ACQUISITIONS IN BANKRUPTCY: 363 SALES VERSUS PLAN SALES AND THE EXISTENCE OF FIRE SALES

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ABSTRACT

The acquisition of bankrupt firms has increasingly taken place through section 363 of the U.S. Bankruptcy Code. Some scholars are critical of 363 sales because the process weakens creditors' voting rights, takes place quickly, and has limited information disclosure compared with sales that take place in conjunction with a bankruptcy plan, i.e., "plan sales." These factors potentially result in less active bidding and increased fire sales. Supporters of 363 sales contend that financial markets are sufficiently developed to accommodate such sales efficiently. Ours is the first study of which we are aware that compares 363 sales and plan sales to test these contentions empirically. Using a sample of large firms acquired in bankruptcy from 1996 to 2010, we find that 363 sales are associated with considerably lower sale prices. Further examination shows that the lower sale prices for 363 sales compared with plan sales are not due to the quick speed with which they take place, which could potentially result in less active bidding or greater information problems. Rather, the lower prices for 363 sales are associated with the reduced negotiating leverage that creditors experience in 363 sales as postulated by Elizabeth Rose in her 2006 study. We do not find systematic evidence of poor governance or restricted bidder participation in 363 sales, and while sale prices are negatively impacted by industry distress, the industry distress discount is not further exacerbated by 363 sales. Our results contribute to the understanding of bankruptcy fire sales and also have policy implications related to bankruptcy law.

I. INTRODUCTION

Two avenues exist for the sale of a firm as a going concern in bankruptcy—a "plan sale" that takes place through traditional plan confirmation and is voted on and approved by creditors,[1] or a "363 sale" that avails of section 363 of the United States Bankruptcy Code in which the bankrupt firm sells "substantially all of its assets" to an acquirer. The two methods differ across dimensions of how quickly the sale occurs, information disclosure, and creditors' ability to levy meaningful objections to potential fire sales.[2] As detailed in section II, several studies are

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[1] *See* 11 U.S.C. § 1123 (2012) ("Contents of plan").

[2] *See* Elizabeth B. Rose, *Chocolate, Flowers, and § 363(b): The Opportunity for Sweetheart Deals Without Chapter 11 Protections*, 23 EMORY BANKR. DEV. J. 249, 262–63 (2006).

critical of the practice of using section 363 to conduct the sale of an entire firm, while other papers support the use of section 363.[3] The primary criticisms of entire firm going-concern 363 sales are that the short time from bankruptcy filing to auction may shut out other bidders and increase fire sales, and that the reduced information disclosure and burden on creditors to prove harm reduces their negotiating leverage and can lead to lower prices.[4] Supporters of selling an entire firm as a 363 sale contend that markets are sufficiently well developed to accommodate such sales.[5] Our study compares the process and outcomes of going concern sales that take place in bankruptcy using section 363 with those of plan sales that use the traditional confirmation and voting procedure. Specifically, our research investigates whether section 363 sales are used predominantly when the benefits to a quick 363 sale are larger, which would be consistent with an efficiency explanation, whether 363 sales exacerbate fire sale discounts, and whether the quickness of the 363 sales or the diminished negotiating ability of the creditors leads to lower sale prices. We also examine whether governance issues play a role in the decision to undergo a 363 sale versus a plan sale. As discussed below, scholars have put forth sensible arguments both for and against sales of entire firms through section 363. Our paper adds to this debate empirically.

Our study is the first of which we are aware that empirically compares the two methods of firm sales in bankruptcy, but is most closely related to the 2007 LoPucki and Doherty study, which compares section 363 sales to bankruptcy reorganizations. They note, however, that scholars have not "expressly distinguished between section 363 sales and confirmed plan sales" when evaluating the merits of going-concern sales in chapter 11.[6] Our study analyzes 363 sales by explicitly making this distinction and by conducting thorough empirical analysis. We find that stalking horse agreements, particularly those entered into with investment companies rather than corporations, are more likely to be associated with 363 sales, and that 363 sales are used by relatively smaller firms whose sale can presumably be more quickly accommodated by capital markets. In some specifications, we also find support for 363 sales being used when firm value could potentially decrease more quickly,[7] but this "efficiency" argument is not supported

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[3] *Compare* George W. Kuney, *Misinterpreting Bankruptcy Code Section 363(f) and Undermining the Chapter 11 Process*, 76 AM. BANKR. L.J. 235, 249 (2002) (discussing how sales under § 363(f)(4) can lead to bizarre results), *with* Hon. William T. Bodoh, John W. Kennedy & Joseph P. Mulligan, *The Parameters of the Non-Plan Liquidating Chapter Eleven: Refining the Lionel Standard*, 9 EMORY BANKR. DEV. J. 1, 10 (1992) (discussing advantages of § 363 sales). Section 363 is also used to sell individual firm assets.

[4] *See generally* Lynn M. LoPucki & Joseph W. Doherty, *Bankruptcy Fire Sales*, 106 MICH. L. REV. 1 (2007) (comparing recoveries from bankruptcy sales of large corporations to those of bankruptcy reorganizations from 2000-2004).

[5] *See* Douglas G. Baird & Robert K. Rasmussen, *The End of Bankruptcy*, 55 STAN. L. REV. 751, 756 (2002).

[6] *See* LoPucki & Doherty, *supra* note 4, at 18.

[7] *See* Rose, *supra* note 2, at 267 (noting that one consideration in court's "business justification" standard to approve 363 sale was whether asset was increasing or decreasing in value) (citing Comm. of Equity Sec. Holders v. Lionel Corp. (*In re* Lionel Corp.), 722 F.2d 1063, 1065–68 (2d. Cir. 1983)).

in subsequent analysis of acquisition price. We also do not find a relation between common corporate governance measures and the decision to conduct a 363 sale versus a plan sale.

Our analysis of acquisition price reveals that firms in distressed industries do indeed realize lower acquisition prices in bankruptcy, which extends the findings of Pulvino[8] and Acharya et al.,[9] but is in contrast to the findings of Eckbo and Thorburn,[10] who studied acquisition prices for firms of considerably smaller size. Compared with plan sales, section 363 sales are also associated with significantly lower sales prices, but using the interaction of 363 sales and industry distress we find no evidence that 363 sales exacerbate the distressed industry discount.[11] Further analysis indicates that the lower prices in 363 sales relative to plan sales are not due to the speed of the sales, which could potentially result in less active bidding or greater information problems. Rather, we find that the lower prices are associated with the reduced negotiating leverage that creditors have in 363 sales compared with plan sales, as postulated by Rose.[12] Furthermore, the 363 sale price discount persists even when comparing all plan sales to only 363 sales that have relatively low distress or high performance. We address potential endogeneity concerns (e.g., that lower 363 sale prices are caused by an omitted variable) with multiple approaches and find consistent results with each.

The remainder of the paper proceeds as follows. Section II details the background, criticism, and support for using section 363 for going-concern sales in bankruptcy, section III describes our data, section IV discusses our empirical results, and the last section concludes.

II. SECTION 363 BACKGROUND, CRITICISM, AND SUPPORT

Section 363 of the Bankruptcy Code allows companies in bankruptcy to be acquired without going through the traditional confirmation process in which creditors vote on and approve the plan or sale.[13] Section 363 sales of large public companies were rarely employed prior to the 1990s,[14] and opponents of using

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[8] Todd C. Pulvino, *Do Asset Fire Sales Exist? An Empirical Investigation of Commercial Aircraft Transactions*, 53 J. FIN. 939, 972–73 (1998).

[9] Viral V. Acharya, Sreedhar T. Bharath & Anand Srinivasan, *Does Industry-Wide Distress Affect Defaulted Firms? Evidence from Creditor Recoveries*, 85 J. FIN. ECON. 787, 819–20 (2007).

[10] *See generally* B. Espen Eckbo & Karin S. Thorburn, *Automatic Bankruptcy Auctions and Fire Sales*, 89 J. FIN. ECON. 404 (2008).

[11] *See infra* Table 9.

[12] *See* Rose, *supra* note 2, at 260 ("[L]ack of a disclosure requirement weakens creditor leverage when compared with what leverage they may have had with chapter 11 plan confirmation.").

[13] *See* 11 U.S.C. § 363 (2012).

