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Corporate Reorganizations and Non-Cash Auctions: Discussion

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Discussion

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This paper presents a very interesting and detailed analysis of auctions with non-cash bidding instruments. In particular, the authors analyze the use of debt, equity, debt and equity, preferred stock, and convertible securities as the bidding instruments. Non-cash auctions have been little analyzed in either the finance or the economics literature, and their application to corporate reorganizations has not really been explored. As such, the paper is a significant contribution to a relatively sparse field of research, one that has generated a fair amount of discussion but few attempts at formal analysis. The setup of the paper is very general, delivering some quite interesting results while imposing very little structure on the model.

The basic setup is as follows. N potential buyers are bidding for a bankrupt firm. Each bidder has a “type” t , where the type correlates with the likelihood of a particular outcome. Specifically, for any type t , there is a range of possible outcomes (eventual values for the acquired firm) in an interval $[\underline{v}, \bar{v}]$, with the outcomes distributed as $G(v|t)$ (so that t serves as an index over the distribution function of values). There is also a distribution of bidder types given by a function $F(t)$, where $F(\cdot)$ is assumed to be strictly increasing and differentiable over some interval $[\underline{t}, \bar{t}]$. Finally, higher types are assumed to have better expected valuations for the acquired firm: $E[\bar{v}|t_i] > E[\bar{v}|t_j] \Leftrightarrow t_i > t_j$.

Using just this basic setup, the authors derive a set of interesting and general results. The first important intuition, represented by their Theorem 1, is that securities that have payoffs that are sensitive to the type of the bidder (more specifically, to the bidder’s underlying valuation) generate higher surplus for the seller than would cash. The intuition for this result is that the bidder can use the security to “signal” its type (its ex post valuation), so that more sensitive securities encourage more aggressive bidding.

This result is consistent with earlier results by Hansen (1985) and Crémer (1987), who show that the use of a contingent auction can extract greater surplus for the seller than a cash auction. However, the authors then go on to show that this result (and many other results concerning improved surplus extraction) is predicated on the invertibility of the bid function. In other words, the argument requires that the non-cash auction be efficient, allocating the good to the bidder with the highest valuation. However, as they demonstrate in Theorem 2, many securities auctions may fail to be efficient, so that the types are not separated by their bids. This makes it difficult for the seller to judge the value of the bids and pick the highest bid. Moreover, they also show (Theorem 3) that all-equity auctions are *never* efficient, even

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though they would have the potential to generate the highest profit for the seller. This follows directly from their earlier Theorem 1: equity is a security that is highly sensitive to the type of the bidder, so that equity bids, if separable, would lead to the greatest extraction of surplus by the seller.

This set of results, and the paper in general, raises some interesting insights. In particular, what this suggests is that non-cash auctions may not be as good at raising additional surplus as might be hoped due to problems of asymmetric information. To the extent that the payoff to the seller in a contingent auction depends on the type of the bidder, allocating the good efficiently may be of primary concern. However, the extreme signaling incentives resulting from the auction format may lead all bidders to pool on the same bid (e.g., in an all-equity auction, all bidders would wind up bidding 100 percent shares of equity, giving away the entire firm). This makes the selection of the highest bid a purely random choice and may lead to severe misallocation of the purchased firm. Therefore, non-cash auctions may do little to solve the problem of selling or reorganizing a bankrupt firm in an optimal way.

In short, this paper analyzes an interesting and relevant issue and provides a very insightful contribution to the theory of auctions that we hope should have broad applications for the study of corporate reorganizations. However, there are a few minor problems with the applications of the results in the paper that are worth mentioning. For example, the authors demonstrate that, despite the strong inefficiency results cited above, we may still be able to restore efficiency in all-debt auctions if either of two conditions holds: (1) there is a non-pecuniary cost of bankruptcy, or (2) the supports of $\bar{v}(t)$ are not identical, so that low type bidders cannot obtain payoffs as large as those of high type bidders ($\bar{v}(t_i) > \bar{v}(t_j)$ if $t_i > t_j$). The second condition seems difficult to verify in a real world setting. However, the first condition may be one that we think should typically apply, so that bidding using debt may not only allow us to run the auction when bidders are cash constrained, it may also allow the seller to extract greater surplus than under an all-cash auction.

Given this, it is not clear why the authors discount this result with the claim that in the real world a large bankruptcy cost would be required to accurately differentiate bids, so that the results of the model are not to be believed.¹ If this is indeed true, so that in reality sellers could not differentiate among bids unless the bankruptcy costs were sizable, then it is not clear under what circumstances we can make use of this model to determine when and whether debt auctions may or may not work. A model of this kind cannot offer predictions on the magnitude required for these costs to restore separability, given that it predicts that even very low costs should suffice.²

¹ The authors make a similar claim for equity auctions with a cash component, for which an identical argument and criticism apply.

² One justification pointed out in the text for thinking that these "solutions" may in fact not work is that things like reputation costs (bankruptcy costs) may correlate with the degree of liquidity constraint the bidding firms face. For example, we might suspect that the same firms that are cash constrained are the ones for whom loss of reputation is not terribly important, so that bankruptcy costs alone may not serve to restore efficiency.

A similar comment applies to the authors' analysis of renegotiation in the auction. The authors point out that Pareto-improving renegotiation may kill even the separability of debt auctions. Moreover, if cash-constrained bidders obtain cash in the interim that they then use to convert their securities bids for cash, this will prevent the seller from extracting surplus beyond what would be obtained using a straight cash auction. As the authors point out, the added benefits of using a non-cash auction to extract greater surplus are lost, and we are back to an all-cash auction. However, in my view this should be seen as a very positive result. Using the non-cash auction method could be a way of conducting an auction and obtaining an adequate price when bidders would otherwise be unable to enter the auction because of cash (or liquidity) constraints. As such, the non-cash auction achieves the exact purpose it was originally set up to do: sell the firm to the highest bidder for the best price possible even when bidders are (temporarily) constrained.

