When the Congress Says “PIP Your KERP”: Performance Incentive Plans, Key Employee Retention Plans and, Chapter 11 Bankruptcy Resolution

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Abstract

The Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 (BAPCPA) imposed severe restrictions on Key Employee Retention Plans (KERPs) adoption and favored Performance Incentive Plans (PIPs) in Chapter 11. Examining pre-BAPCPA data, we find that higher plan payout per employee results in shorter Chapter 11 for both types of plans. We observe a positive stock price reaction to plan approvals, which result in higher operating performance during and after bankruptcy. But we find no association with Chapter 11 reorganization outcomes. BAPCPA may have reduced Chapter 11 resolution efficiency by limiting the contracts that creditors can offer to key employees.

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1. Introduction

Prior to the reform of the Chapter 11 procedure in 2005 by the Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA), debtors-in-possession could offer a Key Employee Retention Plan (KERP) and/or a Performance Incentive Plan (PIP) to managers and other employees deemed crucial for the bankrupt firm. These “pay-to-stay” and “pay-to-perform” contracts proposed by the management of the Chapter 11 firm could be argued for or against by the claimholders in the bankruptcy court and were subject to the latter’s approval. The bankruptcy judges typically approved the proposed KERPs and/or PIPs as long as the proposed plans did not contradict “sound business judgment” and were deemed to be a “reasonable” compensation (see, e.g., Suhreptz, 2009). However, certain KERPs were heavily criticized for promising large retention bonuses to managers (Hotchkiss, et al., 2008). For example, in the 2002 Enron bankruptcy, in spite of numerous objections by the Securities and Exchange Commission and other interested parties, the bankruptcy judge approved the original retention plan worth $47.4 million to $130 million (The New York Times, March 30, 2002). In another Chapter 11 case, Polaroid proposed a KERP of $19 million (of which $5 million for the 45 top executives) after having annulled the healthcare benefits of approximately 6,000 of its retirees just-prior to bankruptcy filing (The New York Times December 11, 2001 and December 30, 2001). Motivated by public criticism generated by such cases, the U.S. Congress legislated BAPCPA to impose important restrictions on the use of bonus schemes that companies in Chapter 11 can offer to their managers and employees.1 In particular, KERPs have been, for all practical purposes, ruled out by the 2005 act that amended Chapter 11 (see for example, The New York Times, September 6, 2006). Using data prior to BAPCPA, we distinguish between KERP and PIP

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1 The Hearing of the Subcommittee on Commerce and Administrative Law, House of Representatives, 101st Congress, on April 17, 2007.
contracts and analyze whether imposing legal restrictions on the set of contracts that can be used to retain and motivate employees in a Chapter 11 bankruptcy makes economic sense.

The empirical evidence on the costs and benefits of KERPs during Chapter 11 is limited, that on PIPs is non-existent. Previous academic research examines (i) the evolution of number of KERPs over time and the characteristics of Chapter 11 cases (Crutchley and Yost, 2008; and Bharath, Panchapegesan and Werner, 2010); (ii) the prevalence of Absolute Priority Deviations (APDs) and Debtor-in-Possession (DIP) financing when KERPs are present (Bharath, Panchapegesan and Werner, 2010); and (iii) whether presence of hedge funds as stakeholders has an impact (among other Chapter 11 case characteristics) on KERP adoptions (Jiang, Li and Wang, 2012). This area of research provides no conclusive evidence as to whether retention schemes are valuable tools for turning around companies in distress or whether they are simply wasteful payouts suggested by self-dealing managers and approved by imprudent judges.

We contribute to this line of research by evaluating the impact of KERP and PIP adoptions on Chapter 11 firms’ performance with data prior to BAPCPA, when bankruptcy courts were free to approve KERP and/or PIP adoptions. Our contribution is six-fold. First, we are the first to differentiate between employee incentive versus employee retention contracts using hand-collected data from case documents. Second, we examine whether there are any differences in KERP and/or PIP adoptions and Chapter 11 case characteristics. Third, we examine the impact of KERP and PIP adoptions on (i) Chapter 11 duration, (ii) time between filing and the incentive or retention plan adoption, and (iii) time between adoption until bankruptcy resolution. In contrast to the existing literature, in our regressions we not only account for the presence of these incentive and retention contracts but we also account for their size (in total amount of dollars as well as dollars per targeted-employee) and coverage (the fraction of employees that were targeted). Fourth, we examine stock price reaction around plan adoption dates (albeit with a smaller sample due to data restrictions). Fifth, we examine the role of the presence and coverage of KERPs and PIPs on the operating performance of Chapter 11 companies (using non-adopting bankrupt firms as the

\[2\] For a definition of APDs see, e.g., Franks and Torous (1989), and for a definition of DIP financing see Dahiya et al. (2003).
benchmark). Finally, we test whether these incentive and retention plans’ presence, size, or coverage affect Chapter 11 resolution. Our results suggest that in Chapter 11 bankruptcy a more flexible contracting space between the stakeholders and the employees is not only preferred by the claimholders, but also beneficial for the company’s operating performance.

We find that a KERP or a PIP contract was present in most (64%) of Chapter 11 cases covered in our sample. In line with the previous literature, we observe that these contracts’ incidence is increasing over 1993-2004, our sample period. While the presence of KERPs dominates that of PIPs (61% versus 19% of Chapter 11 cases in our sample), PIPs are larger in size, number of employees covered under the plan, and dollar amount per employee targeted by the plan. Our results indicate that both KERPs and PIPs are more likely to be adopted by larger firms with higher liquidity levels and are less likely to be adopted in prepackaged or prenegotiated bankruptcy cases. We also find that the presence of a DIP financing has a positive impact on the probability of the joint adoption of a KERP and a PIP. Furthermore, for the limited number of firms whose stocks continue to be traded after the bankruptcy filing, we observe a positive and significant abnormal return of 7.81% over the 3-day period after the KERP adoption approval by the bankruptcy judge.3

The analysis of economic consequences of KERP and PIP adoption indicates that both KERPs and PIPs create value for the bankrupt firm performance. The size of the KERP or PIP has a positive impact on the speed of bankruptcy resolution, while their presence seems to have a positive impact on the operating performance of firms during the Chapter 11 bankruptcy and in the post-bankruptcy period. There are also differences between KERPs and PIPs. Our results indicate that while adoption of PIPs is associated with shorter bankruptcy resolution, adoption of KERPs is associated with longer bankruptcy proceedings, and this even relative to cases with neither a PIP nor a KERP. Importantly, we also find that as the promised payout per employee increases, the Chapter 11 duration decreases irrespective of the plan type. While there is no difference in the time-until-adoption between KERPs and PIPs, once adopted,

3 In our sample, there are only three Chapter 11 companies that adopt a PIP with stocks trading around the adoption date.
those cases with a PIP spend a shorter time in bankruptcy until the disposition. In terms of their operating performance, firms that adopt either a stand-alone KERP or a stand-alone PIP outperform firms that adopt neither. Overall, our results indicate that both KERPs and PIPs are beneficial to firms that adopt them in bankruptcy.

What do our findings imply regarding the impact of BAPCPA on the evolution of Chapter 11 bankruptcies? By tying the adoption of KERP-type pay-to-stay contracts to a very stringent list of conditions, BAPCPA has in effect ruled them out in favor of PIP-type performance incentive contracts. This fact may explain the recent precipitation of certain distressed companies, such as AIG, to offer retention bonuses prior to a potential Chapter 11 filing, and the public outrage to such payouts following bailouts given that such bonuses would not have been possible under the amended bankruptcy rules. In our sample, cases in which PIPs are adopted last shorter and exhibit higher ex post operating performance compared to cases with no retention or performance incentive plans. Given these findings, and presuming the pre- and post-BAPCPA PIPs are similar, one could be tempted to conclude that post-BAPCPA bankruptcies would be expected to last shorter and result in higher operating performances.

However, this would be an over-simplification. In our sample period, firms could propose retention and incentive contracts to selected groups of employees, upon which the creditors had the possibility to weight the costs and benefits of these propositions and make their case in front of a bankruptcy judge. The court, in turn, had the option to consider the validity of the debtor-in-possession-proposed retention and performance incentive contracts if these complied with the “sound business judgment” principle. The fact that KERPs were not objected to by the creditors in most bankruptcy cases, and that highest priority creditors (DIP lenders) appear to prefer joint KERP and PIP adoptions over other types of contracting, is consistent with the view that these plans were deemed useful for the retention of key employees by the lenders trying to reclaim the maximum value for their, now in default, claims.\(^4\) We also find that firms that adopt a KERP experience a positive stock price reaction, which suggests that

\(^4\) It should be noted that in some cases, such as Enron, the bankruptcy judges approved retention plans despite creditors’ and the SEC’s objections.
equityholders value KERP adoptions. In line with these \textit{ex ante} positions of senior creditors and equityholders, we find that firms adopting a KERP exhibit better \textit{ex post} operating performance than those that adopt neither type of plan. Finally, as plan amount promised by the target employee increases, bankruptcy duration decreases not only for PIPs but also for KERPs. As a result, by removing the flexibility with which contracts can be tailored given the specifics of each bankruptcy case through BAPCPA, the Congress, despite its best intentions, might have rendered Chapter 11 bankruptcy less efficient, at least in a non-negligible proportion of cases.

The paper evolves as follows: in the next section we provide an overview of related literature on Chapter 11 bankruptcy, KERPs and PIPs. This is followed by data description (Section 3) and empirical analysis (Section 4). In section 5 we provide discussion or our results together with our conclusions.

\section*{2. Chapter 11 Bankruptcy, KERPs and PIPs}

\subsection*{2.1. KERP versus PIP contracts}

Pay-to-stay and pay-to-perform plans are inherently different. KERPs are proposed to retain personnel (management or otherwise) whose continued presence is deemed curial for the Chapter 11 firm. Bankrupt firms cite the potential loss of their “key employees” as another layer of complication, in an already difficult situation, which would worsen the losses. For example, in the bankruptcy of ACT Manufacturing Inc. in 2001, the management argued that “… in light of the potential sale of business, it is critical that the Debtors retain various key employees in order to preserve the going concern value of the businesses as well as maintain customer confidence.” (U.S. Bankruptcy Court District of Massachusetts, Western Division, ACT Manufacturing, Inc., Chapter 11 case no. 01-47641-JBR, page 1). Chapter 11 firms often argue they have already lost some of their key employees due to bankruptcy filing, making it essential to retain the ones remaining in place. Peregrine Systems in its 2002 bankruptcy case explains that “… although the Debtors’ monthly [employee] turnover rate (annualized) was historically 4\% to 11\%, during August and to date in September the rate of [employee] turnover was approximately 36\% …” (U.S. Bankruptcy Court District of Delaware, Peregrine Systems, Chapter 11 case no. 02-12470, page
17), while Drypers Corporation (a year 2000 bankruptcy case) is more precise: “... several officers and other executives have resigned, including the prior chief financial officer, director of information technology, and executive director of marketing. Drypers believes that additional non-executive and executive employees (including sales and operations personnel) may resign because of the uncertainty surrounding Drypers’ business and their future employment status.” (U.S. Bankruptcy Court Southern District of Texas, Houston Division, Drypers Corporation, Chapter 11 case no. 00-39360-H4-11, page 2). A typical KERP included a list of employees (or a category of employees) to which it applied, the amount of retention bonus, and a payment date, conditioned on the targeted key employees staying with the firm. For example, Signal Apparel in its 2000 bankruptcy asked the court to authorize the “...Debtor to pay “stay bonuses” to the following employees (the “Key Employees”): Robert J. Powell, Esq. in the amount of $21,231.00, Gerald Mohamed in the amount of $5,000.00 and Sattie Bansi in the amount of $5,000.00” (U.S. Bankruptcy Court Southern District of New York, Signal Apparel Company, Chapter 11 case no. 00-B-14462, page 3). In other cases, the retention bonuses are a multiple of the salary: “The proposed KERP provides that 13 individuals are eligible to receive a six month bonus with the balance (i.e. 47 individuals) are eligible to receive a 3 month bonus. The total maximum payout for all Key Employees under the Retention Plan (exclusive of the CEO) will not exceed $2,347,411” (U.S. Bankruptcy Court District of Massachusetts, Western Division, ACT Manufacturing, Inc., Chapter 11 case no. 01-47641-JBR, page 5).

In contrast, PIPs typically tie the payment of bonuses to thresholds of performance that is measured using standard financial ratios such as earnings before interest, taxes, depreciation and amortization to total assets (EBITDA/TA). For example, Westpoint Stevens during its 2003 bankruptcy proceedings asked the court to approve the performance incentives program designed to “... reflect achievements of Company wide levels of EBITDA and cash availability, which are metrics more commonly associated with creditor or lender interests.” (U.S. Bankruptcy Court Southern District of New York, Westpoint Stevens Inc., Chapter 11 case no. 03-13532-RDD, page 6). Typically, the management details the conditions required for the PIP to be effective. For example, in the 2003 bankruptcy of Galey
and Lord, Inc., the management proposed that “Under the PIP, each Critical Employee in tiers 1 and 2 would be eligible for a bonus based on the Debtors’ consolidated EBITDAR [earnings before interest, taxes, depreciation, amortization, and restructuring and bankruptcy related costs and charges] for the 18 month period ending on September 30, 2003. The Debtors would need to achieve a target consolidated EBITDAR of approximately $94.28 million for the relevant 18 month period for these Employees to receive a bonus from an aggregate bonus pool of approximately $297,000, and would need to achieve a target consolidated EBITDAR of approximately $106 million during the 18 month period for these Employees to receive a bonus from an aggregate bonus pool of approximately $1.75 million” (U.S. Bankruptcy Court, Southern District of New York, Galey & Lord, Inc., et al., Chapter 11 case no. 02-40445-ALG, page 5). Prior to BAPCPA, in many cases the debtors proposed, and courts approved, a KERP plus a PIP.

While key employee retention plans and performance incentive plans are not explicitly mentioned in the bankruptcy code, until BAPCPA in 2005 they were both allowed, as judges had the power to approve these plans under the sections 105 and 363 of the code. The new section 503(c) of Chapter 11 as amended by BAPCPA now requires that the debtor in possession, when filing a request for a KERP, provides proof that (i) the executive or employee in question, who must be essential for the survival of the business, has already a bona fide offer from a third party of equal or higher amount, and that the proposed contract is essential for their retention; (ii) the proposed KERP amount is not higher than ten times the mean payments made to outsiders during the same year, or lack thereof, 25% of the mean of similar payments made to insiders during the previous calendar year. Critics indicated that these provisions of the 2005 Act would make it all but impossible to maintain key employees who, after a job offer from another and plausibly financially healthier firm, would have incentives to follow their career elsewhere. For example, bankruptcy judge Christopher S. Sontchi (Delaware Bankruptcy Court) believes that key employee retention plans make sense in spite of being essentially forbidden by Congress (Wall Street Journal, January 27, 2012). BAPCPA does not impose such restrictions on PIP, or pay-for-value contracts, where pay is clearly linked to performance benchmarks. As a result, debtors-in-possession are
tempted to formulate any KERP that they may want to offer as a PIP contract. For example, in a much cited case, the New York Southern District Judge Burton Lifland denied the proposed bonus petition in the Dana Corp bankruptcy deeming it a “KERP” and arguing that “this compensation scheme walks like, talks like, and is a KERP” (The New York Times, September 6, 2006) and is, as such, forbidden according to the new Section 503(c) of Chapter 11 (e.g., DiPasquale and Crowley, 2010). We examine whether such restrictions imposed by the Congress through BAPCPA make economic sense.

2.2. Review of the academic literature

Even though retention bonuses, performance incentives, and executive compensation in bankruptcy are related concepts they are different in nature and scope. Past academic research, typically focuses only on the executive compensation in bankruptcy (Gilson and Vetsuypens, 1993; Henderson, 2006) and management turnover (Gilson, 1989), leaving out the role of retention and performance bonuses. While the role of PIPs has not been examined at all in the literature, three papers have, to varying degrees, examined the retention plans. Crutchley and Yost (2008) analyze 77 cases involving a KERP during 1997-2002. These authors use LoPucki’s Bankruptcy Research Database between 1997-2002 and do a keyword search on Lexis-Nexis to identify KERP adopting bankrupt firms. Crutchley and Yost (2008) find that bankruptcy duration is longer for those firms that have a retention plan, but find no link between KERP presence and post-Chapter 11 stock performance. These authors also provide details on the total KERP size and the number of covered employees for a subsample of 42 firms, but do not use these variables in multivariate regressions as we do with our larger sample. In an analysis of Chapter 11 bankruptcies over time, Bharath, Panchapegesan and Werner (2010) note that their sample of 157 KERPs is not distributed evenly over time: there is an increase in KERPs over the 1979-2005 period, with the first adoptions appearing in 1988. They analyze the link between presence of a KERP, DIP financing, APDs, and bankruptcy duration. While Bharath, Panchapegesan and Werner (2010) do not find a significant impact of the KERP on bankruptcy duration, they find that presence of the KERP reduces the probability of having an APD in bankruptcy. Crutchley and Yost (2008) and Bharath, Panchapegesan and
Werner (2010) do not examine the link between the KERP adoptions and stock price reactions or operating performance, and do not evaluate the potential role of PIPs. Finally, Jiang, Li and Wang (2012) focus on the role of hedge funds in Chapter 11 resolutions. Tangentially, they observe that hedge funds’ involvement in Chapter 11 bankruptcies is positively correlated with KERP adoptions. This finding is consistent with a positive value that hedge funds, in their role as activist stakeholders, associate with the adoption of KERPs to retain key employees.