[14] *See, e.g.*, LYNN M. LOPUCKI, COURTING FAILURE: HOW COMPETITION FOR BIG CASES IS CORRUPTING THE BANKRUPTCY COURTS 168 (Univ. Mich. Press, 2005) (noting only three section 363 sales of large public companies occurred during 1980s). *See also* Edith S. Hotchkiss and Robert M. Mooradian, *Acquisitions as a Means of Restructuring Firms in Chapter 11*, 7 J. FIN. INTERMEDIATION 240, 241 (1998) (using sample of bankruptcy acquisitions from 1979 to 1992 and stating that "an acquisition in Chapter 11 is

section 363 to sell entire firms do not believe it was intended for this purpose.[15] In recent years, however, section 363 sales have become the dominant method of selling companies as going concerns in chapter 11.[16] Academic studies that are critical of using section 363 to sell entire firms point out that this mechanism circumvents bankruptcy protections regarding the rights of the creditors to vote on and approve a plan for the bankrupt firm[17] and may result in fire-sale prices.[18] While the court's decision to proceed with a going concern 363 sale is subject to a "business justification" test,[19] LoPucki and Doherty do not find backing for the debtors' justifications for a 363 sales and instead find somber results related to section 363 sales.[20] Specifically, they compare firms that sell themselves as a going concern using section 363 with firms that reorganize in and emerge from chapter 11 and find lower recoveries as a proportion of assets, single-bidder auctions being the norm, and stalking horse bidders rarely being displaced.[21] There exists a clear distinction, however, in the legal procedure, speed of sale, and creditor rights in plan sales as compared with 363 sales. Absent a firm being sold via section 363, a bankruptcy plan typically requires approval by holders of two-thirds in amount of claims and one-half in number of claimants for each class of impaired creditors.[22] If a firm is sold through section 363, however, the information and disclosure requirements are significantly diminished relative to the standard voting procedure, and all that is required is a bankruptcy court notice and a hearing for objections to the proposed 363 sale that can take place as soon as twenty days later.[23] As described in the Rose study, these time and information constraints, along with the inability to vote, serve to weaken creditors' leverage, and creditors objecting to a proposed 363 sale bear the burden of proving harm, which is in stark contrast to creditors voting yes or no for plan confirmation.[24] In the context of an auction, a plan sale is similar to allowing the creditors to set a reservation price for the company. If the bidders do not meet the reservation price, then creditors can choose not to sell the firm and proceed with a reorganization. In a 363 sale, however, bidders do not have to meet or exceed any particular reservation price to acquire the company, and the winning bidder does not have to bid the maximum he is willing to

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typically part of a reorganization plan, and this requires creditor approval."). Our study only considers the use of 363 for entire firm sales, not individual assets, as described in the data section.

[15] *See* Kuney, *supra* note 3, at 235. *See also* Rose, *supra* note 2, at 249; LOPUCKI, *supra* note 14, at 168.

[16] *See* Rose, *supra* note 2, at 53.

[17] *See* Kuney, *supra* note 3, at 235–36; *see also* Rose, *supra* note 2, at 262.

[18] *See* LoPucki & Doherty, *supra* note 4, at 1.

[19] *See* Rose, *supra* note 2, at 271.

[20] *See* LoPucki & Doherty, *supra* note 4, at 27.

[21] *See id.* at 35–36.

[22] 11 U.S.C. § 1126(c) (2012).

[23] *See* Rose, *supra* note 2, at 260. *See generally* Timothy W. Walsh & Vincent J. Roldan, *Section 363: A Useful Tool for Asset Sales in Bankruptcy*, 25 REAL EST. FIN. J. 31 (2010).

[24] *See* Rose, *supra* note 2, at 260 ("[L]ack of a disclosure requirement weakens creditor leverage when compared with what leverage they may have had with chapter 11 plan confirmation.").

pay. With no equivalent of a reservation price in 363 auctions, the winning bidder need only bid one increment higher than the second highest bidder.

One justification for circumventing creditor rights is that the sale procedure provides a market mechanism because the sale is subject to an auction, and markets are sufficiently liquid.[25] Additionally, arguments in favor of using section 363 to sell entire firms also focus on the speed with which these sales can be accomplished and the expected bankruptcy cost savings.[26] A bankrupt firm may also be losing value due to loss of customers or employees, which could increase the intangible costs of distress.[27] Presumably, these intangible costs could decrease going concern value as firms languish in bankruptcy. That said, Kalay, Tashjian, and Singhal have shown that reorganizing firms in bankruptcy experience an improvement even in industry-adjusted operating performance while in chapter 11, implying that chapter 11 on net provides indirect *benefits* to bankrupt firms.[28] While direct costs such as legal fees would increase with a protracted bankruptcy, indirect costs appear to be associated with firm distress and not bankruptcy, per se, and have already been incurred by the firm prior to bankruptcy filing.

Potential support for section 363 going concern sales could also be inferred from Eckbo and Thorburn, who do not find fire-sale discounts in Swedish bankruptcy cases when the firm is sold quickly as a going concern, nor do they find industry-wide distress affecting sale prices.[29] Eckbo and Thorburn's sample, however, has an average book value of assets of only $2.3 million U.S. dollars.[30] Their findings are also in contrast to Shleifer and Vishny, as well as Aghion, Hart, and Moore, who argue that industry distress would lead to financially constrained buyers and lower value industry outsiders acquiring distressed firms.[31] Empirically, fire sales and lower creditor recoveries during industry distress are found in the studies of Pulvino[32] and Acharya, et al.[33]

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[25] *See* Baird & Rasmussen, *supra* note 5, at 777, 784; THOMAS H. JACKSON, THE LOGIC AND LIMITS OF BANKRUPTCY LAW 212 (Harv. Univ. Press, 1986); *see also* Michael C. Jensen, *Corporate Control and the Politics of Finance*, 4 J. APPLIED CORP. FIN. 13, 31–32 (1991) (suggesting opening auction process to outsiders as well as current claimants in order to solve problems in valuation created by discrepancies in information).

[26] *See* Rose, *supra* note 2, at 250; *see also* Bodoh et al., *supra* note 3, at 7.

[27] *See* Edward I. Altman, *A Further Empirical Investigation of the Bankruptcy Cost Question*, 39 J. FIN. 1067, 1069 (1984). *See also* Tim C. Opler & Sheridan Titman, *Financial Distress and Corporate Performance*, 49 J. FIN. 1015, 1015–16 (1994).

[28] *See* Avner Kalay, Rajeev Singhal & Elizabeth Tashjian, *Is Chapter 11 Costly?*, 84 J. FIN. ECON. 772, 774 (2007).

[29] *See* Eckbo & Thorburn, *supra* note 10, at 421.

[30] *See id.* at 406–7. The average book value of assets in our sample is $541 million. Even after adjusting for the GDP difference between Sweden (Eckbo and Thorburn's sample) and the United States, the average asset size in our sample is about eight times as large as their Swedish sample.

[31] *See* Andrei Shleifer & Robert W. Vishny, *Liquidation Values and Debt Capacity: A Market Equilibrium Approach*, 47 J. FIN. 1343, 1346 (1992). *See also* Philippe Aghion, Oliver Hart & John Moore, *The Economics of Bankruptcy Reform*, 8 J. L. ECON. & ORG. 523, 528 (1992).

[32] *See* Pulvino, *supra* note 8, at 972–73.

[33] *See* Acharya et al., *supra* note 9, at 819–20.

Aside from the issue of industry distress potentially affecting bankruptcy sale prices, section 363 sales often take place quickly after the firm files for bankruptcy, which raises the concern that other potential bidders have insufficient time to evaluate the value of the bankrupt firm and prepare a bid—thus giving undue advantage to a stalking horse bidder.[34] Break-up fees in bankruptcy acquisitions are common for stalking horse bidders and average 2.3% of the stalking horse price,[35] and practitioners indicate that the stalking horse bidder's ability to influence the auction terms such as bidding increments and what constitutes a qualified bidder are potentially large advantages.[36] Ball and Kane also indicate that the stalking horse bidder "will want the bid deadline and auction to be as soon as possible, while the seller will want them to be relatively distant in order to facilitate robust bidding activity."[37] If the process affords stalking horse bidders sufficiently large advantages, then other potential bidders will be discouraged from participating in the sales process as their costs of performing due diligence and preparing a bid will definitely be incurred, but their gains from acquisition are conditioned on the possibly low probability of them winning the auction. Ball and Kane highlight the importance of due diligence in the bankruptcy setting "because it is likely that post-closing indemnification for breaches of representations and warranties will not be available."[38] That is, time constraints may be binding. In sum, potential implications of these issues are that acquiring prices may be lower for section 363 sales compared to plan sales because of 1) immediate industry conditions, 2) the speed of the 363 auctions resulting in less robust bidding and greater information asymmetry, and 3) objecting creditors' difficulty to effectively prevent a low-value sale.[39] Additionally, LoPucki and Doherty raise the possibility of managerial self-interest, such as the prospect of future employment with the acquiring firm, influencing the debtors' decisions and justifications for 363 sales.[40]

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[34] *See* Rose, *supra* note 2, at 249–50; LoPucki & Doherty, *supra* note 4, at 35–36 (demonstrating inherent advantages enjoyed by stalking-horse bidder). For the purpose of this study, a stalking horse bidder is one who reaches an acquisition agreement with the bankrupt firm *before or by* the time of bankruptcy filing.

[35] LoPucki & Doherty, *supra* note 4, at 35.

[36] Corrine Ball & John K. Kane, *A Practical Guide to Distress M&A*, 6 M&A LAWYER, Jan./Feb. 2003, at 9, *available at* http://www.jonesday.com/files/Publication/7caf39ca-b5af-4018-8005-a438b96635c9/Presentation/PublicationAttachment/021f5fce-5fac-422d-8230-7e08207af727/GuideToDistress.pdf [hereinafter Ball & Kane, *Practical Guide*]; Commentary, *Bankruptcy Sales: The Stalking Horse*, JONES DAY, Nov. 2003, http://www.jonesday.com/newsknowledge/publicationdetail.aspx?publication=2177 [hereinafter Ball & Kane, *Bankruptcy Sales*] ("Perhaps the most important piece of leverage a stalking horse may have is its ability to negotiate favorable bidding procedures.").

