Distressed Acquisitions

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Abstract

Firms that buy distressed and bankrupt companies or some of these companies' assets earn excess returns that are at least 1.6 percentage points higher than when they make regular acquisitions. These returns come at the expense of the target firm's shareholders, while overall wealth gains are not affected. Returns to acquirers of distressed assets are higher when fewer large firms operate in the target firm's industry, and when firms in the target's industry have lower liquidity, and are financially constrained, thus limiting the number of potential buyers. They are lower when the M&A market in the target firm's industry is more vibrant, when the target's assets have more alternative uses, and when the economy is doing well. This evidence is consistent with the view that some firms can take advantage of fire sales by distressed and bankrupt companies needing to sell assets while restructuring.

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Abstract

Firms that buy distressed and bankrupt companies or some of these companies' assets earn excess returns that are at least 1.6 percentage points higher than when they make regular acquisitions. These returns come at the expense of the target firm's shareholders, while overall wealth gains are not affected. Returns to acquirers of distressed assets are higher when fewer large firms operate in the target firm's industry, and when firms in the target's industry have lower liquidity, and are financially constrained, thus limiting the number of potential buyers. They are lower when the M&A market in the target firm's industry is more vibrant, when the target's assets have more alternative uses, and when the economy is doing well. This evidence is consistent with the view that some firms can take advantage of fire sales by distressed and bankrupt companies needing to sell assets while restructuring.

1. Introduction

There is a growing literature documenting the costs associated with fire sales of corporate assets, real estate, and equity and debt securities. Pulvino (1998), for example, shows that financially distressed airlines sell their planes at a discount of 10% to 20% below that of other airlines, and Eckbo and Thorburn (2008) report fire-sale discounts for firms that are sold piecemeal in bankruptcy auctions in Sweden. In real estate, Campbell, Giglio, and Pathak (2011) report discounts of 27% for houses in Massachusetts that were sold after foreclosures. For debt securities, Acharya, Bharath, and Srinivasan (2007) document that the anticipation of potential fire sales reduces the recovery rates of bondholders for firms that have defaulted on their debt.[1]

Almost the entire focus of this literature has been on the losses suffered by sellers in fire-sale transactions, but little is known about the effect of fire sales on the wealth of the buyers of these assets. This effect is what we study in this paper. If some sellers suffer because they are forced to sell assets below fundamental value, does this result in higher wealth gains for the buyers? Or are potential buyers sidelined because they are constrained themselves, leading to lower overall wealth gains, a possibility suggested by Shleifer and Vishny (1992) in their work on liquidation values and debt capacity. We address this question by studying the stock price response of firms that acquire assets from distressed companies, either in a complete acquisition or through the purchase of certain assets or divisions of distressed companies. Acquisitions are substantial investment decisions that can have a significant impact on the share price of the buyer and, as such, they form an ideal laboratory to study the impact of fire-sale purchases on buyer wealth.

[1] Other recent work on this topic includes Coval and Stafford (2007) who document that stocks sold by distressed mutual funds experience abnormal returns of -7.9% in the two quarters leading up to and including the quarter of the sale, Ellul, Jotikasthira, and Lundblad (2011) who report fire-sale discounts for corporate bonds sold by insurance companies due to regulatory-induced selling, and Jotikasthira, Lundblad, and Ramadorai (2012) who find fire-sale effects in emerging market equity prices caused by flows to funds domiciled in developed markets. See also Shleifer and Vishny (2011) for a recent survey of the fire-sale literature.

We study 21,849 completed US acquisitions announced over the period 1982-2012 for which the transaction value is at least 1% of the size of the acquirer. Four hundred and twenty eight of these transactions involve a distressed target. Companies are classified as distressed if they are in bankruptcy or liquidation at the time of the transaction or if the target is undergoing a restructuring. We find that returns to acquirers are approximately 2 percentage points higher when the target is distressed. This result is robust and only declines slightly in magnitude when we control for many of the characteristics of the bidder and the transaction that have proven to be important in explaining acquirer performance in prior work. It also holds when we focus solely on public targets or on acquisitions of entire companies compared to certain assets of companies.

We also explore whether differences in bidder returns between distressed and other acquisitions can be explained by the nature of the bidder. While we control for many observable bidder characteristics in our regression models, there may be unobservable bidder characteristics correlated with bidder returns. However, our findings continue to hold even after including bidder fixed effects in our models, indicating that they cannot be explained by time-invariant bidder unobservables.

Next, we ascertain in more detail why acquisitions that involve distressed targets are more beneficial for acquirers. First, in those cases where the target is also listed, we compute the combined weighted average return of targets and bidders to determine whether distressed transactions generate more wealth overall, but we do not find that to be the case. The combined returns for distressed and non-distressed acquisitions are similar. Instead, target returns are significantly lower in a distressed sale: after controlling for relevant firm and deal characteristics, target returns are more than 5 percentage points lower when they are in distress. Thus, while distressed transactions create the same value as regular acquisitions, the division of wealth is different, with a much larger fraction of the gains accruing to the buyer. It is likely that the management of the distressed targets is no longer fully in control of the business decisions, but

creditors and bankruptcy courts are involved. These forced liquidations fetch a lower price for the asset seller, potentially below their fundamental value. This evidence supports the arguments proposed by Shleifer and Vishny (1992) who suggest that such transactions can have a significant private cost to the asset seller.

Second, we explore why the gains for acquirers are not competed away. We start by documenting that there are actually more contested acquisitions when the target is distressed, although the correlation between the target being distressed and the acquisition being contested is relatively small. Thus, lack of explicit competition cannot explain our findings. We then explore whether there is less implicit competition for targets by looking at the number of other potential buyers from the same industry, and find evidence of reduced buyer returns in distressed deals when there are many large firms in the target's industry.

Third, we examine whether the returns earned by acquirers depend on industry conditions, the liquidity of the M&A market, and the redeployability of the target's assets. As suggested by Shleifer and Vishny (1992), it is possible that the best potential buyers of certain assets are not always in a good position to acquire them, possibly because they are also distressed or lack funding for the acquisition. They further suggest that acquirers outside the industry pay a lower price than industry insiders because the specialized nature of the assets makes them less valuable to unrelated buyers or because they fear overpaying as they cannot value the assets properly. We find some evidence in support of these arguments. In particular, we find that returns to acquiring distressed assets are especially high when other firms in the target's industry have little liquidity and are financially constrained. We also document higher bidder returns during economic contractions; during such periods, there are likely to be fewer potential buyers with deep pockets. Acquirer returns are lower when the M&A market in the target's industry is more liquid, measured by the fraction of the target's industry assets involved in an acquisition in a given year. Finally,

acquirer returns are higher when the target's assets have fewer alternative uses.[2] Thus, acquirers benefit particularly in economic downturns, when the M&A market is less liquid, and when the target's assets have low redeployability. We find no evidence, however, that acquirer returns in distressed acquisitions depend on whether the target is from outside their industry or not.

In our final set of tests, we document that the returns earned by distressed buyers have increased over time, concurrent with changes in the bankruptcy process that have shifted power away from the equityholders of the bankrupt firms toward their creditors (see, for example, Skeel (2003) and Bharath, Panchapagesan, and Werner (2010)).

This paper contributes to the literature on fire sales and acquisitions in financial distress, and more broadly the literatures on asset sales and mergers and acquisitions. Unlike the prior literature which stresses the costs to the sellers associated with fire sales, we show that buyers can take advantage of such sales and increase shareholder wealth substantially when engaging in the purchase of distressed firms or assets. Early work on the role of acquisitions in resolving financial distress is by Clark and Ofek (1994), Brown, James and Mooradian (1994), and Hotchkiss and Mooradian (1998). Consistent with our findings, Clark and Ofek (1994) show that premiums paid to shareholders of distressed firms in acquisitions are not significantly different from zero. However, they do not study acquirer returns, nor do they compare acquisitions of distressed firms with regular acquisitions. Hotchkiss and Mooradian (1998) study bidder returns for 41 acquisitions of bankrupt companies over the period 1979-1992. They also find positive bidder returns for this sample, compared to insignificant returns for a matching sample of non-bankrupt firms. In addition, they also find lower target returns compared to non-distressed transactions, and they document that the targets are bought at lower sales and book value multiples compared to matched firms. However, the main focus of this paper is on operating improvements after the acquisition. Therefore, they do not control for firm or deal characteristics in their analyses, nor do

[2] See also Benmelech and Bergman (2009) who document that more redeployable collateral leads to lower credit spreads, suggesting that redeployability matters for debt pricing.

they attempt to explain the reasons behind the difference in bidder returns. Brown, James, and Mooradian (1994) study 62 asset sales by financially distressed firms, and find that target abnormal returns are zero, on average, with negative returns accruing to those firms that employ the proceeds to repay debt. They argue, as we do, that managers of distressed firms are not always fully in control of the decision making process, which may lead to forced asset sales at discounted prices. They do not study bidder returns however, nor do they directly compare the returns of healthy targets with those earned by distressed targets.

As discussed previously, Eckbo and Thorburn (2008) report fire-sale discounts for firms that are sold piecemeal in bankruptcy auctions in Sweden. However, they find no such evidence when the bankrupt firm is sold as a going concern. In addition, they find no evidence that industry-wide distress affects the prices in going concern sales. Almeida, Campello and Hackbarth (2011) find that there are more within-industry acquisitions of distressed firms in industries with high asset-specificity, but they do not study the abnormal returns associated with these transactions. Ang and Mauck (2011) document that premiums are actually higher for distressed targets compared to regular targets. However, their definition of distress is much more benign than ours (more than one third of their acquisitions are defined as distressed). Finally, Kim (2012) studies the effect of asset specificity on target returns. He finds lower returns for targets with higher asset specificity, especially when the targets are distressed. These findings support our inferences as we find that firms that are able to make acquisitions of distressed assets when many potential buyers are sidelined earn substantial abnormal returns.

We also contribute to the literature on asset sales. Maksimovic and Phillips (2001) find that firms sell assets that are less productive and operate in less productive industries. However, Maksimovic and Phillips (1998) find that this is not the case for firms in financial distress – these firms sell their most efficient plants instead. Our evidence does not speak to these results directly, but suggests that the buyers are able to purchase these assets at what appears to be a substantial

discount to their fundamental value. Our results also relate to the work of Schlingemann, Stulz, and Walkling (2002) who find that the liquidity of the market for assets plays an important role in determining which asset is divested, with a more liquid market leading to more divestitures.[3] We find that acquirers in distressed situations gain less when the divested assets operate in a more liquid market. But distressed firms are likely to have less flexibility in terms of the timing of the sale and the specific assets being sold, and are thus unable to wait until liquidity potentially improves.

