A firm filing a bankruptcy petition generally will either be liquidated under Chapter 7 of the Bankruptcy Code or be reorganized under Chapter 11. (Occasionally, a debtor will liquidate under Chapter 11.) The purpose of the Bankruptcy Code is to give the debtor: 1) time to decide whether to reorganize or liquidate; and 2) time to formulate a plan of action. Once a company files for protection under the Bankruptcy Code, the company generally becomes a “debtor-in-possession,” continuing to operate its business under the supervision of the court.

When a firm is liquidated, creditors receive distributions based on the “absolute priority rule,” to the extent that assets are available. The absolute priority rule is the principle that senior creditors are paid in full before junior creditors are paid anything. For secured creditors, the absolute priority rule guarantees their seniority to unsecured creditors and equityholders. For unsecured creditors, the absolute priority rule guarantees their seniority to equityholders.

In liquidations, the absolute priority rule generally holds, although there is a good body of literature (Meckling [1977], Miller [1977], Warner [1977], and Jackson [1986]) that argues that strict absolute priority has not been upheld by the courts or the SEC. Franks and Torous [1989] and Weiss [1990] have found that the violation of absolute priority is common.

Failure of the courts to follow strict absolute priority has implications for the capital structure of a firm. The view by Black and Scholes [1973] that the firm is effectively owned by creditors who have sold the shareholders a call option on the firm’s assets is not sustainable if the stockholders are not viewed as residual claimants. In derivation of the pricing of risky debt,
Merton [1974] assumes that absolute priority holds. In this article we determine which asset class bears the cost of violations of absolute priority, and derive an initial estimate of total distributed value relative to liquidation value for publicly traded firms that have emerged from Chapter 11. Before we discuss our sample and empirical evidence, we briefly review the various hypotheses suggested in the literature to explain why one might expect a violation of absolute priority in reorganizations. The role tax incentives may play in explaining violations of absolute priority is more fully discussed because the role of net operating losses in reorganizations is not widely recognized.

I. EXPLANATIONS FOR THE VIOLATION OF ABSOLUTE PRIORITY

Major Hypotheses

Several hypotheses have been suggested to explain why asset distribution patterns will diverge from those required by the absolute priority principle. The incentive hypothesis argues that the longer the negotiation process among the parties, the greater the bankruptcy costs, and the smaller the amount to be distributed to all parties. The recontracting process hypothesis, suggested by Baird and Jackson [1988], argues that the violation of absolute priority reflects a recontracting process between stockholders and senior creditors that gives recognition to the ability of management to preserve value on behalf of stockholders.

According to the stockholders' influence on reorganization plan hypothesis, suggested by Bebchuk [1988], creditors are less informed about the true economic operating conditions of the firm than management. As distributions to creditors in the plan of reorganization are based on valuations made by the firm, creditors without perfect information easily suffer the loss. According to Wruck [1990], managers generally have a better understanding than creditors or stockholders about a firm's internal operations, while creditors and stockholders can have better information about industry trends. Management may therefore use its superior knowledge to present the data in a manner that reinforces its position.

The essence of the strategic bargaining process hypothesis is that the increasing complexity of firms that declare bankruptcy will require more of a negotiating process, and result in an even higher incidence of violation of the absolute priority rule. This likely outcome is supported further by the increased number of official committees in the reorganization process as well as the increased number of financial and legal advisors.

Jensen [1989] and Wruck [1990] argue that creditors will receive a higher value in reorganization than they would in liquidation in part because of the costs associated with liquidation. Finally, as Bulow and Shoven [1978] argue, the lack of symmetry in the tax system (negative taxes are not permitted, although loss deductions may be carried forward) can mean that the only way to use all current loss deductions is to merge. The tax system may encourage continuance or merger and discourage bankruptcy, a significant structural result.

Net Operating Losses and Bankruptcy

Net operating losses (NOLs) play an important role in reorganization. A corporate tax is levied on income less depreciation and interest. No negative tax is allowed, but loss carryovers are permitted. A carryover cannot be sold, but it can be assumed by a merger partner.

Firms that file with the court for bankruptcy have usually experienced deteriorated cash flow or financial loss for years prior to their filing. They may not have paid corporate taxes. For the preservation of the loss deduction, however, the firm may be worth keeping as a going concern — the loss deduction is an intangible asset that will disappear when the firm is dissolved. Distributions to creditors and stockholders in an amount that exceeds what they would receive in liquidation could be considered payment for their contribution to the reorganized firm. Such distributions may be one of the factors behind the violation of the absolute priority rule.

The preservation of NOLs and other tax attributes can also affect the distribution of equity in the reorganized company to unsecured creditors. Companies have to abide by stringent change of control tests of the IRS to preserve net operating losses. Adherence to these control tests may violate absolute priority.

In 1986, the Internal Revenue Code was amended substantially. Among the changes was Section 382, which deals with the treatment of net operating losses for companies that have had an ownership change. These changes are important for companies
formulating plans of reorganization because the changes determine whether and/or to what extent a reorganized company can use its pre-petition NOLs. In some reorganizations, the magnitude of these NOLs dictates a careful adherence to the IRS rules in order to preserve the NOLs and thereby preserve their value in the reorganized company.

Outlined below are the basic IRS provisions that deal with NOLs for companies that have experienced an ownership change. Also outlined are the basic provisions of Section 382 (1)(5), which deals with the treatment of NOLs for companies in reorganization. Section 382 (1)(5) allows companies in reorganization to retain their NOLs under an exemption known as the Bankruptcy Exception if certain conditions are met.

In general, NOLs can be carried forward for fifteen years to offset taxable income. In the case of an ownership change, the Code imposes limitations on the amount of NOLs that can be used. (For this purpose, ownership change is defined as a change of ownership of more than 50% of a company’s equity during a three-year period.) Generally, a company that has had an ownership change is limited in the annual amount of NOLs it can use. This limitation is generally equal to the federal prescribed long-term tax-exempt rate times the fair market value of the stock at the time of the ownership change.

A major exception to this limitation on the use of NOLs is available to corporations that undergo a change of ownership as the result of reorganization. In order for the Bankruptcy Exception to apply, the corporation must meet two requirements. First, the corporation must be under the jurisdiction of a bankruptcy court immediately preceding the ownership change.

Second, shareholders and holders of qualifying debt must hold at least 50% of the total value of stock and at least 50% of the voting power immediately after the ownership change. In order for stock received by debtholders to be counted toward the 50% level, the debt must meet the definition of qualifying debt, defined as: 1) debt that has been held continuously for at least eighteen months prior to the petition date through confirmation; and/or 2) debt that arose in the ordinary course of business and has been held continuously by the original holder of the debt.

The value of the Bankruptcy Exception may be sufficient to encourage debtors to deviate from absolute priority in order to qualify for the exception. For example, assume that old debtholders are scheduled to receive all the stock in a reorganization, and that the reorganized company plans to use the Bankruptcy Exception in order to maximize its use of its NOLs. In this circumstance, if all the debtholders have held the debt for at least eighteen months prior to the bankruptcy petition, the qualifying debtholders will hold 100% of the stock, and the Bankruptcy Exception should apply.

If only 45% of the creditors hold qualifying debt, the plan of reorganization is likely to give these 45% of holders 50% of the stock and the remaining 55% the other 50% of the stock. Although this distribution gives relatively more stock to holders of qualifying debt, the holders of the non-qualifying debt are unlikely to reject the plan on the basis of their receiving less than holders of qualifying debt. Their acceptance of the plan is likely to be based on the maximization of the reorganized firm’s value through the retention of the NOLs, which means improved prospects for the stock they do receive.