This comment is one that applies to much of the paper. Although the analysis is quite carefully done and will probably prove useful to future researchers, it tends to stray quite a bit from the original motivation that the authors provide for it. In short, they are looking at non-cash auctions, used when reorganizing or selling a firm, particularly one that is faced with bankruptcy (or is already in bankruptcy), as a way of doing a number of very different things. The first is this idea related to the earlier work by Hansen (1985), which is significantly extended here, that concludes that contingent auctions can be used to extract more surplus than cash auctions. A second is that non-cash auctions may be a very good way of selling off the assets of a firm to those who value it highly but might be cash constrained and so would otherwise be unable to bid for the firm. It is not clear what the relationship between these two goals is. Whereas the original motivation for the paper seems to be the latter, the authors spend most of their time analyzing the former and extending results from that literature. In addition, there is also some discussion in the text of how a model of this kind can explain the use of convertible securities in reorganization plans. Although this discussion is enlightening, the paper is not really one of optimal security design. In other words, it is not clear, even within the context of the model, whether any of the securities analyzed, including convertible debt, are uniquely optimal bidding instruments. There may be a number of reasons outside the model why convertible debt often forms a part of a reorganization plan.

The problem is that the authors never really come back to the issue of whether this procedure is better when bidders are financially constrained. There are some strong inefficiency results in the paper that would suggest that a non-cash auction may not work as well as anticipated and that a pure cash auction, when bidders are not constrained, would be superior. This is interesting, because other work has suggested that "full extraction" might be possible by the seller using this type of auction. However, it is not clear at

what point the non-cash auction would be better than the cash auction if we take the original motivation at face value: some bidders may be cash constrained and unable to enter the auction. It would be interesting to see an explicit modeling of the constraints faced by the bidders, so that one could see how, as the constraints are loosened or tightened, one auction form may dominate over the other.

This discussion also brings up one other minor comment. If we go back to the original motivation of cash-constrained bidders, and use a model of this kind to ask whether more money can be raised by the seller using a non-cash auction, then it is not clear why the efficiency of the auction is the relevant benchmark to use. Efficiency may be an ideal outcome, but from the seller's point of view, profit maximization may be much more important, and this may be better achieved by increasing the number of potential bidders via a contingent (non-cash) auction. In fact, much of the literature on cash auctions recognizes that optimal (i.e., revenue maximizing) auctions may fail to be efficient, so that even in a cash auction efficiency may not be warranted.³ However, there is one reason why efficiency may be more important in this setting than in an all-cash auction. With a contingent auction, the payoff of the securities bid will depend on the valuation of the bidder. Therefore, securities from bidders with high valuations, all things being equal, will be worth more than those from bidders with low valuations. Therefore, an efficient auction may also more closely coincide with an optimal auction when bidders are allowed to bid with contingent securities.

On a minor technical note, there is an issue that one of the paper's main inefficiency results may hinge on whether the distribution of types of bidders is continuous and nonatomic. Although I have not studied this in detail, it seems that Theorems 2 and 3, the main inefficiency results, rely on the fact that in any separating equilibrium, the lowest type bidder, $\underline{t}$, must have a zero probability of winning the bid as long as there are $N \geq 2$ potential bidders. This occurs because a bidder of type $\underline{t}$ must know that with probability 1 any other bidder will have a higher valuation for the firm. Therefore, restricting attention to equity auctions (Theorem 3), if in equilibrium a bidder of type $\underline{t}$ were to bid below a 100 percent equity stake, she would always be willing to raise her bid to mimic a competitor and improve her probability of winning the auction. If there were, however, a positive mass of bidders of the lowest type (such as if there could only be a finite number of bidder types), the argument of the theorem would no longer hold, and it is not clear whether the result would hold more generally. This occurs because with a finite number of bidder types, the probability that all other $N - 1$ bidders have a similarly low valuation for the firm, $\bar{v}(\underline{t})$, remains

³ There is a recent paper by Ausubel and Cramton (1999) that suggests reasons why optimal auctions subject to ex post renegotiation or trading may necessarily have to be efficient. Therefore, the often complicated problem of designing the optimal auction can be easily implemented with the simpler procedure of designing an efficient auction.

positive. This would imply that the probability of winning for the lowest type bidder ($\underline{t}$) is not strictly zero, so that the result as demonstrated would not hold with a finite number of types.⁴

To summarize, I think that this article delivers a number of results that should prove useful to other researchers working on corporate reorganizations. Given the debate in the literature concerning the best way to sell off a bankrupt firm, the careful investigation of non-cash auctions is timely and should have broad applicability. The paper also raises a number of intriguing questions, some of which have been highlighted above, that need to be considered in future research to have a better understanding of the issues involved.

REFERENCES

- Ausubel, Lawrence, and Peter Cramton, 1999, The optimality of being efficient, mimeo, University of Maryland.
- Cr  mer, Jacques, 1987, Auctions with contingent payments: Comment, *American Economic Review* 77, 746.
- Hansen, Robert, 1985, Auctions with contingent payments, *American Economic Review* 75, 862–865.

⁴ However, there are reasons to believe that the argument would hold in this setting as well. In any separating equilibrium of the auction game it must be true that all bidders of the lowest type must make zero profits from the auction. The only way this can be accomplished is if a bid of 100 percent equity is part of their optimal strategy (which is likely to be a mixed strategy over equity bids), so that other higher type bidders may have no way of differentiating themselves with just equity. But this is only a conjecture and may warrant further investigation.