It should also be noted that none of these studies considers the impact the recent legislative changes through BAPCPA might have on Chapter 11 bankruptcy resolution and operating performance of firms in or post-bankruptcy (in fact, Jiang, Li and Wang, 2012, treat post-2005 plans as KERPs, even though these are more likely to be PIPs). Furthermore, our search yields a significantly larger number of cases involving a KERP or a PIP than either than Crutchley and Yost (2008), Bharath, Panchapegesan and Werner (2010), or Jiang, Li and Wang (2012). Moreover, we are able to account for the impact of size and coverage of these contracts in our regressions.

The academic law literature on KERPs and PIPs is also scant. Some legal scholars criticize the enactment of the BAPCPA in 2005 by arguing that failed firms will have difficult time retaining key employees, which will affect their ability to continue operating and maximize value (Kuney, 2004; Fishman, 2005; and Harring, 2008). We test the validity of these arguments by comparing the operating performance of bankrupt firms that adopt a KERP or a PIP with respect to those that do not. Other legal scholars predict that the change in the bankruptcy law will just incite lawyers and other restructuring professionals to find other means to retain key employees, through various loopholes that exist in the Code (see Mayer and Caplan, 2006; Rogoff, Sussman and Cohen, 2006). Finally, others argue that, given the difficulties in designing retention plans in bankruptcy, failed firms might be less likely to file for bankruptcy in the first place (Nickles, 2006).\footnote{We refrain from testing these two points as our focus is on a comparative study of KERPs versus PIPs.}

Past research analyzes several measures of performance in bankruptcy and successful bankruptcy resolution. Those include, but are not restricted to: duration of bankruptcy proceedings, stock returns in
bankruptcy, operating performance during and after bankruptcy, and bankruptcy outcome (reorganization vs. liquidation). For a complete review of literature see Hotchkiss et al. (2008). We discuss the literature on performance in bankruptcy where appropriate in the remainder of the study.

3. Data

3.1. Sample construction

The starting point for our sample construction is the Altman-NYU Salomon Center Bankruptcy database which provides a comprehensive list of all large U.S. bankruptcies (with liabilities larger than $100 million at Chapter 11 filing). From this database we obtain a list of 827 U.S. firms in Chapter 11 over the 12-year period between 1993 and 2004. We start in 1993 because prior to this date EDGAR filings, which we use to double-check on bankruptcies, were not available. We end with 2004 because the BAPCPA, which became effective in 2005, implicitly ruled out KERPs after that date. For each of the 827 companies we obtain the SIC code and the last annual financial report filed prior to the Chapter 11 filing. We exclude (i) financial companies (with SIC codes from 6000 to 6999), and (ii) non-financial companies for which the last filed annual financial report was not within 365 days prior to the bankruptcy filing date. This leaves us with a sample of 438 Chapter 11 cases. The bankruptcy filing dates in the Altman database were verified using the Public Access to Court Electronic Records (PACER) database that provides access to case summaries, docket entries, and in many (but not all) cases access to either (i) a list of court documents or (ii) actual court documents. If a company filed for Chapter 11 more than once during our sample period, we only keep the first bankruptcy in the sample and discard the later filings.

Out of the initial 438 cases, 82 were eliminated because the PACER database did not provide a list of court documents that would have allowed us to establish the presence or lack of retention or incentive plans. The remaining 356 bankruptcy cases, for which PACER provided a case number and a

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6 http://pages.stern.nyu.edu/~ealtman/Credit%20Debt%20Markets%20Databases.htm
7 http://pacer.psc.uscourts.gov/usbcii.html
docket containing the descriptive list of all court documents pertaining to the Chapter 11 case, form our main sample. To establish the existence (or lack) of a KERP or a PIP plan we conduct a case-by-case search in the PACER document list, which provides brief descriptions of the court documents, with the following keywords: “retention”, “incentive”, “employee plan”, “KERP”, and “PIP”. Following this search we found that in 127 cases (36%) out of the 356 bankruptcies that form our sample there were neither a KERP nor a PIP plan approved by the bankruptcy judge, while a KERP and/or a PIP was approved in 229 cases (64%).

Table 1 presents distributions of KERP and/or PIP plans approved by the courts during our sample period on an annual basis. The total number of bankruptcies covered in our sample (column A) initially increases almost steadily over time, starting with just two cases in 1993, passing the threshold of ten in 1996, and peaking with 96 cases in 2001; and then steadily decreases after 2001. Similar patterns are observed for the 127 cases involving neither a retention nor an incentive plan (column B), as well as 229 cases involving a KERP and/or a PIP (column C). Importantly, on an annual basis 44% to 91% of firms in our sample of bankruptcies involve a KERP or a PIP, with the exception of year 1994 for which the proportion is 17%. Our sample includes 163 cases (46%) where only a retention plan was approved, 12 cases (3%) where only an incentive plan was present, and 54 cases (15%) where both types of contracts were allowed by the court. The number of bankruptcies where only a KERP was approved (column D) shows a pattern similar to the one described above: we observe only one KERP approved case in 1993 and 1994, the threshold of ten KERP cases is passed in 1994 with 14 cases, the peak of 51 KERP cases is reached in 2001, with the numbers almost halving in 2002 and 2003. This pattern does not change when we add to the number of cases involving only a KERP those cases that involve both a KERP and a PIP (column G). The observed pattern for KERPs is very similar to the ones observed by Bharath, Panchapegesan and Werner (2010), Crutchley and Yost (2008), and Jiang, Li and Kang (2012). However, compared to these studies, ours yields a larger number of bankruptcy cases involving a KERP: 217 versus 157 in Bharath, Panchapegesan and Werner (2010), which covers a slightly longer time period (the number of KERP cases in Bharath, Panchapegesan and Werner, 2010, is 143 for the years that
overlap with our sample period); 77 in Crutchley and Yost (2008) whose sample years are subsumed in ours; and 191 in Jiang, Li and Wang (2012) who treat the 25 post-BAPCPA plans as KERPs even though these are more likely to be PIPs. However, there are also differences in the samples due to search algorithms and database sources. For example, in 2001, the peak year of large U.S. bankruptcies in our sample, we find 72 cases where a KERP was approved by the bankruptcy judge, compared to 35 KERPs listed by Bharath, Panchapegesan and Werner (2010), 26 indicated by Crutchley and Yost, and 34 observed by Jiang, Li and Wang (2012). Our sifting through court documents contained in the PACER database yields a higher coverage of KERPs. Importantly, we find that with the exception of years 1994 and 1995, the percentage of bankruptcy cases in our sample that involve a KERP plan (either alone or joint with a PIP) ranges from 50% to 91%, indicating the higher frequency with which these plans were adopted prior to the passage of BAPCPA.

As noted above, our study is the first to examine the differences in the potential economic impacts of incentive contracts and compare them with those of retention contracts. Column E of Table 1 indicates that, when compared with the KERPs, the approval of PIPs is a more recent and relatively less common phenomenon. Our search indicates that there were no PIPs approved until 1999, except one in 1995 and one in 1997. The number of PIP contracts approved by the bankruptcy judges increases from five in 1999 to a high of 23 in 2001 before decreasing to four in 2004 (Column H of Table 1), driven primarily by joint KERP and PIP adoptions (Column F of Table 1). The percentage of bankruptcy cases with PIP increases steadily from 0% in 1993 to 40% in 2004 (Column H of Table 1). The number of cases where only a KERP is approved strictly dominates the number of cases where a KERP and a PIP were approved jointly, which in turn strictly dominates the stand-alone PIP adoptions. Next, we present the summary statistics and conduct univariate tests to detect any systematic differences across bankruptcies with or without retention and/or incentive plans.
3.2. Descriptive statistics and univariate tests

In Table 2 we provide descriptive statistics for the variables used in the analysis that are common to the whole sample. In Table 3 we test for the differences in the means of the variables in Table 2 across four subsamples relevant for our study: the 127 cases that involve neither a retention nor an incentive contract (column A), the 163 cases that had only a KERP (column B), the 12 cases where only a PIP was signed by the bankruptcy judge (column C), and 54 cases where both a KERP and a PIP were approved (column D).

In tables 2 and 3, the first set of variables is “dummies” (denoted by the prefix $D_\text{-}$) that describe the various bankruptcy related characteristics of the sample. Prior research indicates that prepackaged bankruptcies differ from other Chapter 11 cases in terms of better financial condition at bankruptcy filing and significantly shorter bankruptcy duration (see e.g. Betker, 1995; Tashjian, Lease and McConnell, 1996). As a result, we expect that there would be less of a need to give retention or performance bonuses in pre-packaged bankruptcies. In Table 2, 10.11% of the whole sample involves a pre-packaged reorganization plan ($D_{\text{PREPACK}}$) prior to the bankruptcy filing date. The mean for $D_{\text{PREPACK}}$ is 25.98% (Table 3, column A) for cases that involve neither a KERP nor a PIP, whereas only 1.84% of KERP-only cases (Table 3, column B) are pre-packaged bankruptcies, a difference that is statistically significant. Among bankruptcies that involve a PIP, with or without a KERP (columns C and D), $D_{\text{PREPACK}}$ is equal to zero. These observations are consistent with prepackaged deals resulting in swift bankruptcy resolution, and alleviating the need for incentive or retention plans. We also control for pre-negotiated (but not approved as of filing date) reorganization plans ($D_{\text{PRENEG}}$), a dimension that has not been examined before. While the pre-negotiated deals may also speed up the bankruptcy resolution, they may also eventually fall apart. As a result, we are likely to observe differences in pre-negotiated deals’ prevalence in the sample compared to that of the prepackaged deals. Pre-negotiated deals account for 17.42% of the whole sample (Table 2). In Table 3, we observe that there is an important variation across the subsamples in terms of the fraction of pre-negotiated deals: 9.26% of the KERP-and-PIP subsample are pre-negotiated deals, in contrast to 16.65% of the KERP-only subsample, 21.26% of
the neither-KERP-nor-PIP subsample, and 25% of the PIP-only subsample. It is not straightforward to interpret these observations. It may be that negotiating parties do not view employee retention as a critical issue in bankruptcy resolution. It is not clear that incentive plans are a priority in pre-negotiated deals either. The influence that the stockholders might exert during the bankruptcy proceedings (e.g., Betker 1995) is proxied by the presence of the equity committee ($D_{EQCOMM}$). In a bankrupt firm the shareholders have an out-of-money option, which may become in-the-money if employees have the incentives to exert the necessary effort. As such, we could expect that the propensity to have incentive and retention contracts would increase in the presence of a committee of equityholders. On the other hand, the latter may hold the management in place responsible for the bankruptcy and may not want to offer retention contracts even if they would be willing to offer performance incentives. We observe that approximately every one in nine bankruptcy case involves a committee defending equityholders’ rights, but 25% of PIP-only cases have such a committee as opposed to 16.67% for KERP-and-PIP cases, 8.02% of KERP-only cases, and 12.60% of neither-KERP-nor-PIP cases. There appears to be some evidence in support of equityholders’ willingness to offer performance incentives, but not necessarily retention plans. We also control for the presence of debtor-in-possession (DIP) financing, which increases the influence of creditors in bankruptcy and can have a crucial impact on the decisions taken in bankruptcy (see Dahiya et al, 2003 and Chatterjee, Dhillon and Ramirez, 2004). We observe that cases where a PIP is approved are more likely to get DIP financing: 55.91% of no retention nor incentive contract cases and 57.41% of KERP-only cases have DIP financing, in contrast to 75% of PIP-only and 79.63% of KERP-and-PIP cases (differences across these two set of subsamples are statistically significant). The release of the cash collateral ($D_{CASHCOLL}$) is observed in 61.41% of the whole sample, with the subsample differences varying (statistically insignificantly) between 59.29% and 67.77%. Filing venue (bankruptcy court or even bankruptcy judge) can have an impact on bankruptcy proceedings (see Hotchkiss, 1995; Chang and Schoar, 2006). In our sample, almost 40% of all cases were decided in Delaware ($D_{DE}$) courts, as opposed to almost 15% for the New York Southern District ($D_{NYSD}$) courts. While the variation across subsamples for the preponderance of Delaware courts shows no statistically significant variation: almost
one-in-three PIP-only and one-in-four KERP-and-PIP cases involve a NYSD court as opposed to 11.02% of no-KERP-nor-PIP cases. In the 53.54% of the 254 bankruptcy cases for which we could the information the end result is reorganization with a company that emerges as a viable entity (*D_EMERGE*). This implies that 47.46% of all cases result in a liquidation. Even though, the proportion of companies emerging from bankruptcy differs across subsamples in Table 2 (59.49% for no incentive or retention plan cases versus 54.64% for KERP-only, 62.50% for PIP-only, and 46.67% KERP-and-PIP cases), the observed differences are not statistically significant.

In the bottom halves of tables 2 and 3, we provide summary statistics on sample firms’ financial characteristics using pre-bankruptcy COMPSTAT data. To minimize the effects of large outliers, the variables that are financial ratios are winsorized at the 1st and 99th percentiles of their distributions. While the average firm in the sample has pre-bankruptcy total assets (*TA*) of 1.65 billion (Table 2), the companies for which both a KERP and a PIP were approved have *TA* of 2.97 billion dollars (Table 3, column D), which, in turn, is almost four times larger than the *TA* of companies with no KERP nor PIP (Table 3, column A). Similarly, the average KERP-only bankrupt company has pre-bankruptcy total assets of 1.95 billion dollars (Table 3, column B). PIP-only firms appear to be no different in size than their neither-KERP-nor-PIP counterparts. There is a similar pattern when size is measured by the book value of total liabilities (*TL*) or by the total number of employees (*NEMP*). Pre-bankruptcy leverage (*LEV*, which is defined as the debt to total assets ratio) is significantly lower for cases involving a either KERP or a PIP (ranging from 1.0122 to 1.0660) when compared to cases that involve neither a KERP nor a PIP (1.2375), with the difference being statistically significant. However, we observe no statistically significant difference across different subsamples in the pre-bankruptcy market-leverage (*MRKTLGV*, ratio of book value of total liabilities to the sum of book value of total liabilities and market capitalization), which ranges between 0.8372 and 0.8650 in Table 3. While the pre-bankruptcy sales to total assets ratio (*SALES/TA*) in Table 3 is slightly higher in column D for KERP-and-PIP subsample (1.2367) and slightly lower for the PIP-only subsample in column C (1.0372), these averages when compared with the no-KERP-no-PIP subsample in column A (1.1479) are not statistically significant.
Similarly, in Table 3 we observe no statistically significant differences in current assets to total assets ratio \((CA/TA)\) across various subsamples (averages ranging between 0.3748 and 0.4236). In contrast, Table 3 indicates that prior to Chapter 11 filing, cases that involve a KERP or a PIP have, on average, less catastrophic return on assets \((ROA)\), relatively speaking, than the subsample that lacks such contracts: \(ROA\) ranges between \(-21.74\%\) and \(-31.82\%\) for the former group, compared to \(-41.95\%\) for the latter (these averages are statistically significantly different at the conventional levels). Not surprisingly, a similar difference is observed across the two groups for the pre-filing ratio of earnings before interest, taxes, depreciation and amortization to total assets \((EBITDA/TA)\), which ranges between \(-0.78\%\) to \(0.98\%\) for the former group, as opposed to \(-2.25\%\) for the latter (however, these averages are not statistically significantly different from each other). Finally, we examine the number of days spent in Chapter 11 \((DAYS)\), which is equal to the days between Chapter 11 filing date and the disposition date.  

\(DAYS\) is significantly higher when a KERP is involved (584.93 days on average for KERP-only and 647.60 days for KERP-and-PIP) when compared with no-KERP-nor-PIP or PIP-only cases (402.28 and 402.09 days, respectively). It appears that the employee retention plans are associated with longer Chapter 11 duration.

In Table 4 we provide additional information on KERP and PIP contract specifics based on hand-collected data. Because all court documents are not necessarily available on-line in PACER, the establishment of the presence or lack of a KERP or a PIP based on the descriptive list of court documents does not guarantee access to the plan-related documents approved by the court. This is because, even though all U.S. Federal Bankruptcy courts have joined the PACER database as of year 2001, not all cases, nor all documents for a given case, have been scanned and uploaded as of 2012. Nevertheless, we could find and download court-approved retention and/or incentive plan documents for 107 cases out of 229 that had a KERP and/or a PIP (100 cases that involved a KERP and 38 cases that involved a PIP). From these documents we were able to hand-collect data on the targeted number of employees in 105 cases.