The Coleco Industries bankruptcy exemplifies how the bankruptcy exception works in practice, and how Coleco’s adherence to the change of control tests violated absolute priority. In the Coleco Industries bankruptcy, holders of “qualifying debt” received at least 50% of the value and voting stock of Ranger Industries (the surviving shell corporation), while holders of similar unsecured but not qualifying debt received less than 50%. This distribution was formulated in order to adhere to the change of control tests and thereby preserve Coleco’s NOLs for Ranger Industries.

II. SAMPLE SELECTION AND DATA

Sample Selection Criteria

The firms included in this study are publicly traded companies that emerged from Chapter 11 between September 1, 1988, and April 1, 1990. By “emerged,” we mean that the final plan of reorganization was confirmed.

Companies were identified by searching The Wall Street Journal, Dow Jones News Wire, and other publications such as “Turnarounds and Works” by Beard Group, Inc., and by reviewing SEC filings, mainly the 8-Ks. All companies in the study had total assets of at least $25 million as reported in the 10-K prior to filing for Chapter 11 protection. The final
### EXHIBIT 1  Characteristics of Sample Firms

| Firm                  | Filing Date | Confirmation Date | Effective Date | Exchange | Assets Prior to Filing ($Mil.) | SIC   | Court District |
|-----------------------|-------------|-------------------|----------------|----------|---------------------------------|-------|----------------|
| Allis Chalmers        | 6/29/87     | 10/31/88          | 12/2/88        | NYSE     | 417.08                          | 3559  | NY-SD          |
| All Seasons Resorts   | 2/19/87     | 11/21/88          | N/A            | OTC      | 37.08                           | 7033  | CA-CD          |
| American Healthcare   | 8/7/87      | 10/6/89           | 12/29/89       | AMEX     | 518.26                          | 8062  | TX-ND          |
| BASIX Corp.           | 2/29/88     | 10/20/89          | 11/17/89       | NYSE     | 172.61                          | 6711  | NY-SD          |
| Beker Industries      | 10/21/85    | 10/7/88           | 11/2/88        | NYSE     | 142.26                          | 2874  | NY-SD          |
| Bercor               | 6/23/88     | 7/27/89           | 8/31/89        | OTC      | 63.76                           | 5064  | CA-CD          |
| Buttes Gas & Oil      | 11/15/85    | 12/20/88          | 2/16/89        | OTC      | 389.52                          | 1381  | NY-SD          |
| Cardis Corp.          | 5/25/88     | 11/17/89          | 12/15/89       | OTC      | 160.35                          | 5013  | CA-CD          |
| Coleco                | 7/12/88     | 2/2/90            | N/A            | NYSE     | 535.56                          | 3944  | NY-SD          |
| DeltaUS               | 1/31/89     | 12/15/89          | 1/12/90        | OTC      | 79.65                           | 1382  | TX-ED          |
| Global Marine         | 1/27/86     | 2/3/89            | 2/28/89        | NYSE     | 1,573.00                        | 1381  | TX-SD          |
| Heck's                | 3/5/87      | 5/24/89           | 9/29/89        | OTC      | 261.88                          | 5311  | WV-SD          |
| Kaiser Steel          | 2/11/87     | 9/27/88           | 11/16/88       | OTC      | 621.46                          | 3312  | CO-D           |
| Manville              | 8/26/82     | 10/28/88          | 11/28/88       | NYSE     | 2,236.10                        | 3296  | NY-SD          |
| McLean Industries     | 11/24/86    | 5/16/89           | 7/27/89        | NYSE     | 1,811.75                        | 6719  | NY-SD          |
| Melridge, Inc.        | 12/14/87    | 1/31/89           | 7/27/89        | OTC      | 79.10                           | 0181  | OR-D           |
| Newherry Corp.        | 6/9/87      | 12/19/89          | 1/12/90        | OTC      | 37.42                           | 1731  | AZ-D           |
| Pengo Industries      | 4/27/88     | 10/3/89           | 4/30/90        | OTC      | 29.81                           | 1389  | TX-ND          |
| Pettibone             | 1/31/86     | 12/9/88           | 1/3/89         | OTC      | 155.05                          | 3531  | IL-ND          |
| Po Folks              | 12/30/87    | 1/31/89           | 3/20/89        | OTC      | 50.77                           | 5812  | TN-MD          |
| Radice                | 2/25/88     | 4/3/89            | 6/19/89        | NYSE     | 288.92                          | 1531  | FL-SD          |
| Ramtek                | 9/29/88     | 12/1/89           | 12/18/89       | OTC      | 12.01c                          | 3672  | CA-ND          |
| UNR Industriesb       | 7/29/82     | 6/2/89            | 6/2/89         | OTC      | 232.63                          | 3312  | IL-ND          |
| Western Co.           | 2/2/88      | 3/27/89           | 5/12/89        | NYSE     | 542.52                          | 1389  | TX-ND          |
| Worlds of Wonder      | 12/22/87    | 5/3/89            | 5/25/89        | OTC      | 272.99                          | 3942  | CA-ND          |
| Zenith Labsb          | 5/4/88      | 10/3/89           | 12/21/89       | NYSE     | 61.87                           | 2834  | NJ-D           |

*Reorganized as Ranger Industries.

bFiled for protection from product liability-related lawsuit.

According to the 10-K available at the time of filing, assets were $35.86 million (6/30/87).

The 6/30/88 10K became available after 1989.

The sample consists of twenty-six firms.³

#### Sample Characteristics

Exhibit 1 lists filing date, confirmation date, effective date, trading location, asset size, and SIC code for each firm. Asset size was obtained from the 10-K prior to the Chapter 11 filing. Twenty-three firms filed for Chapter 11 protection because of financial distress, and three firms (Manville, UNR Industries, and Zenith Laboratories) did so as an escape hatch from product liabilities and related lawsuits.

Both Manville and UNR Industries were the subject of numerous asbestos-related suits. The bankruptcy of Zenith Laboratories was in large part related to allegations of the FDA that Zenith was marketing or manufacturing new drugs in an unapproved manner. As a result of the FDA allegations, Zenith was required to cease distribution of and recall certain products.

The table also gives the court district for the firms in our sample. Our sample includes bankruptcy petitions filed in fourteen different federal court jurisdictions. Weiss [1990] restricted his study to seven jurisdictions. Half of our sample is from four of the seven jurisdictions.

Exhibit 2 presents the outcome of Chapter 11
reorganizations in our sample. Twenty-four companies continued operating, three emerged as different entities, and two firms (Coleco and McLean Industries) sold all assets and reorganized as shell corporations. For all twenty-six firms, the sum of distributed value to all claimants (secured and unsecured creditors, and old equityholders) is greater than the liquidation value under Chapter 7.

