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A Solution to the Collective Action Problem in Corporate Reorganization

Eric A. Posner & E. Glen Weyl¹

September 5, 2013

Abstract. The voting rules in Chapter 11 are supposed to ensure that debtor firms are appropriately liquidated or reorganized. However, these convoluted and internally inconsistent rules are poorly designed to produce such outcomes, and there is no evidence that they do. However, the major proposals for reform, including auctions and options-trading, neglect the fundamentally collective nature of choices in reorganizations. We argue that a more appealing reform is the improvement of voting rules through the use of an economically efficient procedure known as quadratic voting, according to which stakeholders may cast a number of votes equal to the square root of the liquidation value of their claims. We discuss how quadratic voting could be implemented through reform of Chapter 11 and the advantages it would bring.

Chapter 11 of the Bankruptcy Code has received criticism from many quarters, including from academics and practitioners. A few decades ago, the complaint was that Chapter 11 gave too much power to managers and shareholders, who used threats of delay to extract concessions from creditors. Today, the complaint is that Chapter 11 cannot handle the array of sophisticated investors, including hedge funds, who can manipulate existing rules to obtain control over the proceedings while often profiting at the expense both of other creditors and of the debtor. In both settings, the problems can be traced to Chapter 11's complex and convoluted voting rules, which gave some creditors the power to hold up proceedings unless they received a payoff and other creditors the power to isolate and exploit minority interests.²

Unhappiness with Chapter 11 has produced a rich and sophisticated set of proposals for reform. Almost thirty years ago, Douglas Baird argued that the voting system of Chapter 11 should be eliminated and replaced with auctions.³ A few years later, Lucian Bebchuk proposed an elegant system of options-trading, under which junior creditors and interests receive options to buy out the interests of senior creditors, and then a simple majority vote is held to determine

¹ Kirkland & Ellis Professor of Law and Assistant Professor of Economics, University of Chicago. Thanks to Anthony Casey, Ed Morrison, and participants at a workshop at the University of Chicago Law School, for helpful comments.

² For a critical analysis of them, see Kevin A. Kordana & Eric A. Posner, A Positive Theory of Chapter 11, 74 N.Y.U. L. Rev. 161, 162-163 (1998).

³ Douglas G. Baird, The Uneasy Case for Corporate Reorganizations, 15 J. Legal Stud. 127 (1986); Douglas G. Baird, Revisiting Auctions in Chapter 11, 36 J. L. & Econ. 633 (1993). A literature on the design of auctions in bankruptcy has emerged in the wake of these articles; see, e.g., Robert G. Hansen & Randall S. Thomas, Auctions in Bankruptcy: Theoretical Analysis and Practical Guidance, 18 Int'l Rev. L. & Econ. 159, 169 (1998).

whether the firm is liquidated or reorganized.⁴ Numerous other proposals followed in their wake.⁵

In this paper, we identify an important limitation in previous proposals: that they neglect the fundamental collective action problem in reorganizations. We then draw on a literature in economics that proposes efficient procedures like those proposed by Baird and Bebchuk, but geared to collective, rather than individual, decisions. In particular, we propose a different voting procedure for approving Chapter 11 plans. Our argument draws on the literature on mechanism design,⁶ and more specifically on a procedure developed by one of us known as Quadratic Voting (QV).⁷ Under QV, voters buy votes by paying the square of the number of votes they cast, and then receive a pro rata share of the total amount collected; the proposal that receives a majority of votes prevails. QV is a method that can be used in any setting where a group must make decisions collectively;⁸ under reasonable conditions, it ensures that a project or plan approved by members of a group is efficient in the sense that those who win the vote gain more than those who lose the vote. QV is well suited to Chapter 11 where the major goal is to ensure that the reorganization plan is efficient—that a firm is reorganized if and only if its going-concern value exceeds its liquidation value, and that the best reorganization plan is chosen.

Furthermore, we adapt QV to the Chapter 11 context to attend to the distributional goals of bankruptcy proceedings: preserving pre-existing entitlements. Bankruptcy begins as usual: the automatic stay issues, and a bankruptcy court resolves and catalogs claims. Creditors whose holdings exceed a threshold may propose plans. Once the plans are on the agenda, creditors vote on them using a variant of QV, under which creditors are given a number of votes equal to the square root of the value of their claims, and may allocate those votes in favor or against one or more of the plans. Because, as happens frequently at present, claims can be traded previous to the allocation of such voting rights, such a system leads effectively to QV.⁹ A second vote is taken between the winning plan and liquidation. If the firm is liquidated, priority rules are observed.