[37] Ball & Kane, *Practical Guide*, *supra* note 36, at 9.

[38] *Id.* at 6.

[39] *See* Stephanie Ben-Ishai & Stephen J. Lubben, *Sales or Plans: A Comparative Account of the "New" Corporate Reorganization*, 56 MCGILL L.J. 591, 597 (2011) (stating that creditor can enter bid to purchase the firm if creditor feels that sale price is too low). While this is true in theory, many creditors cannot readily bear that additional risk and do not have expertise in running the various companies in which they invest.

[40] *See* LoPucki & Doherty, *supra* note 4, at 32–33 (stating specific benefits to CEOs resulting from sale, such as severance payments or working for buyer after the sale).

III. DATA

Our sample covers the years 1996 to 2010 and comes from New Generations Research Bankruptcydata.com, which includes all bankruptcies of U.S. firms with publicly traded securities.[41] We analyze court documents, press releases, news reports, and SEC filings to determine which of these companies were acquired while in bankruptcy. A firm is considered to have been acquired if it sells all or "substantially all" of its assets to a single buyer while in bankruptcy.[42] We then distinguish between firms that are sold through section 363 and those that are sold in conjunction with a plan of reorganization that is voted on by creditors.[43] We additionally collect data from press releases and news reports on acquisition prices, buyer type (investor or non-financial operating company), other auction bidders, the existence of stalking horse bidders, whether stalking horse bidders are investors or operating companies, and days to acquisition approval by the court. We also collect data on the number of independent directors from annual proxy statements (DEF 14A filings) prior to bankruptcy. We impose a size restriction of $50 million in total assets (in 1997 dollars) based on the 10-K filing prior to bankruptcy, and we exclude financial firms and utilities from our analysis.

Industry distress is an important consideration in our analysis, and we follow Acharya et al., who consider an industry to be distressed if the median firm in the 3-digit SIC industry has prior 12-month returns that are -30% or below, with the 12 month window ending in the month prior to bankruptcy filing.[44] We also use Compustat to measure firm-level variables, using the annual 10-K data that is reported for the period prior to filing. In approximately 30% of the observations a firm misses its 10-K filing immediately prior to bankruptcy, and so we use data from the one period earlier 10-K filing. We measure firm performance by the ratio of industry-adjusted EBITDA-to-total assets and perform industry adjustments to this variable and to firm leverage by subtracting the industry medians from the sample firm values.[45] We measure firm leverage as the ratio of industry-adjusted total liabilities to total assets. Once a firm is in default, which can be well in advance of its bankruptcy filing, cross-default provisions typically result in all of the long-term debt becoming due immediately.[46] Thus, using total liabilities in the numerator of our leverage measure avoids data errors that can arise from

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[41] NEW GENERATION RESEARCH, INC., http://www.bankruptcydata.com/findabrtop.asp.

[42] *See* Hotchkiss & Mooradian, *supra* note 14, at 251 (describing ways in which a firm can sell substantially all of its assets).

[43] Approval of a plan formally takes place through section 1123 of the Bankruptcy Code. *See* 11 U.S.C. § 1123 (codifying procedure for approval of a Plan); *but see* 11 U.S.C. § 363 (codifying sale of assets in lieu of reorganization plan).

[44] Acharya et al., *supra* note 9, at 789.

[45] Industry medians are calculated based on 4-digit SIC codes provided that five or more firms reside in the industry, excluding the sample firm. If the 4-digit SIC code contains fewer than five firms, we define the industry median using the 3-digit SIC code, again with the required minimum of five firms.

[46] *See* Andrea Coles-Bjerre, *Ipso Facto: The Pattern of Assumable Contracts in Bankruptcy*, 40 N.M. L. Rev. 77, 105–106 (2010) (describing cross-default clauses).

reclassifications of long-term debt in the 10-K filings and in Compustat. For robustness, we also substitute raw leverage, measured as total liabilities-to-total assets, for industry-adjusted leverage and find very similar results. To measure firm liquidity, we use the "current ratio," which is current assets divided by current liabilities. To control for credit conditions, we use the Federal Reserve Loan Officers Survey[47] and calculate the net spread increase on commercial and industrial loans for the four quarters prior to bankruptcy filing. In robustness checks, we also control for the effects of economic downturns using an indicator variable equal to one if the sample firm filed for bankruptcy in a recession year—specifically years 2001, 2002, 2008, and 2009. The ratio of R&D-to-total assets and the industry median market-to-book ratio[48] are also calculated to identify firms whose going concern value might more quickly dissipate in bankruptcy and have greater benefits to undergoing a relatively quick 363 sale. We consider these variables both individually and also construct a "high R&D or high industry market-to-book" indicator variable that equals one if a firm is in either the highest quartile of R&D-to-total assets or the firm's industry is in the highest quartile of industry market-to-book for our sample. Our sub-sample analysis compares plan sales with only the 363 sales that are healthier than the median plan sale (as determined by z-score) or better performing than the median plan sale (as determined by industry-adjusted EBITDA-to-assets).

IV. RESULTS

Table 1 presents the number of total bankruptcy acquisitions, 363 sales, and plan sales year-by-year that conform to our sample size and industry restrictions. From 1996 to 2004, acquisitions through section 363 comprise between 40% and 60% of total bankruptcy acquisitions in all years except for one. The proportion of 363 sales, however, increases markedly in 2005 and beyond, such that in the latter one-third of the sample years (2006 to 2010) there are only nine plan sales compared with thirty-three 363 sales. Clearly, 363 sales have gone from being a rare exception[49] to being the dominant method of bankruptcy acquisitions. Figure 1 presents the year-by-year proportion of bankruptcy acquisitions that are 363 sales, and Figure 2 shows a timeline comparison of 363 sales and plan sales.

Table 2, Panel A presents the summary statistics for our sample firms. After excluding firms with less than $50 million in assets prior to bankruptcy filing and excluding utility and financial firms, our sample contains 156 firms that are acquired while in chapter 11 and have Compustat data, although not all firms have

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[47] *Senior Loan Officer Opinion Survey on Bank Lending Practices*, THE FEDERAL RESERVE BD., *available at* http://www.federalreserve.gov/boarddocs/snloansurvey/.

[48] The industry median market-to-book ratio is the ratio of the market value of equity to the book value of equity of the median firm in the sample firm's industry. This ratio is commonly used to proxy for growth opportunities in an industry, and a distressed firm's ability to capitalize on these opportunities may dissipate if it languishes in bankruptcy proceedings.

[49] *See* LOPUCKI, *supra* note 14, at 168.

the full list of variables available. The average book value of total assets prior to bankruptcy is $541 million, median of $211 million, minimum of $50 million, and maximum of $5.47 billion. Our focus on larger firms is by design because it is in this sample of bankrupt firms that we would expect concerns such as fire sales or bidding illiquidity to be more acute if they indeed exist. As expected, the average firm has poor operating performance and is highly levered. The average EBITDA-to-total assets of sample firms is -0.042, industry-adjusted EBITDA-to-total assets is -0.117, total liabilities-to-total assets averages is 1.070, and industry-adjusted liabilities-to-total assets is 0.506. The leverage variables are right-skewed with the means higher than the medians, and the operating performance variables are left-skewed with lower means than medians. Our sample firms also have a median current assets-to-current liabilities ratio of approximately one, median secured debt that is 17.6% of total liabilities, median tangible assets that is 91.6% of total assets, and a median z-score of 0.251 that is clearly in the distressed zone.[50] The average acquisition is finalized in 209 days, and with a median of 125 days due to the preponderance of 363 sales that are typically completed more quickly.

Panel B of Table 2 shows the industry and market variables related to our sample firms. The average industry market-to-book ratio for firms in our sample is 1.54 (median 1.36) at the time of their bankruptcy filing. Twenty-seven percent of sample firms are in distressed industries at the time of their bankruptcy filing and 40% of firms filed in the recessionary years of 2001, 2002, 2008, and 2009. At the time of bankruptcy filings, the Federal Reserve Loan Officers Survey of the previous four quarters exhibited a net spread increase on commercial and industrial loans of 87.72,[51] which indicates that on average our sample firms are filing for bankruptcy during periods of credit contraction.

Panel C of Table 2 displays the acquisition and bidding variables for our sample firms, although we lose a small number of observations due to data availability. The acquisition price plus assumed liabilities is, on average, 42% of total pre-filing assets (median 30%), and 59% of pre-filing tangible assets (median 39%). Stalking horse agreements are in place at the time of bankruptcy with non-financial operating companies in 36% of sample firms and such agreements are in place with investors (e.g., private equity firms, hedge funds, etc.) in another 26% of sample firms. In 59% of the cases, the bankrupt firms are acquired by a non-financial operating company, while investors—typically hedge funds or private equity firms—are the successful acquirers in the remaining firms. We find evidence of multiple bidders at the auctions of 49% of the sample firms, and in the 91 firms with stalking horse agreements at the time of bankruptcy filing the stalking horse was the actual acquirer in 79% of the cases.[52]

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[50] *See* Edward I. Altman, *Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy*, 23 J. FIN. 589, 606 (1968) (identifying score below 1.81 as being in distressed zone).