EXHIBIT 2 Outcome of Chapter 11 Reorganization

| Firm                  | Result          | Secured      | Unsecured    | Equity       | Weiss's Classification¹ |
|-----------------------|-----------------|--------------|--------------|--------------|--------------------------|
| Allis Chalmers        | Cont. Op.       | Cash         | Cash,Equity  | Cash,Equity  | 2                        |
| All Seasons Resorts   | Cont. Op.       | Cash         | Stock        | Retention    | 2                        |
| American Healthcare   | Cont. Op.       | Cash,Notes,Equity | Cash,Notes,Equity | New Stock   | 3                        |
| BASIX Corp.           | Cont. Op.       | Cash         | Cash,Equity  | Cash,Equity  | 2                        |
| Beker Industries      | Emerged²        | Cash,Equity  | Cash,Equity  | New Stock    | 3                        |
| Bercor                | Emerged²        | Cash         | Cash         | New Stock    | 2                        |
| Buttes Gas & Oil      | Cont. Op.       | Cash,Equity  | Cash,Equity  | New Stock    | 3                        |
| Cardis Corp.          | Cont. Op.       | Cash,Equity  | Cash,Equity  | New Stock    | 3                        |
| Coleco                | Liquidation,Emerged³ | Cash         | Cash,Equity  | Cash         | 2                        |
| DeltaUS⁵              | Cont. Op.       | Cash         | Cash         | Cancelled    | 3                        |
| Global Marine         | Cont. Op.       | Cash,Equity  | Cash,Equity  | New Stock    | 2                        |
| Heck's                | Cont. Op.       | Cash,Notes,Equity | Cash,Equity  | New Stock    | 3                        |
| Kaiser Steel          | Cont. Op.       | Cash         | Cash,Equity  | New Stock    | 2                        |
| Manville              | Cont. Op.       | Cash,Notes,Equity | Cash,Equity  | New Stock    | 1 (2)⁶                    |
| McLean Industries     | Emerged⁴        | Cash         | Cash,Equity  | Cash,Equity  | 2                        |
| Melridge, Inc.        | Cont. Op.       | Cash         | Cash,Equity  | Cancelled    | 1                        |
| Newberry Corp.        | Cont. Op.       | Cash         | Cash,Equity  | New Stock    | 3 (2)⁷                    |
| Pengo Industries      | Cont. Op.       | Cash,Equity  | Cash         | New Stock    | 3                        |
| Pettibone             | Cont. Op.       | Cash,Equity  | Cash,Equity  | Cash,Equity  | 3                        |
| Po Folks              | Cont. Op.       | Cash         | Cash,Notes   | Cancelled    | 1                        |
| Radice                | Cont. Op.       | Cash         | Cash,Equity  | New Stock    | 2                        |
| Ramtek                | Cont. Op.       | Cash         | Cash,Equity  | Cancelled    | 1                        |
| UNR Industries        | Cont. Op.       | Cash         | New Stock    | New Stock    | 2                        |
| Western Co.           | Cont. Op.       | Cash         | Cash,Equity  | New Stock    | 2                        |
| Worlds of Wonder      | Cont. Op.       | Cash,Equity  | Cash,Equity  | Cancelled    | 3                        |
| Zenith Labs           | Cont. Op.       | Cash,Warrant | Cash,Equity  | New Stock    | 2                        |

(Cont. Op. = Continue Operation)

¹Shows when absolute priority was violated given the distribution among classes (classifications 2 and 3 represent violations of absolute priority). See Exhibit 3 for Weiss classifications.
²Beker Industries emerged as Nu-West, Bercor emerged as Newco, Coleco emerged as Ranger (no business), and McLean Industries emerged as Lancer Industries (no business).
³DeltaUS's stock was canceled, and Gordon P. Getty acquired 100% of the newly issued stock of the debtor.
⁴Although total liability is not known, estimated amount will be satisfied.
⁵One class is under litigation to decide whether creditors are secured or unsecured.

The distributed value-liquidation value ratio varies from 1.018 to 3.54 and averages 1.782. Therefore, on average, the going concern value of a firm in our sample is 1.782 times as large as its liquidation value.

It makes sense that the distributions to the sample exceed liquidation value for legal as well as economic reasons. It also is useful to compare reorganiza-
historical values. Although liquidation values are subject to criticism because they are put together using assumptions of management, historical values of a debtor are likely to be significantly overstated. This overstatement will come from several sources. The largest source of overstatement will probably be in fixed assets and related goodwill. It is often a function of assets acquired (and booked) when the particular assets were highly valued by the market. (For example, real estate in Texas acquired during the height of the oil boom would be booked at prices that would significantly overstate its value in liquidation.)

The Bankruptcy Code requires that the distributions under a reorganization to impaired claimants and holders of interests at least equal the distributions under a liquidation; economics dictates that the distributions under a reorganization should be greater than under a liquidation. The Bankruptcy Code requirement is dictated by Section 1129 (a)(7) of the Code. Pursuant to this section, the Bankruptcy Court must independently determine that each impaired creditor or interest will receive at least as much value under the reorganization as it would under a liquidation. Given this rationale for distributions, there are many theories to explain why distributions from reorganizations should exceed the respective liquidation distributions.

First, the fact that the majority of firms in the sample continued their operations means that the plan is ascribing some value to the continuing operation of the firm and its potential for generating a profit. In this sense, the value of distributions under a reorganization should always exceed liquidation value. The degree to which distributions will exceed liquidation values will be heightened by the attribution of value to NOLs for a firm that is continuing in business.

Second, asset prices of a firm in bankruptcy are likely to be depressed by the fact that the company has publicly stated by its filing that it is in financial distress. Therefore, potential buyers are likely to delay making an offer in the hope that they will be able to acquire assets at a lower price. As a result, net prices that can be realized in a short period of time (i.e., liquidation values) will likely be lower than net prices that could be realized if the debtor were able to take more time in selling the assets.

Third, bankruptcies are often related to industry factors such as overexpansion in the face of declining demand or changes in exogenous factors relating to an industry. (This was the case in the oil drilling services business in the mid 1980s.) In this scenario, the assets of a bankrupt company may represent redundant assets for which bids will be extremely low or non-existent.

A fourth explanation supporting the hypothesis that reorganization values should exceed liquidation values relates to the liquidation process itself. The liquidation process usually entails a rapid sale of assets. This requirement depresses the liquidation value of a firm relative to its going-concern value. The debtor's disclosure statement, which accompanies and explains a plan, often outlines the liquidation value of a firm. (The U.S. Trustee's Office requires a liquidation analysis although the Bankruptcy Code specifically requires only that the disclosure statement provide sufficient information to allow a hypothetical investor to make a reasonable decision on whether to accept or reject a plan.)

The liquidation estimates may be subject to a downward bias because they are based on estimates by the debtor itself. It is clearly in the interest of the debtor to provide estimates and assumptions that support its case that the liquidation value is less than the value of the reorganized company. In spite of this drawback, the liquidation values provided in disclosure statements may be the best and are usually the only data available. Clearly, if creditors believed that the liquidation value of the firm were higher than its value as a reorganized company, they would reject the plan in favor of liquidation.

A fifth explanation supporting the hypothesis that reorganization values exceed liquidation values relates to additional costs associated with a Chapter 7 liquidation. These additional costs include commissions and Chapter 7-specific costs. The commissions associated with liquidation can be significant. The commission charged on the sale of a particular asset could be as high as 20% of the gross proceeds from the asset.

Total liquidation costs can be significant. A study by Barsotti and Urbano [1990], for example, found that liquidation costs for a sample similar to that used in this study averaged 17.9%. The liquidation costs included commissions as well as costs associated with the Chapter 7 trustee and the cost of hiring additional professionals.

Under Chapter 7, an impartial trustee is appointed to liquidate the estate. It is likely that the Chapter 7 trustee will have no knowledge of the business.
ness of the debtors and will appoint attorneys and accountants to assist in the process. In addition, the Chapter 7 trustee is entitled to receive fees tantamount to administrative costs. At a maximum, these fees are 15% of the first $1,000, 6% on amounts over $1,000 but less than $3,000, and 3% on any amounts in excess of $3,000. Because many Chapter 7 expenses receive priority status and are paid before most other creditors, the amount distributable to other creditors is reduced.