We show that this procedure maximizes ex post receipts to claimants while providing adequate protection to prebankruptcy entitlements. Our procedure improves on Chapter 11 because the Chapter 11 voting rules do not maximize ex post efficiency and they allow for excessive transfers between creditors. Our procedure improves on the Baird and Bebchuk approaches because, unlike those approaches, it ensures the post-bankruptcy ownership is

⁴ Lucian Arye Bebchuk, *A New Approach to Corporate Reorganizations*, 101 *Harv. L. Rev.* 755 (1988); Lucian Arye Bebchuk, *Using Options to Divide Value in Corporate Bankruptcy*, 44 *Eur. Econ. Rev.* 829 (2000).

⁵ For a sample of the literature, see Barry E. Adler, Vedran Capkun, & Lawrence A. Weiss, *Value Destruction in the New Era of Chapter 11*, *J. L. Econ. & Org.* 1 (2012); Philippe Aghion, Oliver Hart, & John Moore, *The Economics of Bankruptcy Reform*, 8 *J. L., Econ., & Org.* 523 (1992); Mark J. Roe, *Bankruptcy and Debt: A New Model for Corporate Reorganizations*, 83 *Colum. L. Rev.* 527 (1983); Barry E. Adler & Ian Ayres, *A Dilution Mechanism for Valuing Corporations in Bankruptcy*, 111 *Yale L.J.* 82 (2001).

⁶ See, e.g., Alvin E. Roth, *What Have We Learned from Market Design?* (National Bureau of Economic Research, Working Paper 13530, 3007), available at <http://www.nber.org/papers/w13530>.

⁷ E. Glen Weyl, *Quadratic Vote Buying*, Univ. of Chic. Dept. of Econ. (2013).

⁸ See, e.g., Eric A. Posner & E. Glen Weyl, *Quadratic Voting as Efficient Corporate Governance*, U. of Chic. Coase-Sandor Inst. L. & Econ. Research Paper No. 643 (2013); Scott D. Kominers & E. Glen Weyl, *Concordance Among Holdouts*, *Harv. Inst. of Econ. Research Discussion Paper* (2012).

⁹ See Posner & Weyl, *supra*.

allocated in a collectively efficient manner by allowing creditors to coordinate their behavior, aggregates information among stakeholders and respects liquidity constraints. It thus achieves the economic efficiency of these reform proposals without sacrificing the fundamentally collective nature of current bankruptcy proceedings.

Part I of this paper briefly discusses current law and academic proposals for reform. Part II discusses QV and how it can be applied to Chapter 11. Part III addresses the recent literature on the failings of Chapter 11, including the perverse incentives created by derivatives, and the enhanced role of hedge funds. QV would not solve all these problems, but it would ameliorate them by reducing parties' incentives to contract around the defective voting system in current law.

I. Voting in Chapter 11 and Its Problems

A. The Voting System

Chapter 11 provides that creditors and shareholders must approve any reorganization plan. The reorganization plan describes the new firm that will emerge from Chapter 11 and how it will be approved. Thus, the plan might include (1) a description of assets that the firm will shed or acquire; (2) layoffs and hires; (3) the new capital structure of the firm; (4) the identities of managers; (5) payouts to creditors; and (6) the classification of creditors and shareholders into voting groups. The voting groups or classes must comply with certain requirements; creditors must be classified according to priority, and creditors with similar interests (for example, trade creditors) must be put in the same class.

To understand the voting system, imagine that stakeholders include 10 trade creditors who are each owed 100, 10 bondholders who are each owed 50, 3 banks who are, respectively, owed 200, 200, and 800, one secured creditor who is owed 1,000, and 50 shareholders. The plan would most likely divide these stakeholders into a class of trade creditors; a class of bondholders; a class of banks; a class consisting of the single secured creditor; and a class of shareholders.