[51] *See Senior Loan Officer Opinion Survey on Bank Lending Practices*, FED. RESERVE BD., *available at* http://www.federalreserve.gov/boarddocs/snloansurvey/.

[52] Our results are similar to those in LoPucki and Doherty, where the stalking horse is the successful acquirer in 85% of the cases. *See* LoPucki & Doherty, *supra* note 4, at 35.

In Table 3, we present the summary statistics from Table 2 separated by whether the bankruptcy acquisition was a 363 sale or a plan sale. We present medians, or proportions where applicable, and test for univariate differences using the non-parametric Wilcoxon Rank Sum test or a test of equal proportions. Of the 156 sample firms, 91 were 363 sales and 65 were plan sales. Among the firm-level variables in Panel A of Table 3, the three that show a statistically significant difference at the 5% level or below between the 363 sales and plan sales are total assets, research and development expense as a proportion of total assets, and days to acquisition approval. That is, compared with plan sales, 363 sales are employed by smaller firms (median $177 million versus $255 million), have more research and development expense, and are accomplished in a shorter time (median 95 days versus 233 days). On average, capital markets can more readily accommodate the quick sale of a small firm, and this inverse relation between firm size and 363 sales is consistent with 363 sales being employed when its benefits are greater. Similarly, firms with greater research and development spending could have assets whose value will suffer more when the firm is in distress,[53] if these indirect costs continue during bankruptcy. We find no significant differences in other firm-level variables such as industry-adjusted operating performance, industry-adjusted leverage, z-score, and firm liquidity as measured by the current ratio.[54] Panel A indicates that plan sales do have raw leverage (i.e., non-industry adjusted) that is significantly larger at the 10% level in this univariate analysis.

In Panel B, the industry and market variables show no significant differences between 363 sales and plan sales. In Panel C, however, we find that the acquisition price plus assumed liabilities as a proportion of total assets is significantly greater at the 1% level for plan sales (median 0.44) than for 363 sales (median 0.29). We find a similar, but larger, difference in sale price between plan sales and 363 sales when scaling the sale price by tangible assets rather than total assets, although we lose 10 observations that do not have a breakdown between tangible and intangible assets. These results of lower acquisition prices for 363 sales are consistent with the 363 sale criticisms of LoPucki and Doherty[55] as well as Rose,[56] and bear further investigation in multivariate settings that control for multiple factors. Plan sales are also more likely to have a non-financial corporation as the acquirer, which is significant at the 10% level. Additionally, 55% of plan sales have multiple bidders compared with 46% of 363 sales, although this difference is not significant in univariate tests. Similarly, the stalking horse bidder is successful in 82% of 363

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[53] *See* Opler & Titman, *supra* note 27, at 1017 (stating that "customer-driven sales losses are most likely to take place in firms that have relatively high research and development (R&D) expenditures," and that firms that have specialization such as R&D "are more sensitive to customer-driven sales losses in financial distress than are other firms.").

[54] For robustness, we measure firm liquidity as industry-adjusted cash and short-term assets as a proportion of total assets and find similar results.

[55] *See* LoPucki & Doherty, *supra* note 4, at 44 (concluding that "on average, companies sell for less than would be realized in their reorganizations.").

[56] *See* Rose, *supra* note 2, at 282–83 (highlighting aspects of 363 sale that lead to lower valuation of sold assets).

sales compared with 73% of plan sales, but this difference is also not statistically significant.

Table 4 presents logistic regressions for the probability of conducting a 363 sale rather than a plan sale, with the dependent variable equal to one for a 363 sale and equal to zero for a plan sale. The second and fourth columns indicate the marginal effects (dy/dx) on the likelihood of a 363 sale of a one standard deviation increase in the continuous explanatory variables or a change from zero to one for the indicator variables. Model 2 includes an explanatory variable for board of director independence for which we only have partial data due to missed proxy filings by sample firms.

Similar to the univariate analysis, the multivariate analysis in Model 1 shows that larger firms are significantly more likely to undergo plan sales compared to 363 sales. Because large firms both require more capital to purchase and, on average, require greater time to analyze, the 363 sale method—that both takes place quickly and has less information disclosure requirements—may not be optimal for these firms. Neither firm performance, as measured by industry-adjusted EBITDA-to-total assets, nor leverage, is significantly associated with the choice of a plan sale versus a 363 sale. Higher levels of secured debt as a proportion of total liabilities are associated with a greater likelihood of conducting a plan sale, as indicated by the negative coefficient that is significant at the 10% level. Unreported sub-analysis, however, indicates that this effect of secured debt is driven by firms with large amounts of secured debt where the secured creditors represent the marginal claimants. At lower levels of secured debt, where secured creditors face less risk of a reduced recovery on their debt, secured debt is not associated with a greater likelihood for plan sales. The indicator variable, "High R&D or high industry market-to-book" equals one if a firm is in either the highest quartile for R&D-to-total assets or in the highest quartile of industry median market-to-book. This indicator variable equals one for approximately 45% of the firms in our sample, and is significantly related to the probability of a 363 sale at the 5% level.[57] The marginal effect (dy/dx) of this indicator variable switching from zero to one is an increase of 20% in the likelihood of a 363 sale. While this result may be consistent with 363 sales being used when asset values may experience greater decline in a protracted plan sale, it is not by itself sufficient to allay the concerns of Rose that the arguments used to support the 363 sale "business justification test" are not fully legitimate.[58]

We also find that the presence of a stalking horse who is an investor is positively and significantly related to the probability of 363 sales. The marginal effect (dy/dx) in column two of going from zero to one for this indicator variable increases the probability of a 363 sale by 27%. The presence of a stalking horse that is a non-financial operating company also has a positive coefficient, but

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[57] When the variables R&D-to-total assets or industry median market-to-book are included in the regression individually rather than combined as an indicator variable, neither is significant.

[58] *See* Rose, *supra* note 2, at 275–76 (describing flaws of business justification test for section 363 sale).

displays weaker results and is not significant at conventional levels. Our interpretation of these results is consistent with the practitioner literature that the stalking horse bidder will press for a quick 363 sale,[59] and our results indicate that this occurs primarily when the stalking horse bidder is an investor. We also include an indicator variable that takes the value of -1 for bankruptcy filings from 1996 to 2000, the value of 0 for bankruptcy filings from 2001 to 2005, and the value of +1 for bankruptcy filings from 2006 to 2010. As expected, the five year time trend indicator is significantly related to the likelihood of a 363 sale.

In both Models 1 and 2 in Table 4, we do not find that industry-adjusted operating performance, industry-adjusted leverage, industry distress, or the credit conditions are significantly related to the use of 363 sales. In Model 2, firms with a higher ratio of current assets-to-current liabilities are more likely to undergo a 363 sale, although we interpret this finding with caution since it does not hold for Model 1 which has the fuller set of observations. For robustness in considering economy-wide influences, we replace the Federal Reserve Loan Officer Survey with a recession indicator variable that equals one if the firm filed for bankruptcy in 2001, 2002, 2008, or 2009, and zero otherwise. The recession indicator is also not significantly related to the probability of a 363 sale.[60] Model 2 of Table 4 includes the variable "percent board independent" which is the ratio of independent board members-to-total board members. If the push toward 363 sales is greater in poorly governed firms, then we would expect that greater board independence would reduce the prevalence of 363 sales. This variable, however, is insignificantly related to the 363 sale versus plan sale decision. In unreported results, we also test whether board size and the CEO also serving as the Chairman of the Board are significantly related to the 363 versus plan sale decision and find that they also are not. In additional robustness checks, an indicator for pre- versus post-Sarbanes-Oxley is not significantly related to the choice of a 363 sale, and a time indicator variable for pre- versus post-BAPCPA (2005 bankruptcy reform) has a lower level of significance than the simple 5-year time indicator.

Table 5 presents the regression results for three specifications of acquisition price on firm, industry, and acquisition-related variables. The dependent variable in all specifications is the acquisition price plus assumed liabilities-to-total assets, which we refer to as the "sale price." Our primary specifications for sale price are models 1 and 2, and in both of these the indicator variable for a 363 sale is negative and significant at the 1% level. The point estimates are -0.186 and -0.185, indicating that 363 sales are associated with considerable price discounts even after controlling for the influences of other variables in the regressions. These price discounts as a proportion of total assets associated with 363 sales are similar in magnitude to those in the univariate analysis presented in Table 3 Panel C. In both specifications, the ratio industry-adjusted EBITDA-to-total assets is positively and

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[59] *See* Ball & Kane, *Practical Guide*, *supra* note 36, at 9 (stating that stalking horse buyer "will want the bid deadline and auction to be as soon as possible").