A final explanation supporting the hypothesis that reorganization values exceed liquidation values is the fact that unsecured claims in a liquidation are often higher than those in a reorganization. These increased claims can come from several sources, including claims arising from rejected leases and contracts that would otherwise be assumed in a reorganization. Increased claims could also come from the rejection of employee benefit plans.

Claimants and Securities
Distributed to Claimants

For each firm in our sample, we obtained information on all publicly traded securities outstanding prior to Chapter 11 filing from The Bankruptcy Data Source, a monthly reference service published by New Generation Investments, Inc. in Boston. It provides detailed information on all bankruptcies of publicly traded companies with more than $10 million in assets. This data base — which includes common stock, preferred stock, convertible debt, straight debt, and notes — was culled from the 10-Ks, Standard & Poor’s Corporation Record, Moody’s Industrial Manual, National Stock Market Summary, National Bond Summary, and “Pink Sheets and Yellow Sheets” from the National Quotation Bureau.

In addition, we obtained the Disclosure Statement and the Plan of Reorganization for each sample firm. These documents provide information on the definition and treatment of each creditor class, a recovery analysis of claims (based on the distribution value generally provided by a financial advisor hired by the debtor), and a liquidation value. In some instances, the appraised value of newly issued securities is given in the disclosure statement.

The liquidation value has a specific meaning in these documents. It is an estimate of the amount that each class of claims and interests could expect if the proceeding is converted to a Chapter 7 liquidation under the Bankruptcy Code.

The market price of newly issued securities on the effective date of the plan of reorganization was obtained from the S&P Daily Stock Price Record, where available.

III. EVIDENCE OF VIOLATION OF ABSOLUTE PRIORITY RULE

To describe the distribution to different classes of creditors and interest holders, we use the three-group classification introduced by Weiss [1990]: secured creditors, unsecured creditors, and equityholders. He assigns firms to one of three classes according to the distribution:

Class 1: Absolute priority holds
Secured: 100% Unsecured: 100% Equity: > 0%

Class 2: Absolute priority is violated; priority held only for secured creditors
Secured: 100% Unsecured: < 100% Equity: > 0%

Class 3: Absolute priority is violated; priority did not hold for secured creditors
Secured: < 100% Unsecured: > 0% Equity: ≥ 0%

Exhibit 3 presents a summary of bankruptcy resolution in our sample. Absolute priority was maintained in only four of the twenty-six cases (15.4%). In the remaining twenty-two cases, absolute priority was violated. In twelve of these twenty-two cases of violation, priority held only for secured creditors. In the
remaining ten cases, priority did not hold for even secured creditors.

Thus, we can conclude from our sample that violation of absolute priority is not the exception but the rule. These results are consistent with Weiss's results [1990] that absolute priority was maintained in only 22% of his sample (eight out of thirty-seven cases).

When the priority for secured creditors is maintained, claimants usually receive cash (including deferred payments) or a cash equivalent note. In terms of present value, the claim was not always fully recovered because of an extension of maturity or a reduction of the interest rate. In contrast, when priority was violated, secured creditors received cash or a cash equivalent note and equity securities or equity warrants.

Within the unsecured creditor classes, absolute priority was seldom found to hold. In two cases, all unsecured claims were aggregated and treated equally. In two other cases, unsecured claims were aggregated into only two classes: convenience (small) claims and general unsecured claims (the rest).

Of the twenty-six sample firms, thirteen established a convenience claim class and distributed cash equal to approximately 24% to 100% of the allowed claims in the class. This treatment was granted to make the administration of small claims easier. Although the distribution generally equalled 24% to 100% of the allowed claim, the actual distribution as a percent of the original was often lower. The lower recovery was the result of the method for inclusion in a convenience class.

Generally, convenience classes are established for small unsecured claims or for larger unsecured claims that are reduced voluntarily by the creditor. For example, a plan might define convenience claims as claims of $500 or less, and/or larger claims that have been reduced to $500. To the extent that holders reduce their claims to $500 but receive the distribution only on the reduced amount, the percentage distribution is lower than the percentage cash distributed.

The maximum amount of a convenience claim varied widely and was correlated with the size of the debtor. For example, in Pettibone, convenience claims consisted of unsecured claims of $150 or less, while in the Manville bankruptcy, they included unsecured claims of $10,000 or less.

The establishment of several classes of unsecured creditors did not alter the violation of absolute priority, as absolute priority did not hold among the classes of unsecured creditors. Where more than one class of unsecured creditor was established, the more senior classes tended to receive a higher payout percentage. However, all the unsecured classes received something, even though a senior unsecured claim was not satisfied in full. (Later we discuss the treatment of bonds and debentures with different seniority.)

In five cases (19%), equityholders received no distribution, and the equities were canceled. This is consistent with Weiss's study, which found that equityholders received no distribution in 19% of the cases. There was one case in which equityholders received cash while the old equity was canceled. Of the remaining twenty cases, there was only one case in which equityholders retained their rights; in other cases old equityholders received new shares of the emerged companies.

We did notice that the ownership of old equityholders was significantly diluted because a large number of shares of new stock were distributed pursuant to the plan of reorganization. Frequently, the new stock was distributed to unsecured creditors. Less frequently, the new stock was distributed to secured creditors and/or new investors. Consequently, old equityholders were often left with a significantly diluted share of the new company, which usually had a much smaller market capitalization. Occasionally, this ownership was diluted further by the establishment of stock option plans under which 5% to 10% of the new equity was reserved for management.

Among equity classes (both preferred and common), the absolute priority rule seldom held. In the sample, thirteen firms had both preferred stock and common stock. In three cases (23%), the preferred stock and common stock were treated equally. In the other ten cases, the preferred stock was treated more favorably than the common stock.

For example, in the Kaiser case preferred stockholders received common stock of the reorganized company, but common holders received no distribution. At the time of its filing, Kaiser had two issues of preferred outstanding. The Series A had a redemption value of $13 per share while the Series B had a redemption value of $17 per share. These issues were treated differently in the plan, with the Series A receiving 0.035 shares of new common per preferred share, while the Series B received 0.045 new common per preferred share.
### EXHIBIT 4 Claim Amount of Old Securities and Market Value of What Was Received in Exchange for Old Securities ($Million)