Finally, we contribute to the broader literature on mergers and acquisitions. The emerging consensus from that literature is that acquirer gains are close to zero, on average (see Andrade, Mitchell, and Stafford (2001), Betton, Eckbo, and Thorburn (2008), and Eckbo (2014) for recent reviews of the literature). Understanding the nature of the transactions that do create shareholder wealth is therefore of chief importance.

The remainder of this paper is organized as follows. In the next section, we describe our data collection process. Section 3 documents acquirer abnormal returns and Section 4 studies why these returns are higher for distressed acquisitions. Section 5 presents evidence on the time-series pattern in acquirer returns and Section 6 concludes. Two Appendices contain further robustness checks and additional tests.

2. Data

We start by selecting all completed acquisitions listed on the SDC database that were announced over the period 1982-2012. We choose 1982 as the starting year because SDC's coverage before 1982 is rather sparse. The database includes full acquisitions, but also acquisitions of ownership interests and assets. Next, we remove acquisitions that do not involve US corporate bidders and targets. This criterion not only excludes foreign acquisitions, but also acquisitions of

[3] See also Officer (2007) who studies the effect of liquidity on pricing in the M&A market and finds that unlisted firms are sold at an average discount of 15% to 30% relative to publicly traded targets.

and by government entities or mutuals. We also require the shares of the bidder to be publicly traded and listed on the CRSP database to allow for a study of the effect of the takeover announcement on the share price of the acquirer. For complete acquisitions, the bidder also needs to own more than 50% of the target after completion of the transaction and less than 50% before its initial announcement, and the size of the stake acquired has to be at least 50%. Thus, acquisitions of a partial or remaining interest in the target are excluded. We drop deals where target and acquirer identifiers are identical such as in self-tenders, repurchases, recapitalizations and buybacks. We also exclude equity carve-outs, spin-offs, split-offs and transactions that are announced to the public after they became effective. Furthermore, accounting information for our acquirers needs to be available on Compustat. Finally, to make sure that the transactions are of some importance to the bidding firm, we remove transactions for which the deal value is less than 1% of the market value of the bidder at the end of the last fiscal year before the announcement of the transaction, where market value is defined as book assets minus book equity plus market equity. As such, transactions without information on deal value are also removed. The remaining sample consists of 21,850 acquisitions.

To define distressed acquisitions, we combine three deal characteristics listed on the SDC database: (1) the target is bankrupt or goes bankrupt during the transaction; (2) the transaction is part of a liquidation plan; (3) the transaction is part of a restructuring whereby the debt on the balance sheet is reduced through a bankruptcy/distressed sale, a tender offer or exchange offer for existing debt securities, or a loan modification. A transaction is defined by SDC as a restructuring only if one or more of the following conditions have been met: (i) the company has publicly confirmed that it has retained a restructuring advisor, has filed for bankruptcy/receivership protection, has publicly confirmed plans to restructure its debt, or has gone into default or has missed a coupon payment, (ii) the company has an S&P/Moody's issuer, issue, or probability of default rating of CCC+/Caa1 or below either before or in reaction to the announcement of the

restructuring plan, (iii) the company has made a debt-for-debt exchange offer where debt holders will exchange their bonds at a discount, or (iv) a credit facility or debt security of the company carries a yield of at least 1,000 bps over US Treasuries. If any of these three criteria are met, we classify the acquisition as distressed.

As outlined in Table 1, 428 acquisitions out of the 21,850 deals in our sample are classified as distressed acquisitions. The largest number of distressed acquisitions occurs in the late 1980s/early 1990s and at the start of the 2000s. Table 1 also lists the number of acquisitions that meet each of the three (non-mutually exclusive) criteria listed above. The largest number of deals involves firms that are bankrupt, followed by firms that are undergoing a restructuring. There are few liquidations in the sample. About 85% of the distressed acquisitions (n=367) are defined by SDC as acquisitions of assets, while the remainder (n=61) are acquisitions of entire companies. We have stock price and accounting data on the target firm for about 21% of the transactions in our sample (n=4,571), and 102 of these meet our definition of distressed acquisitions.

3. Acquirer abnormal returns

We start by documenting cumulative abnormal returns earned by the acquirers in our sample over the three-day period surrounding the announcement of the acquisitions. Abnormal returns are computed as cumulative residuals of the market model estimated over the 200-day period starting 205 days before the announcement of the acquisition, where the CRSP equally-weighted market index is employed as the market proxy.[4] In the process, we drop one observation where an acquirer in a non-distressed acquisition earns abnormal returns in excess of 400%.[5,6]

[4] A minimum of 100 observations are required to estimate the market model.
[5] The bidder is a firm with a market capitalization of less than $1 million with very low or zero trading volume in the days running up to the announcement date. Our subsequent findings are essentially unaffected if we include this transaction in our sample.
[6] We do not winsorize abnormal returns. Our findings are very similar if we winsorize the top and bottom 0.5% or 1% of the observations.

Panel A of Table 2 shows positive abnormal returns of 1.24%, on average, for the overall sample, which is similar to the 1.10% figure reported in Netter, Stegemoller, and Wintoki (2011) for a sample of acquisitions made by U.S. firms over the period 1992-2009. The median return is also significantly positive at 0.34%. When we split the sample into distressed acquisitions and other acquisitions, the results are striking: bidder returns are 2.09 percentage points higher, on average, when the target is classified as distressed relative to non-distressed deals, while the median is 1.01 percentage points higher. In Panel B, we show that these results hold for acquisitions of entire companies as well as acquisitions of assets. For example, average bidder gains are 0.81% when they acquire entire companies that are not in distress, but 4.76% when the target is in distress.

Next, we verify that the above results also hold in a multivariate setting after including various controls that may affect acquirer abnormal returns. We control for bidder industry and the year in which the transaction took place. We also include dummies for the following deal characteristics: tender offer, hostile, competed (multiple bidders), equity only payment, cash only payment,[7] unrelated (the three-digit SIC codes of the target and bidder are different), the seller of the assets is public or private (the excluded category is that the target is a subsidiary of a public or private firm), and the transaction is a sale of some assets as opposed to the entire company. In addition, we control for both the log of the size of the transaction and its size relative to the size of the bidder. Finally, we control for bidder Q, leverage, profitability, and equity market value (see Moeller, Schlingemann, and Stulz (2004)). Summary statistics on the control variables are reported in Table 3 of the paper. We present means and medians for both distressed acquisitions and non-distressed acquisitions, as well as the difference between the two. The two types of acquisitions differ along several characteristics that may affect returns. For example, distressed acquisitions are more likely to involve asset sales (86% versus 56%), they are more likely to be paid entirely in cash

[7] The form of payment is not always disclosed by SDC. In the reported specifications, both the cash only and stock only payment dummies are set equal to zero for these transactions. As such, they are treated the same as transactions for which the form of payment is a mix of stock and equity. Including a separate dummy to indicate that the form of payment is not disclosed does not affect our inferences.

(29% versus 24%), and they are less likely to involve private targets (22% versus 51%). Acquirers in distressed deals have lower Q ratios (mean of 1.48 versus 1.63) and more leverage (mean of 0.45 versus 0.42) than other acquirers. These differences underscore the importance of including acquirer and deal characteristics in our specifications.

Table 4 contains the regression models. In model (1), we include bidder industry fixed effects, defined at the 3-digit SIC code level. Returns for distressed acquisitions continue to be 1.76 percentage points higher than for other transactions. In model (2), we also add year fixed effects without materially affecting our finding. Model (3) contains the deal and bidder characteristics that have been employed as control variables in prior work. While the explanatory power of this specification increases substantially, our finding that bidders outperform when making distressed acquisitions persists and its economic and statistical significance is unaffected. Consistent with prior work (see, for example, Servaes (1991), Chang (1998), Fuller, Netter, and Stegemoller (2002), and Moeller, Schlingemann, and Stulz (2004, 2005)), we find that bidder returns are lower when they acquire listed companies and have a low Q ratio; large bidders also make worse acquisitions. Abnormal returns are higher for larger deals, when the bidder makes a tender offer, and pays cash. We also find that bidder returns are 61 basis points lower when the transaction is an asset sale rather than a complete acquisition.

In columns (4) through (6) of Table 4, we re-estimate these models, but only for those transactions where the selling firm is listed or is a subsidiary of a listed firm. For this subset of transactions we can also control for target firm characteristics. For ease of comparison with the full sample results, we first report models that include bidder industry fixed effects (model (4)) and both bidder industry and year fixed effects (model (5)) before presenting the full model with transaction, bidder, and target controls (model (6)). The economic significance of our findings is even larger in these models. According to model (6), bidders earn an extra 2.26 percentage points abnormal return when acquiring a distressed target that is listed or the subsidiary of a listed firm.

In columns (7) and (8), we estimate separate regression models for acquisitions of assets and acquisitions of entire companies. Acquirer returns are higher for both sets of distressed transactions albeit that the result for acquisitions of entire companies is only marginally significant.[8] Bidder returns are 1.30 percentage points higher when they acquire assets from a distressed company and 3.02 percentage points higher when they acquire distressed companies as a whole, compared to regular acquisitions.

While we control for a number of observable bidder characteristics in these models, it is still possible that the return differences we observe are not due to the nature of the transaction, but to bidder characteristics that we are unable to observe. For example, some companies may be better at bargaining than others, leading to differences in bidder returns. Proxies for such characteristics are hard to devise or available for a subset of firms only. However, if these characteristics remain constant over time for each firm, then we can control for them by including bidder fixed effects. This is what we do in model (9). The distressed effect in these models is identified through the comparison of abnormal returns of firms that make both regular and distressed acquisitions. Interestingly, the coefficient on the distressed dummy changes very little in this specification; it is 1.59 percentage points, significant at the 1% level, which indicates that our findings are not due to unobservable bidder characteristics.

In sum, bidders' abnormal returns are significantly higher when the target firms are distressed compared to regular acquisitions. These findings are very robust and hold after controlling for a variety of deal, industry, and firm characteristics. In Appendix 1, we also show that our findings persist if we match bidders for distressed assets with non-distressed bidders using a nearest-neighbor matching approach. In Appendix 2, we show results for bidder returns when we employ other distress measures.

