0.0	0.0	0.0	0.0	0.0	0.0
	-	(0.061)		(0.649)		(0.326)	
Total	72	72	100	72	100	72	100
Mean	105.0	-4.2	-3.3	3.6	0.2	0.6	3.1
	-	(0.653)		(0.156)		(0.089)	
Median	35.0	0.0	0.0	0.0	0.0	0.0	0.0
	-	(0.533)		(0.473)		(0.322)	

[a] Deviations from absolute priority for each class measure the net dollar deviations as a percentage of the value of the securities that were restructured.

[b] "Equity" includes preferred stock, options, warrants and common stock.

[c] The proportion of DIP financing in the estimated total debt is at least 20%.

Table 14

OLS regressions of percentage deviation from absolute priority on some selected variables. The results are based on 72 Chapter 11s with DIP financing and 100 Chapter 11s without DIP financing. The sample period is from January 1986 to October 1997.

Independent variables	Dependent variables (p-values in brackets)		
	Secured deviation	Unsecured deviation	Equity deviation
Constant intercept	2.958	-13.223	8.279
	(0.463)	(0.018)	(0.018)
Log(Firm recovery)	6.378	-5.734	
	(0.000)	(0.001)	
Log(Estim. total debt)	-1.238	2.438	-1.061
	(0.093)	(0.016)	(0.081)
DIP Fin. / Estim. total debt (%)		0.146	-0.141
		(0.000)	(0.000)
DUINV		-9.225	4.582
		(0.031)	(0.090)
DUCHAIR	7.077	-11.355	
	(0.019)	(0.005)	
DUEQCOM		-7.615	5.674
		(0.028)	(0.008)
DUTRUSTEEE	-4.378	6.658	
	(0.045)	(0.023)	
DUDE	4.066	-6.936	
	(0.052)	(0.014)	
Uns Equity / Uns Total (%)	0.067		
	(0.004)		
R^2	28.104	28.748	22.116
Sample size	152	152	152

Table 15

OLS regression of the determinants of the time in reorganisation under Chapter 11. The figures are based on 135 Chapter 11s with DIP financing and 191 Chapter 11s without DIP financing. The sample period is from January 1986 to December 1997.

Independent variables	Dependent variable (p-values in brackets) Time in bankruptcy (days)
Constant intercept	-182.367
	(0.143)
Log(Total assets)	243.132
	(0.000)
Log(Total liabilities)	-121.908
	(0.053)
Total cash / Total distribution (%)	3.947
	(0.000)
Total cash / Total distribution * DUDIP (%)	-3.578
	(0.010)
DUPP	-512.495
	(0.000)
DUDIP*DUPP	216.084
	(0.050)
DUINV	-257.295
	(0.006)
DUCHAIR	179.004
	(0.041)
DUNY	167.258
	(0.009)
DURE	-118.638
	(0.041)
R^2	55.431
Sample size	152

Table 16

Panel A:

Selected financial characteristics measured at year end upon emergence from bankruptcy. The figures are based on 27 Chapter 11s with DIP financing and 38 Chapter 11s without DIP financing that reorganised as independent firms. The sample period is from January 1986 to December 1997. P-values are shown in brackets.

	Current assets over current liabilities		Total assets over total liabilities		Total assets over market value		Income[a] over total assets	
	DIP	No DIP	DIP	No DIP	DIP	No DIP	DIP	No DIP
Sample size	27	37	27	38	23	29	27	38
Mean	1.8	2.8	1.5	2.1	3.4	1.3	0.2	0.2
	(0.105)		(0.381)		(0.281)		(0.807)	
Median	1.7	2.0	1.4	1.3	1.5	1.1	0.0	0.0
	(0.568)		(0.391)		(0.071)		(0.563)	

[a] Income is earnings before interest, depreciation and taxes (EBIDT).

Panel B:

Comparison of selected financial characteristics measured at year end upon emergence from bankruptcy and before filing for bankruptcy. The figures are based on 23 Chapter 11s with DIP financing and 35 Chapter 11s without DIP financing that reorganised as independent firms. The sample period is from January 1986 to December 1997.

	Current assets over current liabilities (after vs before)			Total assets over total liabilities (after vs before)		
	Total	DIP	No DIP	Total	DIP	No DIP
Difference in ratios	57	23	34	58	23	35
Mean	1.4	0.4	2.1	0.8	0.3	1.1
P-value for paired sample comparison	(0.001)	(0.149)	(0.002)	(0.075)	(0.016)	(0.141)
Median	0.6	0.2	1.0	0.2	0.3	0.2
Sign test	(0.000)	(0.404)	(0.000)	(0.026)	(0.211)	(0.091)
Std. dev.	2.9	1.1	3.5	3.3	0.6	4.2