Each class votes separately. Approval has two requirements. First, a majority of the creditors in each class must approve the plan. For example, at least 6 trade creditors, 6 bondholders, and 2 banks must approve the plan in their respective classes. Second, creditors with a supermajority of claims in dollar amount must approve the plan. For example, at least 7 trade creditors must approve the plan in order to exceed the threshold of \$667, which is roughly 2/3 of \$1,000, the aggregate of their claims. The bank class can approve the plan only if the large creditor with a claim of 800 votes yes. So taking the requirements together, one can see that 7 rather than 6 trade creditors and bond holders must approve the plan, and that two of the three banks can approve the plan only if one of the two is the large creditor. The secured creditor must approve the plan because it alone determines the vote of its class.

The plan is approved if either all classes approve it or, under the cramdown procedure, all but the lowest priority classes approve it, while at least one impaired class approves it. For

example, the plan could be approved over the objections of the shareholders if they alone oppose it. In theory, the plan could be approved even if all the unsecured creditors oppose it as long as the secured creditor supports it. The bankruptcy court also retains discretion to veto a plan that discriminates against people unfairly, or that is unlikely to succeed.

For quite some time, academics have been dissatisfied with this voting regime. This dissatisfaction flowed from widely shared observations about the empirical results of Chapter 11: large-firm reorganization frequently resulted in equity receiving value (in violation of prebankruptcy entitlements), managers staying in office (despite their role in bankrupting the firm), and massive delay. To understand what is wrong with the system, start with the premise that the purpose of voting is to ensure that the most efficient plan is chosen. Often, the major question is whether a firm should be liquidated or reorganized. The optimal voting system would result in approval of a reorganization plan only if reorganization maximizes the value of the firm. At the same time, bankruptcy law assumes that pre-bankruptcy entitlements, including creditor priorities, are respected.¹⁰ Thus, the voting system should ensure (1) the best plan (including liquidation) that (2) respects pre-bankruptcy entitlements.

To understand why the current system does not generate the optimal outcome, consider two extreme forms of voting.¹¹ At one extreme, a reorganization plan is approved if and only if all stakeholders vote in favor of it; otherwise, the firm is liquidated. The superficial attractiveness of a unanimity scheme is that a plan will be approved only if it is efficient—everyone must be better off relative to the status quo, and that can be the case only if reorganization generates a surplus over liquidation. The obvious defect with a unanimity rule is that even a single voter can threaten to block an efficient plan by threatening to vote against it, and could demand a disproportionate share of the surplus in return for a favorable vote. Any of potentially thousands of stakeholders can follow this strategy, leading to impasse. Even if such a stakeholder were not acting strategically, individuals differ in their preferences, information, and beliefs and economists have shown that unanimity nearly always leads to paralysis under these conditions.¹² As a result of the paralysis, the firm would likely lose value, harming everyone. Decision costs defeat a system of unanimity for any large group.

At the other extreme, one can imagine a “dictatorship” system where a reorganization plan is approved if only one stakeholder votes in favor of it—perhaps, a stakeholder who is randomly selected or chosen by the bankruptcy judge. Decision costs are now extremely low; the dictating stakeholder chooses on its own and may ignore the objections of other stakeholders. Moreover the dictator will choose a plan that maximizes value just because it can allocate all of that value to itself. But the dictator will by the same token expropriate all the value from everyone else, destroying their pre-bankruptcy entitlement to a share of the liquidated or reorganized firm. If the dictator is prevented from choosing an arbitrary plan and is forced to

¹⁰ There is some controversy over how important it is to respect prebankruptcy entitlements (as reflected in the Absolute Priority Rule). For a defense of this assumption and a discussion of the literature, see Lucian Arye Bebchuk, *Ex Ante Costs of Violating Absolute Priority in Bankruptcy*, 57 *J. of Finance* 445 (2002).

¹¹ The analysis here follows that of Buchanan and Tullock in their general discussion of optimal voting rules in James M. Buchanan & Gordon Tullock, *The Calculus of Consent: Logical Foundations of Constitutional Democracy*, Liberty Fund, Inc. (1958).

¹² See George Mailath & Andrew Postlewaite, *Asymmetric information Bargaining Problems with Many Agents*, 57 *The Review of Economic Studies* 351, 367 (1990).

respect other stakeholders' claims, she may well choose an inefficient plan that allocates more value to her. For that reason, dictatorship is also an unacceptable solution to the problem of bankruptcy voting.