| Firm                  | Senior Bonds | Sr. Sub. Deb. | Deb. | Notes | Sub. Sub. Deb. | Sr. Conv. Deb. | Sr. Sub. Notes | Sub. Conv. Notes | Pref. Stock | Common Stock | Total Value |
|-----------------------|--------------|---------------|------|-------|----------------|----------------|----------------|------------------|-------------|-------------|-------------|
| Allis Chalmers        | 9.3 (9.3)    |               |      |       |                |                |                |                  |             |             | 21.78       |
| All Seasons Resorts   |              |               |      |       |                |                |                |                  |             |             | 4.90        |
| American Healthcare   |              | 31.81 (93.5)  |      |       |                |                |                |                  |             |             | 33.98       |
| BASIX Corp.           | 15.54 (31.08)|              |      | 8.25  | 18.21          |                |                |                  |             |             | 26.35       |
| Beker Industries      | 39.35 (65)   | 0.33          |      | 3.36  |                |                |                |                  |             |             | 43.04       |
| Buttes Gas & Oil      | 3.57 (35.99) |              |      | 4.28  | 72.23          |                |                |                  |             |             | 9.56        |
| Cardis Corp.          | 2.18 (25)    |              |      | 5.37  | 35.99          |                |                |                  |             |             | 47.0        |
| Coleco                | 48.8 (216.2) |              |      | 18.27 | 80.96          | 0.025          |                |                  | 0.20        |             | 67.30       |
| DeltaUS               |              |               |      |       |                |                |                |                  |             |             | 0.00        |
| Global Marine         | 14.03 (277.9)|              |      | 6.122 | 121.3          | 2.10           | 5.45           |                  |             |             | 27.70       |
| Heck's                |              |               |      |       |                |                |                |                  |             |             | 4.40        |
| Kaiser Steel          |              | 0.02          |      | 0.00  |                |                |                |                  |             |             | 0.02        |
| Manville              | 74.03 (75)   | 118.5         |      | 21.6  |                |                |                |                  |             |             | 312.8       |
| McLean Industries     | 0.895 (103.7)| 0.945         |      | 0.94  | (109.35)      | 0.01           | 0.03           |                  |             |             | 1.88        |
| Melridge, Inc.        |              | 1.27 (30)     |      |       |                |                |                |                  |             |             | 1.27        |
| Newbery Corp.         |              | 0.04          |      |       |                |                |                |                  |             |             | 0.04        |
| Pengo Industries      |              | 0.18          |      | 0.11  |                |                |                |                  |             |             | 0.29        |
| Pettibone             | 0.849 (20)   | 0.157         |      | 0.05  | 3.7            | 1.20           |                |                  |             |             | 2.256       |
| Po Folks              |              | 1.89 (16.91)  |      |       |                | 0.00           | 1.89           |                  |             |             | 1.89        |
| Radice                | 1.58 (23.6)  | 0.001         |      | 0.609 |                |                |                |                  |             |             | 2.19        |
| Ramtek                |              | 1.35 (11.5)   |      |       |                | 0.00           | 1.35           |                  |             |             | 1.35        |
| UNR Industries        |              | 27.65         |      |       |                |                |                |                  |             |             | 27.65       |
| Western Co.           | 7.55(33.7)   | 6.58(37.4)    |      | 3.3   |                |                |                |                  |             |             | 19.82       |
| Worlds of Wonder      | 2.802(105.6) | 0.00          |      | 2.802 |                |                |                |                  |             |             | 2.802       |
| Zenith Labs           |              | 0.25          |      |       |                |                |                |                  |             |             | 0.25        |

Notes: A blank means that the security was not outstanding; a zero means that the security was outstanding and received nothing. The first number in a column is the market value of what was received. The number in parentheses is the amount of the claim stated in the disclosure statement.

The resolution of bankruptcy indicates that equityholders in over 75% of our sample receive some distribution in violation of absolute priority. This high percentage supports Eberhart, Moore, and Roenfeldt's [1990] hypothesis that equityholders are paid for forfeiting their delay option.

Five firms in our sample had outstanding warrants and stock options. In four of these cases, the warrants and stock options were canceled.

### IV. EVIDENCE ON THE DISTRIBUTION TO CLASSES OF SECURITIES

In this section, we report the violation of the absolute priority rule among securities of the debtor-in-possession: secured bonds, senior subordinated debentures, debentures, notes, subordinated debentures, subordinated notes, convertible subordinated debentures, preferred stock, and common stock.

#### Measuring the Deviation from Absolute Priority

To quantify the deviation of securities from absolute priority, we employed the index of deviation suggested by Franks and Torous [1989]:

\[
\text{Index of deviation} = \frac{(S_i - W_i)}{U}
\]
### EXHIBIT 5 - Index of Deviations of Securities from Absolute Priority

| Firm                  | Senior Bonds | Sr. Sub. Deb. | Sr. Sub. Notes | Conv. Deb. | Sub. Deb. | Conv. Notes | Conv. Sub. Deb. | Pref./Common Stock | Index of Deviation |
|-----------------------|--------------|---------------|----------------|------------|-----------|-------------|-----------------|-------------------|-------------------|
| Allis Chalmers        | 0            | -0.06         | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| All Seasons Resorts   | 0            | -0.627        | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| American Healthcare   | -0.09        | -0.09         | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| BASIX Corp.           | -0.41        | 0.313         | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Beker Industries      | -0.09        | -0.627        | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Bercor                | -0.404       | 0.448         | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Buttes Gas & Oil      | -0.09        | -0.627        | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Cardis Corp.          | -0.627       | 0.448         | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Coleco                | -0.494       | -0.275        | 0.271          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| DeltaUS               | -0.003       | -0.004        | -0.003         | -0.004     | 0         | 0           | 0               | 0                 | 0                 |
| Global Marine         | -0.09        | -0.627        | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Heck's                | -0.404       | 0.448         | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Kaiser Steel          | -0.003       | -0.004        | -0.003         | -0.004     | 0         | 0           | 0               | 0                 | 0                 |
| Manville              | -0.003       | -0.004        | -0.003         | -0.004     | 0         | 0           | 0               | 0                 | 0                 |
| McLean Industries     | -0.09        | -0.627        | 0.163          | 0          | 0         | 0           | 0               | 0                 | 0                 |
| Melridge, Inc.        | -0.003       | -0.004        | -0.003         | -0.004     | 0         | 0           | 0               | 0                 | 0                 |
| Newbery Corp.         | -0.003       | -0.004        | -0.003         | -0.004     | 0         | 0           | 0               | 0                 | 0                 |
| Pengo Industries      | -0.003       | -0.004        | -0.003         | -0.004     | 0         | 0           | 0               | 0                 | 0                 |
| Pettibone             | -0.624       | 0.07          | 0.554          | 0.351      | 0         | 0           | 0               | 0                 | 0                 |
| Po Folks              | -0.624       | 0.07          | 0.554          | 0.351      | 0         | 0           | 0               | 0                 | 0                 |
| Radice                | -0.279       | 0.07          | 0.554          | 0.351      | 0         | 0           | 0               | 0                 | 0                 |
| Ramtek                | -0.279       | 0.07          | 0.554          | 0.351      | 0         | 0           | 0               | 0                 | 0                 |
| UNR Industries        | -0.619       | 0.332         | 0.287          | 0.288      | 0         | 0           | 0               | 0                 | 0                 |
| Western Co.           | -0.619       | 0.332         | 0.287          | 0.288      | 0         | 0           | 0               | 0                 | 0                 |
| Worlds of Wonder      | -0.619       | 0.332         | 0.287          | 0.288      | 0         | 0           | 0               | 0                 | 0                 |
| Zenith Labs           | -0.619       | 0.332         | 0.287          | 0.288      | 0         | 0           | 0               | 0                 | 0                 |

**Notes:**
The index of deviation is equal to \((S_i - W_i)/U_i\), where \(S_i\) is the distributed value for the \(i\)-th security; \(W_i\) is the value for the \(i\)-th security under the absolute priority rule (which is the smaller of the claim amount of the \(i\)-th security and the value available for the \(i\)-th creditors after distribution to more senior creditors under absolute priority); and \(U_i\) is the total value distributed to securityholders in the Chapter 11 reorganization. A blank means that the security was not outstanding; a zero means that the security was outstanding and received nothing.

where \(S_i\) is the distributed value for the \(i\)-th security; \(W_i\) is the value for the \(i\)-th security under the absolute priority rule (which is the smaller of the claim amount of the \(i\)-th security and the value available for the \(i\)-th creditors after distribution to more senior creditors under absolute priority); and \(U_i\) is the total value distributed to securityholders in the Chapter 11 reorganization.

The index of deviation allows us to document the presence of deviation from the absolute priority rule among distributions to securityholders and determine which classes of securities bear the cost of deviation and which classes realize additional value. A positive value for the index of deviation means that the securityholders received more than they would have obtained under the absolute priority rule; a negative value means that they received less.