[60] This result is unreported in the tables, but is available from the authors.

significantly related to the sale price, which indicates that firms with better operating performance command higher acquisition prices as expected. Industry-adjusted leverage is also positively and significantly related to the sale price at the 1% level. While some authors associate the level of pre-bankruptcy leverage with financial rather than economic distress,[61] we view it as a proxy for creditor influence or motivation in the negotiation process—the higher the leverage the more that is at stake and the more resources that will be devoted toward a particular outcome. This interpretation follows from Aghion, Hart, and Moore, who discuss how bankruptcy outcomes can be suboptimal if creditors have insufficient incentive to invest the time, effort, and cost to determine the best outcome.[62] We investigate the role of leverage more thoroughly in Table 8.

The results in Table 5 also indicate that having a non-financial operating company as a stalking horse is positively and significantly related to sale price, but a similar stalking horse agreement with an investor has an insignificant effect on sale price. We expect the existence of a non-financial operating company as the stalking horse to be associated with greater acquisition synergies. Industry distress is associated with significantly lower sale prices, and the point estimate on the industry distress coefficient in the first specification indicates that the ratio of sale price-to-total assets is reduced by 0.134, or almost 1/3 of its unconditional mean as reported in Table 2, when industry distress is present. Our results are consistent with those of Pulvino,[63] as well as Acharya et al.,[64] who find lower asset sale prices and creditor recoveries during times of industry distress, but are in contrast to the results found in Eckbo and Thorburn,[65] who do not find that industry distress affects bankruptcy acquisition price in their sample of small size firms.

Model 2 of Table 5 includes the firm's ratio of tangible assets-to-total assets to ensure that the acquisition prices are not driven by differences in tangible assets. The insignificant coefficient, and negative point estimate, on tangible assets indicates that it is not associated with higher acquisition prices and also that the significance of firm leverage on acquisition prices is not due to asset tangibility. Including this variable in the specification has statistically indistinguishable effects on the point estimates of the other explanatory variables, and because it results in 11 fewer observations due to missing tangible asset data we exclude the variable from subsequent specifications. Overall, the most pronounced results are that sale prices are higher when leverage is higher, lower when industry distress is present, and lower for 363 sales. We investigate the relations further in Tables 7 and 8.

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[61] Diane K. Denis & Kimberly J. Rodgers, *Chapter 11: Duration, Outcome, and Post-Reorganization Performance*, 42 J. FIN.QUANTITATIVE ANALYSIS 101, 102 (2007).

[62] *See* Aghion et al., *supra* note 31, at 529 ("Since individuals on shareholder or creditor committees own only a small fraction of the equity and debt themselves, they are unlikely to devote the socially efficient level of resources to figuring out what a good reorganization plan is.").

[63] *See* Pulvino, *supra* note 8, at 972–73.

[64] *See* Acharya et al., *supra* note 9, at 819–20.

[65] *See* Eckbo & Thorburn, *supra* note 10, at 421.

Model 3 of Table 5 tests for endogeneity by including the residuals from the first logistic regression specification (Table 4) as an explanatory variable. This type of test for endogeneity is suggested by Hausman[66] and detailed by Wooldridge.[67] If the error terms from the regression of 363 versus plan sale are correlated with the errors when regressing acquisition price on explanatory variables, then we may find a significant coefficient on the residuals as an explanatory variable. Our test, however, shows a coefficient on the logistic residuals is very close to zero and has a t-statistic of only 0.09. Thus, we do not reject the null hypothesis of no endogeneity. The negative coefficient on 363 sales is similar in magnitude to the coefficient in Models 1 and 2; however collinearity in this model inflates the standard errors and lowers the significance. In unreported results, we also perform a two-stage least squares specification and the coefficients on the explanatory variables in the acquisition price regression are very similar to those in our baseline regression both qualitatively and in terms of significance level. The instrumented 363 sale variable also has a similar coefficient estimate, but the standard error on this estimated variable is almost three times as large as that in the baseline regression due to the statistical inefficiency of the two-stage least squares estimator. These results, along with the analysis in Table 6 and Table 8, give us confidence that the lower acquisition prices associated with 363 sales are not due to endogeneity.

Table 6 is also aimed at addressing the endogeneity concern that perhaps some factor not captured by the explanatory variables is associated both with 363 sales and with lower acquisition prices. Model 1 includes all plan sale firms but only healthier 363 sale firms by sorting on the z-score distress measurement that is not explicitly accounted for by the explanatory variables. Specifically, Model 1 includes only 363 sale firms whose pre-bankruptcy z-score exceeds the median z-score of the firms undergoing a plan sale, but includes all plan sale firms in the regression analysis. Even when analyzing these healthier 363 sale firms, the indicator for the 363 sale is still negative and significantly related to acquisition price. Model 2 in Table 6 imposes a similar restriction on pre-bankruptcy operating performance for 363 sale firms—that is, it includes only 363 sale firms whose industry-adjusted EBITDA-to-total assets is above the median value displayed by the firms undergoing plan sales. Fewer 363 sale observations make this cutoff compared with Model 1, but the coefficient on the 363 sale indicator is similar, and slightly more negative, than in Model 1 but loses statistical power from the reduced number of observations. The results in both specifications indicate that even when including only the 363 sale firms that are healthier or performing better *than the median plan sale firms*, the 363 sale discount persists.

Table 7 presents three additional regression specifications for which the dependent variable is the sales price plus the assumed liabilities as a proportion of

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[66] *See* J. A. Hausman, *Specification Tests in Econometrics*, 46 ECONOMETRICA 1251, 1260 (1978).

[67] *See generally* JEFFREY M. WOOLDRIDGE, INTRODUCTORY ECONOMETRICS: A MODERN APPROACH (South-Western College Publishing. 2d ed. 2002)

total assets. The purpose of these additional specifications is to better understand the process by which 363 sales result in lower sale prices. As discussed in section II, one aspect of 363 sales is that they take place more quickly than plan sales, which may make it difficult for other bidders to put together a qualifying bid.[68] Thus, variables that measure the time to completion of the sale replace the 363 sale versus plan sale indictor for Model 1 and Model 2 in Table 6. If the speed with which 363 sales take place is the primary determinant of lower sale prices, then we would expect a variable that simply identifies quick sales to have at least as much, if not more, explanatory power than the 363 indicator variable. In Model 1, our indicator variable "quick sale" equals one if the time to sale finalization is in the lowest quartile of our sample of bankruptcy acquisitions, and equals zero otherwise. Contrary to the quick sale hypothesis, this indicator variable is insignificant with a t-statistic of only -0.98. Model 2 replaces the 363 sale indicator with the natural logarithm of the number of days from bankruptcy filing to sale approval. Despite having a correlation of -0.44 with the 363 sale indicator variable, the natural logarithm of days to sale approval has a t-statistic of only 0.56.[69] Furthermore, in Model 3 in Table 6, we include both the 363 sale indicator variable and the natural logarithm of days to sale approval, and the 363 sale indicator remains negative and significant at the 1% level whereas the days to sale is insignificant. From this analysis, we conclude that the speed with which 363 sales occur is not the reason for the lower prices realized with 363 sales.

In Table 8, we further investigate the effect of leverage. Aghion, Hart, and Moore discuss how bankruptcy outcomes can be suboptimal if creditors have insufficient incentive to invest the time, effort, and cost to determine the best outcome.[70] We thus consider leverage as a proxy for creditors having greater incentive both to determine firm value and to adhere to a value maximizing course of action. That said, creditors require both the incentive and ability to influence bankruptcy outcomes.[71] As discussed in Rose, this ability is severely constricted in 363 sales because creditors can no longer vote to approve or reject a course of action and instead must prove harm to prevent a 363 sale.[72] Following this reasoning, in Model 1 Table 8 we interact the 363 sale indicator variable with industry-adjusted leverage. By including this interaction term, the original variable of industry-adjusted leverage now captures the effect of leverage for non-363 sales (i.e., plan sales), and this remains significant at the 1% level and the point estimate on industry-adjusted leverage (0.375) almost triples compared to that in the baseline Model 1 in Table 5. The interaction term of 363 sale and industry-adjusted leverage is negative and significant at the 1% level. The coefficient of -0.324, combined

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[68] *See supra* note 37 and accompanying text. *See also* Rose, *supra* note 2, at 282 (stating that "[t]he speed of a § 363(b) sale also supports opportunities for abuse. An interested buyer only has a short time to make an alternative offer.").

[69] Results are similar using the actual number of days to sale approval rather than its natural logarithm.

[70] *See* Aghion et al., *supra* note 31, at 529.