[8] When we include four-digit bidder SIC code fixed effects instead of three-digit fixed effects, the coefficient on the distressed dummy is 3.55 (p-value=0.03) for acquisitions of entire companies and 1.15 (p-value=0.03) for acquisitions of assets.

4. Why are acquirer abnormal returns higher in distressed acquisitions?

In this section, we study why bidders gain more in distressed acquisitions. We start by looking at target returns and combined returns earned around the acquisition announcement. Second, we study whether returns are related to measures of implicit and explicit competition. Third, we relate bidder returns to measures of the health of the target industry and the economy as a whole. Finally, we investigate whether returns are related to the extent to which the target's assets have alternative uses.

4.1. Target and combined returns.

Here we explore whether acquirer returns in distressed acquisition are superior because distressed acquisitions create more value overall or because the division of gains between targets and bidders is different in distressed transactions. Obviously, we can only conduct this analysis when the selling firm is also publicly traded or a subsidiary of a publicly traded firm, and has not been delisted when filing for bankruptcy.[9] To compute abnormal returns for target firms, we employ the same procedure as for bidders: we estimate the market model for the 200-day period starting 205 days before the acquisition and compute abnormal returns relative to this model for the 3-day period surrounding the acquisition announcement. Total returns are computed as the weighted average of bidder and target returns, using the market value of the equity as the weight. However, if the bidder has prior ownership of the target, we adjust for this effect. More specifically, total abnormal returns are computed as:

$$\frac{CAR_B(MV_B - OWN_B^T MV_T) + CAR_T(MV_T)}{MV_B + MV_T - OWN_B^T MV_T}$$

[9] See Dawkins, Bhattacharya, and Bamber (2007) for work on returns of public firms that maintain their listing during the bankruptcy process.

where CAR is the abnormal return of either the bidder (B) or the target (T), MV is the market value, and OWN_B^T is the fraction of the target owned by the bidder before the announcement of the bid. We employ the market values two days before the announcement date to compute the weights.

Table 5 contains univariate statistics on target abnormal returns. In Panel A, we report that target gains are 11.23%, on average, across all 4,571 acquisitions for which target data are available, with a median of 3.44%. When we subdivide the sample into distressed and non-distressed acquisitions, the difference is dramatic: the returns for target firms are not significantly different from zero in the distressed transactions. For other acquisitions, the figures are positive and highly significant: the mean is 11.50% and the median 3.55%. In Panel B we show that the difference between target returns for distressed and non-distressed acquisitions is large for both acquisitions of companies and acquisitions of assets. We do find a significant median positive return of 6.12% for distressed companies that are completely acquired (the mean is 6.05% but not statistically significant), but these figures are much smaller than for non-distressed companies (mean of 20.08% and a median of 14.65%). These results differ from Hotchkiss and Mooradian (1998) who report that target returns for complete takeovers of firms in Chapter 11 are larger compared to a matched control sample. Distressed firms that sell assets experience abnormal returns that are zero or negative, consistent with the work of Brown, James and Mooradian (1994). This evidence suggests that the higher returns for bidders documented previously come at the expense of lower returns for targets.

In Table 6, we confirm that the univariate results persist after adding various controls in a multivariate setting. The first two columns confirm that target firm returns remain inferior for distressed transactions after controlling for target three-digit industry SIC codes (column (1)) and both SIC codes and year dummies (column (2)). In column 3, we add further controls for the characteristics of the transactions and both bidders and targets. The results persist: target returns are more than five percentage points lower in distressed transactions compared to other deals. We

study asset sales separately in model (4) and complete takeovers in model (5). The coefficients on the distressed dummy remain negative and large in both specifications, but the coefficient for acquisitions of companies is estimated with less precision and is not significantly different from zero.[10] In Appendix 1, we show that our findings persist if we match distressed targets with non-distressed targets using a nearest-neighbor matching approach.

We report combined returns for buyers and sellers in Tables 7 and 8. Panel A of Table 7 reports that there are no significant differences in returns between distressed and non-distressed transactions; distressed returns are 1.79%, on average, versus 1.27% for non-distressed transactions. When we split the sample in acquisitions of assets and whole companies in Panel B, we find that returns are slightly higher for distressed deals but, again, the differences are generally not significant. We confirm these findings in Table 8 after controlling for industry, time, and the characteristics of the deal and the firms involved in the transaction. In the full model, the coefficient on the distressed dummy is 0.38 with a p-value of 0.54. In columns (4) and (5) we report separate regression models for acquisitions of assets and of entire companies, respectively. Here too, there is no difference in returns between distressed and non-distressed transactions. [11]

Overall, the results reported in this section indicate that the higher returns earned by bidders in distressed transactions are generally not due to the fact that these transactions create more wealth overall. For the whole sample, total value gains are not different across the two sets of transactions, but targets gain significantly less, indicating that the division of gains is tilted much more towards the bidder than in non-distressed transactions. The targets in distressed transactions do not appear to be in a position to negotiate for a better price, and may be forced to

[10] Note that the adjusted R-squared is negative in the asset sales regression. This is due to the fact that the 244 industry fixed effects that are included in this model are mostly insignificant. If we remove the industry fixed effects, the adjusted R-squared increases to 0.05, while the coefficient on the distressed dummy remains negative and significant (coefficient is -4.14, p-value of 0.07).

[11] In 14 out of the 102 distressed acquisitions in our sample, the target returns and data refer to the parent firm while it is the unlisted subsidiary that has filed for bankruptcy (10 cases), is being liquidated (3 cases) or restructured (1 case). In all other cases the target data refer to the entity in financial distress. Our findings are stronger when we remove these cases from our analyses.

sell assets or the entire company at fire-sale prices. This is likely the case because the managers of the firms in our sample are no longer completely in control of the decision making process, given that they have filed for bankruptcy or are in the process of restructuring their debt. Of course, it is possible that the target gains associated with distressed acquisitions accrue mainly to the debtholders of the target firm and not to their shareholders. We are unable to verify this conjecture because few of the target firms have public debt outstanding with sufficient price data available to compute abnormal debt returns. Even if this were the case, however, this does not invalidate our primary result that bidders earn positive excess returns in distressed acquisitions as documented in Tables 2 and 4.

4.2. Competition for distressed targets

If firms can indeed obtain substantial returns from buying distressed assets, why are these gains not competed away by other bidders? This is the question we address in this section of the paper. We start this analysis by exploring whether distressed deals are less likely to be contested. We actually find the opposite: the correlation between the distressed dummy and the contested dummy is 0.06, significant at the 1% level. Thus, despite the higher likelihood of competition, bidders still succeed in reaping higher returns when buying distressed targets. We also explore whether these increased returns only derive from uncontested acquisitions by interacting the distressed dummy in the bidder return regression (model (3) of Table 4) with the competed dummy.[12] As reported in column (1) of Table 9, this interaction is insignificant (coefficient of -1.46 with a p-value of 0.40). Thus, companies that buy distressed assets earn higher returns, independent of whether the transaction is being contested or not.

[12] Note that we already control for competition in the models reported previously. Here we study whether the impact of distressed acquisitions on bidder returns depends on whether the transaction is contested or not.

Next, we study whether differences in returns are due to the lack of *implicit* competition. To proxy for implicit competition, we count the number of firms operating in the target's three-digit SIC code industry that are included in the Compustat database. Shleifer and Vishny (1992) suggest that these are the firms that can make the best use of the target's assets and therefore are able to pay the highest price. Implicit competition can be more important for distressed than for non-distressed transactions because there is more of an urgency to sell when in distress. In non-distressed transactions, targets can always walk away if the price is not deemed adequate.[13] Thus, we include this measure as an additional explanatory variable in the bidder return regression, and we also interact it with the distressed dummy. This model is presented in column (2) of Table 9. We cluster standard errors at the target industry three-digit SIC code level since we are interested in how variation in number of firms in the target's industry affects bidder returns. We do find evidence that implicit competition affects bidder returns. The coefficient on the number of firms in the target's industry is negative and significant at the 1% level, but there is little evidence that this effect strengthens when the target is in distress, as the interaction term between the number of firms and distress has a p-value of only 0.16.

One problem with simply counting the number of firms in the target's industry is that some industry peers may be substantially smaller than the potential target and, hence, not in a position to buy the target. To address this shortcoming, we conduct two alternative counts. First, we count the number of large firms in the industry, defined as firms with book assets in excess of $100 million in the acquisition year. Second, we count the number of firms with book assets larger than the transaction value in the acquisition year (see Boone and Mulherin (2008) for a similar measure). Both counts are then interacted with the distressed dummy and included in the basic regression model. The findings are reported in columns (3) and (4) of Table 9. Column (3) illustrates that there is a negative relation between the number of large firms in the target's industry and bidder

[13] This argument also applies to metrics of target industry health and target asset redeployment that are discussed in subsequent sections of this article.

abnormal returns for all transactions, but this effect is further accentuated for distressed transactions. In terms of economic significance, increasing the number of large firms in the industry from its 25th to its 75th percentile decreases bidder returns by 0.22 percentage points for regular deals, but 0.51 percentage points for distressed transactions. Column (4) shows that the number of firms bigger than the target in a given industry only matters for bidder returns in distressed transactions. This evidence supports the view that implicit competition for distressed targets affects the returns earned by their acquirers.[14]

Finally, we investigate whether bidder returns are only higher for distressed acquisitions if they are in the same industry as the target. Shleifer and Vishny (1992) point out that buyers from the same industry are likely to achieve higher synergies in an acquisition and can therefore afford to pay the highest price. The evidence reported in Tables 4 and 8 provides some support for this conjecture: bidder returns are lower for unrelated acquisitions of assets, while total gains are lower for unrelated acquisitions of companies. These findings apply to the combined sample of distressed and non-distressed transactions. We now allow the impact of unrelated acquisitions to depend on the distressed dummy to determine whether the gains from distressed acquisitions are especially large when the buyer is from within the industry. Model (5) of Table 9 contains the result: bidder gains in distressed acquisitions do not depend on whether they are from the same industry as the target firm. This result casts doubt on the view that within-industry bidders stand to gain more from distressed acquisitions relative to acquisitions in general.

4.3. Industry financial health and the gains from acquisitions

The literature on fire sales also stresses the idea that other firms in the industry may not be able to purchase the distressed assets because they too may be in a precarious financial position.

[14] We also analyze whether implicit competition from private equity affects bidder returns. To do so, we take the sum of all private equity acquisitions in a given quarter and divide it by the book value of assets of all firms on Compustat in a given year. This measure by itself and interacted with the distressed dummy is not significantly different from zero.