The index of deviation is constructed to permit a comparison across firms. For a firm, this is done by squaring and summing up all the deviations of securities and then dividing by two. Since the index of deviation has a range between -1 and 1, and the sum of all deviations in a firm equals zero, the index calculated as above will have a value between 0 and 1. The larger the value of a firm's index of deviation, the larger the deviation from absolute priority for the treatment of
securities in the firm's reorganization.

Violation of Absolute Priority Among Securities

Exhibit 4 shows the claim amount of old securities and the market value of what was received in exchange for the old securities. By "old securities" we mean the securities of the bankrupt firm that were outstanding at the time of filing. The figure in parentheses in Exhibit 4 is the amount of the claim stated in the disclosure statement, and the figure preceding it is the market value of what was received. The figure in the last column is the total value of what was received in exchange for the old securities.

Exhibit 5 shows the deviation of securities from absolute priority. The values in this table show which classes of securities bear the cost of deviation and which classes benefit from the deviation. Negative values for a class of securities indicate that the class of creditors did not receive full payment of their claim, but that junior creditors received some distribution.

The results of the index of deviations suggest that subordinated debt bears the cost of deviations from absolute priority. All senior subordinated debentures, debentures and notes, and five out of eight subordinated debentures had negative indexes of deviation.

The results further suggest that the more senior the subordinated debt, the greater the burden. Although each senior subordinated debenture had a negative index of deviation, only five out of eight subordinated debentures had a negative index, and three out of seven convertible debentures had a positive index.

The results suggest, moreover, that equityholders are often the beneficiaries of violations of absolute priority. In twelve out of twenty-six cases, equityholders received a greater distribution than they would have received under absolute priority.

V. TREATMENT OF HOLDERS OF DEBT SECURITIES AND HOLDERS OF INTEREST

Here we quantify the average recoveries from the sample. This information is useful in that it provides a benchmark for distributions for plans of reorganization. In the aggregate, it may provide a measure of financial deterioration of firms.

Treatment of Holders of Debt Securities

Exhibit 6 shows the type and value of what was received in exchange for the old debt securities. If a firm had more than one debt security outstanding with the same seniority, and the securities are treated equally in the plan of reorganization, the issues are treated as one group. Figures in parentheses show the recovery (in cents) per dollar of claim amount of old debt.

Holders of old debt securities of all types most often received new common stock of the reorganized firm in exchange for the old debt securities. The second most frequent distribution was cash. In four cases, holders of old debt received new debt securities.

The first column of Exhibit 7 presents the summary statistics of the recovery (in cents per dollar of claim amount) of all debt securities (including secured bonds) in Exhibit 6. The mean recovery of holders of all debt securities was 26.2% of the claim amount.

Exhibit 7 also presents summary statistics of recovery (in cents per dollar of claim amount) for each type of debt security in Exhibit 6. The mean recoveries of holders of secured bonds, senior subordinated debentures, subordinated debentures, and convertible subordinated debentures were 80.3%, 19.7%, 17.2%, and 8.8% of the claim amount, respectively.

TREATMENT OF THE DEBENTURES AND NOTES:

There are five old senior subordinated debentures in our sample. In three cases, creditors of senior subordinated debentures received new common stock of the reorganized firm. In the BASIX Corp. case, holders of senior subordinated debentures received new preferred stock. In the Global Marine case, they received new common stock and new warrants. Only Manville had old debentures and old notes. Holders of both types of securities were treated equally and received a combination of cash, new notes, new debentures, new common stock, and new warrants.

In five cases out of eight, old subordinated debenture holders received new common stock of the reorganized firm. In the Coleco case, they received cash and new common stock. In the McLean Industries, Inc. reorganization, holders of subordinated debentures and subordinated notes were treated equally, and received new preferred and new common stock. In the Pettibone case, subordinated debenture holders received new notes and new common stock.
EXHIBIT 6  ■ Type and Value of What Was Received in Exchange for Old Debt Securities ($Million)

| Firm          | Old Bonds/Notes | New Cash | New Notes | New New | New Pref. Stock | New Common Stock | New New Warrants | Total Value |
|---------------|-----------------|----------|-----------|----------|-----------------|------------------|-----------------|-------------|
| Allis Chalmers| Secured Bond (100.0$) |          |           |          |                 |                  |                 | 9.3         |
| All Seasons Resorts | No Old Bonds |          |           |          |                 |                  |                 |             |
| American Healthcare | Sub. Deb. 16.5 (17.6$) |          |           |          |                 |                  |                 | 31.805      |
| BASIX Corp.   | Sr. Sub. Deb. 15.54 (50.0$) |          |           |          |                 |                  |                 | 15.54       |
| Beker Industries | Sr. Sub. Deb. 29 (44.6$) |          |           |          |                 |                  |                 | 39.35       |
| Bercor        | No Old Bonds |          |           |          |                 |                  |                 |             |
| Buttes Gas & Oil | Sr. Sub. Deb. 3.57 (9.9$) |          |           |          |                 |                  |                 | 3.57        |
| Coleco        | Sub. Deb. 43.53 (20.1$) |          |           |          |                 |                  |                 | 48.9        |
| Global Marine | Sr. Sub. Deb. 12.4 (4.5$) |          |           |          |                 |                  |                 | 14.03       |
| Global Marine | Cv. Sub. Deb. 5.41 (4.5$) |          |           |          |                 |                  |                 | 6.122       |
| Heck's        | No Old Bonds |          |           |          |                 |                  |                 |             |
| Kaiser Steel  | No Old Bonds |          |           |          |                 |                  |                 |             |
| Manville      | Deb. 26.73 (35.6$) |          |           |          |                 |                  |                 | 74.03       |
| McLean Industries | Sub. Deb. 0.895 (0.9$) |          |           |          |                 |                  |                 | 0.895       |
| Melridge Inc. | Cv. Sub. Deb. 1.27 (4.2$) |          |           |          |                 |                  |                 | 1.27        |
| Newbery Corp  | No Old Bonds |          |           |          |                 |                  |                 |             |
| Pengo Industries | No Old Bonds |          |           |          |                 |                  |                 |             |
| Pettibone     | Sub. Deb. 0.326 (1.6$) |          |           |          |                 |                  |                 | 0.849       |

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EXHIBIT 6 • Continued

| Firm          | Old Bonds/Notes | Cash | New Notes | New Deb. | New Pref. Stock | New Common Stock | New Warrants | Total Value |
|---------------|-----------------|------|-----------|----------|----------------|------------------|--------------|-------------|
| Pettibone     | Cv. Sub. Deb.   | 0.06 | 0.06      | 0.097    | (2.6¢)         |                  |              | 0.157       |
| Po Folks      | Cv. Sub. Deb.   | 0.39 | 1.5       | 1.5      | (6.7¢)         |                  |              | 1.89        |
| Radice        | Sub. Deb.       |      | 1.5       | 1.5      | (6.7¢)         |                  |              | 11.2¢       |
| Ramtek        | Cv. Sub. Deb.   | 1.35 | 1.35      | 1.35     | (11.7¢)        |                  |              | 11.7¢       |
| UNR Industries| No Old Bonds    |      |           |          |                |                  |              |             |
| Western Co.   | Sr. Sub. Deb.   |      |           |          | 7.55           | (22.4¢)         |              | 7.55        |
|               | Sub. Deb.       |      |           |          | 6.58           | (17.6¢)         |              | 6.58        |
| Worlds of Wonder | Cv. Sub. Deb. | 2.155| 0.647     | 2.802    | (2.6¢)         |                  |              |             |
| Zenith Labs   | No Old Bonds    |      |           |          |                |                  |              |             |

Notes: Figures in parentheses indicate the return (in cents) per U.S. $ of claim amount of the old bonds and notes. A blank means that a security was not outstanding; a zero means that the security was outstanding and received nothing.