[71] *Id.*

[72] *See* Rose, *supra* note 2, at 262–63.

with the positive coefficient on industry-adjusted leverage, captures the effect of leverage for 363 sales and indicates that the positive effect of high leverage on sale prices is almost completely eliminated in instances of 363 sales. These results relating to leverage and the interaction with 363 sales are consistent with the notion that creditors can influence the sale price in their favor only for plan sales where they have the right to vote on and confirm the plan.[73] For 363 sales, however, the burden rests with creditors having the difficult task of proving harm to prevent a 363 sale, and increased leverage does not result in higher sales prices, since creditors have little negotiating power.[74] If higher leverage were primarily a proxy for financially rather than economically distressed firms, then we would not expect it to have a different effect on plan sales compared with 363 sales. Our results support the contention of Rose that the diminished creditor rights in 363 sales has economically meaningful consequences.[75] In Model 2 of Table 8, we use raw leverage rather than industry-adjusted leverage as an independent variable and in the interaction term with 363 sales. We find that the results are quite similar to those in Model 1 which uses industry-adjusted leverage. Relating to the endogeneity concerns raised earlier, we do not know of an endogeneity-driven explanation of why the effect of high leverage is virtually erased in the case of 363 sales.[76]

Table 9 investigates whether 363 sales exacerbate the fire sale discount, and also further analyzes the effect of R&D and industry market-to-book on acquisition prices. Because prior literature has conjectured that 363 sales may exacerbate fire sale discounts,[77] we include an interaction term for 363 sales during times of industry distress in Model 1 of Table 9. In this specification, the 363 sale variable remains negative and significant, but the interaction term is insignificant, indicating that a 363 sale during industry distress does not result in an additional discount or exacerbate the fire sale problem.[78] Models 2 interacts the high R&D or high industry market-to-book indicator with 363 sales, and Model 3 interacts R&D-to-total assets with 363 sales. These R&D-related variables are intended to capture assets whose value could decrease more in bankruptcy. The individual variables and interaction terms in both specifications paint a similar picture—high R&D and industry market-to-book are not associated with significantly lower acquisition prices for either 363 sales or plan sales. Since the coefficients on the non-interacted R&D-related variables now indicate the effect or R&D or high industry market-to-

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[73] *See* 11 U.S.C. § 1128(b) (2012) ("A party in interest may object to confirmation of a plan.").

[74] *See* Rose, *supra* note 2, at 262 (stating that "the objecting party in a preplan sale hearing bears the burden of proving harm.").

[75] *See id.* at 262–63 (arguing that "[t]he absence of creditor approval in § 363 sales . . . may not drastically affect all parties in interest, but it may have a profound effect on others.").

[76] The 363 sale indicator variables in Models 1 and 2 now indicate the effect of a 363 sale for firms with zero industry-adjusted leverage or zero leverage, respectively, which is not a meaningful consideration for this analysis.

[77] *See generally* LoPucki & Doherty, *supra* note 4.

[78] In unreported results, we also interact buyer type (investor versus operating company) with the 363 sale indicator and do not find a significant difference across buyer types.

book when there is a *plan sale*, if these variables did indeed capture declining asset values then we would expect them to have a significantly negative effect on acquisition prices for the longer duration plan sales. The t-statistics on these coefficients, however, are only -0.23 and -0.37. Overall, we do not find evidence that asset values actually do experience greater declines in bankruptcy for these high R&D or high industry market-to-book firms in any specification, which is consistent with the results on the indirect *benefits* of bankruptcy discussed by Kalay, et al.[79] Similar results hold in an unreported specification that includes the ratio of intangible-to-total assets as a proxy for assets that could possibly decline more in a protracted bankruptcy.

CONCLUSION

Section 363 of the Bankruptcy Code allows companies in bankruptcy to be acquired without going through the traditional confirmation process in which creditors vote on and approve the plan or sale.[80] In 363 sales, rather than having the power to vote approval or disapproval, creditor objections to a sale require the creditor to prove harm in a setting in which the sale process typically moves forward quickly and the bankrupt firm has limited information disclosure requirements.[81] Our primary finding is that 363 sales are associated with lower sale prices compared with plan sales, and this result holds even in sub-analysis that considers only 363 sale firms that are healthier or performing better than the median plan sale firm. These lower prices, however, are not due to the speed of the 363 sales which could reduce bidding activity or exacerbate fire sales, but appear to be associated with the diminished creditor negotiation leverage in 363 sales.[82] While sale prices are negatively impacted by industry distress, the sale discounts are not further exacerbated by a 363 sale method. Sales through section 363 do indeed take place faster, and we do not explicitly quantify the benefits associated with faster resolution of 363 sales compared to plan sales. Nonetheless, the large price discounts associated with 363 sales can serve as a reference point in choosing whether to disenfranchise creditors through going concern sales via the 363 sale mechanism. Our results also contribute to the understanding of bankruptcy fire sales and have important implications for the maintenance of creditor voting rights in bankruptcy.

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[79] *See* Kalay et al., *supra* note 28, at 794–95 (concluding that firms enjoy net benefits while in bankruptcy).

[80] *See* 11 U.S.C. § 363.

[81] *See* Rose, *supra* note 2, at 262.

[82] *See id.* at 260 (describing diminished creditor leverage in section 363 sale, as compared to chapter 11 plan confirmation).

Table 1. Bankruptcy acquisitions – 363 sales and plan sales by year

Year	Total Acquisitions	363 Sales	Plan Sales	Proportion 363
1996	9	4	5	0.44
1997	7	5	2	0.71
1998	8	4	4	0.50
1999	10	5	5	0.40
2000	15	7	8	0.47
2001	25	15	10	0.60
2002	22	11	11	0.50
2003	14	7	7	0.50
2004	7	4	3	0.57
2005	4	3	1	0.75
2006	5	5	0	1.00
2007	4	4	0	1.00
2008	7	4	3	0.57
2009	18	13	5	0.72
2010	8	7	1	0.88
Total	163	98	65	0.60

Figure 1. Percentage of bankruptcy acquisitions by 363 sales

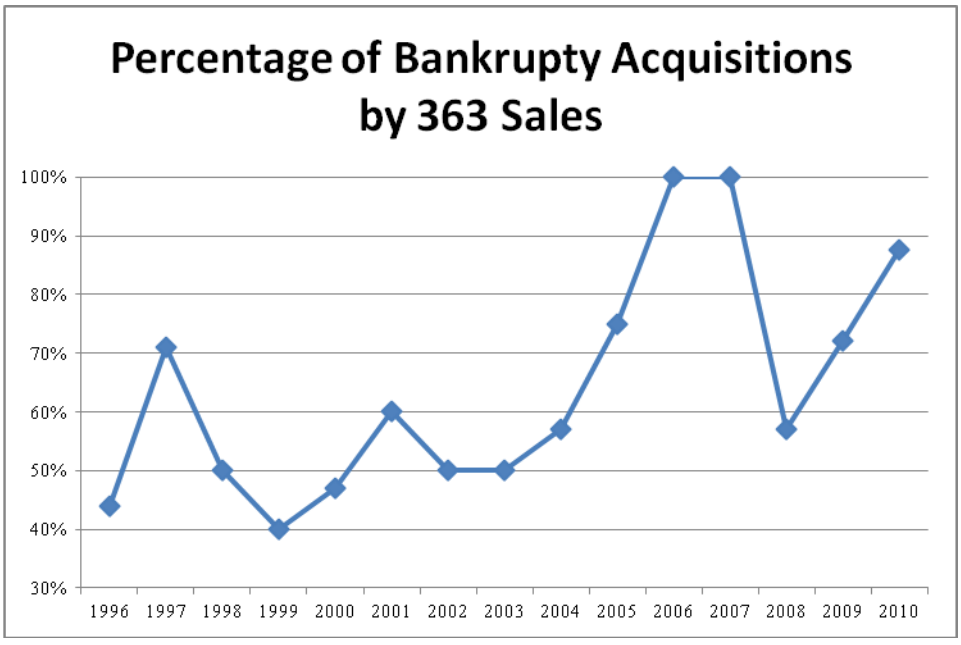

Figure 2: The typical timeline for 363 sales and plan sales.

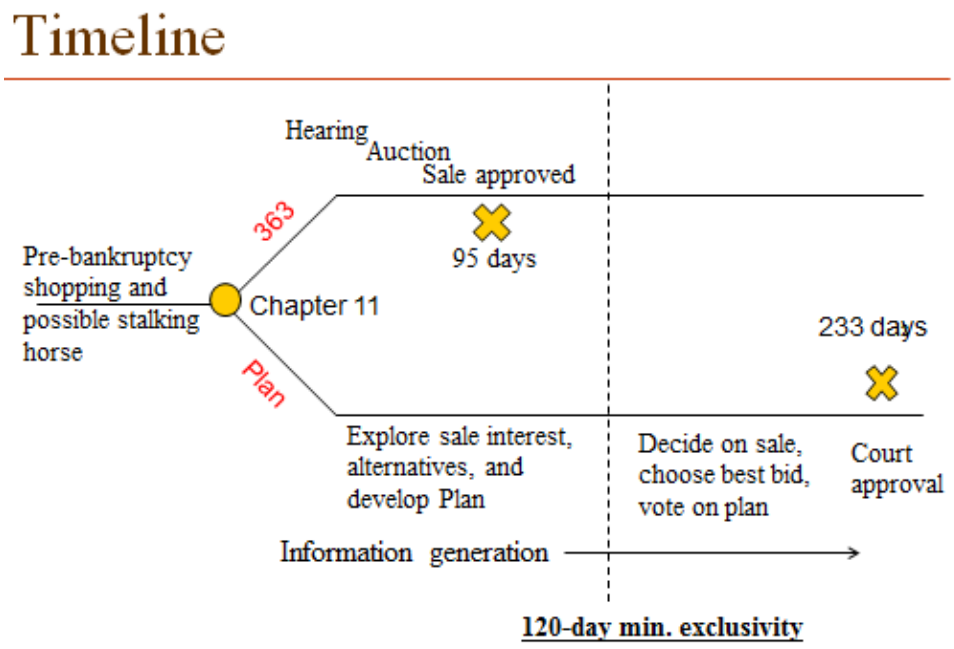

Table 2. Summary statistics

All firm-level pre-filing variables are measured at the fiscal year end prior to the chapter 11 filing ("year -1"), which is within twelve months of the chapter 11 filing, or at year -2 if year -1 values are unavailable. Variable definitions are described in section III. *Z-statistic* is for the Wilcoxon sign rank test that the median industry-adjusted variable is zero.