The above analysis on implicit competition does not incorporate the financial situation of the potential industry buyers. In what follows, we explicitly incorporate target *industry* characteristics in the model of bidder returns. We construct two measures of the financial health of an industry: (a) the average quick ratio, which captures the liquidity in the industry, where the quick ratio is defined as (current assets – inventory) / current liabilities; and (b) the average Kaplan-Zingales index, which captures the extent to which other firms in the industry are capital constrained. The Kaplan-Zingales (KZ) index at time *t* is defined as (see Kaplan and Zingales (1997) and Lamont, Polk and Saá-Requejo (2001)):

$$\text{KZ index}_t = -1.001909\ (\text{Cash Flow}_t / \text{PPE}_{t-1}) + 0.2826389\ Q_t + 3.139193\ \text{Debt}_t / (\text{Debt}_t + \text{Book Equity}_t) - 39.3678\ (\text{Dividends}_t / \text{PPE}_{t-1}) - 1.314759\ (\text{Cash}_t / \text{PPE}_{t-1})$$

Cash flow is computed as Income Before Extraordinary Items + Depreciation and Amortization; Q is computed as (Book Assets – Book Equity – Deferred Taxes + Market Equity) / Book Assets; and Debt is computed as Long-term Debt + Debt in Current Liabilities. A higher KZ index implies that the firm is more financially constrained. We compute these measures at the 3-digit SIC code level in the year of the acquisition, excluding the selling firm, and winsorize the industry average at the 1st and 99th percentiles to reduce the impact of extreme observations.[15] If acquirers of distressed assets experience higher announcement returns because potential industry buyers do not have the means to make the acquisition, we would expect the effect to be more pronounced for acquisitions of firms in industries with a low quick ratio and high financial constraints.

In the first two models of Table 10, we display our basic regression model after including the interaction of each of our measures of industry health with the distressed dummy.[16] We also include the industry health measures separately to assess whether they affect acquirer returns for

[15] Our results remain significant if we do not winsorize these measures.
[16] To facilitate the display of the coefficients, we divide the computed KZ index by 100 when estimating the regression models.

non-distressed acquisitions. Standard errors in these models are clustered at the target industry level. Both models show that distressed acquisitions are particularly rewarding for acquirers when the other firms in the target's industry are in weaker financial health. The economic magnitude of the effect varies. Increasing the target industry quick ratio from its 25th percentile to its 75th percentile reduces acquirer abnormal returns for distressed acquisitions by 62 basis points relative to regular acquisitions, while increasing the target industry KZ index from its 25th percentile to its 75th percentile is associated with bidder returns that are 29 basis points higher for distressed compared to non-distressed acquisitions. Thus, the lack of current liquidity in the target's industry appears to be a stronger driver of bidder returns than financial constraints in general.[17]

In model (3) if Table 10, we focus on the health of the entire economy. Specifically, we create a dummy equal to one if the economy is in a recession as defined by the NBER, and interact it with the distressed dummy. If acquirers earn high returns in distressed acquisitions because of the lack of competition, we would expect this to be more prominent during recessionary periods, when fewer firms have the resources to buy companies or make other investments. We find that this is the case. Acquirers of distressed assets earn 1.34 percentage points more than regular acquirers during normal times (the coefficient on the distressed dummy), but this difference increases by 3.38 percentage points (the coefficient on the distressed/recession interaction) during recessionary periods.

In sum, the evidence in this section indicates that bidder returns in distressed acquisitions are particularly high when the overall financial health of the other firms in the industry is poor, and when the economy is in a recession. These results are consistent with Shleifer and Vishny's (1992) prediction that fire sales of assets are more likely to occur when the most obvious buyers of the assets, i.e., other firms in the industry, are unable to participate in the bidding process.

[17] As mentioned previously, the lack of significance of these measures for non-distressed acquisitions may be due to the fact that in those transactions the target can always walk away when the price is deemed inadequate.

4.4. Asset redeployability

Another factor that may play a role in the ability of the acquirers to extract gains from a transaction is the extent to which these assets can be redeployed in other industries – higher redeployability will lead to more competition from firms outside of the target's industry. This factor is obviously not captured by our measures of target industry health employed in the previous subsection.

Constructing a proxy for redeployability without a detailed understanding of the nature of the industry's assets is inherently difficult. One approach, pioneered by Schlingemann, Stulz, and Walkling (2002), is based on the liquidity of the market for corporate assets in an industry. They collect data on the value of all corporate control transactions in an industry from SDC and divide it by the book value of assets in that industry. They find that this liquidity index affects divestiture decisions. In particular, firms are more likely to divest a segment in a more liquid market. One shortcoming of this proxy is that it may also measure other aspects of the industry. For example, the industry may have experienced a shock, leading to increased M&A transactions unrelated to alternative uses of the assets in that industry (see, for example, Mitchell and Mulherin (1996) and Harford (2005)).

An alternative approach has been proposed in a recent paper by Kim and Kung (2014), and employs data from the Bureau of Economic Analysis (BEA) capital flow table. They employ the following two-step procedure. First, for all the BEA asset categories, Kim and Kung compute annually the fraction of all capital expenditures on Compustat spent by industries that use assets in that category. For example, if a specific asset *j* is employed in 2 industries, and these industries' joint capital spending is 10% of all capital spending on Compustat, then the redeployability score of that asset is 10%. Second, for each industry, they value-weight the redeployability scores of each asset used by that industry by the importance of that asset in the industry's total capital spending. For example, if an industry employs two assets with redeployability scores 0.10 and 0.20 and

spends half if its capital expenditures on each of these assets, then the industry's redeployability score would be 0.15. This measure appears to be particularly suited to capture alternative uses of an asset. The disadvantage of this measure is that it is focused on the firm's Property, Plant & Equipment (PP&E). A firm that is not capital intensive could have a high redeployability score, while its assets are mainly current assets or intangibles (which could be the case for service enterprises). Such businesses would not necessarily make good targets for buyers from outside the industry.

In our analyses, we employ both proxies. Moreover, we also estimate models for a subset of firms that belong to the following capital-intensive industries: agriculture, construction, natural resources, manufacturing, transportation, and utilities (SIC codes below 5000). We compute the asset liquidity measure at the three-digit SIC code level, in line with the other analyses in the previous sections of this paper. In particular, we sum the value of all US domestic M&A transactions announced in an industry/year as reported by SDC, and divide it by the book value of assets in that industry. Kim and Kung (2014)'s asset redeployability score is computed at the BEA industry level.[18] We then re-estimate our regression models after including the redeployability proxies and their interaction with the distress dummy. We cluster standard errors at the industry level at which the proxies are defined (the 3-digit SIC code for the liquidity measure, and the BEA industry for the redeployability score).

Table 11 contains our findings. For each proxy, we first report the model for all firms followed by the model for the subset of capital intensive industries. We find strong evidence that distressed acquisitions in industries with a more liquid M&A market yield lower bidder returns, albeit that the economic significance of the effect is modest. Increasing the liquidity index from its 25th percentile to its 75th percentile leads to a decline in bidder returns of 32 basis points for all

[18] We are very grateful to Hyunseob Kim and Howard Kung for making these data available to us.

deals and 30 basis points for deals in asset intensive industries.[19] Using the measure of asset redeployability developed by Kim and Kung (2014), we find the strongest results in terms of economic significance when we limit ourselves to asset intensive industries (model (4)). An increase in redeployability from its 25th to its 75th percentile leads to a decline in bidder returns of 76 basis points, based on the combination of the positive coefficient on redeployability and the negative coefficient on the interaction between redeployability and the distressed dummy. When all industries are combined in column (3), there is no significant effect for distressed deals.[20]

Overall, the results of Table 11 provide robust evidence that bidder returns in distressed acquisitions are higher when there is more liquidity in the market for the target's assets and when these assets have more alternative uses.

5. The changing nature of Chapter 11

In this section, we explore whether there are time-series patterns in the returns earned by buyers of distressed assets. This analysis is motivated by the work of Skeel (2003) who suggests that Chapter 11 restructurings have become more creditor-friendly over time, and the empirical work by Bharath, Panchapagesan, and Werner (2010) who report a secular decline in the frequency of deviations from absolute priority over time.[21]

According to Skeel, two innovations are at the heart of these changes: Debtor-in-possession (DIP) financing and key employee retention plans (KERPs). Through DIP financing, companies in bankruptcy can obtain additional financing with super priority over other pre-bankruptcy debt

[19] The regression coefficient is larger for asset intensive industries than for the overall sample, but the interquartile range of the liquidity index is smaller for this subsample. The economic significance for both samples turns out to be similar.

[20] The coefficient on the redeployability measure for non-distressed transactions is positive, which appears counterintuitive. It turns out that combined bidder and targets returns are marginally higher for transactions in which targets have more redeployable assets, and the positive coefficient on the main effect captures this increased overall wealth creation.

[21] See also Ayotte and Morrison (2009) who study 153 firms that filed for bankruptcy in the second half of 2001 and report that managers and equityholders have little control over the reorganization process, while creditors, and senior lenders in particular, exercise most of the control.

claims. According to Skeel (2003), lenders have been able to use the terms of DIP loans to steer the reorganization process to their advantage, which has led to more auctions of, and asset sales by, the bankrupt company. Such transactions may benefit debtholders at the expense of shareholders. KERP plans provide cash compensation and bonuses to existing management to incentivise them to remain with the company through the restructuring. While they appear perverse in that they provide extra compensation to those who have led the company while it entered bankruptcy in the first place, Skeel (2003) suggests that these managers may still be the best people to run the firm. What is noteworthy, however, is that such plans often reward executives for the speed with which the bankruptcy is resolved. These ingredients too could lead to more assets sales that are beneficial to the creditors of the firm.

It is important to note that there are no specific regulatory changes during our sample period that have led to the adoption of DIP financing and KERPs. In fact, both of these tools have been available as part of bankruptcy reorganizations for a long period time. But DIP financing did grow substantially during the 1990s compared to the earlier period, as has the adoption of KERPs. Out of 90 Chapter 11 filings over the period 1979-1989, Bharath, Panchapagesan, and Werner (2010), record no instances of DIP financing and only one instance in which a KERP plan is employed. For the period 1990-2005, on the other hand, they report that DIP financing is employed in 304 out of 536 bankruptcy filings (56.7%) and KERP plans are used in 156 filings (29.1%). What is even more important, according to Skeel (2003) is that the contractual features of these plans are now more aligned with the interests of creditors.