Now consider a rule of simple majority rule—where the majority of creditors chooses the plan or, as an alternative, the creditors who collectively hold the majority of claims choose the plan. Majority rule limits decision costs because those who seek to hold out for excess value by threatening to vote against the plan may find themselves in the minority. Thus, the incentive to hold out is greatly reduced. Moreover, majority rule ensures that most creditors (or creditors holding more than half the value of the claims) are paid off.

Yet majority rule is also seriously deficient. The reason is that the majority can simply agree to expropriate the pre-bankruptcy entitlement of the minority. Moreover, to avoid expropriation creditors will form coalitions with each other while trying to peel off individuals from other coalitions—so it turns out that decision costs under a system of majority rule can also be quite high.

The actual voting rules of Chapter 11 can be seen as a schizophrenic back-and-forth movement in response to the twin problems of decision costs and expropriation. Start with the basic rule of majority, as a rough effort to minimize these joint costs. But then large creditors receive special protection (voting by magnitude of claims) so that small creditors do not expropriate their entitlements, while small creditors receive special protection (voting by creditor) so that large creditors do not expropriate their entitlements. The supermajority rule for aggregated claims adds further protection to small creditors. Thus, the system is effectively one of supermajority of varying magnitudes depending on the distribution of preferences. The equal treatment rule further reduces the risk of expropriation, but the right to put creditors in different classes and treat classes differently avoids a rigid straightjacket and thus reduces decision costs while raising the risk of expropriation. Cramdown also reduces decision costs, but the rule that it must respect priorities reduces the risk of expropriation. The whole thing is a mess, and it is no surprise that there is so much dissatisfaction with Chapter 11.¹³ It is possible that this mess is preferable to simpler voting systems because of all the flaws that these have. But no one believes it is anywhere near efficient, optimal, or even good at protecting against expropriation.

B. Academic Proposals for Improving Chapter 11

Academics have made a number of proposals for improving Chapter 11. We do not provide a complete survey here, and instead focus on Baird's auction approach and Bebchuk's options approach, which are canonical in the literature.

1. Auctions

A simple and appealing alternative to Chapter 11's voting system is an auction.¹⁴ A firm would enter bankruptcy and benefit from the automatic stay as under current law. But the next step would be different. The bankruptcy court would simply auction off the firm. Managers,

¹³ See Kordana & Posner, *supra*, for further discussion of the voting rules.

¹⁴ Baird, *supra* at 3.

creditors, outside investors like private equity firms, and other firms could submit bids. The highest bidder would win. The proceeds from the auction would be distributed to creditors on the basis of priority, and otherwise pro rata.

The rationale for an auction is that it provides strong incentives to reorganize the firm efficiently. Ex post, the auction winner will liquidate or reorganize the firm in such a way that maximizes value, just as any owner of a firm would do.

However, there are a number of objections to auctions. Auctions work only if the various bidders can raise enough money to buy a large firm. But many firms are simply too large to buy. Buyers with enough spare cash are in short supply; creditors will be wary about lending money to buy a distressed firm where there is a great deal of uncertainty about the value of its assets.¹⁵ Furthermore, the initial owners of the firm owned it for a reason; they have risk-preferences and information that make them particularly good owners. And when firms are small enough to buy, there is another problem—which is that often very few outside investors will have the information and expertise necessary to make an informed bid, or the incentive to acquire the information. Investment banks will not gain enough money from purchasing Joe’s Plumbing Supply at a good price to justify investing in information about its prospects. Indeed, many if not all inside stakeholders will have only partial and private information about the optimal structure of the firm.

So regardless of whether firms are large or small, auctions are not likely to be optimal in bankruptcy. Indeed, if they were, it would be hard to understand why bankruptcies ever take place: distressed firms would just be purchased on the open market from creditors. The normal assumption of Chapter 11 is that many firms are too large to be purchased by single investors; if that is the case, the firms are effectively collective goods—in the sense that a party that votes for or against a reorganization plan unavoidably affects the payoff to other parties. And the purchase of a large corporation on the open market is an immensely complex, risky, and costly undertaking—one best avoided if possible. A different mechanism design approach is needed to address this scenario.