Panel A: Firm Variables

Variables	N	Mean	Median	z-statistic
Total assets (in millions)	156	$541	$211	
EBITDA-to-total assets (TA)	156	-0.042	0.004	
Total liabilities-to-TA	156	1.070	0.897	
Industry-adjusted EBITDA-to-TA	156	-0.117	-0.086	-7.34***
Industry adjusted liabilities-to-TA	156	0.506	0.353	9.51***
Current assets-to-current liabilities	156	1.356	1.006	
R&D-to-TA	156	0.020	0	
Secured debt-to-total liabilities	153	0.242	0.176	
Tangible asset-to-TA	145	0.809	0.916	
Z-score	132	0.051	0.251	
Proportion with S&P debt or credit rating	156	0.36		
Days to acquisition approval	156	209	125	

Panel B: Industry and Market Variables

Variables	N	Mean	Median
Industry median market-to-book ratio	156	1.54	1.36
Fed Loan Survey – Four qtr. net spread incr.	156	87.72	120.30
Proportion of bankruptcies in a recession year	156	0.40	
Proportion of firms in distressed industries	156	0.27	

Panel C: Acquisition and Bidding Variables

Variables	N	Mean	Median
Acquisition price plus assumed liabilities-to-total assets	148	0.42	0.30
Acquisition price plus assumed liabilities-to-tangible assets	138	0.59	0.39
Proportion w/ stalking horse - corporation	148	0.36	
Proportion w/ stalking horse - investor	148	0.26	
Proportion acquirer is a corporation	148	0.59	
Proportion acquirer is an investor	148	0.41	
Proportion multiple bids at auction	134	0.49	
Proportion w/ stalking horse successful	91	0.79	

Table 3. Pre-filing summary statistics by chapter 11 outcomes

The table reports the median values for each pre-chapter 11 variable, where all firm-level pre-filing variables are measured at the fiscal year end prior to the chapter 11 filing ("year -1") where available or at year -2 if year -1 data are not available. Variable definitions are as described in section III. The z-statistic is for the difference between the 363 sale and plan sale group medians using the Wilcoxon rank sum test. "*", "**", and "***" signify differences at the 10%, 5%, and 1% levels.

Panel A: Firm Variables

Variables	N-363	363	N-Plan	Plan	z-statistic
Total assets (in millions)	91	$177	65	$255	2.23**
EBITDA-to-total assets (TA)	91	-0.055	65	-0.024	1.16
Total liabilities-to-TA	91	0.865	65	0.983	1.69*
Industry-adjusted EBITDA-to-TA	91	-0.113	65	-0.064	1.55
Industry adjusted liabilities-to-TA	91	0.334	65	0.369	0.52
Current assets-to-current liabilities	91	1.036	65	0.956	1.50
R&D-to-TA	91	0	65	0	-2.59***
Secured debt-to-total liabilities	90	0.105	63	0.272	1.28
Tangible assets-to-TA	84	0.938	61	0.886	-0.29
Z-score	81	0.463	51	-0.145	-1.21
Proportion with an S&P debt or credit rating	91	0.31	65	0.43	1.58
Days to acquisition approval	91	95	65	233	5.04***

Panel B: Industry and Market Variables

Variables	N-363	363	N-Plan	Plan	z-statistic
Industry median market-to-book ratio	91	1.39	65	1.31	-1.06
Fed Loan Survey – four qtr. net spread increase	91	112	65	121	0.41
Proportion of bankruptcies in a recession year	91	0.41	65	0.40	-0.08
Proportion of firms in distressed industries	91	0.27	65	0.26	-0.18

Panel C: Acquisition and Bidding Variables

Variables	N-363	363	N-Plan	Plan	z-statistic
Acquisition price plus assumed liabilities-to-total assets	88	0.29	60	0.44	2.89***
Acquisition price plus assumed liabilities-to-tangible assets	81	0.34	57	0.55	2.20**
Proportion w/ stalking horse - corporation	88	0.36	60	0.35	-0.17
Proportion w/ stalking horse – investor	88	0.33	60	0.15	-2.45**
Proportion acquirer is a corporation	88	0.52	60	0.68	1.94*
Proportion acquirer is an investor	88	0.48	60	0.32	-1.94*
Proportion multiple bids at auction	81	0.46	53	0.55	1.02
Proportion w/ stalking horse successful	61	0.82	30	0.73	-0.95

Table 4. Logistic regressions for the probability of a 363 sale

The dependent variable in both specifications equals one for a 363 sale and equals zero for a plan sale. The second column shows the marginal effects on the probability of 363 sale for a one standard deviation increase in the independent variable while holding all other variables at their mean values. For indicator variables, the marginal effect is for a change from zero to one. Industry-adjusted EBITDA-to-assets is the sample firm's year -1 EBITDA-to-total assets minus the industry median EBITDA-to-total assets. The industry is defined at the 4-digit SIC level provided that it contains a minimum of five firms. Otherwise, the industry is defined at the 3-digit or 2-digit SIC level. Industry-adjusted leverage is similarly calculated using the ratio of total liabilities-to-total assets for the reasons described in section III. The log of total assets is the natural logarithm of the sample firm's total assets at year -1. Industry distress is an indicator variable that equals one if stock return of the median firm in the 3-digit SIC industry is less than -30% in the 12 months immediately prior to chapter 11 filing. Net spread increase is based on the previous four quarters Federal Reserve Loan Officers Survey for commercial and industrial loans. The variable "high R&D or high industry market-to-book" is an indicator variable that equals one if a firm is in either the highest quartile of R&D-to-total assets or the firm's industry is in the highest quartile of industry market-to-book for our sample. Stalking horse – investor equals one if a stalking horse agreement was entered into with an investment company at the time of bankruptcy. Stalking horse – corporation equals one if a stalking horse agreement was entered into with a non-financial operating company at the time of bankruptcy. The z-statistics for individual coefficients are reported in parentheses. "*", "**", and "***" indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 4, continued

Variable	**Model 1** Plan=0, 363=1	dy/dx	**Model 2** Plan=0, 363=1	dy/dx
Intercept	2.615 (2.12)**		1.651 (0.86)	
Log of total assets	-0.497 (-2.22)**	-0.12	-0.408 (-1.50)	-0.09
Industry-adj. EBITDA-to-TA	0.725 (0.71)	0.17	0.677 (0.53)	0.15
Industry-adj. liabilities-to-TA	-0.350 (-1.22)	-0.08	-0.138 (-0.41)	-0.03

Current assets-to-current liabilities	0.297 (1.57)	0.07	0.647 (2.45)**	0.33
Secured debt-to-total liabilities	-1.608 (-1.93)*	-0.38	-0.929 (-0.93)	-0.20
Industry distress	0.646 (1.28)	0.14	0.626 (1.10)	0.13
Net spread increase	-0.003 (-1.52)	-0.00	-0.002 (-1.11)	-0.00
Stalking horse - investor	1.322 (2.53)**	0.27	1.692 (2.69)***	0.31
Stalking horse – corporation	0.706 (1.53)	0.16	0.937 (1.69)*	0.19
5-year time indicator	1.005 (2.92)***	0.24	0.973 (2.20)**	0.21
High R&D or industry M/B	0.888 (2.15)**	0.20	1.282 (2.48)**	0.26
S&P debt or credit rating	0.270 (0.57)	0.06	0.388 (0.66)	0.08
Percent Board Independent			-0.560 (-0.35)	-0.12
Observations	150		119	
Prob > Chi-squared	0.00		0.00	
Pseudo R-squared	0.18		0.22	

Table 5. OLS Regression analysis of acquisition price

The dependent variable in models is the acquisition price plus the assumed liabilities to total assets. Model 2 includes the ratio of tangible assets-to-total assets as an explanatory variable, and Model 3 includes the residuals from the logistic regression in Table 4 to test for the presence of endogeneity. Other variables are as described in section III. The t-statistics are reported in parentheses. "*", "**", and "***" indicate significance at the 10%, 5%, and 1% levels, respectively.