\(^8\) For disposition dates missing from PACER database, we used those provided by LoPucki’s Bankruptcy Research Database: http://lopucki.law.ucla.edu/index.htm
(100 with KERPs and 29 with PIPs), and data on the total amount of KERP and/or PIP payout offered in 95 cases (95 with KERPs and 38 with PIPs).\textsuperscript{9}

The average PIP contract is larger, with 7.95 million dollars in total, than the average KERP contract, which involves 4.99 million dollars. That said, the equality of the average contract sizes cannot be rejected in a two-sided t-test (which allows for unequal variances). The number of employees targeted by the average PIP contract is 390 as opposed to 137 for the average KERP contract (the equality of the averages is rejected at the 10%-level), but there is little difference in the medians (55 versus 50, respectively), suggesting that some PIP contracts have larger coverage of employees than the KERP contracts. It takes slightly longer number of days after Chapter 11 filing on average for a PIP to be approved than a KERP, but the observed difference is not statistically significant: mean days to approval are 112.02 versus 106.57, respectively.\textsuperscript{10} There is no discernable difference in the days between contract approval and bankruptcy disposition: mean (median) number of days post-KERP approval is 492.59 (384) compared to 489.13 (381) for post-PIP. To account for the coverage of KERPs and PIPs we create a series of ratios, which are winsorized at the 5\textsuperscript{th} and 95\textsuperscript{th} percentile of their distributions to rule out the effects of large outliers in our regressions. The average KERP contract size scaled by pre-bankruptcy total assets ($KERP/TA$) is 0.39\% as opposed to a scaled PIP contract size ($PIP/TA$) of 0.59\% /TA (the difference is not statistically significant), with the median $KERP/TA$ (0.27\%) being almost equal to the median $PIP/TA$ (0.26\%). Scaling by sales results in larger average $PIP/SALES$ (0.91\%) that is not statistically different than $KERP/SALES$ (0.75\%), and again the medians for these two variables are very close (0.30\%versus 0.35\%, respectively). The average proportion of targeted-KERP employees to the number of total employees prior to bankruptcy ($KEMP/NEMP$) is 5.22\% with a median of 1.56\%, suggesting that key employees covered by the plan are typically limited to the middle and upper management, although the maximum value of 57.46\% indicates that in some cases larger groups of

\textsuperscript{9} The 105 and 95 bankruptcies mentioned here are overlapping KERP and PIP cases.
\textsuperscript{10} The number of observations for days pre- or post-contract approval is higher for both KERPs and PIPs because the approval dates are listed in the descriptive list of documents provided by PACER even when the related documents are not posted on line.
employees are concerned. The mean proportion of targeted-PIP employees to the number of total employees prior to bankruptcy (PEMP/NEMP) is 6.83% with a median of 0.69%, indicating that compared to KERPs a smaller proportion of employees are offered performance based contracts during Chapter 11. The maximum for PEMP/NEMP ratio indicates that in some cases up to three-fourths of the employees might be offered compensation based on performance. That said, the mean fraction of employees covered under the KERP and PIP plans are not statistically different from each other. Finally, the average KERP payout ratio, calculated as the KERP plan amount divided by the number of employees (KERP/KEMP) is 95.8 thousand dollars per employee with a median of 42.9 thousand dollars and a maximum of 1.901 million dollars. The average PIP payout ratio (PIP/PEMP) is a higher 463 thousand dollars per targeted-employee, with a median of 77.5 thousand dollars per employee and a maximum of 3,485 thousand dollars per employee. The above mentioned mean payout ratios are statistically different from each other at the 10%-level. These results suggest that, when averaged out, few employees targeted by a KERP or a PIP are promised the very large bonuses that were much criticized in the press and during congressional hearings. Furthermore, the average promised bonus is larger in the cases where the contract approved by the judge is linked to bankrupt firm’s performance through a PIP.

In the next section we conduct a series of analyses to discern the impact, if any, of the adoption of KERP and/or PIP contracts on the efficiency of the Chapter 11 resolution.

4. Empirical Analysis

The increasing use retention and/or performance incentive plans and the subsequent restrictions imposed on KERPs by the BAPCPA of 2005 calls for a closer examination of potential effects of these contracts on the efficiency of bankruptcy resolution. To accomplish this, we first examine in Section 4.1 the determinants of KERP and/or PIP adoption. Then, in Section 4.2, we expand the existing evidence by examining the determinants of KERP and PIP contract coverage. In a limited number of Chapter 11 cases the bankrupt firm’s stock continued to trade in the market. In Section 4.3, we examine the stock price reaction to KERP and/or PIP adoption decisions by the bankruptcy court. In Section 4.4 we estimate
duration models to analyze the effects of KERP and/or PIP adoption on time to bankruptcy resolution. Moreover, we examine whether there are any differences in duration (i) between Chapter 11 filing and KERP and/or PIP adoption, and (ii) between the adoption date and Chapter 11 resolution date. We expand the evidence by incorporating contract coverage variables into the duration analysis. Next, in Section 4.5 we examine whether KERP and/or PIP adoption has any impact on firm operating performance during and after bankruptcy. Finally, in Section 4.6 we examine whether retention and performance plans influence the bankruptcy resolution. In other words, we examine if such plans play a role in whether the bankruptcy ends in reorganization or in liquidation.

4.1. Determinants of KERP and PIP adoptions

First, we examine the determinants of KERP and PIP adoptions by the bankruptcy court. In earlier work, Crutchley and Yost (2008) find that KERP adoptions are more likely in larger bankruptcies, companies with higher employees to assets ratio and in wholesale and retail industries, but less likely with higher pre-bankruptcy market-to-book ratio and higher compensation to sales ratio. In contrast, we examine the determinants of the stand-alone KERP, stand-alone PIP, as well as joint KERP-PIP adoptions, because the underlying causes of a retention and/or incentive plan adoption may differ. Since these choices are observed to be mutually exclusive in the data (i.e., a KERP adoption is not subsequently followed by a PIP adoption, or vice versa), but without a clear ordering of the outcomes, we use a multinomial logit model (i.e., a polytomous logistic regression). Specifically, we estimate the following model with robust standard errors to account for the inherent heteroskedasticity of the dependent variable:

\[
\begin{align*}
\Pr(y_i = j) &= \frac{\exp(X_i \beta_j)}{\sum_{j=1}^{J} \exp(X_i \beta_j)} \\
\text{and} \\
\Pr(y_i = 0) &= \frac{1}{\sum_{j=1}^{J} \exp(X_i \beta_j)}
\end{align*}
\]
where, $y_i = \{0, 1, 2, 3\}$ lists the possible outcomes regarding KERP or PIP adoption, and $X_i$ is the vector of explanatory variables common to all outcomes. Specifically, $j = 0$ denotes the cases where neither a KERP nor a PIP were adopted and forms the base case of the multinomial logit estimation; $j = 1$ denotes the cases where only a KERP was adopted; $j = 2$ cases where only a PIP was adopted; and $j = 3$ cases where both a KERP and a PIP were jointly adopted. The vector of explanatory variables $X$ consists of the following variables: $D_{PREPACK}$, $D_{PRENEG}$, $D_{EQCOMM}$, $D_{DIP}$, $D_{CASHCOLL}$, $lnTA$, $ROA$, $LEV$, $CA/TA$, $D_{DE}$, and $D_{NYSD}$. The expected signs of the coefficient estimates for these variables are as follows. While prepackaged deals are finalized prior to bankruptcy filing, prenegotiated deals are not, and both of these types of deals take place before a KERP and/or a PIP approval. We expect a negative coefficient estimate for $D_{PREPACK}$ since the prepackaged deals result in swift bankruptcy resolution, and hence there is no need for a bankruptcy specific retention or incentive plan. We would also expect a priori a negative coefficient estimate for $D_{PRENEG}$, since these are also likely to speed up the Chapter 11 resolution, unless the pre-negotiated deal falls apart. The presence of equityholders’ committee, whom in the case of bankruptcy hold a clearly out-of-money option, may make it more likely that a performance incentive contract be given in order to increase firm value over and above what is due to liability-holders (hence a positive sign for $D_{EQCOMM}$ in the PIP cases). It is not clear a priori whether equity-holders committee ($D_{EQCOMM}$) would push for a retention plan, especially if the KERP is given to a management team that was in place prior to bankruptcy and considered to be responsible for the event. The presence of debtor in possession financing ($D_{DIP}$) and the release of the cash collateral ($D_{CASHCOLL}$) are likely to increase the probability that retention and/or incentive contracts may be given, since both have the effect of increasing financing that is available for the daily management of the firm while in Chapter 11. We account for the bankrupt firm’s size with the logarithm of the book value of total assets as reported prior to bankruptcy filing ($lnTA$): larger firms are likely to have more divisions and are likely to be more complex, which may increase the need for retention of key employees during bankruptcy. We also account for pre-bankruptcy operating and financial characteristics of the firm by using industry-adjusted return on assets ($ROA$), leverage ($LEV$), and current assets to total assets ratio
We expect that bankrupt firms that have less bad ROA and CA/TA are more likely to offer retention and performance incentive plans. Similarly, Chapter 11 firms with higher pre-bankruptcy leverage ratios, which may be seen as an indicator of the prevalence of bondholders during Chapter 11 procedure, are expected to be more likely to adopt a KERP and/or a PIP. Finally, given the preponderance of filings in Delaware (D_DE) and New York Southern districts (D_NYSD), we control for the possibility that judges in these districts may have a higher leaning for approving KERPs and PIPs.

The multinomial logit results, where the neither-KERP-nor-PIP form the (omitted) base-case, are presented in Table 5. We observe that D_PREPACK has a coefficient estimate of -3.1718 in the KERP-only case, -17.0403 in the PIP-only case, and -16.7509 in the case both contracts are present, all of which are statistically significant (at 1% level). These estimates suggest the adoption of a KERP (PIP or KERP plus PIP) is (highly) unlikely in the presence of a prepackaged deal. The relative risk ratio of KERP adoption (with respect to the base case of neither retention nor incentive plan adoption, and holding all other explanatory variables constant) decreases by a factor of 0.0419 (=$e^{-3.1718}$). The relative risk ratio of PIP-only (or joint KERP and PIP) adoption decreases by a factor of $e^{-17.0403}$ ($e^{-16.7509}$), which are close to zero. The null hypothesis of the equality of the D_PREPACK coefficient estimates for KERP-only and PIP-only (or KERP plus PIP) cases is rejected at the 1%-level (in Table 5 the statistical significance of these test results are indicated by †’s). We observe similar finding for pre-negotiated deals, but only for cases involving retention plans: D_PRENEG has a coefficient estimate of -0.8302 in the KERP-only cases and -1.4693 in the KERP plus PIP cases, with both coefficient estimates being statistically significant. These results suggest that the relative risk of KERP [KERP plus PIP] adoption decreases by a factor of 0.4360 ($=e^{-0.8302}$) [0.2301 ($=e^{-1.4693}$)] relative to the base group and holding everything else constant. For PIP-only, since D_PRENEG coefficient estimate of -0.5772 is not statistically significant, we conclude that there is no discernable difference in the relative risk ratio with respect to the base case of no-plan

11 “Industry adjusted” indicates that in our analysis we use the difference between the firm ratio and the median ratio for its industry.
12 The tests of the equality of coefficient estimates between PIP-only and KERP plus PIP columns cannot be rejected.
adoption. The coefficient estimate for $D_{DIP}$ is only statistically significant (at the 5%-level) for the joint KERP-and-PIP case, and it is equal to 1.0118. This coefficient estimate suggests that the presence of DIP financing increases the likelihood of having a KERP adopted jointly with a PIP: the relative risk ratio compared to the base case of no-KERP or PIP increases by a factor of 2.7505 ($=e^{1.0118}$). The coefficient estimates for $D_{CASHCOLL}$ and $D_{EQCOMM}$ are not statistically significant, indicating that the presence of debtor-in-possession financing and equityholders’ committee has no apparent bearing on KERP and/or PIP adoptions relative to the base case of no retention or incentive plans. However, in the presence of equityholders’ committee the incidence of PIP-only adoption increases relative to KERP-only cases: the test of the equality of coefficient estimates between KERP-only and PIP-only columns is rejected at the 5%-level. This result is in line with what we had observed in the univariate analysis in Section 3.2. We also observe that compared to the base case of no incentive or retention plans, KERPs are more likely to be adopted in larger bankruptcy cases (similar to Crutchley and Yost, 2008, findings): the coefficient estimate for $lnTA$ is equal to 0.4245 for KERP-only cases; 0.6611 for KERP-and-PIP cases, both of which are statistically significant at the conventional levels. The pre-filing return on assets ($ROA$) and leverage ($LEV$) do not have any impact on plan adoptions, as their coefficients are not statistically significant in Table 5. In contrast, firms that had higher industry-adjusted current assets to total assets ratio prior to bankruptcy adoption are more likely to adopt a KERP and/or a PIP during bankruptcy: compared to the base case of no incentive or retention plan, the coefficient estimates of $CA/TA$ are all positive and statistically significant for KERP-only, PIP-only, and KERP-and-PIP cases. Finally, while filing for bankruptcy in Delaware courts does not increase the likelihood of a KERP adoption (coefficients are not statistically significant), New York Southern District filings are more likely to have a stand-alone PIP or a PIP with a KERP, compared to the base case.\[13\]

Next, we expand this analysis and explore the determinants of KERP or PIP plan coverage using (i) total plan dollar amount to pre-bankruptcy total assets ratio, (ii) total plan dollar amount to pre-

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13 We do not use industry indicator variables but rely on industry adjusted variables when needed because of degrees of freedom restrictions: the PIP-only cases in our dataset are limited to 12 observations.
bankruptcy sales ratio, (iii) the number of employees targeted by the plan to the total number of company employees ratio, and (iv) the logarithm of total plan dollar amount divided by the number of employees targeted.\textsuperscript{14} Specifically, we estimate OLS regressions where the dependent variable is one of the four plan coverage variables described above, and where the explanatory variables are those included in vector $X$ described above. We use robust standard errors to account for the possibility of heteroskedasticity in our regressions. The results are presented in Table 6. The plan coverage regressions are estimated separately for KERP and PIP cases, while we control for joint KERP and PIP cases using an indicator variable ($D_{KERP\&PIP}$) whose coefficient estimates are never statistically significant (the number of PIP-alone observations is only 12, which rules out regression analysis for that subsample). In column A of Table 6, we observe that $KERP/TA$ coverage ratio decreases with size of the bankruptcy ($\ln TA$ coefficient estimate is equal to -0.0694 and is statistically significant at the 1%-level), but increases with the presence of prepackaged deals (the coefficient estimate for $D_{PREPACK}$ is equal to 0.7740, which is statistically significant at the 1%-level). This latter result is somewhat surprising given that univariate results suggested a lower proportion of prepackaged deals for KERPs. It would appear that even though KERPs are less likely with prepackaged deals, once they are present, they are larger. In column (B) of Table 6, we switch to KERP plan size to sales ratio. Even though $\ln TA$ and $D_{PREPACK}$ retain the signs as in column A, they are no longer statistically significant. Instead we find that plan coverage, as measured by KERP to sales ratio, decreases with higher industry-adjusted ROA (but the result is only marginally significant at the 10%-level). It would appear that stakeholders agree on higher retention plan coverage when the ROA is lower. In column C of Table 6, we examine the percentage of employees covered, which decreases in the presence of a prenegotiated deal, higher industry-adjusted ROA and industry-adjusted higher leverage (all three coefficient estimates are statistically significant at the conventional levels). This suggests that KERP plans are more likely to target upper management under the above-mentioned conditions. In column D of Table 6, we examine the KERP size per targeted-employee. This ratio

\textsuperscript{14} We use the logarithm of plan size per employee because in our sample KERPs (PIPs) anywhere from 1.2 thousand (1.6 thousand) to 1.9 million (3.5 million) dollars per employee covered. As a result the next one thousand dollar per employee has much lower impact as the plan payout per employee increases.
increases in the presence of prepackaged and prenegotiated deals, as well as firm size (all three coefficient estimates are statistically significant at the conventional levels).

Next, we analyze the determinants of PIP coverage. In column E of Table 6, we observe that $PIP/TA$ ratio is smaller in the presence of a prenegotiated deal ($D_{PRENEG}$ coefficient estimate is statistically significant at the 5%-level) and as the bankrupt firm size, as measured by $lnTA$ (whose coefficient estimate is only marginally significant at the 10%-level). Our the explanatory variables in our empirical models do not explain the variation in $PIP/SALES$ (column F) and PIP employees to total employees ratios (column G): this outcome may be due to the limited number of observations we have for the PIP coverage variables. Finally, promised-PIP pay per targeted employee is higher in the presence of equityholders’ committee; it is lower for larger firms; lower when leverage is higher; and lower when the $CA/TA$ ratio is higher. It appears that equityholders give approval to higher performance incentive per targeted employee in order to increase the probability that their out-of-money option ends up in the money. Moreover, higher PIP per employee appears to be more needed when the current assets of the firm are lower compared to total assets. At the risk of repeating ourselves, we note that PIP coverage results are obtained with a very small sample (with 27 to 37 observations, depending on the variable).

4.2. KERPs, PIPs adoption and stock market reaction

Next, we analyze the stock-price reaction to KERP and PIP adoption announcements. While past research focuses post-bankruptcy stock performance (Eberhart, Altman, and Aggarwal, 1999; Goyal, Kahl and Torous, 2003); Dawkins, Bhattacharya and Bamber (2007) note that since early 1990s many firms continue trading while in bankruptcy. We conduct an analysis similar to that by Chatterjee, Dhillon and Ramirez (2004), who find positive significant stock returns at the DIP financing announcements during bankruptcy.

In our sample of 229 Chapter 11 cases in which a KERP and/or a PIP was approved, we could track 20 in the CRSP database with stock price data past beyond the retention and/or incentive plan adoption date. This, admittedly very small, sample includes 17 KERP-only and three PIP-only cases (and
no joint KERP-PIP cases). The lack of a stock price reaction to plan approval announcement would suggest that the stock market participants do not view retention or incentive plan adoption as a development that would have an impact on the bankruptcy resolution. A negative stock price reaction would suggest that stock market participants view KERPs and PIPs as destroying value for the bankrupt company’s shareholders. A positive stock price reaction, on the other hand, would indicate that the stock market participants view the judge’s approval of a KERP or a PIP positively. Since such plans cannot be approved without consent of the majority of debt holders, a positive stock price reaction can be indicative of such contracts being value-increasing for the liability holders as well.

Panel A of Table 7 presents the average stock price reactions for the total of 20 approvals. On day +1 with respect to plan adoption, the higher proportion of 17 positives to three negative stock price reactions (column 4 in panel A) is statistically significant at the 1%-level in a non-parametric sign test (column 7). The stock price reactions were obtained using a standard market models that are estimated separately up until 60 days prior to the approval date.\textsuperscript{15} We observe an annualized positive and statistically significant at the 1% level (in all three tests that we conduct)\textsuperscript{16} stock price reaction of 6.56% on the first day that follows the approval by the bankruptcy judge. While a stock price reaction of -1.83% is observed on day 0, it is not statistically significant (only one of the three test statistics that we report, the Patell z-test, is marginally significant at the 10%-level). The cumulative abnormal returns (CARs) presented in Panel B of Table 7 suggest that the CAR over days one through three that follow the judge’s approval is a positive 7.81%, which is statistically significant at the 1% level in all of the three statistical tests that we employ. On the other hand, we cannot reject the null hypothesis that the CAR over days minus one and zero is equal to zero. Not surprisingly, these results are driven by KERP adoptions: we

\textsuperscript{15} For these 20 companies the median number of days between bankruptcy filing and KERP or PIP approval is 59 days, with a minimum of 20 days and a maximum of 266 days. This suggests that in 10 cases the market model is estimated only based on the pre-bankruptcy stock return data, whereas in the remaining 10 cases some of the data used in market model estimation is drawn from the bankruptcy period.