There are seven old convertible subordinated debentures. In two cases, holders of the old convertible subordinated debentures received new common stock. In the Coleco case, they received cash, new common stock, and warrants to buy Hasbro common stock. (Hasbro acquired essentially all of Coleco's assets associated with the operation of its toy and game businesses.) In the Global Marine case, new common stock and new warrants were distributed. In the Pettibone case, they received new notes and new common stock. In the Po Folks case, holders received cash and new notes. In the Worlds of Wonder case, they received cash and new preferred stock.

Exhibit 8 summarizes the return (in cents per dollar of claim amount) of all unsecured debentures and notes. On average, the unsecured debenture holders received 21.5% of the claim amount.

TREATMENT OF DEBENTURES AND NOTES OF DIFFERENT SENIORITY WITHIN A FIRM: In four cases in our sample, firms had more than one kind of old debenture and/or note of different seniority. In

EXHIBIT 7 • Summary Statistics for Return in Cents Per $ of Claim for All Debt Securities

|                | All Debt Securities | Sr. Bond | Sr. Sub. Deb. | Deb. | Notes | Sub. Deb. | Sub. Notes | Cv. Sub. Deb. |
|----------------|---------------------|----------|---------------|------|-------|-----------|------------|--------------|
| Mean           | 26.2¢               | 80.3¢    | 19.7¢         | 98.7¢| 98.7¢| 17.2¢     | 0.9¢       | 8.8¢         |
| Median         | 11.2                 | 80.3     | 11.2          | 98.7¢| 98.7¢| 12.2      | 0.9         | 2.6          |
| Minimum        | 0.9                  | 60.5     | 5.0           | —    | —    | 0.9        | —          | 2.6          |
| Maximum        | 100.0                | 100.0    | 50.0          | —    | —    | 45.3      | —          | 22.6         |
| Sample Size    | 25                   | 5        | 5             | 1    | 1    | 8         | 1          | 7            |
EXHIBIT 8 ■ Summary Statistics for Return in Cents Per $ of Claim for Unsecured Debentures

|                  | Unsecured Debentures | Senior Sub.Deb. | Junior Sub.Deb. | Convertible Sub.Deb. | Sub.Deb. |
|------------------|----------------------|-----------------|-----------------|----------------------|----------|
| Mean             | 21.5¢                | 21.8¢           | 18.5¢           | 13.4¢                | 13.4¢    |
| Median           | 11.2                 | 16.2            | 11.8            | 13.4                 | 13.4     |
| Minimum          | 0.9                  | 5.0             | 5.0             | 4.2                  | 4.2      |
| Maximum          | 98.7                 | 50.0            | 45.3            | 22.6                 | 22.6     |
| Sample Size      | 23                   | 4               | 4               | 2                    | 2        |

Each case, the debtor-in-possession had both senior subordinated debentures and junior debentures outstanding. In three cases out of four, holders of senior subordinated debentures received more than junior debenture holders and maintained their seniority relative to the junior debenture holders. In the Global Marine case, holders of senior subordinated debentures received the same amount as holders of convertible subordinated debentures.

Exhibit 8 gives summary statistics of return (in cents per dollar of claim amount) for senior debentures and junior debentures when a firm had issued both types of debentures. Note that the mean return for senior subordinated debentures was 21.8% of the claims compared with an 18.5% recovery for the holders of junior debentures.

TREATMENT OF DEBENTURES AND NOTES OF THE SAME SENIORITY WHEN ISSUED BY THE SAME FIRM: In four of the sample firms, the debtor-in-possession had two kinds of old debentures, notes, subordinated debentures, or convertible subordinated debentures outstanding with the same seniority. In all cases, the holders were treated equally. This treatment is in accordance with the seniority rule.

Exhibit 8 summarizes the return (in cents per dollar of claim amount) statistics for subordinated debentures and convertible subordinated debentures when one firm had issued both debentures. There were two firms that had issued both subordinated debentures and convertible subordinated debentures. The holders of subordinated debentures and convertible subordinated debentures were treated equally, receiving, on the average, 13.4% of their claims.

As we described earlier in this section, the absolute priority rule among debt securities is violated. The junior creditors often received something before the senior creditors obtained 100% of their claims. When a firm had more than one kind of old debentures or notes with different seniorities, all debenture holders are sometimes treated equally, although in most cases the senior holders received more than the junior creditors. The senior creditors tend to receive a higher percentage of their claims than the junior creditors in the plan of reorganization.

Treatment of Equityholders

Exhibit 9 shows the type and the value of distributions to holders of old equity. In this case, "old equity" means the preferred stock and common stock that the debtor-in-possession had outstanding at the time of its bankruptcy filing.

To calculate the market value of preferred stock and common stock, we used the closing trading price of each stock on the effective date of the plan of reorganization. When the trading price of preferred stock or common stock was not available, we used the appraised value contained in the disclosure statement or the book value from the pro forma balance sheet in the disclosure statement.

For both preferred and common equity, the recoveries in cents per share are shown in parentheses. These figures were calculated using the number of shares outstanding on the filing date. A second recovery estimate is presented for preferred stock. This recovery is calculated using a per share liquidation value. In three cases, the liquidation value of the preferred stock was not available. These cases are denoted by "N/A." Since there is a difference between per dollar and per share values, the figures in parentheses are not comparable to those of bonds in Exhibit 6.

In thirteen of twenty-six cases, debtors-in-possession had old preferred stock. In seven of these cases, old preferred stockholders received only new common
### EXHIBIT 9 ■ Type and Value of What Was Received in Exchange for Old Equity ($Million)