To determine whether these changes have affected bidder returns in distressed acquisitions, we estimate separate coefficients for distressed acquisitions in the 1980s, 1990s and from 2000 onwards (not reported in a table). Bidder returns for transactions completed in the 1980s do not significantly depend on whether the transaction is distressed or not. From 1990 onwards, however, we find that bidders earn higher returns for distressed transactions than for

other acquisitions. The coefficient on the distressed dummy is 2.04 percentage points in the 1990s and 2.36 percentage points from 2000 onwards. Both are significantly different from the coefficient for the 1980s at the 5% level or better. The rise in bidder returns accompanies the use of DIP-financing and the adoption of KERP-plans documented by Bharath, Panchapagesan, and Werner (2010).[22] Consistent with this result, we also find that target returns are lower for distressed deals compared to regular acquisitions in the 1990s and 2000s, but not in the 1980s; the difference, however, is only significant for the 2000s (not reported in a table). This combined evidence supports the view that restructurings in the US have become less favorable for shareholders and that buyers of distressed assets have been able to take advantage of this situation.

6. Conclusion

Firms that make acquisitions of companies that are in financial distress or that buy some of their assets earn abnormal returns that are substantially higher compared to when they make regular acquisitions. These returns come at the expense of the shareholders of the target firm, who may not be in a position to bargain for a higher price or delay the sale altogether. The excess returns are particularly high when there is less implicit competition for the target and when the target's industry is in poor health, thereby reducing the number of potential buyers for these assets. When the target firm's assets have more alternative uses, on the other hand, thereby increasing the number of potential buyers, bidder returns decline.

Our findings are consistent with the argument proposed by Shleifer and Vishny (1992) that fire sales come at a substantial cost for the selling firm's shareholders and that these costs are higher when the number of potential buyers is reduced. More importantly, however, our findings indicate that buyers can take advantage of this situation and that the combined gains to the shareholders of buyers and sellers are not affected. From an overall welfare perspective, fire sales

[22] We have also verified that these findings continue to hold if our models include a dummy for NBER recessions and the interaction between this dummy and the distressed dummy.

may therefore be less costly than expected based on prior work that has focussed on the cost of fire sales to the seller.

Our results also indicate that when studying distressed acquisitions or acquisitions in general, it is important to control for industry conditions when explaining abnormal returns. Target industry financial health, the liquidity of the M&A market and potential alternative uses of an industry's assets all have a substantial impact on the benefits associated with acquisitions.

Appendix 1: Nearest-neighbor matching for bidder and target returns

In this Appendix we verify that our finding of higher bidder returns and lower target returns for distressed compared to non-distressed acquisitions also holds when we employ a nearest-neighbor matching approach instead of a regression approach as documented in Tables 4 and 6.

To test the robustness of bidder returns, we match each bidder in a distressed transaction to the five bidders in non-distressed transactions that are the nearest neighbors (based on the Mahalanobis distance) according to a number of characteristics. We only match acquisitions of entire companies with each other and asset acquisitions with each other. For some specifications, we also limit ourselves to matches from the same industry and matches that use the same form of payment. The bidder and target characteristics we employ are the same as in Tables 4 and 6: market value of equity, Tobin's Q, market leverage, and profitability. For target returns, we employ exactly the same procedure.

Table A1 contains the results. Bidder returns are displayed in Panel A and target returns in Panel B. Each row represents a different set of characteristics on which bidders/targets in distressed acquisitions are matched with bidders/targets in non-distressed transactions. Column (6) contains the estimate of the average treatment effect on the treated, which is the extra return earned by bidders or targets in distressed transactions versus matched non-distressed deals. The final column contains the number of distressed observations being matched, which varies depending on the matching criteria employed as five perfect matches based on industry, the asset sale dummy and/or form of payment are not always available for all firms. In addition, we have fewer observations when we match on target characteristics as such matches are only possible for acquisitions of listed firms.

All the comparisons in Panel A illustrate that bidders earn higher returns when making distressed acquisitions. The lowest estimate is 1.76% when we match on bidder financial

characteristics and form of payment and the highest is 3.41% when we match on target financial characteristics and target industry. These estimates are very similar to the ones reported in Table 4 of the paper and indicate that the results from our regression specifications are robust.

The target returns in Panel B also confirm the regression results reported in Table 6 of the paper. Independent of the variables on which we match, we always find lower returns for targets in distressed acquisitions, with the difference ranging from -8.53% to -5.22%.

Overall, the results reported in this Appendix provide strong evidence that the results based on regression specifications reported in the body of the paper are very robust.

Appendix 2: Other definitions of distress

In this Appendix we investigate whether bidder returns are higher for distressed acquisitions when we consider other measures of distress. Alternative measures have several shortcomings, however. First, the goal of these alternative measures is often to predict actual financial distress, which is what our measure already captures perfectly. Thus, if alternative measures of distress are imperfect predictors of actual distress, it would not be surprising that regression specifications with alternative measures yield different, less precise insights. Second, alternative distress measures often require accounting data or price data on publicly traded equity or debt, which substantially reduces the sample size relative to our measure, which is available for both public and private targets. Third, what is important for our analysis is that creditors and/or courts are involved in the transactions, which is less likely to be the case if the firm is not in bankruptcy or in the process of restructuring its debt. Other measures of distress do not impose such a requirement.

Keeping the above caveats in mind, we borrow definitions of distress from the existing literature. Specifically, we employ three alternative proxies for distress. The first proxy is the Z-score as modified by Mackie-Mason (1990). The Z-score is computed as:

Z-score = (3.3 EBIT + Sales + 1.4 Retained Earnings + 1.2 Working Capital) / Assets

The second proxy is the Zmijeweski (1984) score, computed as:

Zmijewski-score = -4.3 - 4.5 Net Income/Total Assets + 5.7 Total Debt/Total Assets
-0.004 Current Assets/Current Liabilities.

We calculate both of these metrics for all selling firms in our sample with sufficient data available and employ them as continuous measures of financial distress, with lower Z-scores and higher Zmijweski scores reflecting a higher likelihood of distress. The third proxy is based on Asquith, Gertner, and Scharfstein (1994) and classifies a firm as distressed in a given year if the ratio of its EBITDA (Earnings before interest, taxes, depreciation and amortization) to interest expenses is less than 0.8. Both the Z-score and Zmijewski score are also employed by Acharya, Bharath, and Srinivasan (2007) in their work on recovery rates for defaulted bonds.

It is interesting to note that the correlation between these traditional distress measures and our measure, based on actual restructuring and bankruptcy events, is small, suggesting that traditional distress measures do not predict such events with great accuracy. For example, the correlations between our distress measure and the Z-score and Zmijewski scores are only -0.04 and 0.11 respectively. In terms of the coverage measure, 583 selling firms have EBITDA over interest expenses below 0.8. Only 29 of these are distressed according to our definition. There are an additional 73 distressed transactions in our sample that do not meet the coverage threshold.

The first three models of Table A2 contains regression models of acquirer abnormal returns as a function of all control variables and each of these alternative distress proxies. For sake of brevity, we do not report the coefficients on the control variables. In contrast to our earlier findings, we do not find any evidence that bidders achieve higher abnormal returns when buying companies or the assets of companies that are more likely to be distressed. This is not surprising given the shortcomings of these measures discussed previously and the low correlation between these measures and actual bankruptcy and/or restructuring events. In models (4) through (6) of Table A2, we show that the lack of significance of the other measures is not due to a lack of power

caused by the reduction in sample size. When we include our distress measure together with the alternatives, our measure always exceeds 2 percentage points and is significant at the 5% level in all specifications.

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Table 1

Number of Transactions by Year and Type

The sample consists of all completed acquisitions listed on the SDC database announced over the period 1982-2012 that meet the following criteria: (a) US corporate bidders and targets; (b) the bidder is listed on CRSP and Compustat; (c) for complete acquisitions, the bidder also needs to own more than 50% of the target after completion of the transaction and less than 50% before its initial announcement, and the size of the stake acquired has to be at least 50%; (d) the deal value has to be more than 1% of the market value of the bidder at the end of the last fiscal year before the transaction, where market value is defined as (book assets minus book equity plus market equity). To define distressed acquisitions, we combine three non-mutually exclusive deal characteristics listed on the SDC database: (1) the target is bankrupt or goes bankrupt during the transaction; (2) the transaction is part of a liquidation plan; (3) the transaction is part of a restructuring (abbreviated as restruct.) whereby the debt on the balance sheet is reduced through a bankruptcy/distressed sale, a tender offer or exchange offer for existing debt securities, or a loan modification. A transaction is defined by SDC as a restructuring only if one or more of the following conditions have been met: (i) the company has publicly confirmed that it has retained a restructuring advisor, has filed for bankruptcy/receivership protection, has publicly confirmed plans to restructure its debt, or has gone into default or has missed a coupon payment, (ii) an S&P/Moody's issuer, issue, or probability of default rating of CCC+/Caa1 or below either before or in reaction to the announcement of the restructuring plan, (iii) a debt-for-debt exchange offer where debt holders will exchange their bonds at a discount, or (iv) a credit facility or debt security carries a yield of at least 1,000 bps over US Treasuries. Target Data Available refers to the transaction for which target data are available on CRSP and Compustat.