Variable	Model 1	Model 2	Model 3
Intercept	0.718 (4.83)***	0.761 (4.63)***	0.729 (3.88)***
Log of total assets	-0.046 (-1.94)*	-0.039 (-1.54)	-0.047 (-1.80)*
Industry-adjusted EBITDA-to-TA	0.370 (2.95)***	0.356 (2.64)**	0.371 (2.93)***
Industry-adjusted leverage (TL / TA)	0.132 (3.50)***	0.140 (3.58)***	0.131 (3.44)**
Current assets-to-current liabilities	-0.018 (-0.96)	-0.016 (-0.79)	-0.017 (-0.88)
Secured debt-to-total liabilities	0.019 (0.18)	0.017 (0.16)	0.015 (0.14)
Industry distress	-0.134 (-2.35)**	-0.132 (-2.21)**	-0.132 (-2.27)**
Stalking horse - investor	0.051 (0.82)	0.057 (0.90)	0.056 (0.70)
Stalking horse - corporation	0.212 (3.65)***	0.204 (3.32)***	0.214 (3.47)***
High R&D or high industry market-to-book	-0.038 (-0.78)	-0.033 (-0.64)	-0.036 (-0.66)
363 sale	-0.186 (-3.62)***	-0.185 (-3.45)***	-0.199 (-1.36)
Tangible assets-to-total assets		-0.122 (-1.05)	
Logistic residuals			0.006 (0.09)
Observations	143	132	143
p-value of F-statistic	0.00	0.00	0.00
R-squared	0.32	0.32	0.32

Adjusted R-squared	0.27	0.26	0.26

Table 6. Acquisition price sub-sample analysis of lower distress 363 firms

The dependent variable in models 1 and 2 is the acquisition price plus the assumed liabilities to total assets. Both Models 1 and 2 include all plan sales, but Model 1 includes in the analysis only 363 sale firms whose z-score is above the median z-score of plan sale firms and Model 2 includes only 363 sale firms whose industry-adjusted EBITDA-to-total assets is above the median value of plan sale firms. The t-statistics are reported in parentheses. "*", "**", and "***" indicate significance at the 10%, 5%, and 1% levels, respectively.

Variable	Model 1	Model 2
Intercept	0.524 (3.10)***	0.596 (2.77)***
Log of total assets	-0.033 (-1.20)	-0.046 (-1.39)
Industry-adjusted EBITDA-to-TA	0.213 (1.41)	0.265 (1.33)
Industry-adjusted leverage (TL / TA)	0.340 (5.16)***	0.345 (4.91)***
Current assets-to-current liabilities	-0.008 (-0.39)	-0.005 (-0.20)
Secured debt-to-total liabilities	-0.006 (-0.06)	-0.046 (-0.33)
Industry distress	-0.090 (-1.33)	-0.038 (-0.46)
Stalking horse - investor	-0.004 (-0.05)	0.067 (0.77)
Stalking horse - corporation	0.185 (2.79)***	0.223 (2.86)***
High R&D or high industry market-to-book	-0.041 (-0.75)	-0.096 (-1.38)
363 sale	-0.140 (-2.39)**	-0.143 (-1.81)*
Observations	108	92
p-value of F-statistic	0.00	0.00
R-squared	0.43	0.38
Adjusted R-squared	0.37	0.30

Table 7. Acquisition price and speed of sale

The dependent variable in models 1, 2, and 3 is the acquisition price plus the assumed liabilities-to-total assets. The variable "quick sale" equals one if the acquisition was among the shortest time quartile from bankruptcy filing to acquisition finalization. Other variables are as described in section III. The t-statistics are reported in parentheses. "*", "**", and "***" indicate significance at the 10%, 5%, and 1% levels, respectively.

Variable	Model 1	Model 2	Model 3
Intercept	0.652 (3.62)***	0.517 (2.14)**	0.895 (3.32)***
Log of total assets	-0.042 (-1.47)	-0.042 (-1.42)	-0.056 (-1.92)*
Industry-adjusted EBITDA-to-TA	0.360 (2.61)***	0.359 (2.59)**	0.397 (2.95)***
Industry-adjusted leverage (TL / TA)	0.124 (2.83)***	0.127 (2.91)***	0.132 (3.13)***
Current assets-to-current liabilities	-0.034 (-1.65)	-0.032 (-1.57)	-0.024 (-1.21)
Secured debt-to-total liabilities	0.107 (0.88)	0.111 (0.90)	0.075 (0.62)
Industry distress	-0.148 (-2.26)**	-0.144 (-2.19)**	-0.114 (-1.77)*
Stalking horse – investor	0.012 (0.17)	0.013 (0.18)	0.055 (0.78)
Stalking horse – corporation	0.203 (2.87)**	0.201 (2.72)***	0.218 (3.03)***
High R&D or high industry market-to-book	-0.076 (-1.30)	-0.078 (-1.35)	-0.062 (-1.11)
363 sale			-0.186 (-2.85)***
Quick sale	-0.066 (-0.98)		
Ln days to sale		0.022 (0.56)	-0.023 (-0.55)
Observations	118	118	118
p-value of F-statistic	0.00	0.00	0.00
R-squared	0.27	0.29	0.31
Adjusted R-squared	0.20	0.19	0.24

Table 8. Acquisition price and leverage

The dependent variable in models 1 and 2 is the acquisition price plus the assumed liabilities to total assets. Model 1 includes an interaction term for 363 sales and industry adjusted leverage and model 2 uses an interaction term for 363 sales and raw (unadjusted) leverage. The t-statistics are reported in parentheses. "*", "**", and "***" indicate significance at the 10%, 5%, and 1% levels, respectively.

Variable	Model 1	Model 2
Intercept	0.560 (3.81)***	0.338 (2.08)**
Log of total assets	-0.039 (-1.69)*	-0.043 (-1.89)*
Industry-adjusted EBITDA-to-TA	0.384 (3.22)***	0.381 (3.24)***
Industry-adjusted leverage (TL / TA)	0.375 (5.22)***	
Leverage (TL / TA) – *raw, not industry-adjusted*		0.394 (5.47)***
Current assets-to-current liabilities	-0.021 (-1.22)	-0.019 (-1.10)
Secured debt-to-total liabilities	-0.012 (-0.12)	-0.022 (-0.23)
Industry distress	-0.098 (-1.80)*	-0.097 (-1.79)*
Stalking horse - investor	0.055 (0.93)	0.052 (0.89)
Stalking horse - corporation	0.197 (3.56)***	0.189 (3.46)***
High R&D or high industry market-to-book	-0.035 (-0.75)	-0.022 (-0.47)
363 sale	-0.026 (-0.80)	0.180 (1.77)*
Interaction: 363 sale * industry-adjusted leverage	-0.324 (-3.91)***	
Interaction: 363 sale * raw leverage		-0.338 (-4.06)***
Observations	143	143
p-value of F-statistic	0.00	0.00
R-squared	0.39	0.40
Adjusted R-squared	0.34	0.35

Table 9. OLS Regression analysis of acquisition price

The dependent variable is the acquisition price plus the assumed liabilities-to-total assets. Model 1 includes an interaction term for a 363 sale during industry distress, and Model 2 includes an interaction term for a 363 sale when a firm is in the upper quartile of R&D-to-total assets or is in an industry whose market-to-book ratio is in the upper quartile. Model 3 includes the ratio of R&D-to-total assets and an interaction of this variable with the indicator for 363 sales. Other variables are as described in Table section III. The t-statistics are in parentheses. "*", "**", and "***" indicate significance at the 10%, 5%, and 1% levels, respectively.

Variable	Model 1	Model 2	Model 3
Intercept	0.729 (4.80)***	0.711 (4.71)***	0.716 (4.79)***
Log of total assets	-0.047 (-1.95)*	-0.046 (-1.93)*	-0.048 (-1.98)**
Industry-adjusted EBITDA-to-TA	0.370 (2.94)***	0.373 (2.96)***	0.360 (2.81)***
Industry-adjusted leverage (TL / TA)	0.129 (3.36)***	0.132 (3.50)***	0.132 (3.48)***
Current assets-to-current liabilities	-0.018 (-0.99)	-0.017 (-0.94)	-0.018 (-0.95)
Secured debt-to-total liabilities	0.023 (0.23)	0.019 (0.18)	0.021 (0.21)
Industry distress	-0.161 (-1.80)*	-0.132 (-2.29)**	-0.136 (-2.40)**
Stalking horse - investor	0.051 (0.82)	0.049 (0.79)	0.055 (0.90)
Stalking horse - corporation	0.210 (3.61)***	0.212 (3.65)***	0.218 (3.65)***
High R&D or high industry market-to-book	-0.040 (-0.81)	-0.018 (-0.23)	
363 sale	-0.196 (-3.42)***	-0.174 (-2.71)**	-0.192 (-3.66)***
Interaction: 363 sale * industry distress	0.045 (0.39)		
Interaction: 363 sale * high R&D or industry M/B		-0.033 (-0.33)	
R&D-to-total assets			-0.544 (-0.37)
Interaction: 363 sale * R&D-to-total assets			0.284 (0.18)
Observations	143	143	143
p-value of F-statistic	0.00	0.00	0.00
R-squared	0.32	0.32	0.32
Adjusted R-squared	0.26	0.26	0.26