2. Options

Under the options approach advocated by Bebchuk,¹⁶ and subsequently by Aghion, Hart, and Moore,¹⁷ when a firm enters Chapter 11, all of the claims against it are canceled. Equity in the reorganized firm is distributed pro rata to senior creditors. Junior creditors (which we will use to refer to shareholders as well) are given options to buy out the equity now owned by the senior creditors at a dollar price equal to the value of the senior creditors’ claims. Any stakeholder in the company can then propose a reorganization plan. Once the proposals (or “bids”) are announced, the junior creditors can choose to exercise their options or not. Once options are exercised or (if they are out of the money) discarded, all stakeholders have equity, and they can then reorganize it however they want using a plan approved by the majority.

¹⁵ Andrei Shleifer & Robert W. Vishny, *Liquidation Values and Debt Capacity: A Market Equilibrium Approach*, 47 *J. Fin.* 1343 (1992).

¹⁶ Bebchuk, *supra* at 781-788.

¹⁷ Aghion, Hart & Moore, *supra* at 224-231.

The idea behind this proposal is to distribute the value of the reorganized firm according to pre-bankruptcy entitlements without requiring a bankruptcy court to determine what that value is. If junior creditors believe that the firm is worth more than the senior creditors' claims, then they can buy out the senior creditors and enjoy the residual, as they are entitled to. If they do not, then the senior creditors obtain the residual. Senior creditors cannot object because their pre-bankruptcy rights entitle them to no more than the value of their claims, and to the residual if their claims are not fully satisfied. Junior creditors similarly obtain the residual to which they are entitled—which is zero if the company is not worth enough to pay off the senior creditors.

The options approach provides an ingenious way to resolve the conflicts of interest among creditors of different priorities without requiring a judicial determination of value. But it is vulnerable to the same objections as the auctions proposal is. First, junior creditors may individually lack the expertise or information necessary to exercise their options wisely. And while they may sell their options to specialists, the pool of specialists for any particular firm—aside from the largest and most important—is likely to be small. Thus, as a practical matter junior creditors will be undercompensated in bankruptcy.¹⁸ Second, junior creditors may not have enough cash to exercise their options, and if they try to borrow, they may have difficulty persuading creditors that the firm is as valuable as they believe it is.¹⁹ Finally, as we discuss below, the options approach treats the exercise of options as a completely individual, independent decision. Given that the eventual decisions made about the future of the firm are necessarily collective (and governed by majority rule), this is clearly not the case. In sum, the option approach, like the auctions, assumes away the problems that make bankruptcy necessary—constraints on liquidity, information asymmetries and coordination problems that necessitate that a firm be owned collectively by people with different risk preferences.

3. Why the Two Approaches Are Incompatible with the Premises of Bankruptcy

Although often understood as polar opposite approaches to reform, the Baird and Bebchuk proposals are fundamentally quite similar, and they both suffer from the same defects. In both approaches, reorganization takes place through what is essentially private bargaining, subject to very limited rules. Indeed, the two approaches do not require bankruptcy law at all: insolvent firms can be (and are) sold outside of bankruptcy, and Bebchuk's proposal could be implemented through private contracting in which junior debt securities and equity securities became options in the event of insolvency.²⁰ The difference is that in the Baird approach, the entire firm is put on the auction block, whereas under the Bebchuk approach, individual creditors are given the right to pay for a portion of the firm commensurate with the size of their claim.

Baird and Bebchuk implicitly adopt the premises of the Miller-Modigliani theorem,²¹ which holds that the value of a firm is independent of its capital structure. In reality, there is no

¹⁸ David A. Skeel, Jr. *Markets, Courts, and the Brave New World of Bankruptcy Theory*, 1993 *Wis. L. Rev.* 465, 480-81 (1993); Adler & Ayres, *supra* at 142-48.

¹⁹ Skeel, *supra* at 481; Adler & Ayres, *supra* at 142-48.

²⁰ For related ideas, see Barry Adler, *A World Without Debt*, 72 *Wash. U. L. Q.* 811 (1994).