\textsuperscript{16} We report the results of two parametric and one non-parametric test for the significance of the abnormal returns: (i) the so-called Patell z-test that is based on separate estimates for the individual event standard errors assuming cross-sectional independence (panel A, column 5); (ii) the time-series standard deviation test that allows for crude dependence adjustment (panel A, column 6); and (iii) the non-parametric sign-test (panel A, column 7).
find similar results when we limit the sample to the 17 KERP-only adoptions. Given that there are only three PIP-only adoption cases for which stock price data are available, we do not have meaningful test statistics to comment on.

Admittedly, the stock price reaction tests that we are able to conduct are weak by design due to the small sample size and the lower liquidity of these companies’ shares. Nevertheless, they suggest that the adoption of KERP plans to retain key employees are viewed positively in the stock market. It could be argued that the observed positive stock market reaction is due to increased expectations of more efficient bankruptcy resolution. In the next sections we test whether other dimensions of Chapter 11 cases that involve KERP and/or PIP contracts, such as bankruptcy duration, and firm performance during bankruptcy, are consistent with this conjecture.

4.3. KERPs, PIPs and Chapter 11 bankruptcy duration

Prior empirical research finds that a number of factors, besides the pre-Chapter 11 financial condition of the firm, can influence the duration of bankruptcy proceedings. For example, Dahiya et al. (2003) find that debtor in possession financing (DIP) shortens the time firms spend in bankruptcy while Denis and Rodgers (2007) find that bankruptcy duration decreases with the profitability of the industry. Firm size could be a relevant factor in duration of proceedings (e.g., Bris, Welch and Zhu, 2006; and Morrison, 2007). We posit that if KERPs and PIPs are beneficial in retaining key personnel and motivating them to improve firm’s performance, they will help reduce the time firms that adopt these plans spend in bankruptcy. In testing this conjecture, we control for other factors that are found to reduce the direct costs of the proceedings, which can amount to 4% of the pre-filing value of the firm in large Chapter 11 cases (see Warner, 1977; Altman, 1984; Weiss, 1990; Betker, 1997; Lubben, 2000; and LoPucki and Doherty, 2004).

Prior research that analyzes the impact of retention contracts on bankruptcy duration finds either no impact of KERPs on bankruptcy duration (Bharath, Panchapegesan and Werner, 2010) or that KERPs are associated with longer bankruptcy proceedings (Crutchley and Yost, 2008). Our analysis is more
complete in that (i) we include stand-alone PIP adoptions as well as joint KERP and PIP approvals to KERP cases, and (ii) we examine the impact of plan coverage on duration.

First, we examine if the existence of KERP and/or PIP contracts has any impact on the duration of Chapter 11 bankruptcy. Specifically, we estimate the following Weibull accelerated failure-time model, whose coefficient estimates have the same interpretation as a standard semi-log regression model:

\[
\ln(DAYS_i) = \alpha_0 + \alpha_1 D_{KERP} + \alpha_2 D_{PIP} + \alpha_3 D_{KERP \& PIP} + \beta X_i + z_i
\]  

(2)

where \( DAYS \) denotes the number of days time between Chapter 11 filing and bankruptcy disposition dates, \( D_{KERP}, D_{PIP}, D_{KERP\&PIP} \) are indicator (“dummy”) variables that are equal to one if only a KERP, only a PIP, or both a KERP and a PIP contract are approved and zero otherwise, respectively. \( X \) is a vector of explanatory variables that may have a bearing on bankruptcy resolution that we need to control for in order to isolate the effects of retention and incentive contract adoptions. Because time until bankruptcy resolution can exhibit heteroskedasticity, Eq. (2) is estimated with robust standard errors. We would expect \( D_{PREPACK} \) to have a negative coefficient estimate given that a resolution plan is already accepted by the majority of lenders as of the filing date. Similarly, we would expect \( D_{PRENEG} \) to have a negative coefficient since bankruptcies should be resolved quicker in the presence of a pre-negotiated deal, even if they may not be as quickly resolved as prepackaged cases. We account for the presence of court-approved debtor in possession financing since Dahiya et al. (2003) find that such cases last significantly shorter (hence, \( D_{DIP} \) should have a negative coefficient estimate). We also account for the release of the cash collateral \( (D_{CASHCOLL}) \). This action increases the power of creditors in bankruptcy, which could reduce the time-spent in Chapter 11. The presence of equityholders’ committee might indicate a tendency for deviation from the absolute priority rule, which may lengthen the bankruptcy proceedings; hence we expect a positive sign for \( D_{EQCOMM} \). Larger firms tend to be more complex organizations, whose Chapter 11 cases are expected to be more complicated, involving larger number of creditors, and lasting longer, hence the sign for \( \ln(TA) \) is expected to be positive in the time-to-failure model. We control for pre-bankruptcy performance by including return on assets \( (ROA) \), and firm
characteristics with leverage (\(LEV\)) and current assets ratio (\(CA/TA\)), all of which are industry adjusted. To account for potential differences in bankruptcy court jurisdictions, we include indicator variables for Delaware (\(D_{DE}\)) and the Southern District of New York (\(D_{NYSD}\)).

We first go over the coefficient estimates of the control variables in the duration models presented in Table 8 to check the validity of our empirical specifications. As expected, the presence of prepackaged and prenegotiated deals leads to shorter bankruptcies: in all the columns of Table 8, the coefficient estimates for \(D_{PREPACK}\) and \(D_{PRENEG}\) are negative and statistically significant at the 1%-level. DIP financing has a negative impact on time spent in bankruptcy, but the effect is (marginally) statistically significant only in column A of Table 8. In contrast, the release of the cash collateral has a negative impact on bankruptcy duration in columns B through E of Table 8, but the statistical significance is marginal (at the 10%-level) except in column E where it is at 5%-level. \(D_{EQCOMM}\) has positive coefficient estimates in Table 8, which are statistically significant at the 5%-level (10%-level) in columns A and B (C and E): the presence of equityholders’ committee leads to longer bankruptcy as we expected.

While industry-adjusted leverage and current assets to total assets ratios have no bearing on bankruptcy duration, unsurprisingly firms with higher industry-adjusted ROA prior to Chapter 11 filing spend less time in bankruptcy. Finally, it appears that filings in Delaware courts take less time to resolve.

We now turn our attention to our test variables in the duration models. The results under column A in Table 8 indicate that KERP-only cases last longer than cases involving neither KERPs nor PIPs. The coefficient estimate for \(D_{KERP}\) (which accounts for stand-alone KERPs) is equal to 0.2529, which is statistically significant at the 5%-level. This suggests that, compared to the baseline scenario of “plain vanilla” Chapter 11 (with neither a KERP nor a PIP), the adoption of a stand-alone KERP increases time in bankruptcy by a factor of 1.2878 (\(=e^{0.2529}\)). This finding is similar to the finding in Crutchley and Yost (2008). In contrast, Bharath, Panchapegesan, and Werner (2010) find that KERPs have no impact on
bankruptcy duration, but their finding could be influenced by their aggregation of PIPs with KERPs if these two types of plans have the opposite effects on bankruptcy duration.\textsuperscript{17}

Importantly, we are the first to find that bankruptcy cases that involve stand-alone PIPs last shorter than the baseline scenario of no plan. The coefficient estimate for $D_{\text{PIP}}$, which accounts for stand-alone PIPs, is equal to -0.2593, which is statistically significant at the 5%-level: in PIP-alone adoptions bankruptcy duration lasts 0.7716 times (=e\textsuperscript{-0.2593}) that of a “plain vanilla” Chapter 11.

The coefficient estimate for $D_{\text{KERP}&\text{PIP}}$, which accounts for the case of a joint adoption of KERP and PIP is not statistically significant, implying there is no difference between cases with no plan and those where KERP and PIP were adopted jointly. At the bottom of column A in Table 8, we test for the equality of $D_{\text{KERP}}$, $D_{\text{PIP}}$ and $D_{\text{KERP}&\text{PIP}}$ coefficient estimates. While there is no statistically significant difference between the $D_{\text{KERP}&\text{PIP}}$ and $D_{\text{KERP}}$ coefficients, $D_{\text{PIP}}$ coefficient is statistically significantly different from the $D_{\text{KERP}&\text{PIP}}$ coefficient indicating presence of PIP contracts leads to a significantly shorter bankruptcy duration compared to joint KERP and PIP contracts.

At a first glance, it is tempting to conclude that PIPs increase the efficiency of bankruptcy procedure (by reducing time spent in Chapter 11) whereas KERPs decrease it (by lengthening the procedure). It is likely that the incentives provided by PIPs help improve performance in a way that retention bonuses provided by KERPs cannot. But this may be too simplistic. It is likely that not all KERPs or PIPs are created equal. Depending on their coverage characteristics certain KERPs plans may be helpful in improving the bankruptcy procedure’s efficiency whereas other PIPs may fail to have the same impact.

A better way to assess the impact of retention and performance plans on Chapter 11 duration is to use these plans’ characteristics in the time-to-failure models as test variables. We do this by replacing KERP and PIP indicator variables in Eq. (2) by KERP and PIP coverage ratios. Specifically, we re-

\textsuperscript{17} Bharath, Panchapegesan and Werner (2010) indicate that they use the following keywords in LEXIS-NEXIS to identify KERPs: “KERP”, “Retention Plan”, “bonus plan”, “pay-to-stay”, “bankruptcy pay”, “bankruptcy bonuses”, “retention bonus”, “management incentive plan”, “MIP”, “key employee compensation plan”, “KECP”, “supplemental incentive plan”, and “SIP”. Search words in italic (emphasis is our own) suggest that Bharath, Panchapegesan and Werner (2010) may have classified some PIPs as KERPs.
estimate time-to-failure regressions using (i) the ratio of total KERP (PIP) budget to pre-bankruptcy total assets (KERP/TA and PIP/TA); (ii) the ratio of total KERP (PIP) budget to pre-bankruptcy sales (KERP/SALES and PIP/SALES); (iii) the proportion of targeted-KERP (PIP) employees to total number of employees in the firm prior to bankruptcy (KEMP/NEMP and PEMP/NEMP); and (iv) the KERP amount per targeted-KERP (PIP) employee (KERP/KEMP and PIP/PEMP, respectively).\textsuperscript{18} The results are presented in columns B through E of Table 8. In these specifications, we also interact the variables that trace KERP and PIP coverage with the indicator variable $D_{KERP\&PIP}$. The coefficient estimates for the KERP and PIP coverage variables’ interaction with $D_{KERP\&PIP}$ measure the difference between the impact of the stand-alone KERP (alternatively, PIP) coverage on bankruptcy duration from the impact of the same plan when combined with a PIP (KERP). This specification requires that we calculate (and test for the significance of) the level of the KERP (PIP) coverage’s impact when it is combined with a PIP (KERP) separately (these are reported at the bottom of Table 8).

Results of the time-to-failure models that are based on coverage ratios in columns B through E of Table 8 suggest a more nuanced picture compared to those in column A, which only account for the presence of incentive and performance plans. Even though statistical significances vary, all coefficients associated with $K$ (KERP/TA, KERP/SALES, KEMP/NEMP, KERP/KEMP) and $P$ (PIP/TA, PIP/SALES, PEMP/NEMP, PIP/PEMP) variables in columns B through E are negative, and all coefficients associated with the interactions between $D_{KERP\&PIP}$ and $K$ and $P$ variables are positive, indicating that increasing size of either KERPs or PIPs leads to shorter bankruptcy proceedings, while the joint adoption of both plans mitigates this effect. In column B, the coefficient estimate of $KERP/TA$ ratio is negative but not statistically different from zero: in stand-alone KERPs, an increase in $KERP/TA$ has no impact on bankruptcy duration. The coefficient estimate of $KERP/TA \times D_{KERP\&PIP}$, which measures the difference of the impact of an increase of $KERP/TA$ between stand-alone KERPs and joint plan adoptions,

\textsuperscript{18} Here we use $KERP/KEMP$ and $PIP/PEMP$ because taking their logarithms (as in Table 6 regressions) would have reduced the number of observations available for the duration models down to 27 (due to zeros that appear in instances when a KERP or a PIP is not adopted). This is despite the fact that taking the logarithm would have made more economic sense, as the impact of the addition 1,000 dollar is not the same when the plan amount per employee is 1 million dollar rather than 10 thousand dollar.
is positive but not statistically significant either. Moreover, the coefficient estimate for the impact of an increase in $KERP/TA$ in joint plan adoption cases ($KERP/TA+KERP/TA \times D\_KERP&PIP$), which is reported at the bottom of column B in Table 8) on duration is positive but statistically insignificant as well. In contrast, in PIP-alone cases, the coefficient estimate of $PIP/TA$ is -130.3561, which is statistically significant at the 5%-level: if the stand-alone PIP to total coverage increases one standard deviation (0.0085, see Table 4), bankruptcy duration decreases to 0.3302 ($=e^{-130.3561 \times 0.0085}$) of that of a plain vanilla bankruptcy. At the bottom of column B of Table 8, we note that the coefficient estimate for the impact of an increase in $PIP/TA$ when PIPs are combined with KERPs (i.e., $PIP/TA+PIP/TA \times D\_KERP&PIP$) cannot be distinguished from zero statistically (the difference, $PIP/TA \times D\_KERP&PIP$, is positive and statistically significant, as one would expect given the discussion above).

In column C of Table 8, we run the same regressions with the plan size to sales ratio: pre-bankruptcy sales may be a better indication of firm size than the book value of assets. When we consider stand-alone KERPs, the impact of $KERP/SALES$ is negative but statistically insignificant, as in column B. In contrast, when KERPs are combined with PIPs, $KERP/SALES$ has a positive and marginally significant (at the 10%-level) impact on bankruptcy duration: one standard deviation (0.0131) increase in $KERP/SALES$ leads a 1.8903 ($=e^{(-1.0197+49.6248)\times 0.0131} = e^{48.6051 \times 0.0131}$) times longer bankruptcy when compared with the no-plan base case. For stand-alone PIPs, one standard deviation (0.0159) increase in $PIP/SALES$ leads to a bankruptcy duration that is 0.7173 ($=e^{21.2144 \times 0.0159}$) times as long as the base case, a result that is statistically significant at the 5%-level. For joint-plan adoptions, one standard deviation increase in $PIP/SALES$ leads to a bankruptcy duration that is 0.8327 ($=e^{(21.2144+9.6983) \times 0.0159} = e^{31.5160 \times 0.0159}$) times as long as the base case.

We do find not *economically* significant effect when we examine the impact of an increase in the proportion of employees targeted by KERP and PIP plans despite (marginally) statistically significant coefficient estimates in column D of Table 8.\(^\text{19}\) This is not all that surprising as the incentives provided by

\(^{19}\) The coefficient estimate of -0.0221 for $KEMP/NEMP$ for KERP-alone cases suggests that one standard deviation (0.1059) increase in KERP-targeted employees to total number of employees ($KEMP/NEMP$) ratio leads to a time
these plans are unlikely to be captured by a simple employee coverage ratio. As a result, in column E of Table 8, we examine the impact of dollar amount per targeted-employee. As KERP/NEMP increases by one standard deviation (0.2568 million dollars per targeted-employee), the time until bankruptcy resolution decreases to a fraction $0.8562 = e^{-0.6047 \times 0.2568}$ of the time it takes a plain-vanilla bankruptcy to get resolved. Similarly, as PIP/NEMP increases by one standard deviation (0.9676 million dollars per targeted-employee), the time until bankruptcy resolution decreases to a mere $0.0429 = e^{-3.2538 \times 0.9676}$ times the duration of a plain-vanilla bankruptcy. Surprisingly, in column E (bottom of Table 8), we find no statistically significant impact of an increase in KERP/NEMP (PIP/NEMP) when KERPs (PIPs) are combined with PIPs (KERPs).

Results in Table 8 column A suggest that even though the presence of a KERP (alone or joint with a PIP) appears to increase time until bankruptcy resolution, we find the opposite when we consider the KERP amount per target-employee ratio that best represents the incentives provided at the employee level in column E of Table 8. In contrast, both the presence of a PIP and an increase in its coverage reduces bankruptcy duration (columns A through E, with the exception of column D). Using the dollar amount promised by a KERP-alone or PIP-alone adoption as the most intuitive result (because it properly accounts for the incentives provided by these plans), we conclude that KERP and PIP coverage can both reduce time in Chapter 11 compared to the base case of no such plans.