| Firm            | Old Stock          | Cash       | New Notes | New Deb. | New Pref. Stock | New Common Stock | New Warrants | Total Value |
|-----------------|--------------------|------------|-----------|----------|-----------------|------------------|--------------|-------------|
| Allis Chalmers  | Pref. Stock        | 10.91      |           |          |                 | 0.95             | (12.16)      | 11.86       |
|                 | (per share)        | (138.5g)   |           |          |                 | (138.5g)         | (150.6e)     |             |
|                 | (per $ of L.V.)    | (3.14)     |           |          |                 | (3.14)           | (3.4e)       |             |
|                 | Common Stock       |            |           |          |                 | 0.62             | 0.62         |             |
|                 | (per share)        |            |           |          |                 | (4.3g)           | (4.3e)       |             |
| All Seasons     | Common Stock       |            |           |          |                 | 4.9 (old)        | 4.9 (old)    |             |
| Resorts         | (per share)        |            |           |          |                 | (125.0g)        | (125.0e)     |             |
| American        | Common Stock       |            |           |          |                 | 2.17             | 2.17         |             |
| Healthcare      | (per share)        |            |           |          |                 | (17.9g)         | (17.9e)      |             |
| BASIX Corp.     | Pref. Stock        |            |           |          |                 | 0.06             | 0.06         |             |
|                 | (per share)        |            |           |          |                 | (27.3g)         | (27.3e)      |             |
|                 | (per $ of L.V.)    |            |           |          |                 | N/A             | N/A          |             |
|                 | Common Stock       |            |           |          |                 | 2.5              | 2.5          |             |
|                 | (per share)        |            |           |          |                 | (25.7g)         | (25.7e)      |             |
| Beker Industries| Pref. Stock        |            |           |          |                 | 0.33             | 0.33         |             |
|                 | (per share)        |            |           |          |                 | (28.7g)         | (28.7e)      |             |
|                 | (per $ of L.V.)    |            |           |          |                 | N/A             | N/A          |             |
|                 | Common Stock       |            |           |          |                 | 3.36             | 3.36         |             |
|                 | (per share)        |            |           |          |                 | (28.7g)         | (28.7e)      |             |
| Bercor          | Common Stock       |            |           |          |                 | 2.43             | 2.43         |             |
|                 | (per share)        |            |           |          |                 | (56.5g)         | (56.5e)      |             |
| Buttes          | Pref. Stock        |            |           |          |                 | 0.38             | 0.38         |             |
| Gas & Oil       | (per share)        |            |           |          |                 | (47.5g)         | (47.5e)      |             |
|                 | (per $ of L.V.)    |            |           |          |                 | N/A             | N/A          |             |
|                 | Common Stock       |            |           |          |                 | 3.2              | 3.2          |             |
|                 | (per share)        |            |           |          |                 | (3.2g)          | (3.2e)       |             |
|                 | (per $ of L.V.)    |            |           |          |                 | N/A             | N/A          |             |
| Cardis Corp.    | Common Stock       |            |           |          |                 | 1.9              | 1.9          |             |
|                 | (per share)        |            |           |          |                 | (32.8g)         | (32.8e)      |             |
| Coleco          | Pref. Stock        | 0.025      |           |          |                 | 0.025            | 0.025        |             |
|                 | (per share)        | (112.5g)   |           |          |                 | (112.5g)        | (112.5e)     |             |
|                 | (per $ of L.V.)    |            |           |          |                 | N/A             | N/A          |             |
|                 | Common Stock       | 0.2        |           |          |                 | 0.2              | 0.2          |             |
|                 | (per share)        | (1.1g)     |           |          |                 | (1.1e)          | (1.1e)       |             |
| DeltaUS         | Common Stock       |            |           |          |                 | No Distribution  | 0            |             |
|                 | (per share)        |            |           |          |                 |                 |             |             |
| Global          | Pref. Stock        |            |           |          |                 | 1.65             | 0.45         | 2.1         |
| Marine          | (per share)        |            |           |          |                 | (35.9g)         | (9.8g)       | (45.7e)     |
|                 | (per $ of L.V.)    |            |           |          |                 | (29.5g)         | (8.0g)       | (37.5e)     |
|                 | Common Stock       |            |           |          |                 | 4.28             | 1.17         | 5.45        |
|                 | (per share)        |            |           |          |                 | (12.9g)         | (3.5g)       | (16.4e)     |
| Heck's          | Common Stock       |            |           |          |                 | 4.4              | 4.4          |             |
|                 | (per share)        |            |           |          |                 | (49.4g)         | (49.4e)      |             |
| Kaiser Steel    | Pref. Stock        |            |           |          |                 | 0.02             | 0.02         |             |
|                 | (per share)        |            |           |          |                 | (0.1g)          | (0.1e)       |             |
|                 | (per $ of L.V.)    |            |           |          |                 | (0.01g)         | (0.01e)      |             |
stock of the reorganized firm. In three cases, they received only cash.

In the Allis Chalmers case, holders of preferred stock received cash and new common stock. In the Global Marine case, they received new common stock and new warrants. In the Manville case, they received new preferred stock and new common stock of the reorganized firm. In only one case, Pettibone, did holders of preferred stock receive a distribution equal to the liquidation preference. (The liquidation value of the Pettibone preferred stock was low.) In other cases, preferred stockholders received much less than the liquidation value.

Exhibit 10 presents summary statistics of value received in reorganization per share of old preferred stock outstanding on the bankruptcy filing date. The

| Firm            | Old Stock          | New Cash | New Notes | New Pref. Stock | New Common Stock | New Warrants | Total Value |
|-----------------|--------------------|----------|-----------|-----------------|-----------------|--------------|-------------|
| Kaiser Steel    | Common Stock       | No       | Distribution |                |                 |              | 0           |
| Manville        | Pref. Stock (per share) | (1,619.2e) | N/A       | (2,558.7e)      | 118.47          |              | (90.0e)     |
| McLean Industries | Pref. Stock (per share) | (1.0e) | N/A       | (1.0e)          |                 |              | (0.2e)      |
| Melridge Inc.  | Common Stock (per share) | 0.03 | N/A       | 0.03            |                 |              | (0.2e)      |
| Newbery Corp.   | Common Stock (per share) | 0.04 | N/A       | 0.04            |                 |              | (2.4e)      |
| Pengo Industries | Pref. Stock (per share) | (120.0e) | N/A       | (120.0e)        | 0.18            |              | (2.9e)      |
| Pettibone       | Pref. Stock (per share) | 1.2    | N/A       | 1.2             |                 |              | (43.1e)     |
| Po Folks        | Common Stock (per share) | 0.001 | N/A       | 0.001           |                 |              | (10.5e)     |
| Radice          | Pref. Stock (per share) | (10.5e) | N/A       | (10.5e)         |                 |              | (1.08)      |
| Ramtek          | Common Stock (per share) | (10.5e) | N/A       | (10.5e)         |                 |              | (120.0e)    |
| UNR Industries  | Common Stock (per share) | 27.65 | N/A       | 27.65           |                 |              | (747.3e)    |
mean recovery of holders of old preferred stock was $3.411 per share.

In six out of twenty-six cases, holders of old common stock received no distribution. In sixteen cases, old common stockholders received new common stock of the reorganized firm. In the All Seasons Resorts case, common stockholders retained their rights and kept their old common stock. Their ownership was significantly diluted, however, because of the issuance of common stock to general unsecured creditors. In the Global Marine case, old common stockholders received new common stock and new warrants. In the Coleco and McLean Industries cases, old common stockholders obtained cash, but the amount was insignificant.

VI. SUMMARY

Our study of the patterns of distribution to creditors and securityholders for twenty-six firms emerging from Chapter 11 documents evidence of violation of the absolute priority rule among three broad groups: secured creditors and unsecured creditors and equityholders, and also among various types of debt and equity securities. Recovery ratios varied for individual classes and securities.

Violation of the absolute priority rule was found in twenty-two out of the twenty-six cases. In ten of the twenty-two cases, violation between secured creditors and unsecured creditors was observed; in twenty of the twenty-two cases, there was a violation between unsecured creditors and equityholders.

The violation of absolute priority was also commonly observed among the treatment of various types of securities outstanding prior to the Chapter 11 filing. Among unsecured securities, senior debt tended to receive a higher payout percentage than junior debt. Within a firm, senior debenture holders tended to be paid 3.3% more than junior debenture holders on average. The average recovery ratio of the various debt securities was as follows: secured bonds, 80.3%; senior...
subordinated debentures, 19.7%; subordinated (junior), 17.2%; convertible subordinated debentures, 8.8%.

The evidence suggests that unsecured creditors bear a disproportionate cost of reorganization, and that the more senior unsecured creditors may bear a disproportionate cost relative to the junior unsecured creditors. The study also suggests that equityholders may benefit from violations of absolute priority.

ENDNOTES

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1 For an overview of the bankruptcy process, see Howe [1991].

2 The sample is limited because of financial constraints.

3 All previous studies that have examined the distribution patterns from reorganization suffer from the same problem — namely, a small sample size. For example, Weiss studied thirty-seven reorganizations for publicly traded firms that filed for Chapter 11 protection from 1980 to 1986. The sample of Franks and Torous [1989] included thirty reorganizations from 1970 to 1984. Gilson, John, and Lang [1990] investigated eighty-nine publicly traded firms that attempted private debt restructuring but ended up filing for Chapter 11 protection between 1978 and 1986.

Only the deviation for distributions to securityholders are considered here. General unsecured claims such as trade claims are not included.

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