Table 1 (continued)

	All Transactions							Target Data Available	
Year	All Distressed	Bankrupt	Restruct.	Liquidation	Distressed Assets	Distressed Companies	Total	All Distressed	Total
1982	1	1	0	0	0	1	219	0	39
1983	1	1	0	0	0	1	382	0	87
1984	6	6	0	0	1	5	426	0	123
1985	4	1	2	1	4	0	244	1	116
1986	17	4	10	5	16	1	346	9	138
1987	13	3	8	2	11	2	272	8	115
1988	17	2	16	0	14	3	325	9	114
1989	23	9	14	1	20	3	371	11	113
1990	20	10	11	0	19	1	363	10	107
1991	22	12	12	1	18	4	399	10	101
1992	24	16	10	1	18	6	561	7	110
1993	19	12	7	0	15	4	748	7	126
1994	20	12	9	0	16	4	915	4	184
1995	12	10	2	1	9	3	999	5	224
1996	17	14	3	0	12	5	1,309	5	252
1997	18	17	0	1	17	1	1,737	4	292
1998	13	13	0	0	12	1	1,728	1	342
1999	11	11	0	0	9	2	1,290	0	293
2000	19	18	1	0	17	2	984	1	204
2001	27	27	0	0	24	3	699	2	184
2002	41	39	1	1	39	2	744	3	155
2003	16	16	0	0	16	0	712	0	138
2004	16	16	0	0	16	0	838	1	138
2005	10	10	0	0	10	0	895	0	151
2006	5	5	0	0	4	1	853	0	123
2007	3	3	0	0	2	1	783	0	131
2008	7	7	3	0	7	0	525	0	77
2009	7	7	5	0	5	2	386	1	95
2010	7	7	2	0	6	1	591	1	107
2011	8	8	4	0	7	1	614	1	97
2012	4	4	1	0	3	1	592	1	95
Total	428	321	121	14	367	61	21,850	102	4,571

Table 2

Acquirer Announcement Returns – Summary Statistics

Abnormal returns are computed as cumulative residuals of the market model over the three-day period starting one day before the announcement of the transaction. The market model is estimated over the 200-day period starting 205 days before the announcement of the acquisition, where the CRSP equally-weighted market index is employed as the market proxy. Abnormal returns are expressed as a percentage. Below the mean abnormal return is the p-value of a t-test of equality of the abnormal return to zero. Below the median abnormal return is the p-value of a Wilcoxon test of equality of the abnormal return to zero. The p-value for the differences in means across groups is from a t-test. The p-value for the differences in medians across groups is from a nonparametric equality-of-medians test.

Panel A – All Transactions

	All Transactions (1)	Distressed (2)	Not Distressed (3)	Difference (2) - (3)
Mean	1.24	3.28	1.20	2.09
	(0.00)	(0.00)	(0.00)	(0.00)
Median	0.34	1.34	0.33	1.01
	(0.00)	(0.00)	(0.00)	(0.00)
N	21,849	428	21,421	

Panel B – Acquisitions of Assets vs. Acquisitions of Companies

		All Transactions (1)	Distressed (2)	Not Distressed (3)	Difference (2) - (3)
Assets	Mean	1.55	3.04	1.51	1.53
		(0.00)	(0.00)	(0.00)	(0.00)
	Median	0.59	1.53	0.57	0.96
		(0.00)	(0.00)	(0.00)	(0.00)
	N	12,341	367	11,974	
Companies	Mean	0.83	4.76	0.81	3.95
		(0.00)	(0.02)	(0.00)	(0.00)
	Median	-0.03	1.13	-0.04	1.17
		(0.14)	(0.05)	(0.19)	(0.16)
	N	9,508	61	9,447	

Table 3

Explanatory Variables – Summary Statistics

The distressed dummy is defined in Table 1. The following explanatory variables are indicator variables, set equal to one if the specific criterion is met: asset sale, public target, private target, tender offer, hostile, competed, equity only as the form of payment, cash only as the form of payment and unrelated. Asset sale refers to the acquisition of assets or units. Competed is set equal to one if there are multiple bidders according to SDC. Unrelated is set equal to one if the target and bidder do not share the same 3-digit SIC code. Relative size is the deal value over the market value of the bidder, where market value is defined as (book assets minus book equity plus market equity). Deal value is the total value of consideration paid by the acquirer, excluding fees and expenses. Acq. MCAP is the acquirer's market value of equity. Acq. Tobin's Q is the market value of the bidder over its book value of assets. Acq. leverage (mkt.) is the market leverage of the acquirer, where the numerator is book assets minus book equity and where the denominator is the market value of the bidder. Acq. EBITDA/Assets (Book) is the bidder's EBITDA over its book value of assets. Accounting and market capitalization data are from the last fiscal year-end before the announcement of the transaction. All dollar values are in constant 2012 dollars (millions). The definitions of the variables for the targets are identical to those for the acquirers. Median results for indicator variables are not displayed. The p-value for the differences in means across groups is from a t-test. The p-value for the differences in medians across groups is from a nonparametric equality-of-medians test.

Panel A - Deal Characteristics

	Distressed		Non-Distressed		Difference				N
	Mean	Median	Mean	Median	Mean	(p-value)	Median	(p-value)	
Asset Sale (%)	85.75%		55.90%		29.85%	(0.00)			21,849
Public (%)	16.12%		19.76%		-3.63%	(0.06)			21,849
Private (%)	21.50%		50.74%		-29.24%	(0.00)			21,849
Tender Offer (%)	0.70%		3.72%		-3.02%	(0.00)			21,849
Hostile (%)	0.00%		0.35%		-0.35%	(0.22)			21,849
Competed (%)	6.07%		1.09%		4.98%	(0.00)			21,849
Equity Only (%)	2.57%		17.66%		-15.09%	(0.00)			21,849
Cash Only (%)	28.97%		24.49%		4.48%	(0.03)			21,849
Unrelated (%)	53.50%		56.81%		-3.30%	(0.17)			21,849
Relative Size	34.55%	7.38%	23.39%	6.94%	11.16%	(0.17)	0.45%	(0.33)	21,849
Deal Value (2012 $mn)	282	51	457	50	-175	(0.24)	1	(0.84)	21,849

Table 3 (continued)

Panel B - Acquirer Characteristics

	Distressed		Non-Distressed		Difference				N
	Mean	Median	Mean	Median	Mean (p-value)		Median (p-value)		
Acq. MCAP (2012 $mn)	1727	335	2348	343	-621	(0.24)	-8	(0.93)	21,849
Acq. Tobin's Q	1.48	1.15	1.63	1.22	-0.15	(0.04)	-0.08	(0.00)	21,849
Acq. Leverage (Mkt.)	0.45	0.44	0.42	0.40	0.02	(0.05)	0.04	(0.02)	21,849
Acq. EBITDA/Assets (Book)	0.10	0.12	0.09	0.11	0.01	(0.32)	0.01	(0.01)	21,849

Panel C - Target Characteristics

	Distressed		Non-Distressed		Difference				N
	Mean	Median	Mean	Median	Mean (p-value)		Median (p-value)		
Tar. MCAP (2012 $mn)	2982	1128	8600	684	-5,619	(0.05)	444	(0.32)	4,571
Tar. Tobin's Q	1.48	1.21	1.65	1.30	-0.16	(0.24)	-0.09	(0.16)	4,571
Tar. Leverage (Mkt.)	0.59	0.59	0.42	0.42	0.17	(0.00)	0.18	(0.00)	4,571
Tar. EBITDA/Assets (Book)	0.06	0.09	0.09	0.12	-0.03	(0.13)	-0.03	(0.00)	4,571

Table 4

Acquirer Announcement Return Regressions

The dependent variable is the acquirer abnormal return cumulated over three days starting one day before the announcement of the transaction, expressed as a percentage. The distressed dummy is defined in Table 1. The explanatory variables are defined in Table 3. Year FE refers to year fixed effects. Acquirer Ind. FE refers to fixed effects for the acquirer's industry defined at the 3-digit SIC code level. The Assets column refers to models estimated for acquisitions of assets or units. The Companies column refers to models estimated for full acquisitions of companies. P-values are listed in parentheses.

Table 4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	All Transactions			Target Data Available			Assets	Companies	All
Distressed	1.76	1.66	1.72	3.34	2.95	2.26	1.30	3.02	1.59
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.03)	(0.01)	(0.09)	(0.01)
Asset Sale			-0.61			-1.06			-0.46
			(0.00)			(0.07)			(0.07)
ln(Acq. MCAP)			-0.94			-0.63	-0.92	-0.84	-1.05
			(0.00)			(0.00)	(0.00)	(0.00)	(0.00)
Public			-3.49			-2.39	-1.53	-3.33	-3.25
			(0.00)			(0.00)	(0.11)	(0.00)	(0.00)
Private			-0.37				-0.37	-0.38	-0.10
			(0.02)				(0.02)	(0.42)	(0.64)
Tender Offer			1.92			1.06		1.87	1.91
			(0.00)			(0.01)		(0.00)	(0.00)
Hostile			-0.55			0.08		0.06	-0.14
			(0.39)			(0.91)		(0.93)	(0.86)
Competed			0.02			-1.47	-1.36	0.03	-0.76
			(0.97)			(0.05)	(0.25)	(0.96)	(0.21)
Equity Only			-0.08			-1.61	0.32	-0.07	-0.38
			(0.75)			(0.01)	(0.58)	(0.83)	(0.26)
Cash Only			0.35			0.66	-0.04	0.76	0.25
			(0.01)			(0.02)	(0.81)	(0.00)	(0.15)
Unrelated			0.03			-0.11	-0.36	0.38	-0.27
			(0.84)			(0.71)	(0.06)	(0.12)	(0.14)
Relative Size			0.12			-0.26	0.73	0.01	0.27
			(0.19)			(0.36)	(0.00)	(0.83)	(0.49)
ln(Deal Value)			0.53			-0.03	0.64	0.33	0.25
			(0.00)			(0.81)	(0.00)	(0.00)	(0.04)
Acq. Tobin's Q			0.24			0.02	0.25	0.29	0.06
			(0.02)			(0.90)	(0.09)	(0.04)	(0.63)
Acq. Leverage (Mkt.)			-0.70			-0.19	-0.47	-0.86	-3.34
			(0.12)			(0.84)	(0.37)	(0.31)	(0.00)
Acq. EBITDA/ Assets (Book)			-1.47			-0.05	1.48	-3.94	-5.20
			(0.12)			(0.97)	(0.21)	(0.00)	(0.00)
ln(Tar. MCAP)						0.43			
						(0.00)			
Tar. Tobin's Q						0.08			
						(0.52)			
Tar. Leverage (Mkt.)						1.38			
						(0.08)			
Tar. EBITDA/ Assets (Book)						0.31			
						(0.66)			
Year FE	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Acquirer Ind. FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer FE	No	No	No	No	No	No	No	No	Yes
N	21,849	21,849	21,849	4,571	4,571	4,571	12,341	9,508	21,849
Adj. R-squared	0.01	0.01	0.04	0.01	0.02	0.08	0.04	0.05	0.26

Table 5

Target Announcement Returns – Summary Statistics

Abnormal returns are computed as cumulative residuals of the market model over the three-day period starting one day before the announcement of the transaction. The market model is estimated over the 200-day period starting 205 days before the announcement of the acquisition, where the CRSP equally-weighted market index is employed as the market proxy. Abnormal returns are expressed as a percentage. Below the mean abnormal return is the p-value of a t-test of equality of the abnormal return to zero. Below the median abnormal return is the p-value of a Wilcoxon test of equality of the abnormal return to zero. The p-value for the differences in means across groups is from a t-test. The p-value for the differences in medians across groups is from a nonparametric equality-of-medians test.