In a second step, we further extend the analysis by examining the period before the adoption of a KERP and/or PIP and the period after its (their) adoption. If retention and performance incentive plans affect bankruptcy duration, we should see a statistically significant effect after plan adoption, and not before. More specifically, in Table 9 we estimate regression models for the period between bankruptcy filing and adoption (column A) and the period from the adoption until disposition (column B). In these regression models the (omitted) base case is that of KERP adoption, whose effects are soaked-up by the

until the resolution of bankruptcy that is $0.9977$ times the duration of bankruptcy in the base case scenario. Similarly, the coefficient estimate of $-0.0199$ (bottom of column D in Table 8) for $PEMP/NEMP + PEMP/NEMP \times D_{KERP \& PIP}$ suggests that increasing the $PEMP/NEMP$ ratio by one standard deviation (0.1698) would lead to a bankruptcy duration that is equal to $0.9966$ times the duration for the plain vanilla bankruptcy.
constant of the Weibull regression. This allows us to test, compared to KERP-only cases, whether (i) there are any differences in duration until PIP-only or KERP-and-PIP adoptions, and (ii) a stand-alone PIP or a joint KERP-and-PIP adoption shortens the time to bankruptcy resolution once the plan(s) has (have) been adopted. The results in column A of Table 9 indicate that there is no difference between duration of bankruptcy proceedings between cases containing KERP, PIP or both prior to their adoption: the coefficient estimates for $D_{PIP}$ and $D_{KERP&PIP}$ are not statistically significant. However, our results also indicate that cases where a PIP is adopted last shorter compared to cases with KERP or joint KERP and PIP in the period after adoption. In column B of Table 9, the coefficient estimate of $D_{PIP}$ is equal to -0.7282, which is statistically significant at the 1%-level: compared to the base case of a stand-alone KERP adoption, a stand-alone PIP adoption reduces time between adoption and disposition by a factor of 0.4828, i.e., by almost one half. We find no difference between cases with jointly adopted KERP and PIP compared with cases where a stand alone KERP is adopted: the coefficient estimate for $D_{KERP&PIP}$ is not statistically significant.

These results are indicative of potential efficiency increases in bankruptcy proceedings due to the adoption of a PIP.\footnote{We do not extend this analysis to plan coverage ratios due to the difficulty of account for the plan size for the KERP-alone base case scenario.} In the next section we try to get a better sense of the impact of both types of contracts by comparing the operating performance KERP and PIP adopters with those that do not adopt such contracts.

4.4. KERPs, PIPs and firm operating performance around Chapter 11 bankruptcy

Past research analyzes operating performance of firms filing for bankruptcy in the pre-filing period (e.g. Hotchkiss, 1995; Denis and Rodgers, 2007), during bankruptcy (Kalay, Singhal and Tashjian, 2007) and in the post-bankruptcy period (e.g. Hotchkiss, 1995; Kalay, Singhal and Tashjian, 2007). While Hotchkiss (1995) finds that 40% of firms continue experiencing negative performance after bankruptcy resolution, the recent study by Kalay, Singhal and Tashjian (2007) suggests firms experience some
improvements in their operating performance (as measured by EBITDA to total assets ratio) during and after bankruptcy. In this respect, KERPs (PIPs) could yield, at least in theory, positive effects by retaining (by giving the right incentives to) key personnel.

To examine whether the adoption of a KERP and/or PIP contract has any impact on firm operating performance, we regress quarterly earnings before interest, taxes, depreciation and amortization scaled by total assets ($\frac{\text{EBITDA}}{\text{TA}}$) on indicator (“dummy”) variables for the presence of the said contracts (i.e., $D_{\text{KERP}}$, $D_{\text{PIP}}$, and $D_{\text{KERP}&\text{PIP}}$) and control variables that may otherwise explain quarterly performance, industry dummies ($D_{\text{IND}}$), fiscal year dummies ($D_{\text{YEAR}}$), fiscal quarter dummies ($D_{\text{QUARTER}}$):

$$\frac{\text{EBITDA}}{\text{TA}}_{it} = \alpha_0 + \alpha_1 D_{\text{KERP}}_i + \alpha_2 D_{\text{PIP}}_i + \alpha_3 D_{\text{KERP} & \text{PIP}}_i + \beta X_{it} + \sum D_{\text{IND}n,i} + \sum D_{\text{YEAR}t,i} + \sum D_{\text{QUARTER}t,i} + \epsilon_{it} \tag{3}$$

where the indicator variables for KERP and/or PIP are equal one starting with the quarter in which the given plan was adopted, and zero otherwise. These indicator variables should pick up the performance difference in the performance that is due to the presence of the KERP and/or PIP contracts over and above the performance of bankrupt firms that have not adopted such contracts, after controlling for other observable factors and industry effects. The vector $X$, includes the control variables $D_{\text{PREPACK}}$, $D_{\text{PRENEG}}$, $D_{\text{DIP}}$, $D_{\text{EQCOMM}}$, $\ln \text{TA}$, pre-bankruptcy $\text{LEV}$, pre-bankruptcy $\frac{\text{CA}}{\text{TA}}$, time spent during bankruptcy ($\ln \text{DAYS}$), whether the bankruptcy court is located in Delaware ($D_{\text{DE}}$) or New York Southern District ($D_{\text{NYSD}}$). We compute firm-level cluster robust standard errors to account for the possible heteroskedasticity in our performance metric. The results are presented in Table 10. In order to understand the evolution of the performance, and any impact that the adoption of a KERP and/or PIP might have over time, Eq. (3) is estimated over (i) the bankruptcy period (column A), (ii) the four quarters that follow the disposition (column B), (iii) bankruptcy period plus the four quarters that follow the disposition (column C), and (iv) the 16 quarters that follow the disposition (column D). In the operating performance regressions the coefficient estimates for $D_{\text{KERP}}$, $D_{\text{PIP}}$ and $D_{\text{KERP}&\text{PIP}}$ indicate
relative performance with respect to the base case, i.e., companies without incentive or retention plans. For example, a positive coefficient estimate for $D_{KERP}$ would suggest that, if firms that did not adopt a KERP or a PIP perform poorly, the adoption of a KERP allowed the adopting firms to perform less poorly on average.

In Table 10, the coefficient estimates for $D_{KERP}$, which accounts for stand-alone retention plans, point to an economically significant improvement in quarterly operating performance: (i) during the bankruptcy period (column A) the coefficient estimate of 0.0178 (i.e., 1.78% higher operating performance per quarter) is statistically significant at the 1%-level; (ii) during the four quarters that follow disposition (column B) the coefficient estimate of 0.0186 is statistically significant, albeit marginally at the 10%-level; (iii) between filing date and the four quarters that follow disposition (column C), the coefficient estimate of 0.0183 is statistically significant at the 1%-level; (iv) between the filing date and the 16 quarters that follow disposition (column D), the coefficient estimate of 0.0156 is statistically significant at the 5%-level.

We find similar evidence for stand-alone PIPs effect on operating performance, except in the four quarters that follow disposition: (i) during bankruptcy (Table 10, column A) the coefficient estimate of 0.0227 is statistically significant at the 5%-level; (ii) during the four quarters that follow disposition (column B) the coefficient estimate of 0.0081 is not statistically significant; (iii) between filing date and the four quarters that follow disposition (column C) the coefficient estimate of 0.0196 is statistically significant at the 5%-level; (iv) between the filing date and the 16 quarters that follow disposition (column D) the coefficient estimate of 0.0176 is statistically significant at the 1%-level.

Given that KERPs were effectively ruled out by BAPCPA in favor of PIPs, we also tested whether PIPs lead to higher operating performance than KERPs: we could not reject the null hypothesis of the equality of the coefficient estimates for $D_{KERP}$ and $D_{PIP}$ in Table 10. Moreover, we do not find that operating performance improves when KERPs are jointly adopted with PIPs: in Table 10, the coefficient estimate of $D_{KERP&PIP}$ is not statistically significant, except in column C (the period between filing and four quarters that follow disposition) where it is equal to 0.0141, which is marginally
significant at the 10%. Finally, we find no statistically significant difference between the $D_{KERP\&PIP}$ coefficient and coefficients associated with $D_{KERP}$ and $D_{PIP}$ variables (these tests are provided at the bottom of Table 10).

These results provide yet another layer of evidence suggesting that both KERP and PIP contracts improve performance by giving the right incentives to executives and employees of the bankrupt firms. Despite few apparent cases of abuse, the ability to retain key employees and executives and to incentivize them to perform better was value increasing. The higher relative operating performance that we observe is consistent with KERP and PIP contracts reducing costs associated with Chapter 11. Given this perspective, with the passage of the BAPCPA, the Congress appears to have limited the set of contracting possibilities for retention and performance that were available bankrupt firms. Such a restriction over the contracting space is likely to be suboptimal, even if in certain cases the KERP contracts were open to abuse due lack of proper diligence by creditors and bankruptcy judges.

4.5. KERPs, PIPs and Chapter 11 bankruptcy outcome

In the last section, we examine the outcome of bankruptcy proceedings, which the past research has found to depend on factors that are similar to those that drive the bankruptcy duration (see e.g. Dahiya et al., 2003; Bris, Welch and Zhu, 2006). Denis and Rodgers (2007) show that firm size has a significant impact on whether a firm will be successfully reorganized. Dahiya et al. (2003) find that DIP financing will have a positive impact on the probability of firm emerging as a reorganized entity versus firm being liquidated. Filing venue (bankruptcy court or even bankruptcy judge) can have an impact on the likelihood of reorganization (see Hotchkiss, 1995; Chang and Schoar, 2006). However, definitions on liquidation and reorganization differ significantly across the above-cited studies depending on whether (and what proportion) of sale of assets in bankruptcy should qualify for liquidation (see, e.g., Asquith, Gertner, and Scharfstein, 1994). The second concern regarding the analysis of Chapter 11 outcomes is driven by the economic viability of the bankrupt firm. If a firm is worth more “dead” than “alive” it should be liquidated to allow for a more efficient distribution and use of its assets. It has been argued that
Chapter 11 is an imperfect system that permits inefficient reorganizations, which allows non-viable firms to reorganize and emerge as independent entities (e.g., Adler, Capkun and Weiss, 2012). Liquidation and reorganization may require a KERP and/or a PIP in order to maximize the liquidation value or maximize the value of the firm when reorganized. In certain cases PIP contract’s incentives are set-up so as to increase the liquidation amount, in others they are designed to improve operating performance during and after reorganization. As such, whether KERPs and/or PIPs have any impact on bankruptcy resolution is an empirical question, which we explore next.

Specifically, we examine whether the adoption of a KERP and/or PIP contract has any bearing on whether the bankruptcy results in reorganization or liquidation. To accomplish this we estimate the following logit model:

\[
D_{\text{EMERGE}} = \alpha_n + \alpha_1 D_{\text{KERP}} + \alpha_2 D_{\text{PIP}} + \alpha_3 D_{\text{KERP} & \text{PIP}} + \beta X_i + z_i \tag{4}
\]

where the dependent variable, \(D_{\text{EMERGE}}\), is equal to one if the bankruptcy ends in reorganization with the emergence of a viable entity from Chapter 11, or zero if the Chapter 11 procedure ends in the liquidation of the bankrupt firm, and the plan-related indicator variables and the vector of control variables \((X)\) are defined as before. Similar to our models of duration of bankruptcy proceedings from Table 8, we estimate logit regression models where we use cases with approved KERP and/or PIP only, and replace binary \(D_{\text{KERP}}\) and \(D_{\text{PIP}}\) variables by variables representing coverage: (i) plan size scaled by total assets \((\text{KERP/TA and PIP/TA})\), (ii) plan size scaled by pre-bankruptcy sales \((\text{KERP/SALES and PIP/SALES})\), (i) fraction of employees targeted by the plan \((\text{KEMP/NEMP and PEMP/NEMP})\), and (iv) the promised amount of plan pay-out per-employee \((\text{KERP/KEMP and PIP/PEMP})\). As in Table 8, the interaction of our KERP and PIP coverage variables with \(D_{\text{KERP} & \text{PIP}}\) represents the marginal impact that joint adoption has on probability of emergence relative to the main effect of the KERP (PIP) coverage variable.

\footnote{As in the last column of Table 8, and due to the limited number of PIP cases, we do not use the logarithm of plan pay-out per employee so as not to reduce the number of observations to less than 30.}
The results of bankruptcy outcome regressions are presented in Table 11. In column A, we find no evidence that the presence of a KERP and/or PIP has any bearing on bankruptcy resolution, as the coefficients associated with $D_{KERP}$, $D_{PIP}$, and $D_{KERP\&PIP}$ are not statistically significant. In column B, we find weak evidence that an increase in $KERP/TA$ leads to successful emergence from Chapter 11: coefficient estimate of $KERP/TA$ is 169.2853 is marginally statistically significant at the 10%-level. In columns C and D, there is no evidence that plan size to sales ratio or the fraction of employees covered by incentive or retention plans makes any difference regarding emergence versus liquidation outcomes. Finally, in column E there is some evidence that an increase KERP pay-out per employee, when KERPs are combined with PIPs makes it more likely that the firm will survive: the combined coefficient estimate of $KERP/TA \times D_{KERP\&PIP}$ is equal to 0.2708 and statistically significant at the 5%-level. We conclude that the adoption of a KERP and/or a PIP, or the plan coverage appears to have little bearing on bankruptcy resolution.

5. Conclusion

The adoption of BAPCPA in 2005, for all practical purposes, put an end to using pay-to-stay compensation plans in bankruptcy and limited the choices of bankrupt firms to the use of pay-for-performance compensation plans instead. In this paper we analyze the determinants and the consequences of pay-to-stay (key employee retention plans, KERPs) and pay-for-performance plans (performance incentive plans, PIPs) adoption in bankruptcy. We use the data on 356 bankruptcy cases from the pre-2005 period to examine why firms chose to adopt KERPs and/or PIPs in bankruptcy and what the consequences of such decisions are.

While both KERPs and PIPs were widely used prior to the legislative change, KERPs were much more common, but also significantly smaller in size. Our analysis suggests larger firms with relatively more liquid assets use both KERPs and PIPs in their bankruptcy proceedings as a way to retain and reward their employees.
Our findings suggest that in trying to reform the bankruptcy procedure, the U.S. Congress may have actually rendered Chapter 11 less efficient by adding too many restrictive conditions on KERPs. We find that PIPs benefit a bankrupt firm by shortening Chapter 11 duration and improving operating performance. While the presence of a KERP leads to longer bankruptcies, Chapter 11 duration decreases as KERP and PIP plan payouts per employee increase. Equally important, our evidence suggests that various types of claimholders valued, and bankrupt firm benefited from, the existence of KERPs. A combination of KERP and PIP was preferred by DIP claimholders over other types of compensation contracts, and creditors rarely objected to KERP adoption. The stock price reaction to KERP adoptions is significantly positive (while that for PIPs cannot be discerned due to data limitations). In line with these *ex ante* positions of senior creditors and equityholders, we find that firms adopting a KERP exhibit better *ex post* operating performance than those that adopt neither type of plan. Finally, we find no difference in operating performance between those firms that adopt a KERP and those that adopt a PIP (albeit both outperform Chapter 11 firms with no such plans). These results suggest that retaining key personnel through KERP contracts is value increasing. With BAPCPA the Congress may have overreached by limiting the range of incentive plans that could be contracted upon in Chapter 11 bankruptcy. This decision may have inadvertently rendered Chapter 11 less efficient.

Our analysis is limited to the pre-2005 period and to large US bankruptcy cases, but it adds to the on-going debate over employee compensation in distressed firms and the efficiency of the US bankruptcy system. Our results have implications both for policy makers and the current debate on retention bonuses in companies that have received U.S. government funds to stay-afloat during the recent financial crisis.
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U.S. Bankruptcy Court, Southern District of New York. Galey & Lord, Inc., et al., Chapter 11 case no. 02-40445-ALG. Hearing on February 27, 2003 at 10:00 a.m. Notice of debtors' motion for an order authorizing implementation of performance incentive plan for certain key employees and hearing date.

U.S. Bankruptcy Court Southern District of New York, Signal Apparel Company, Chapter 11 case no. 00-B-14462. Application for an order authorizing debtor to pay “stay” bonuses to certain key employees and granting related relief. Filed on February 9, 2001.

U.S. Bankruptcy Court Southern District of New York, Westpoint Stevens Inc., Chapter 11 case no. 03-13532-RDD. Notice of hearing on motion of debtors for order pursuant to 11 U.S.C. §§ 105(a) and 363(b)(1) authorizing the establishment of a key employee retention plan. Filed on September 30, 2003.
U.S. Bankruptcy Court Southern District of Texas, Houston Division, Drypers Corporation, Chapter 11 case no. 00-39360-H4-11. Emergency motion pursuant to bankruptcy code sections 363(b) and 105(a) for approval of non-executive and executive employee retention plans. Filed on December 12, 2000.


Table 1. Distribution of KERP and/or PIP Adoptions

This table provides information on the annual distribution of bankruptcy cases, together with the distribution of Key Employee Retention Plans (KERP) and Performance Incentive Plan (PIP) incidences over 1993-2004, the sample period. Sample contains 356 firms that filed for Chapter 11 bankruptcy in the 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Filing Year is the calendar year in which firm filed for Chapter 11 bankruptcy.

<table>
<thead>
<tr>
<th>Filing Year</th>
<th>Total Bankruptcies</th>
<th>Bankruptcies with neither KERP nor PIP</th>
<th>KERP and/or PIP</th>
<th>Only KERP</th>
<th>Only PIP</th>
<th>KERP &amp; PIP</th>
<th>Total KERP</th>
<th>Total PIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>50%</td>
</tr>
<tr>
<td>1994</td>
<td>6</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>17%</td>
</tr>
<tr>
<td>1995</td>
<td>9</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>33%</td>
</tr>
<tr>
<td>1996</td>
<td>13</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>54%</td>
</tr>
<tr>
<td>1997</td>
<td>11</td>
<td>1</td>
<td>10</td>
<td>9</td>
<td>0</td>
<td>1</td>
<td>10</td>
<td>91%</td>
</tr>
<tr>
<td>1998</td>
<td>16</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>50%</td>
</tr>
<tr>
<td>1999</td>
<td>32</td>
<td>13</td>
<td>19</td>
<td>14</td>
<td>2</td>
<td>3</td>
<td>17</td>
<td>53%</td>
</tr>
<tr>
<td>2000</td>
<td>46</td>
<td>15</td>
<td>31</td>
<td>24</td>
<td>0</td>
<td>7</td>
<td>31</td>
<td>67%</td>
</tr>
<tr>
<td>2001</td>
<td>96</td>
<td>22</td>
<td>74</td>
<td>51</td>
<td>2</td>
<td>21</td>
<td>72</td>
<td>75%</td>
</tr>
<tr>
<td>2002</td>
<td>71</td>
<td>31</td>
<td>40</td>
<td>25</td>
<td>3</td>
<td>12</td>
<td>37</td>
<td>52%</td>
</tr>
<tr>
<td>2003</td>
<td>44</td>
<td>18</td>
<td>26</td>
<td>16</td>
<td>3</td>
<td>7</td>
<td>23</td>
<td>52%</td>
</tr>
<tr>
<td>2004</td>
<td>10</td>
<td>2</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>7</td>
<td>70%</td>
</tr>
</tbody>
</table>

| Total       | 356                | 127                                   | 229             | 163       | 12       | 54        | 217        | 66       |
Table 2. Descriptive Statistics for the Whole Sample

This table provides descriptive statistics for the bankrupt firms in the sample, which contains 356 firms that filed for Chapter 11 bankruptcy in the 1993-2004 period with liabilities that exceed US$ 100 million at the date of filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data were collected from the COMPUSTAT database. The prefix D_ denotes an indicator (“dummy”) variable that equals one for the specified category, and zero otherwise. Other variables are as defined in the table. The financial ratios are winsorized at the 1st and 99th percentiles of their distributions to remove large outliers.