²¹ Merton H. Miller & Franco Modigliani, *Dividend Policy, Growth, and the Valuation of Shares*, 34 *J. Bus.* 411 (1961).

single “value of the firm.” The value depends on which individuals hold which sorts of claims. For example, the firm’s value will be greater if high risk, equity-type claims are held by individuals who value such claims more and have information relevant to the upside potential of the firm, and if low-risk, debt-like claims are held by those who are more risk-averse and have information relevant to the chances of failure.²²

The value of the firm will typically be higher if those holding similar types of claims have similar risk preferences and information. The firm will have to make decisions (say between liquidation or partial liquidation and partial or total resurrection). Some decisions will be preferred by those with some risk preferences; others will preferred by those with other risk preferences. If types of holders are mixed, any decision will satisfy no one and lead to conflict; if a decision is made among members of a single holder type, then value will be higher and conflict reduced.

The correct decisions about the future of the firm depend on the complementarities between security holders and the firm’s operations or potential operations. It will typically be optimal for the firm to “play it safe” (likely leading to liquidation) if the firm (optimally) lands in the hands of people like the senior creditors. On the other hand, it will typically be optimal for the firm to make riskier decisions if the seniors are paid off or receive liens and residual payoff rights land in the hands of equity holders. Decisions with mixed ownership will lie in between and will lead to a lower overall value for the firm.

Because individuals are (heterogeneously) risk-averse, liquidity constraints are absolutely crucial; they are not just constraints, but fundamental risk-allocation devices. A solution requiring individuals to make large payments or large stakes is value destroying. Absent liquidity issues, Baird’s approach would work perfectly. But it would also work perfectly for one individual to purchase the firm, even before bankruptcy. All of the agency problems of corporate governance could then be solved through buyouts. And any firm heading towards bankruptcy could find an investor to simply buy the firm or borrow enough money to buy the firm before it enters bankruptcy. If, as was once the case but apparently no longer, managers are reluctant to sell because of the option value of the firm in bankruptcy, then bankruptcy law could consist simply of a rule that managers who refuse to sell an insolvent firm are sanctioned. Similarly, Bebchuk’s proposal would work if all creditors in a class made identical and perfectly coordinated decisions. But, of course, this is precisely the sort of coordination problem that voting is designed to solve. If a single individual junior creditor had or could borrow enough funds to buy out the senior creditors herself the proposal starts to sounds more plausible. However, in this case it is clearly problematic as (and we will provide an example of this in Subsection II.C below) under the Bebchuk proposal such a large junior creditor would only need to buy out 51% of senior creditor claims in order to obtain the controlling stake necessary to expropriate the remaining senior creditors in the next round. Furthermore, as emphasized above,

²² To be more precise, it is not the inherent risk-aversion of individuals that is crucial, but how the risks of failure and the benefits of the upside balance and thus help other risks in those individuals’ lives. This will depend on the stage of life they are at, their profession, nationality etc. See John Y. Campbell and Luis M. Viceira, *Strategic Asset Allocation: Portfolio Choice for Long-Term Investors* (2002), for a comprehensive modern discussion of optimal portfolios and Jean Tirole, *The Theory of Corporate Finance* (2010), for detailed discussion of optimal stake-holding for a corporation when the Modigliani-Miller Theorem fails.

the firm is held by many individuals precisely because no single individual wants to take on the informational and risk burdens of owning the whole firm. By ignoring this issue, the Baird and Bebchuk proposals miss the fundamentally collective nature of the reorganization and other governance problems.

In this way, the decision about who owns the firm is not an individualistic or atomistic decision that can be made by each holder separately, as in the Bebchuk version, where both junior and senior creditors can end up as equity-holders in the new form with identical rights when they prefer different rights, as reflected in their original holdings. Standard procedures in Chapter 11 try (albeit quite imperfectly) to treat the firm's ownership, as it should be treated, as a collective rather than individual problem, one that can preserve juniors as juniors and seniors as seniors in the reorganized firm. Any sensible reform must deal fundamentally with the collective problem and not just the individual problem.²³ Both the Bebchuk and Baird approaches assume away this problem under the guise of solving it.

The analogy to eminent domain is instructive here. Imagine there is currently a run-down area in a city and a group of wealthy individuals would like to buy out the neighborhood and turn it into a high-value, high-quality development. Clearly there are gains from trade here; the poor people can all get more than the land is worth to them as the rich are willing to pay more per-person. So why not just have each rich person buy a house from a poor person? Why do we need eminent domain?