Panel A – All Transactions

	All Transactions (1)	Distressed (2)	Not Distressed (3)	Difference (2) - (3)
Mean	11.23	-0.76	11.50	-12.26
	(0.00)	(0.73)	(0.00)	(0.00)
Median	3.44	0.54	3.55	-3.02
	(0.00)	(0.18)	(0.00)	(0.00)
N	4,571	102	4,469	

Panel B – Acquisitions of Assets vs. Acquisitions of Companies

		All Transactions (1)	Distressed (2)	Not Distressed (3)	Difference (2) - (3)
Assets	Mean	1.51	-2.42	1.66	-4.08
		(0.00)	(0.27)	(0.00)	(0.01)
	Median	0.41	0.13	0.41	-0.28
		(0.00)	(0.79)	(0.00)	(0.65)
	N	2,164	82	2,082	
Companies	Mean	19.96	6.05	20.08	-14.03
		(0.00)	(0.36)	(0.00)	(0.01)
	Median	14.52	6.12	14.65	-8.52
		(0.00)	(0.04)	(0.00)	(0.01)
	N	2,407	20	2,387	

Table 6

Target Announcement Return Regressions

The dependent variable is the target abnormal return cumulated over three days starting one day before the announcement of the transaction, expressed as a percentage. Tar Ind. FE refers to target industry fixed effects defined at the 3-digit SIC code level. The other explanatory variables are defined in tables 1, 3 and 4. P-values are listed in parentheses.

Table 6 (continued)

	(1)	(2)	(3)	(4)	(5)
	All Transactions			Assets	Companies
Distressed	-11.16	-10.67	-5.50	-4.66	-8.47
	(0.00)	(0.00)	(0.04)	(0.06)	(0.28)
Asset Sale			-1.63		
			(0.08)		
ln(Acq. MCAP)			0.76	-0.05	1.76
			(0.01)	(0.87)	(0.00)
Public			14.06	-10.09	13.30
			(0.00)	(0.31)	(0.00)
Tender Offer			9.04		7.72
			(0.00)		(0.00)
Hostile			5.54		7.21
			(0.03)		(0.02)
Competed			-8.45	-8.08	-8.07
			(0.00)	(0.03)	(0.00)
Equity Only			-0.47	0.71	-0.18
			(0.68)	(0.58)	(0.89)
Cash Only			2.04	-0.12	3.81
			(0.00)	(0.85)	(0.01)
Unrelated			-0.31	-0.50	-0.45
			(0.63)	(0.45)	(0.68)
Relative Size			-0.97	-0.54	-0.29
			(0.01)	(0.46)	(0.51)
ln(Deal Value)			0.17	0.93	-0.32
			(0.63)	(0.02)	(0.67)
Acq. Tobin's Q			-0.33	-0.91	-0.10
			(0.23)	(0.08)	(0.76)
Acq. Leverage (Mkt.)			0.44	-2.90	4.04
			(0.83)	(0.28)	(0.24)
Acq. EBITDA/Assets (Book)			0.17	-2.15	0.84
			(0.95)	(0.44)	(0.85)
ln(Tar. MCAP)			-1.24	-0.91	-1.93
			(0.00)	(0.00)	(0.00)
Tar. Tobin's Q			-0.70	-0.11	-1.31
			(0.01)	(0.70)	(0.02)
Tar. Leverage (Mkt.)			-1.04	1.34	-3.86
			(0.63)	(0.69)	(0.22)
Tar. EBITDA/Assets (Book)			-2.78	-2.46	-3.79
			(0.19)	(0.27)	(0.15)
Year FE	No	Yes	Yes	Yes	Yes
Target Ind. FE	Yes	Yes	Yes	Yes	Yes
N	4,571	4,571	4,571	2,164	2,407
Adjusted R-squared	0.02	0.04	0.26	-0.02	0.17

Table 7

Combined Announcement Returns – Summary Statistics

Target and bidder abnormal returns are computed as cumulative residuals of the market model over the three-day period starting one day before the announcement of the transaction. The market model is estimated over the 200-day period starting 205 days before the announcement of the acquisition, where the CRSP equally-weighted market index is employed as the market proxy. Abnormal returns are expressed as a percentage. Combined abnormal returns are computed as:

$$\frac{CAR_B(MV_B - OWN_B^T MV_T) + CAR_T(MV_T)}{MV_B + MV_T - OWN_B^T MV_T},$$

where CAR is the abnormal return of either the bidder (B) or the target (T), MV is the market value of equity, and OWN_B^T is the fraction of the target owned by the bidder before the announcement of the bid. We employ the market values two days before the announcement date to compute the weights. Below the mean abnormal return is the p-value of a t-test of equality of the abnormal return to zero. Below the median abnormal return is the p-value of a Wilcoxon test of equality of the abnormal return to zero. The p-value for the differences in means across groups is from a t-test. The p-value for the differences in medians across groups is from a nonparametric equality-of-medians test.

Table 7 (continued)

Panel A – All Transactions

	All Transactions (1)	Distressed (2)	Not Distressed (3)	Difference (2) - (3)
Mean	1.28	1.79	1.27	0.52
	(0.00)	(0.01)	(0.00)	(0.39)
Median	0.69	0.50	0.70	-0.19
	(0.00)	(0.01)	(0.00)	(0.32)
N	4,571	102	4,469	

Panel B – Acquisitions of Assets vs. Acquisitions of Companies

		All Transactions (1)	Distressed (2)	Not Distressed (3)	Difference (2) - (3)
Assets	Mean	0.69	1.77	0.65	1.12
		(0.00)	(0.00)	(0.00)	(0.03)
	Median	0.33	0.44	0.32	0.11
		(0.00)	(0.01)	(0.00)	(0.37)
	N	2,164	82	2,082	
Companies	Mean	1.81	1.88	1.80	0.07
		(0.00)	(0.40)	(0.00)	(0.96)
	Median	1.21	1.97	1.21	0.76
		(0.00)	(0.48)	(0.00)	(0.65)
	N	2,407	20	2,387	

Table 8

Combined Announcement Return Regressions

The dependent variable is the combined abnormal return as defined in Table 7. The independent variables are defined in tables 1, 3 and 4. P-values are listed in parentheses.

	(1)	(2)	(3)	(4)	(5)
	All Transactions			Assets	Companies
Distressed	0.16	-0.01	0.38	1.01	-1.69
	(0.78)	(0.98)	(0.54)	(0.12)	(0.31)
Asset Sale			-0.14		
			(0.67)		
ln(Acq. MCAP)			-0.68	-0.36	-0.99
			(0.00)	(0.00)	(0.00)
Public			0.76	-2.05	2.52
			(0.06)	(0.26)	(0.00)
Tender Offer			1.50		1.54
			(0.00)		(0.00)
Hostile			3.80		3.53
			(0.00)		(0.00)
Competed			-0.82	-3.05	-1.02
			(0.16)	(0.06)	(0.11)
Equity Only			-1.88	-1.44	-1.80
			(0.00)	(0.06)	(0.00)
Cash Only			0.49	0.24	0.60
			(0.02)	(0.30)	(0.15)
Unrelated			-0.36	-0.17	-0.55
			(0.08)	(0.49)	(0.10)
Relative Size			-0.17	-0.32	-0.25
			(0.38)	(0.50)	(0.23)
ln(Deal Value)			0.64	0.62	0.39
			(0.00)	(0.00)	(0.05)
Acq. Tobin's Q			-0.11	-0.16	-0.04
			(0.31)	(0.40)	(0.74)
Acq. Leverage (Mkt.)			-0.74	-1.17	-0.86
			(0.21)	(0.14)	(0.39)
Acq. EBITDA/Assets (Book)			-1.37	-0.48	-1.84
			(0.13)	(0.71)	(0.19)
ln(Tar. MCAP)			-0.12	-0.16	0.32
			(0.03)	(0.02)	(0.02)
Tar. Tobin's Q			0.00	0.11	-0.11
			(0.98)	(0.30)	(0.51)
Tar. Leverage (Mkt.)			0.66	0.82	0.88
			(0.26)	(0.23)	(0.33)
Tar. EBITDA/Assets (Book)			0.61	-0.20	0.63
			(0.33)	(0.80)	(0.47)
Year FE	No	Yes	Yes	Yes	Yes
Acquirer Ind. FE	Yes	Yes	Yes	Yes	Yes
N	4,571	4,571	4,571	2,164	2,407
Adjusted R-squared	0.03	0.03	0.09	0.03	0.13

Table 9

Acquirer Abnormal Returns Regressions using Competition Measures

The dependent variable is the acquirer abnormal return cumulated over three days starting one day before the announcement of the transaction, expressed as a percentage. Distressed x Competed is the interaction of the distressed and competed dummies which are defined in tables 1 and 3. # Firms Tar. Ind. is the number of firms on Compustat (in thousands) in the announcement year in the target's 3 digit SIC code industry. Distressed x # Firms Tar. Ind. is the interaction of the distressed dummy with # Firms Tar. Ind. # Firms Tar. Ind. > $100 mn. is the number of firms on Compustat (in thousands) in the announcement year in the target's 3 digit SIC code industry with a book value of assets of more than $100 million. Distressed x # Firms Tar. Ind. > $100 mn. is the interaction of the distressed dummy with # Firms Tar. Ind. > $100 mn. # Firms Tar. Ind. > Deal Value is the number of firms on Compustat (in thousands) in the announcement year in the target's 3 digit SIC code industry with a book value of assets larger than the value of the transaction. Distressed x # Firms Tar. Ind. > Deal Value is the interaction of the distressed dummy with # Firms Tar. Ind. > Deal Value. Distressed x Unrelated is a dummy which is 1 if the target is distressed and in a different 3 digit SIC code industry from the acquirer. The remaining variables are defined in tables 1, 3 and 4. Controls for deal and acquirer characteristics are included but not displayed. P-values are listed in parentheses.