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Variable Definition</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Median</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D_PREPACK</td>
<td>A prepackaged deal present as of the bankruptcy date</td>
<td>356</td>
<td>0.1011</td>
<td>0.3019</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D_PRENEG</td>
<td>A renegotiated deal present as of the bankruptcy date</td>
<td>356</td>
<td>0.1742</td>
<td>0.3798</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D_EQCOMM</td>
<td>An equityholders committee present</td>
<td>356</td>
<td>0.1155</td>
<td>0.3201</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D_DIP</td>
<td>Debtor-in-possession financing present</td>
<td>355</td>
<td>0.6085</td>
<td>0.4888</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>D_CASHCOLL</td>
<td>Cash Collateral present</td>
<td>355</td>
<td>0.6141</td>
<td>0.4875</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>D_DE</td>
<td>Delaware Bankruptcy court case</td>
<td>356</td>
<td>0.3933</td>
<td>0.4892</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D_NYSD</td>
<td>NY Southern District Bankruptcy court case</td>
<td>356</td>
<td>0.1489</td>
<td>0.3565</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D_EMERGE</td>
<td>Firm emerges from Ch. 11, otherwise it is liquidated</td>
<td>254</td>
<td>0.5354</td>
<td>0.4997</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>D_KERP</td>
<td>Stand-alone Key Employee Retention Plan</td>
<td>356</td>
<td>0.4579</td>
<td>0.4989</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D_PIP</td>
<td>Stand-alone Performance Incentive Plan</td>
<td>356</td>
<td>0.0337</td>
<td>0.1807</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>D_KERP&amp;PIP</td>
<td>Joint-adoption of KERP and PIP</td>
<td>356</td>
<td>0.1517</td>
<td>0.3592</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>TA</td>
<td>Total Assets ($ million)</td>
<td>356</td>
<td>1,654.2984</td>
<td>7,093.4127</td>
<td>32.7400</td>
<td>392.6950</td>
<td>103,914.0000</td>
</tr>
<tr>
<td>TL</td>
<td>Total Liabilities ($ million)</td>
<td>356</td>
<td>1,351.8463</td>
<td>4,237.1744</td>
<td>49.5530</td>
<td>370.8795</td>
<td>50,715.0000</td>
</tr>
<tr>
<td>NEMP</td>
<td>Number of Employees (’000)</td>
<td>339</td>
<td>6.0001</td>
<td>11.2304</td>
<td>0.0210</td>
<td>2.3570</td>
<td>85.0000</td>
</tr>
<tr>
<td>SALES/TA</td>
<td>Sales to Total Assets</td>
<td>356</td>
<td>1.1642</td>
<td>0.8898</td>
<td>0.0183</td>
<td>1.0189</td>
<td>4.7420</td>
</tr>
<tr>
<td>LEV</td>
<td>Leverage ratio</td>
<td>356</td>
<td>1.1091</td>
<td>0.5533</td>
<td>0.2810</td>
<td>0.9540</td>
<td>3.3942</td>
</tr>
<tr>
<td>MKTLEV</td>
<td>Market Leverage ratio</td>
<td>240</td>
<td>0.6422</td>
<td>0.0682</td>
<td>0.5115</td>
<td>0.6416</td>
<td>0.8335</td>
</tr>
<tr>
<td>CA/TA</td>
<td>Current Assets/Total Assets</td>
<td>339</td>
<td>0.3894</td>
<td>0.2067</td>
<td>0.0365</td>
<td>0.3664</td>
<td>0.8634</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on Assets</td>
<td>356</td>
<td>-0.3412</td>
<td>0.5050</td>
<td>-2.6184</td>
<td>-0.1663</td>
<td>0.0901</td>
</tr>
<tr>
<td>EBITDA/TA</td>
<td>Earnings Before Income Taxes, Depreciation and Amortization divided by Total Assets</td>
<td>352</td>
<td>-0.0107</td>
<td>0.1811</td>
<td>-0.8225</td>
<td>0.0301</td>
<td>0.2942</td>
</tr>
<tr>
<td>DAYS</td>
<td>Days to Plan Confirmation</td>
<td>353</td>
<td>522.7507</td>
<td>455.2505</td>
<td>13</td>
<td>433</td>
<td>3574</td>
</tr>
</tbody>
</table>
Table 3. Univariate Tests

This table provides univariate test statistics for the variables used in the analysis. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy in the 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. KERP is Key Employee Retention Plan and PIP is Performance Incentive Plan. Prefix $D_-$ indicates a “dummy” variable that equals one for the described category, and zero otherwise: $D_{\text{PREPACK}}$ is for prepackaged bankruptcy cases; $D_{\text{PRENEG}}$ is for pre-negotiated bankruptcy cases; $D_{\text{EQCOMM}}$ is for the presence of an equity committee; $D_{\text{DIP}}$ is for the debtor in possession financing; $D_{\text{CASHCOLL}}$ is the release of cash collateral; $D_{\text{DE}}$ is for bankruptcy cases filed in the bankruptcy court in Delaware; $D_{\text{NYSD}}$ is for bankruptcy cases filed in the bankruptcy court in the New York southern district; $D_{\text{EMERGE}}$ is for firms that emerged as an independent entity (otherwise be liquidated). $TA$ is total assets; $TL$ is total liabilities; $NEMP$ is number of employees; $LEV$ is leverage defined as the ratio of total liabilities and total assets; $MKTLEV$ is market leverage defined as the ratio of total liabilities to the sum of total liabilities and stock market capitalization; $SALES/TA$ are annual sales divided by total assets; $CA/TA$ are current assets divided by total assets; $ROA$ is the return on assets defined as annual net income divided by total assets; $EBITDA/TA$ are earnings before interests, taxes, depreciation and amortization divided by total assets; and $DAYS$ are days the firm spends in bankruptcy defined as the time between bankruptcy filing and resolution (disposition). All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. *, **, and *** indicate 10%, 5% and 1% significance levels, respectively, for the tests between columns (A) and (B). †, ††, and ††† indicate 10%, 5% and 1% significance levels, respectively, for the tests between columns (B) and (C). ‡, ‡‡, and ‡‡‡ indicate 10%, 5% and 1% significance levels, respectively, for the tests between columns (C) and (D).

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Neither KERP nor PIP</th>
<th>KERP only</th>
<th>PIP only</th>
<th>KERP and PIP Jointly Adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N = 127</td>
<td>N = 163</td>
<td>N = 12</td>
<td>N = 54</td>
</tr>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td>$D_{\text{PREPACK}}$</td>
<td>0.2598</td>
<td>0.0184 ***</td>
<td>0.0000 **</td>
<td>0.0000 ***</td>
</tr>
<tr>
<td>$D_{\text{PRENEG}}$</td>
<td>0.2126</td>
<td>0.1656</td>
<td>0.2500</td>
<td>0.0926 **</td>
</tr>
<tr>
<td>$D_{\text{EQCOMM}}$</td>
<td>0.1260</td>
<td>0.0802</td>
<td>0.2500 ††</td>
<td>0.1667 †</td>
</tr>
<tr>
<td>$D_{\text{DIP}}$</td>
<td>0.5591</td>
<td>0.5741</td>
<td>0.7500 †††</td>
<td>0.7963 †††</td>
</tr>
<tr>
<td>$D_{\text{CASHCOLL}}$</td>
<td>0.6142</td>
<td>0.5926</td>
<td>0.6667</td>
<td>0.6667</td>
</tr>
<tr>
<td>$D_{\text{DE}}$</td>
<td>0.4094</td>
<td>0.3988</td>
<td>0.4167</td>
<td>0.3333</td>
</tr>
<tr>
<td>$D_{\text{NYSD}}$</td>
<td>0.1102</td>
<td>0.1350</td>
<td>0.3333 ** †</td>
<td>0.2407 ** †</td>
</tr>
<tr>
<td>$D_{\text{EMERGE}}$</td>
<td>0.5949</td>
<td>0.5164</td>
<td>0.6250</td>
<td>0.4667</td>
</tr>
<tr>
<td>Variable Name</td>
<td>Mean</td>
<td>t-test</td>
<td>t-test</td>
<td>t-test</td>
</tr>
<tr>
<td>---------------</td>
<td>------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>TA</td>
<td>798.8996</td>
<td>1948.7041</td>
<td>*</td>
<td>784.9663</td>
</tr>
<tr>
<td>TL</td>
<td>799.9745</td>
<td>1435.4895</td>
<td>*</td>
<td>899.0127</td>
</tr>
<tr>
<td>NEMP</td>
<td>3.8954</td>
<td>7.2644</td>
<td>***</td>
<td>5.7630</td>
</tr>
<tr>
<td>LEV</td>
<td>1.2475</td>
<td>1.0492</td>
<td>***</td>
<td>1.0660</td>
</tr>
<tr>
<td>NEMP</td>
<td>3.8954</td>
<td>7.2644</td>
<td>***</td>
<td>5.7630</td>
</tr>
<tr>
<td>LEV</td>
<td>1.2475</td>
<td>1.0492</td>
<td>***</td>
<td>1.0660</td>
</tr>
<tr>
<td>SALES/TA</td>
<td>1.1479</td>
<td>1.1621</td>
<td>0.0372</td>
<td>1.2367</td>
</tr>
<tr>
<td>CA/TA</td>
<td>0.3748</td>
<td>0.3930</td>
<td>0.4236</td>
<td>0.4048</td>
</tr>
<tr>
<td>ROA</td>
<td>-0.4195</td>
<td>-0.3182</td>
<td>-0.2174</td>
<td>*</td>
</tr>
<tr>
<td>EBITDA/TA</td>
<td>-0.0225</td>
<td>-0.0078</td>
<td>0.0098</td>
<td>0.0042</td>
</tr>
<tr>
<td>DAYS</td>
<td>402.2756</td>
<td>584.9325</td>
<td>***</td>
<td>402.0909</td>
</tr>
</tbody>
</table>
Table 4. Descriptive Statistics for KERP and PIP Contracts

This table provides descriptive statistics for the coverage variables for the Key Employee Retention Plans (KERPs) and/or the Performance Incentive Plans (PIPs). The plan coverage variables are defined in the second column of the table. Financial ratios are winsorized at the at the 5th and 95th percentile of their distribution to rule out large outliers. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy in the 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. *, **, and *** indicate 10%, 5% and 1% significance levels for the t-test (which allows for unequal variances) of the equality of KERP and the corresponding PIP variable, respectively.

<table>
<thead>
<tr>
<th>KERP and PIP Coverage Variables</th>
<th>N</th>
<th>Mean</th>
<th>t-test</th>
<th>Std.Dev.</th>
<th>Min.</th>
<th>Median</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>KERP($)</td>
<td>95</td>
<td>4.9895</td>
<td>6.9562</td>
<td>0.0227</td>
<td>2.1000</td>
<td>40.0000</td>
<td></td>
</tr>
<tr>
<td>KEMP</td>
<td>100</td>
<td>137.2100</td>
<td>234.3985</td>
<td>1</td>
<td>50</td>
<td>1285</td>
<td></td>
</tr>
<tr>
<td>KDAYS_PRE</td>
<td>216</td>
<td>106.5741</td>
<td>109.1159</td>
<td>0</td>
<td>75.5</td>
<td>756</td>
<td></td>
</tr>
<tr>
<td>KDAYS_POST</td>
<td>214</td>
<td>492.5888</td>
<td>411.5158</td>
<td>0</td>
<td>384</td>
<td>2895</td>
<td></td>
</tr>
<tr>
<td>KERP/TA</td>
<td>95</td>
<td>0.0039</td>
<td>0.0038</td>
<td>0.0003</td>
<td>0.0027</td>
<td>0.0132</td>
<td></td>
</tr>
<tr>
<td>KERP/SALES</td>
<td>95</td>
<td>0.0075</td>
<td>0.0131</td>
<td>0.0003</td>
<td>0.0035</td>
<td>0.0592</td>
<td></td>
</tr>
<tr>
<td>KERP/KEMP</td>
<td>88</td>
<td>0.0958</td>
<td>0.2568</td>
<td>0.0012</td>
<td>0.0429</td>
<td>1.901</td>
<td></td>
</tr>
<tr>
<td>KEMP/NEMP</td>
<td>100</td>
<td>0.0522</td>
<td>0.1059</td>
<td>0.0001</td>
<td>0.0156</td>
<td>0.5746</td>
<td></td>
</tr>
<tr>
<td>PIP($)</td>
<td>38</td>
<td>7.9511</td>
<td>-1.1151</td>
<td>15.7695</td>
<td>0.2000</td>
<td>2.9765</td>
<td>90.000</td>
</tr>
<tr>
<td>PEM</td>
<td>29</td>
<td>390.2069</td>
<td>-1.8046</td>
<td>*</td>
<td>744.3466</td>
<td>1</td>
<td>55</td>
</tr>
<tr>
<td>PDAYS_PRE</td>
<td>65</td>
<td>112.0154</td>
<td>-0.4239</td>
<td>84.4233</td>
<td>1</td>
<td>94</td>
<td>433</td>
</tr>
<tr>
<td>PDAYS_POST</td>
<td>62</td>
<td>489.1290</td>
<td>0.0637</td>
<td>365.9717</td>
<td>0</td>
<td>381</td>
<td>1469</td>
</tr>
<tr>
<td>PIP/TA</td>
<td>38</td>
<td>0.0059</td>
<td>-1.3723</td>
<td>0.0085</td>
<td>0.0001</td>
<td>0.0026</td>
<td>0.0325</td>
</tr>
<tr>
<td>PIP/SALES</td>
<td>38</td>
<td>0.0091</td>
<td>-0.5693</td>
<td>0.0159</td>
<td>0.0001</td>
<td>0.0030</td>
<td>0.0689</td>
</tr>
<tr>
<td>PIP/PEMP</td>
<td>28</td>
<td>0.4630</td>
<td>-1.9861</td>
<td>*</td>
<td>0.9676</td>
<td>0.0016</td>
<td>0.0775</td>
</tr>
<tr>
<td>PEMP/NEMP</td>
<td>29</td>
<td>0.0683</td>
<td>-0.4844</td>
<td>0.1698</td>
<td>0.0002</td>
<td>0.0069</td>
<td>0.7603</td>
</tr>
</tbody>
</table>
Table 5. Determinants of KERP and/or PIP Adoption

This table provides multinomial (polytomous) logistic regression model estimates of the determinants of adoption of a KERP and/or PIP in Chapter 11 bankruptcy. The dependent variable is equal to zero if there is no KERP or PIP, to one if a KERP but no PIP was adopted, to two if a PIP but no KERP was adopted, and to three if both a KERP and a PIP were adopted jointly. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy in the 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. KERP is Key Employee Retention Plan and PIP is Performance Incentive Plan. Prefix D_ indicates a “dummy” variable that equals one for the described category, and zero otherwise: D_PREPACK is for prepackaged bankruptcy cases; D_PRENEG is for pre-negotiated bankruptcy cases; D_EQCOMM is for the presence of an equity committee; D_DIP is for the debtor in possession financing; D_CASHCOLL is the release of cash collateral; D_DE is for bankruptcy cases filed in the bankruptcy court in Delaware; and D_NYSD is for bankruptcy cases filed in the bankruptcy court in the New York southern district. lnTA is the logarithm of total assets; ROA is the return on assets defined as annual net income divided by total assets; LEV is leverage defined as the ratio of total liabilities and total assets; and CA/TA are current assets divided by total assets. ROA, LEV and CA/TA are industry adjusted, i.e., they are equal to the difference between the firm’s ratio and the median ratio for its industry. All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. The estimation is conducted with robust standard errors to account for possible heteroskedasticity. The t-statistics for the coefficient estimates are presented in parentheses below the coefficient estimates. *, **, and *** indicate 10%, 5% and 1% significance levels, respectively. †, ††, and ††† indicate 10%, 5% and 1% significance levels, respectively, for the test of equality of the coefficient estimate in the KERP-only column with that in the PIP-only or KERP and PIP column.