The answer is that no rich person wants to move in unless the whole neighborhood is knocked down as otherwise there are threats of crime, poor infrastructure, bad amenities, etc. And there can always be holdouts among the poor. Thus, on both sides a collective action problem will stymie efficient repurposing of the land unless a centralized authority with coercive power that can coordinate action.²⁴ While it is less obvious to see in economic terms, because we are so used to thinking about a world where there is just a "value of the firm" from Modigliani-Miller, the problem is basically the same with bankruptcy. The firm might well be more valuable in the hands of, say, the junior creditors as they will run it in a more ambitious way for which they are collectively willing to pay more because they are less risk-averse than the senior creditors. However, none are willing to buy out the senior creditors individually because they know that if only a fraction of them exercise their option then the firm will be run in a risk-averse way by the remaining senior creditors who continue to control the firm. They face a collective action problem that makes every junior creditor subject to free riding by other junior creditors. As a result everyone is worse off under Bebchuk even than under the current rules of Chapter 11, which can aid coordination through voting.

II. QV in Bankruptcy

²³ Similarly, in an IPO, the function of the investment bank is to find the right mix of investors to own and govern the firm, taking into account the different risk preferences and capacities of different investors. Similarly, a developer of a commercial or residential real estate complex will rent or sell to the right mix of renters or buyers.

²⁴ This is an implication of Mailath & Postlewaite, *supra*.

In this Part, we explain how QV can be used to improve corporate bankruptcy. We start by explaining how QV works; we then incorporate QV into a bankruptcy procedure. We conclude with a discussion of possible objections to the procedure.

A. How QV Works

QV is a procedural device that aggregates the preferences of members of a group. It resembles ordinary voting, where each member casts one vote and the outcome is determined by the majority, but also includes features associated with auctions, where people signal the strength of their preferences by offering money in return for the thing being auctioned and try to outbid each other. The combination of features assures that the outcome is *ex post* efficient under reasonable conditions.

Under the standard QV procedure, a set of options is presented to voters. In the simplest case, voters are presented with a simple up-or-down vote on a particular option. The procedure can also be used for multiple options. Voters use their own money to pay for however many votes they want to cast. The price is simply the square of the number of votes that the voter chooses. For example, it costs \$1 to cast one vote, \$4 to cast two votes, and \$9 to cast three votes. The outcome of the vote is determined by majority rule. The money is collected and returned to voters on a pro rata basis. If \$100 is voted and there are 20 voters, then each voter receives \$5 regardless of how much she spent on voting herself. This basic procedure can be modified in certain ways to address strategic problems that address in specific contexts. But one can understand the underlying theory without going into these details.

Under reasonable conditions, QV ensures that the efficient outcome is chosen. More specifically, voters will cast a majority of votes for option X rather than option Y or Z if and only if the aggregate willingness-to-pay for option X exceeds the aggregate willingness-to-pay for any other option. The basic reason is that QV forces voters to cast votes in proportion to the intensity of their preferences. The more they care, the more money they will spend on votes. However, because the marginal cost of the next vote rises in proportion to the number of votes cast, even someone who cares a great deal will not spend an enormous amount. The greater number of votes enables them to increase their influence on the outcome, while the quadratic cost function ensures that they do not do so too cheaply. The precise reason for the quadratic function is best explained through mathematics or an example, which we do elsewhere²⁵—but for those who (like one of the coauthors) have some but limited mathematical competence the basic reason is that the derivative of a quadratic function is a linear function, and so at the margin voters will additional spending on votes will be in proportion to the benefit they expect to incur from shifting the probability of the outcome.

Finally, the money is redistributed pro rata to ensure that people's choice as to how much to spend on voting is unaffected by the prospect of receiving money back. Obviously, if one received the money one spends back, then one's spending will not be constrained. Under the pro rata system, it makes no sense to vote against one's interests in order to get money back because the amount one receives is unaffected by whether one wins or loses. There are nonetheless degrees of freedom as to how the redistribution should occur, as we will discuss below.

²⁵ Weyl, *supra*.