	(1)	(2)	(3)	(4)	(5)
Distressed	1.80	1.84	1.98	2.01	1.61
	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)
Distressed x Competed	-1.46				
	(0.40)				
# Firms Tar. Ind.		-0.91			
		(0.00)			
Distressed x # Firms Tar. Ind.		-1.57			
		(0.16)			
# Firms Tar. Ind. > $100 mn.			-2.27		
			(0.04)		
Distressed x # Firms Tar. Ind. > $100 mn.			-7.34		
			(0.07)		
# Firms Tar. Ind. > Deal Value				0.62	
				(0.23)	
Distressed x # Firms Tar. Ind. > Deal Value				-5.13	
				(0.01)	
Distressed x Unrelated					0.21
					(0.83)
Asset Sale	-0.61	-0.60	-0.61	-0.59	-0.61
	(0.00)	(0.01)	(0.01)	(0.01)	(0.00)
Acquirer Controls	Yes	Yes	Yes	Yes	Yes
Deal Characteristics Controls	Yes	Yes	Yes	Yes	Yes
Clustering by Tar. Ind.	No	Yes	Yes	Yes	No
Year FE	Yes	Yes	Yes	Yes	Yes
Acquirer Ind. FE	Yes	Yes	Yes	Yes	Yes
N	21,849	20,891	20,891	20,891	21,849
Adjusted R-squared	0.04	0.04	0.04	0.04	0.04

Table 10

Acquirer Abnormal Return Regressions as a Function of Target Industry Health

The dependent variable is the acquirer abnormal return cumulated over three days starting one day before the announcement of the transaction, expressed as a percentage. Ind. Quick Ratio is the mean quick ratio of the firms in the target's 3 digit SIC code industry in the year of the transaction, winsorized at the 1st and 99th percentiles. The quick ratio is defined as (current assets – inventory) / current liabilities. Distressed x Ind. Quick Ratio is the interaction between the distressed dummy and Ind. Quick Ratio. Ind. Kaplan-Zingales Index is the mean of the Kaplan-Zingales Index of the firms in the target's 3 digit SIC code industry in the year of the transaction, winsorized at the 1st and 99th percentiles. The Kaplan-Zingales Index is defined as: KZ index$_t$ = -1.001909 (Cash Flow$_t$ / PPE$_{t-1}$) + 0.2826389 Q$_t$ + 3.139193 Debt$_t$ / (Debt$_t$ + Book Equity$_t$) -39.3678 (Dividends$_t$ / PPE$_{t-1}$) – 1.314759 (Cash$_t$ / PPE$_{t-1}$). To facilitate the display of the coefficients, the KZ index is divided by 100. Distressed x Ind. Kaplan-Zingales Index is the interaction between the distressed dummy and the Kaplan-Zingales index. Recession is a dummy which is set equal to 1 if the transaction is announced in a quarter that is a recession quarter according to the NBER. Distressed x Recession is the interaction of the distressed and recession dummies. The remaining variables are defined in tables 1, 3 and 4. Controls for deal and acquirer characteristics are included but not displayed. P-values are listed in parentheses.

	(1)	(2)	(3)
Distressed	2.64	1.87	1.34
	(0.00)	(0.00)	(0.01)
Ind. Quick Ratio	0.04		
	(0.36)		
Distressed x Ind. Quick Ratio	-0.36		
	(0.00)		
Ind. Kaplan-Zingales Index		-0.10	
		(0.12)	
Distressed x Ind. Kaplan-Zingales Index		1.21	
		(0.05)	
Recession			0.52
			(0.29)
Distressed x Recession			3.38
			(0.08)
Asset Sale	-0.63	-0.64	-0.61
	(0.00)	(0.00)	(0.00)
Acquirer Controls	Yes	Yes	Yes
Deal Characteristics Controls	Yes	Yes	Yes
Clustering by Tar. Ind.	Yes	Yes	No
Clustering by Quarter	No	No	Yes
Year FE	Yes	Yes	Yes
Acquirer Ind. FE	Yes	Yes	Yes
N	19,220	19,845	21,849
Adjusted R-squared	0.04	0.04	0.04

Table 11

Acquirer Abnormal Return Regressions as a Function of Redeployability

The dependent variable is the acquirer abnormal return cumulated over three days starting one day before the announcement of the transaction, expressed as a percentage. Liquidity Index is the value of all US M&A transactions in the target's 3 digit SIC code industry over the book value of assets in that industry in the year of the announcement. Distressed x Liquidity Index is the interaction of the Liquidity Index and the Distressed dummy. Asset Redeployability is the measure of asset redeployability developed by Kim and Kung (2014) for the target firm's BEA industry in the year of the announcement. Distressed x Asset Redeployability is the interaction of the Distressed Dummy and the Redeployability measure. The remaining variables are defined in tables 1, 3 and 4. Controls for deal and acquirer characteristics are included but not displayed. SIC<5000 indicates that the model is estimated only for acquisitions of targets with an SIC code smaller than 5000. P-values are listed in parentheses.

	(1) All	(2) SIC<5000	(3) All	(4) SIC<5000
Distressed	1.94	2.16	2.65	4.25
	(0.00)	(0.00)	(0.04)	(0.00)
Liquidity Index	0.02	-0.03		
	(0.71)	(0.56)		
Distressed x Liquidity Index	-2.14	-2.99		
	(0.07)	(0.03)		
Asset Redeployability			2.15	2.07
			(0.01)	(0.08)
Distressed x Asset Redeployability			-2.33	-6.79
			(0.51)	(0.08)
Asset Sale	-0.62	-0.84	-0.71	-1.05
	(0.01)	(0.01)	(0.00)	(0.00)
Acquirer Controls	Yes	Yes	Yes	Yes
Deal Characteristics Controls	Yes	Yes	Yes	Yes
Clustering by Tar. Ind.	SIC	SIC	BEA	BEA
Year FE	Yes	Yes	Yes	Yes
Acquirer Ind. FE	Yes	Yes	Yes	Yes
N	20,462	9,530	18,643	8,524
Adjusted R-squared	0.04	0.05	0.04	0.05

Table A1

Nearest-Neighbor Matching

This table contains the result of a nearest neighbor matching approach, using the Mahalanobis distance, where each distressed transaction is matched to 5 non-distressed transactions. Asset sales are always matched to asset sales and complete acquisitions to complete acquisitions. Column 1 (3) indicates whether the transactions are matched on acquirer (target) characteristics. These characteristics are the logarithm of the market capitalization of equity, Tobin's Q, market leverage, and profitability. Column 2 (4) indicates whether the transactions are perfectly matched on the 3 digit SIC code of the acquirer (target). Column 5 indicates whether the transactions are perfectly matched on the form of payment. Column 6 reports the average treatment effect for the treated, which is the extra return earned by firms involved in distressed acquisitions compared to firms involved in non-distressed acquisitions. The p-value is reported in parentheses. Column 7 reports the number of distressed transaction that we are able to match given the matching variables used. Panel A reports the results for acquirer returns. Panel B reports the results for target returns.

Table A1 (continued)

Panel A – Acquirer Returns

(1) Nearest Neighbor Matching on Acquirer Chars.	(2) Exact Matching on Acquirer Industry	(3) Nearest Neighbor Matching on Target Chars.	(4) Exact Matching on Target Industry	(5) Exact Matching on Form of Payment	(6) Average Treatment Effect for the Treated (p-value)	(7) # Distressed Deals Matched
Yes	No	No	No	No	1.83 (0.00)	428
Yes	Yes	No	No	No	1.93 (0.00)	407
No	No	Yes	No	No	3.33 (0.00)	102
No	No	Yes	Yes	No	3.41 (0.01)	81
Yes	No	Yes	No	No	3.20 (0.00)	102
Yes	No	No	No	Yes	1.76 (0.00)	428
Yes	Yes	No	No	Yes	2.06 (0.00)	376
No	No	Yes	No	Yes	2.61 (0.03)	102
No	No	Yes	Yes	Yes	2.86 (0.08)	67
Yes	No	Yes	No	Yes	3.23 (0.01)	102

Panel B - Target Returns

(1) Nearest Neighbor Matching on Acquirer Chars.	(2) Exact Matching on Acquirer Industry	(3) Nearest Neighbor Matching on Target Chars.	(4) Exact Matching on Target Industry	(5) Exact Matching on Form of Payment	(6) Average Treatment Effect for the Treated (p-value)	(7) # Distressed Deals Matched
Yes	No	No	No	No	-8.53 (0.00)	102
Yes	Yes	No	No	No	-6.38 (0.03)	83
No	No	Yes	No	No	-7.97 (0.00)	102
No	No	Yes	Yes	No	-7.13 (0.00)	81
Yes	No	Yes	No	No	-5.82 (0.01)	102
Yes	No	No	No	Yes	-6.91 (0.01)	102
Yes	Yes	No	No	Yes	-7.15 (0.02)	65
No	No	Yes	No	Yes	-6.74 (0.01)	102
No	No	Yes	Yes	Yes	-5.22 (0.05)	67
Yes	No	Yes	No	Yes	-5.35 (0.01)	102

Table A2

Acquirer Abnormal Return Regressions Using Other Definitions of Target Distress

The dependent variable is the acquirer abnormal return cumulated over three days starting one day before the announcement of the transaction, expressed as a percentage. The Target Z-score is computed as (3.3 EBIT + Sales + 1.4 Retained Earnings + 1.2 Working Capital) / Assets. The Target Zmijewski-score is computed as -4.3 - 4.5 Net Income/Total Assets + 5.7 Total Debt/Total Assets -0.004 Current Assets/Current Liabilities. Target Interest Not Covered is an indicator variable which is one if the ratio of EBITDA to interest expenses is less than 0.8. The remaining variables are defined in tables 1, 3 and 4. Controls for deal, acquirer and target characteristics are included but not displayed. P-values are listed in parentheses.

	(1)	(2)	(3)	(4)	(5)	(6)
Distressed				2.28	2.22	2.26
				(0.03)	(0.03)	(0.03)
Target Z-score	0.03			0.04		
	(0.62)			(0.56)		
Target Zmijewski Score		0.09			0.07	
		(0.41)			(0.51)	
Target Interest Not Covered			0.12			0.03
			(0.84)			(0.96)
Asset Sale	-1.00	-1.01	-1.00	-1.07	-1.07	-1.06
	(0.09)	(0.09)	(0.09)	(0.07)	(0.07)	(0.07)
Acquirer Controls	Yes	Yes	Yes	Yes	Yes	Yes
Deal Characteristics Controls	Yes	Yes	Yes	Yes	Yes	Yes
Target Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Acquirer Ind. FE	Yes	Yes	Yes	Yes	Yes	Yes
N	4,571	4,571	4,571	4,571	4,571	4,571
Adjusted R-squared	0.08	0.08	0.08	0.08	0.08	0.08