<table>
<thead>
<tr>
<th></th>
<th>KERP-only</th>
<th>PIP-only</th>
<th>KERP and PIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>-1.1894</td>
<td>-4.4019 **</td>
<td>-4.4602 ***</td>
</tr>
<tr>
<td></td>
<td>(1.30)</td>
<td>(2.25)</td>
<td>(3.90)</td>
</tr>
<tr>
<td>D_PREPACK</td>
<td>-3.1718 ***</td>
<td>-17.0403 ***</td>
<td>-16.7509 ***†††</td>
</tr>
<tr>
<td></td>
<td>(4.74)</td>
<td>(13.48)</td>
<td>(37.22)</td>
</tr>
<tr>
<td>D_PRENEG</td>
<td>-0.8302 **</td>
<td>-0.5772</td>
<td>-1.4693 **</td>
</tr>
<tr>
<td></td>
<td>(2.40)</td>
<td>(0.75)</td>
<td>(2.54)</td>
</tr>
<tr>
<td>D_DIP</td>
<td>-0.0565</td>
<td>0.5070</td>
<td>1.0118 **</td>
</tr>
<tr>
<td></td>
<td>(0.20)</td>
<td>(0.67)</td>
<td>(2.19)</td>
</tr>
<tr>
<td>D_CASHCOLL</td>
<td>-0.2046</td>
<td>0.1193</td>
<td>-0.1784</td>
</tr>
<tr>
<td></td>
<td>(0.70)</td>
<td>(0.15)</td>
<td>(0.43)</td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
<td>Standard Error</td>
<td>t-value</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td>$D_{EQCOMM}$</td>
<td>-0.6769</td>
<td>0.9140</td>
<td>††</td>
</tr>
<tr>
<td></td>
<td>(1.41)</td>
<td>(1.08)</td>
<td></td>
</tr>
<tr>
<td>$lnTA$</td>
<td>0.4245</td>
<td>0.2715</td>
<td>††</td>
</tr>
<tr>
<td></td>
<td>(2.56)</td>
<td>(0.97)</td>
<td></td>
</tr>
<tr>
<td>$ROA$</td>
<td>0.6790</td>
<td>2.4128</td>
<td></td>
</tr>
<tr>
<td>(industry adjusted)</td>
<td>(1.62)</td>
<td>(1.25)</td>
<td></td>
</tr>
<tr>
<td>$LEV$</td>
<td>0.1697</td>
<td>0.9399</td>
<td></td>
</tr>
<tr>
<td>(industry adjusted)</td>
<td>(0.56)</td>
<td>(1.05)</td>
<td></td>
</tr>
<tr>
<td>$CA/TA$</td>
<td>1.4135</td>
<td>3.8164</td>
<td>††</td>
</tr>
<tr>
<td>(industry adjusted)</td>
<td>(1.84)</td>
<td>(2.36)</td>
<td></td>
</tr>
<tr>
<td>$D_{DE}$</td>
<td>-0.0153</td>
<td>0.7202</td>
<td>††</td>
</tr>
<tr>
<td></td>
<td>(0.05)</td>
<td>(0.89)</td>
<td></td>
</tr>
<tr>
<td>$D_{NYS}$</td>
<td>0.6460</td>
<td>2.3426</td>
<td>††</td>
</tr>
<tr>
<td></td>
<td>(1.43)</td>
<td>(2.51)</td>
<td></td>
</tr>
</tbody>
</table>

Number of observations: 338

Regression Chi²: 2991.01

Pseudo-R²: 0.1582
Table 6. Determinants of KERP and PIP Size and Coverage

This table provides OLS regression estimates for the determinants of plan coverage for Key Employee Retention Plans (KERPs) and Performance Incentive Plans (PIPs) adopted in Chapter 11. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy during 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. KERP is Key Employee Retention Plan and PIP is Performance Incentive Plan. Prefix D_ indicates a “dummy” variable that equals one for the described category, and zero otherwise: D_PREPACK is for prepackaged bankruptcy cases; D_PRENEG is for pre-negotiated bankruptcy cases; D_EQCOMM is for the presence of an equity committee; D_DIP is for the debtor in possession financing; D_CASHCOLL is the release of cash collateral; D_DE is for bankruptcy cases filed in the bankruptcy court in Delaware; and D_NYSD is for bankruptcy cases filed in the bankruptcy court in the New York southern district. lnTA is the logarithm of total assets; ROA is the return on assets defined as annual net income divided by total assets; LEV is leverage defined as the ratio of total liabilities and total assets; and CA/TA are current assets divided by total assets. ROA, LEV and CA/TA are industry adjusted, i.e., they are equal to the difference between the firm’s ratio and the median ratio for its industry. All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. The estimations are conducted with robust standard errors to account for possible heteroskedasticity. The t-statistics for the coefficient estimates are presented in parentheses below the coefficient estimates. *, **, and *** indicate 10%, 5% and 1% significance levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>KERP Contracts</th>
<th></th>
<th>PIP Contracts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td>KERP/TA (%)</td>
<td>0.6023*</td>
<td>0.7126**</td>
<td>5.2682**</td>
<td>-3.7974***</td>
</tr>
<tr>
<td></td>
<td>(3.23)</td>
<td>(1.04)</td>
<td>(2.04)</td>
<td>(8.23)</td>
</tr>
<tr>
<td>KERP/SALES (%)</td>
<td>-0.4388</td>
<td>-0.0122</td>
<td>0.3845</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.24)</td>
<td>(0.01)</td>
<td>(1.62)</td>
<td></td>
</tr>
<tr>
<td>KEMP/NEMP (%)</td>
<td>0.5547</td>
<td></td>
<td>1.0039</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.46)</td>
<td></td>
<td>(0.71)</td>
<td></td>
</tr>
<tr>
<td>ln(KERP/KEMP)</td>
<td>0.0008</td>
<td></td>
<td>0.0008</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.00)</td>
<td></td>
<td>(0.00)</td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>0.0604**</td>
<td>0.6485***</td>
<td>1.5759</td>
<td>1.9563***</td>
</tr>
<tr>
<td></td>
<td>(0.69)</td>
<td>(1.44)</td>
<td>(0.88)</td>
<td>(5.82)</td>
</tr>
<tr>
<td>D_KERP&amp;PIP</td>
<td>0.0604**</td>
<td>0.6485***</td>
<td>1.5759</td>
<td>1.9563***</td>
</tr>
<tr>
<td></td>
<td>(0.69)</td>
<td>(1.44)</td>
<td>(0.88)</td>
<td>(5.82)</td>
</tr>
<tr>
<td>D_PREPACK</td>
<td>0.7740***</td>
<td>0.6485***</td>
<td>1.5759</td>
<td>1.9563***</td>
</tr>
<tr>
<td></td>
<td>(5.78)</td>
<td>(1.44)</td>
<td>(0.88)</td>
<td>(5.82)</td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient 1</td>
<td>Coefficient 2</td>
<td>Coefficient 3</td>
<td>Coefficient 4</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td>D_PRENEG</td>
<td>0.0358</td>
<td>-0.2986</td>
<td>-2.2559</td>
<td>** 0.7936</td>
</tr>
<tr>
<td></td>
<td>(0.33)</td>
<td>(1.11)</td>
<td>(2.11)</td>
<td>(2.70)</td>
</tr>
<tr>
<td>D_DIP</td>
<td>-0.0555</td>
<td>0.0702</td>
<td>1.2747</td>
<td>-0.1615</td>
</tr>
<tr>
<td></td>
<td>(0.56)</td>
<td>(0.21)</td>
<td>(1.02)</td>
<td>(0.69)</td>
</tr>
<tr>
<td>D_CASHCOLL</td>
<td>0.1089</td>
<td>0.4919</td>
<td>0.2753</td>
<td>-0.2954</td>
</tr>
<tr>
<td></td>
<td>(1.16)</td>
<td>(1.42)</td>
<td>(0.18)</td>
<td>(1.26)</td>
</tr>
<tr>
<td>D_EQCOMM</td>
<td>0.0961</td>
<td>-0.2349</td>
<td>-2.3745</td>
<td>0.3955</td>
</tr>
<tr>
<td></td>
<td>(0.84)</td>
<td>(0.91)</td>
<td>(1.64)</td>
<td>(0.94)</td>
</tr>
<tr>
<td>lnTA</td>
<td>-0.0694</td>
<td>-0.0763</td>
<td>-0.4747</td>
<td>0.1320</td>
</tr>
<tr>
<td></td>
<td>(2.65)</td>
<td>(1.01)</td>
<td>(1.46)</td>
<td>(2.29)</td>
</tr>
<tr>
<td>ROA (industry adjusted)</td>
<td>-0.2410</td>
<td>-1.1172</td>
<td>* -9.9603</td>
<td>*** 0.2219</td>
</tr>
<tr>
<td></td>
<td>(1.58)</td>
<td>(1.78)</td>
<td>(4.14)</td>
<td>(0.55)</td>
</tr>
<tr>
<td>LEV (industry adjusted)</td>
<td>0.0287</td>
<td>-0.6064</td>
<td>-5.0574</td>
<td>*** -0.0390</td>
</tr>
<tr>
<td></td>
<td>(0.27)</td>
<td>(1.66)</td>
<td>(3.51)</td>
<td>(0.14)</td>
</tr>
<tr>
<td>CA/TA (industry adjusted)</td>
<td>0.4081</td>
<td>1.5183</td>
<td>1.9368</td>
<td>-0.6519</td>
</tr>
<tr>
<td></td>
<td>(1.55)</td>
<td>(1.31)</td>
<td>(0.37)</td>
<td>(0.88)</td>
</tr>
<tr>
<td>D_DE</td>
<td>0.0566</td>
<td>0.2101</td>
<td>-0.3191</td>
<td>-0.1540</td>
</tr>
<tr>
<td></td>
<td>(0.58)</td>
<td>(0.85)</td>
<td>(0.22)</td>
<td>(0.61)</td>
</tr>
<tr>
<td>D_NYSD</td>
<td>0.0987</td>
<td>0.6984</td>
<td>* 0.0257</td>
<td>-0.3128</td>
</tr>
<tr>
<td></td>
<td>(0.81)</td>
<td>(1.81)</td>
<td>(0.02)</td>
<td>(1.20)</td>
</tr>
</tbody>
</table>

Number of obs. | 89 | 89 | 93 | 82 | 37 | 37 | 28 | 27 |
Regression F-stat | 1.36 | 1.37 | 0.39 | 3.60 ** |
R² | 0.3081 | 0.1867 | 0.2820 | 0.2610 | 0.3995 | 0.2414 | 0.4144 | 0.5593 |
Table 7. KERP and PIP Adoption and Stock Price Reaction

This table provides the analysis of the stock market reaction to the news of adoption of a Key Employee Retention Plan (KERP) and/or Performance Incentive Plan (PIP) during Chapter 11 for firms whose shares continue to trade after filing for bankruptcy. Our initial sample contains 356 firms that filed for Chapter 11 bankruptcy in the 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data were collected from the CRSP/COMPSTAT database. All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. *, **, and *** indicate 10%, 5% and 1% significance levels respectively.

### Panel A: Stock Price Reaction around KERP and/or PIP Adoption Dates

<table>
<thead>
<tr>
<th>Day</th>
<th>N</th>
<th>Mean Abnormal Return</th>
<th>Positive: Negative</th>
<th>Standardized Abnormal Return Test</th>
<th>Time-Series Std. Dev. Test</th>
<th>Generalized Sign Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>20</td>
<td>2.14%</td>
<td>11:09</td>
<td>2.15 **</td>
<td>1.279</td>
<td>0.642</td>
</tr>
<tr>
<td>0</td>
<td>20</td>
<td>-1.83%</td>
<td>9:11</td>
<td>-1.449 *</td>
<td>-1.095</td>
<td>-0.253</td>
</tr>
<tr>
<td>1</td>
<td>20</td>
<td>6.56%</td>
<td>17:03</td>
<td>4.483 ***</td>
<td>3.914 ***</td>
<td>3.328 ***</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>-1.13%</td>
<td>11:09</td>
<td>-1.116</td>
<td>-0.677</td>
<td>0.642</td>
</tr>
<tr>
<td>3</td>
<td>20</td>
<td>2.38%</td>
<td>14:06</td>
<td>1.609 *</td>
<td>1.422 *</td>
<td>1.985 **</td>
</tr>
</tbody>
</table>

### Panel B: Cumulative Abnormal Returns (CAR) around KERP and/or PIP Adoption Dates

| (-1,0) | 20 | 0.31% | 10:10 | 0.496 | 0.13 | 0.194 |
| (+1,+3)| 20 | 7.81% | 17:03 | 2.873 | 2.69 | 3.328 |
Table 8. KERP and/or PIP Adoption and Chapter 11 Duration

This table provides time-to-failure (duration) regression model estimates where the dependent variable is DAYS, which is defined as days the firm spends in bankruptcy between the filing and resolution (disposition) dates. KERP is Key Employee Retention Plan and PIP is Performance Incentive Plan. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy during 1993-2004 period with liabilities that exceed US$100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. Prefix D_ indicates a “dummy” variable that equals one for the described category, and zero otherwise: D_KERP is for stand-alone Key Employee Retention Plan (KERP) adoptions; D_PIP is for stand-alone Performance Incentive Plan (PIP) adoptions; D_KERP&PIP is for joint Key Employee Retention Plan and Performance Incentive Plan adoptions; D_PREPACK is for prepackaged bankruptcy cases; D_PRENEG is for pre-negotiated bankruptcy cases; D_EQCOMM is for the presence of an equity committee; D_DIP is for the debtor in possession financing; D_CASHCOLL is the release of cash collateral; D_DE is for bankruptcy cases filed in the bankruptcy court in Delaware; and D_NYSD is for bankruptcy cases filed in the bankruptcy court in the New York southern district. KERP/TA (PIP/TA) is the ratio of KERP (PIP) total dollar amount to total assets; KERP/SALES (PIP/SALES) is the ratio of KERP (PIP) total plan dollar amount to sales; KEMP/NEMP (PEMP/NEMP) is the number of employees targeted by the KERP (PIP) divided by the total number of employees; KERP/KEMP (PIP/PEMP) is the KERP (PIP) dollar amount per targeted-employee; lnTA is the logarithm of total assets; ROA is the return on assets defined as annual net income divided by total assets; LEV is leverage defined as the ratio of total liabilities and total assets; and CA/TA are current assets divided by total assets. ROA, LEV and CA/TA are industry adjusted, i.e., they are equal to the difference between the firm’s ratio and the median ratio for its industry. All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. The estimation is conducted with robust standard errors to account for possible heteroskedasticity. The t-statistics for the coefficient estimates are presented in parentheses below the coefficient estimates. *, **, and *** indicate 10%, 5% and 1% significance levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>K=KERP/TA P=PIP/TA</th>
<th>K=KERP/SALES P=PIP/SALES</th>
<th>K=KEMP/NEMP P=PEMP/NEMP</th>
<th>K=KERP/KEMP P=PIP/PEMP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(A)</td>
<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
</tr>
<tr>
<td>Constant</td>
<td>6.9082***</td>
<td>7.1787***</td>
<td>7.1770***</td>
<td>7.3296***</td>
</tr>
<tr>
<td></td>
<td>(29.15)</td>
<td>(24.76)</td>
<td>(25.09)</td>
<td>(23.74)</td>
</tr>
<tr>
<td>D_KERP</td>
<td>0.2529**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.15)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D_PIP</td>
<td>-0.2593**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(2.12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D_KERP&amp;PIP</td>
<td>0.2058</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(1.61)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variable</td>
<td>Coefficient</td>
<td>Standard Error</td>
<td>T-Statistic</td>
<td>Significance</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------</td>
<td>----------------</td>
<td>-------------</td>
<td>--------------</td>
</tr>
<tr>
<td>K</td>
<td>-18.4760</td>
<td>1.27</td>
<td>-14.57</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>-1.0197</td>
<td>0.24</td>
<td>-4.96</td>
<td>(1.68)</td>
</tr>
<tr>
<td></td>
<td>-0.0221</td>
<td>0.0221</td>
<td>-1.01</td>
<td>(6.67)</td>
</tr>
<tr>
<td></td>
<td>-0.6047</td>
<td>0.6047</td>
<td>-1.01</td>
<td>***</td>
</tr>
<tr>
<td>P</td>
<td>-130.3561</td>
<td>2.28</td>
<td>-57.15</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>-21.2144</td>
<td>2.08</td>
<td>-10.24</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>-0.0169</td>
<td>(0.87)</td>
<td>-0.19</td>
<td>(3.00)</td>
</tr>
<tr>
<td></td>
<td>-3.2538</td>
<td>(2.90)</td>
<td>-1.12</td>
<td>***</td>
</tr>
<tr>
<td>K × D_KERP&amp;PIP</td>
<td>56.9024</td>
<td>1.29</td>
<td>44.69</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>49.6248</td>
<td>1.82</td>
<td>27.39</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>0.0200</td>
<td>(0.87)</td>
<td>0.02</td>
<td>(2.90)</td>
</tr>
<tr>
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<td>0.7117</td>
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<td>-0.13</td>
<td>**</td>
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<td>-0.3030</td>
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<td>0.4113</td>
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<td>0.3446</td>
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<td>0.18</td>
<td>*</td>
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<td>-0.04</td>
<td>(0.77)</td>
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<td>-0.0311</td>
<td>(0.77)</td>
<td>-0.04</td>
<td>(0.77)</td>
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<tr>
<td>ROA</td>
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<td>0.7298</td>
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<td>0.1260</td>
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<td>0.1383</td>
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<td></td>
<td>0.1406</td>
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<tr>
<td>CA/TA</td>
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<td>0.65</td>
<td>-0.30</td>
<td>(0.95)</td>
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<tr>
<td>(industry adjusted)</td>
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<td>-0.4499</td>
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<td>-0.39</td>
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<td></td>
<td>0.7418</td>
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<td>*</td>
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<tr>
<td></td>
<td>-0.3449</td>
<td>(0.95)</td>
<td>0.55</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
<td>Std. Error</td>
<td>z-value</td>
<td>p-value</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>------------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>D_{DE}</td>
<td>-0.0666</td>
<td>0.065</td>
<td>-1.03</td>
<td>0.303</td>
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<tr>
<td></td>
<td></td>
<td>(0.65)</td>
<td>(2.22)</td>
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</tr>
<tr>
<td>D_{NYS}</td>
<td>0.0491</td>
<td>0.121</td>
<td>0.41</td>
<td>0.682</td>
</tr>
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<td></td>
<td></td>
<td>(0.41)</td>
<td>(0.65)</td>
<td></td>
</tr>
<tr>
<td>D_{KER} - D_{KER&amp;PIP} = 0</td>
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<td>0.042</td>
<td>1.11</td>
<td>0.267</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.42)</td>
<td>(0.64)</td>
<td></td>
</tr>
<tr>
<td>D_{PIP} - D_{KER&amp;PIP} = 0</td>
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<td>3.076</td>
<td>-1.51</td>
<td>0.132</td>
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<td>(3.66)</td>
<td>(0.89)</td>
<td></td>
</tr>
<tr>
<td>K + K \times D_{KER&amp;PIP}</td>
<td>38.4263</td>
<td>8.365</td>
<td>4.59</td>
<td>0.000</td>
</tr>
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<td></td>
<td></td>
<td>(0.83)</td>
<td>(1.73)</td>
<td></td>
</tr>
<tr>
<td>P + P \times D_{KER&amp;PIP}</td>
<td>-9.0913</td>
<td>4.252</td>
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<td>(0.43)</td>
<td>(2.13)</td>
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</tr>
<tr>
<td>ln(p)</td>
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<td></td>
<td></td>
<td>(8.17)</td>
<td>(11.61)</td>
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<td>93</td>
<td>97</td>
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<td>117.24</td>
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<td>(3.66)</td>
<td>(0.89)</td>
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Table 9. Regressions for Time Until KERP and/or PIP Adoption, and Time Until Chapter 11 Resolution Given Plan Adoption

This table provides time-to-failure (duration) model estimates. The column A presents the time-to-failure model where the dependent variable is days between Chapter 11 filing and the adoption of a Key Employee Retention Plan (KERP) and/or Performance Incentive Plan (PIP). Column B presents the time-to-failure model where the dependent variable is days between a KERP and/or PIP plan adoption date and bankruptcy resolution date. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy during 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. Prefix D_ indicates a “dummy” variable that equals one for the described category, and zero otherwise; D_PIP is for stand-alone PIP adoptions; D_KERP&PIP is for joint KERP and PIP adoptions; D_PREPACK is for prepackaged bankruptcy cases; D_PRENEG is for pre-negotiated bankruptcy cases; D_EQCOMM is for the presence of an equity committee; D_DIP is for the debtor in possession financing; D_CASHCOLL is the release of cash collateral; D_DE is for bankruptcy cases filed in the bankruptcy court in Delaware; and D_NYSD is for bankruptcy cases filed in the bankruptcy court in the New York southern district. lnTA is the logarithm of total assets; ROA is the return on assets defined as annual net income divided by total assets; LEV is leverage defined as the ratio of total liabilities and total assets; and CA/TA are current assets divided by total assets. ROA, LEV and CA/TA are industry adjusted, i.e., they are equal to the difference between the firm’s ratio and the median ratio for its industry. All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. The estimation is conducted with robust standard errors to account for possible heteroskedasticity. The t-statistics for the coefficient estimates are presented in parentheses below the coefficient estimates. *, **, and *** indicate 10%, 5% and 1% significance levels, respectively.

<table>
<thead>
<tr>
<th></th>
<th>Days Between Chapter 11 Filing Date and KERP and/or PIP Adoption Date (A)</th>
<th>Days Between KERP and/or PIP Adoption Date and Bankruptcy Resolution Date (B)</th>
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</thead>
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<td>Constant</td>
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<td>6.6492 ***</td>
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<td>(23.64)</td>
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<td>D_PIP</td>
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<td>-0.7282 ***</td>
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<tr>
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<td>(0.97)</td>
<td>(4.52)</td>
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<td>(0.26)</td>
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<td>(1.81)</td>
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<td>Standard Error</td>
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<td>-------------</td>
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<tr>
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<tr>
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<td>(1.36)</td>
<td>(1.73)</td>
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<td>$LEV$</td>
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<td>$CA/TA$</td>
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<tr>
<td>$D_{NYSD}$</td>
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<tr>
<td>$ln(p)$</td>
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<td>(6.12)</td>
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Table 10. KERP and/or PIP Adoption and Bankrupt Firm Operating Performance

This table provides regression model estimates of determinants quarterly operating performance in Chapter 11 bankruptcy and in the post-bankruptcy period. The dependent variable, EBITDA/TA, is the ratio of earnings before interests, taxes, depreciation and amortization divided by total assets. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy during 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. Prefix D_ indicates a “dummy” variable that equals one for the described category, and zero otherwise; D_KERP is for stand-alone Key Employee Retention Plan (KERP) adoptions; D_PIP is for stand-alone PIP adoptions; D_KERP&PIP is for joint KERP and PIP adoptions; D_PREPACK is for prepackaged bankruptcy cases; D_PRENEG is for pre-negotiated bankruptcy cases; D_EQCOMM is for the presence of an equity committee; D_DIP is for the debtor in possession financing; D_CASHCOLL is the release of cash collateral; D_DE is for bankruptcy cases filed in the bankruptcy court in Delaware; and D_NYSD is for bankruptcy cases filed in the bankruptcy court in the New York southern district. lnTA is the logarithm of total assets; ROA is the return on assets defined as annual net income divided by total assets; LEV is leverage defined as the ratio of total liabilities and total assets; CA/TA are current assets divided by total assets; and lnDAYS is the logarithm of days the firm spends in bankruptcy between the filing and resolution (disposition) dates. All independent variable financial data are collected for the last fiscal year prior to the year of bankruptcy filing. All regression specifications contain industry-, fiscal year- and fiscal quarter-fixed effects. The t-statistics for the coefficient estimates are presented in parentheses below the coefficient estimates. *, **, and *** indicate 10%, 5% and 1% significance levels respectively.

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<th>Filing Quarter through the Disposition Quarter</th>
<th>Post-Disposition Quarters 1-4</th>
<th>Filing Quarter through 4 Quarters Post-Disposition</th>
<th>Filing Quarter through 16 Quarters Post-Disposition</th>
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<td>(B)</td>
<td>(C)</td>
<td>(D)</td>
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<td>(0.51)</td>
<td>(0.17)</td>
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<td>D_KERP</td>
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<td>0.0186 *</td>
<td>0.0183 ***</td>
<td>0.0156 **</td>
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<td>(1.78)</td>
<td>(3.61)</td>
<td>(2.61)</td>
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<td>D_PIP</td>
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<td>0.0196 **</td>
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<td>(1.36)</td>
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<td>Coefficient 3</td>
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<tr>
<td>lnTA</td>
<td>-0.0046</td>
<td>-0.0088</td>
<td>*</td>
<td>-0.0044</td>
</tr>
<tr>
<td>LEV</td>
<td>0.0356</td>
<td>**</td>
<td>0.0314</td>
<td>*</td>
</tr>
<tr>
<td>CA/TA</td>
<td>-0.0297</td>
<td>-0.0853</td>
<td>***</td>
<td>-0.0474</td>
</tr>
<tr>
<td>lnDAYS</td>
<td>0.0120</td>
<td></td>
<td>0.0079</td>
<td>0.0062</td>
</tr>
<tr>
<td>D_DE</td>
<td>-0.0215</td>
<td>*</td>
<td>-0.0128</td>
<td>-0.0188</td>
</tr>
<tr>
<td>D_NYSD</td>
<td>-0.0074</td>
<td>-0.0238</td>
<td>**</td>
<td>-0.0141</td>
</tr>
</tbody>
</table>

Fixed Effects:
Industry fixed effects: yes yes yes yes
<table>
<thead>
<tr>
<th>Fiscal Year fixed effects</th>
<th>yes</th>
<th>yes</th>
<th>yes</th>
<th>yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiscal Quarter fixed effects</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>(D_{KERP} - D_{PIP})</td>
<td>-0.0050</td>
<td>0.0104</td>
<td>-0.0014</td>
<td>-0.0020</td>
</tr>
<tr>
<td>(0.47)</td>
<td>(0.71)</td>
<td>(0.14)</td>
<td>(0.22)</td>
<td></td>
</tr>
<tr>
<td>(D_{PIP} - D_{KERP&amp;PIP})</td>
<td>0.1424</td>
<td>-0.0052</td>
<td>0.0055</td>
<td>0.0073</td>
</tr>
<tr>
<td>(1.63)</td>
<td>(0.45)</td>
<td>(0.72)</td>
<td>(1.03)</td>
<td></td>
</tr>
<tr>
<td>(D_{KERP} - D_{KERP&amp;PIP})</td>
<td>0.0093</td>
<td>0.0052</td>
<td>0.0041</td>
<td>0.0053</td>
</tr>
<tr>
<td>(1.11)</td>
<td>(0.28)</td>
<td>(0.50)</td>
<td>(0.71)</td>
<td></td>
</tr>
<tr>
<td>Number of observations</td>
<td>428</td>
<td>321</td>
<td>749</td>
<td>1423</td>
</tr>
<tr>
<td>Regression F-statistic</td>
<td>3.29</td>
<td>4.79</td>
<td>2.74</td>
<td>4.08</td>
</tr>
<tr>
<td>Adjusted (R^2)</td>
<td>0.3103</td>
<td>0.3401</td>
<td>0.2898</td>
<td>0.2922</td>
</tr>
</tbody>
</table>
Table 11. KERP and/or PIP Adoption and Bankruptcy Resolution

This table provides logit regression model estimates of determinants of emergence from Chapter 11 bankruptcy. The dependent variable, \( D_{EMERGE} \), equals one if the firm emerges from Chapter 11 bankruptcy, and zero if it is liquidated. KERP is Key Employee Retention Plan and PIP is Performance Incentive Plan. The initial sample contains 356 firms that filed for Chapter 11 bankruptcy during 1993-2004 period with liabilities that exceed US$ 100 million at filing. Bankruptcy-related data were collected from the Altman-NYU Salomon Center Bankruptcy database, the PACER database, Lynn LoPucki’s BRD database, and the SEC’s EDGAR database. Financial data was collected from the COMPUSTAT database. Prefix \( D \) indicates a “dummy” variable that equals one for the described category, and zero otherwise: \( D_{KERP} \) is for stand-alone Key Employee Retention Plan (KERP) adoptions; \( D_{PIP} \) is for stand-alone Performance Incentive Plan (PIP) adoptions; \( D_{KERP&PIP} \) is for joint Key Employee Retention Plan and Performance Incentive Plan adoptions; \( D_{PREPACK} \) is for prepackaged bankruptcy cases; \( D_{PRENEG} \) is for pre-negotiated bankruptcy cases; \( D_{EQCOMM} \) is for the presence of an equity committee; \( D_{DIP} \) is for the debtor in possession financing; \( D_{CASHCOLL} \) is the release of cash collateral; \( D_{DE} \) is for bankruptcy cases filed in the bankruptcy court in Delaware; and \( D_{NYSD} \) is for bankruptcy cases filed in the bankruptcy court in the New York southern district. \( KERP/TA \) (\( P/TA \)) is the ratio of KERP (PIP) total dollar amount to total assets; \( KERP/SALES \) (\( P/SALES \)) is the ratio of KERP (PIP) total plan dollar amount to sales; \( KEMP/NEMP \) (\( PEMP/NEMP \)) is the number of employees targeted by the KERP (PIP) divided by the total number of employees; \( KERP/KEMP \) (\( P/PEMP \)) is the KERP (PIP) dollar amount per targeted-employee; \( \ln TA \) is the logarithm of total assets; \( ROA \) is the return on assets defined as annual net income divided by total assets; \( LEV \) is leverage defined as the ratio of total liabilities and total assets; and \( CA/TA \) are current assets divided by total assets. \( ROA, LEV \) and \( CA/TA \) are industry adjusted, i.e., they are equal to the difference between the firm’s ratio and the median ratio for its industry. All financial data are collected for the last fiscal year prior to the year of bankruptcy filing. The t-statistics for the coefficient estimates are presented in parentheses below the coefficient estimates; *, **, and *** indicate 10%, 5% and 1% significance levels, respectively.

<table>
<thead>
<tr>
<th>( D_{KERP} )</th>
<th>( D_{PIP} )</th>
<th>( D_{KERP&amp;PIP} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.3922</td>
<td>0.2840</td>
<td>-0.0039</td>
</tr>
<tr>
<td>(1.18)</td>
<td>(0.35)</td>
<td>(0.01)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>( D_{KERP} )</th>
<th>( KERP/TA )</th>
<th>( P/TA )</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.0039</td>
<td>0.3077</td>
<td>0.3077</td>
</tr>
<tr>
<td>(0.01)</td>
<td>(2.73)</td>
<td>(2.73)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>( D_{KERP} )</th>
<th>( KERP/SALES )</th>
<th>( P/SALES )</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.0039</td>
<td>0.2840</td>
<td>0.2840</td>
</tr>
<tr>
<td>(0.01)</td>
<td>(2.73)</td>
<td>(2.73)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>( D_{KERP} )</th>
<th>( KEMP/NEMP )</th>
<th>( PEMP/NEMP )</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.0039</td>
<td>0.3077</td>
<td>0.3077</td>
</tr>
<tr>
<td>(0.01)</td>
<td>(2.73)</td>
<td>(2.73)</td>
</tr>
</tbody>
</table>

**Constant**

<table>
<thead>
<tr>
<th>( D_{KERP} )</th>
<th>( D_{PIP} )</th>
<th>( D_{KERP&amp;PIP} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2.7275</td>
<td>-4.7523</td>
<td>-4.0989</td>
</tr>
<tr>
<td>(3.20)</td>
<td>(2.94)</td>
<td>(2.63)</td>
</tr>
<tr>
<td></td>
<td>Value 1</td>
<td>Value 2</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>$K$</strong></td>
<td>169.2853</td>
<td>38.2025</td>
</tr>
<tr>
<td></td>
<td>(1.78)</td>
<td>(1.64)</td>
</tr>
<tr>
<td><strong>$P$</strong></td>
<td>651.3446</td>
<td>-127.0366</td>
</tr>
<tr>
<td></td>
<td>(0.94)</td>
<td>(1.01)</td>
</tr>
<tr>
<td><strong>$K \times D_{KERP &amp; PIP}$</strong></td>
<td>98.0585</td>
<td>119.5097</td>
</tr>
<tr>
<td></td>
<td>(0.53)</td>
<td>(0.71)</td>
</tr>
<tr>
<td><strong>$P \times D_{KERP &amp; PIP}$</strong></td>
<td>-548.5161</td>
<td>258.7069</td>
</tr>
<tr>
<td></td>
<td>(0.78)</td>
<td>(1.59)</td>
</tr>
<tr>
<td><strong>$D_{PREPACK}$</strong></td>
<td>3.5040</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>(3.27)</td>
<td></td>
</tr>
<tr>
<td><strong>$D_{PRENEG}$</strong></td>
<td>2.5647</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>(4.49)</td>
<td>(2.47)</td>
</tr>
<tr>
<td><strong>$D_{DIP}$</strong></td>
<td>0.6104</td>
<td>**</td>
</tr>
<tr>
<td></td>
<td>(2.01)</td>
<td>(1.60)</td>
</tr>
<tr>
<td><strong>$D_{CASHCOLL}$</strong></td>
<td>-0.1835</td>
<td>-0.2225</td>
</tr>
<tr>
<td></td>
<td>(0.60)</td>
<td>(0.33)</td>
</tr>
<tr>
<td><strong>$D_{EQCOMM}$</strong></td>
<td>0.7104</td>
<td>-0.0139</td>
</tr>
<tr>
<td></td>
<td>(1.37)</td>
<td>(0.01)</td>
</tr>
<tr>
<td><strong>$lnTA$</strong></td>
<td>0.5472</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>(3.83)</td>
<td>(3.03)</td>
</tr>
<tr>
<td><strong>$ROA$</strong></td>
<td>-0.1790</td>
<td>0.6468</td>
</tr>
<tr>
<td><em>(industry adjusted)</em></td>
<td>(0.36)</td>
<td>(0.60)</td>
</tr>
<tr>
<td><strong>$LEV$</strong></td>
<td>0.8839</td>
<td>**</td>
</tr>
<tr>
<td><em>(industry adjusted)</em></td>
<td>(2.35)</td>
<td>(0.23)</td>
</tr>
<tr>
<td><strong>$CA/TA$</strong></td>
<td>-0.8725</td>
<td>-1.3767</td>
</tr>
<tr>
<td><em>(industry adjusted)</em></td>
<td>(1.10)</td>
<td>(0.77)</td>
</tr>
<tr>
<td><strong>$D_{DE}$</strong></td>
<td>-0.8551</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coefficient</td>
<td>Coefficient</td>
</tr>
<tr>
<td>------------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>(2.71)</td>
<td>(1.23)</td>
</tr>
<tr>
<td>( D_{NYSD} )</td>
<td>-1.0279</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>(2.25)</td>
<td>(1.44)</td>
</tr>
<tr>
<td>( D_{KERP} - D_{KERP&amp;PIP} = 0 )</td>
<td>-0.3883</td>
<td>(1.00)</td>
</tr>
<tr>
<td>( D_{PIP} - D_{KERP&amp;PIP} = 0 )</td>
<td>0.2879</td>
<td>(0.35)</td>
</tr>
<tr>
<td>( K + K \times D_{KERP&amp;PIP} )</td>
<td>267.3438</td>
<td>157.7123</td>
</tr>
<tr>
<td></td>
<td>(1.35)</td>
<td>(0.92)</td>
</tr>
<tr>
<td>( P + P \times D_{KERP&amp;PIP} )</td>
<td>102.8284</td>
<td>131.6703</td>
</tr>
<tr>
<td></td>
<td>(1.14)</td>
<td>(1.26)</td>
</tr>
</tbody>
</table>

| Number of observations | 331 | 92 | 92 | 85 | 96 |
| Logit Chi²            | 93.08 | 32.90 | 34.57 | 29.94 | 37.08 |
| Pseudo-R²             | 0.2227 | 0.2715 | 0.2853 | 0.2659 | 0.2919 |