As applied to corporate governance, a shortcut version of QV can be used, which we have called Square-Root Voting (SRV).²⁶ In the normal shareholder context, SRV simply means that shareholders possess a number of votes equal to the square root of the number of shares they own, and then may cast these votes whenever their approval is needed. When a person buys shares in a company, she also buys the right to vote the square root of the number of shares that she buys—which is effectively the same as paying the square of the number of votes that one casts, as per QV. QV and SRV are effectively the same system, because the trading of entitlements allows individuals to acquire votes at a quadratic cost. This occurs even if votes may be traded independently of shares, a practice which, under current rules, is known to be highly problematic.²⁷ (In fact, in such a case the system works in a manner that taxes liquidity constraints less.) This robustness is an important additional benefit of QV. Our QV-based bankruptcy procedure relies on SRV, as will become clear below.

B. A QV-Based Bankruptcy Procedure

As we saw in Part I, the goal of corporate bankruptcy law is to maximize the value of the debtor while respecting the stakeholders' prebankruptcy entitlements. We cannot use the simple QV procedure described in Part A because, while it ensures value maximization, it does nothing to ensure that prebankruptcy entitlements are respected. To do that, we need to make QV class-based, as described below.

Our proposed bankruptcy procedure has three stages. They begin after the usual process in which the firm files for bankruptcy, and claims are identified and conflicts between them are resolved by the bankruptcy court. The bankruptcy court must also estimate the liquidation value of the firm; that figure plays a role in the determination of votes below.

Stage 1: Plan Proposal

Any stakeholder (shareholder or creditor) may propose a plan. The plan must comply with prebankruptcy entitlements; for example, it cannot pay senior creditors 90 percent of their claims and junior creditors more than 0 percent. The plan enters the agenda if its proponent (individually or with other senior creditors) has votes equal to the square root of five percent of the aggregate value of the claims. Anyone who signs the petition must commit the tokens, as discussed in the next stage, to the plan that she signs when she votes in Stage 2. Otherwise, in Stage 2 she may divide her tokens among different plans. If one creditor attempts to place an item on the ballot without any support from another creditor, she will need to have five percent of claims. For example, consider a large firm with \$1 billion in debt. The number of votes needed by a single firm to file a petition is 7,071 (the square root of five percent of 1 billion), requiring a \$50 million claim. For two firms with equal claims, each would need to supply 3,536

²⁶ Posner & Weyl, *supra*.

²⁷ Henry T. C. Hu & Bernard Black, *Equity and Debt Decoupling and Empty Voting II: Importance and Extensions*, 156 U. Pa. L. Rev. 625 (2008); Eddie Dekel & Asher Wolinsky, *Rationalizable Outcomes of Large Independent Private-Value First-Price Discrete Auctions*, Discussion paper // Center for Mathematical Studies in Economics and Management Science, No. 1321 (2001).

votes, which would mean that each firm has a claim of \$12.5 million.²⁸ In the case of ten firms, each firm would need a claim of only \$500,000. Among 100 creditors, the figure would be \$5000 per creditor. Thus, as support for a plan becomes broader, the aggregate amount of the claims needed to support the plan declines (at an inverse rate).²⁹

Stage 2: Voting Among Plans

If more than one plan reaches the agenda, a vote is held among those plans. Creditors are permitted to vote; shareholders are not (unless they become creditors by buying claims). Creditors are each given a number of tokens equal to the value of their claims under liquidation. Any tokens committed in Stage 1 must be voted for the plan to which they were committed. Tokens may be used to purchase votes for or against any plan; the cost in tokens of votes is the square of the number of votes purchased for or against any given plan. Thus, a creditor with a claim of 100 would receive 100 tokens, which would allow it to cast 10 votes in whatever way it wants to allocate them for or against the plans. However, tokens are more effective if spread over more plans, because of the square root rule. One hundred tokens purchase 10 votes if all are cast for or against a single plan, but if divided into for pieces to vote in favor of or against four different plans would generate 5 votes on each plan for a total of 20 votes. If no plan receives a positive number of votes, the firm is liquidated. Otherwise, the plan that receives the most positive votes (on net) is the winning plan.

Stage 3: Voting on Liquidation Versus Plan

The winning plan is matched up against liquidation. Creditors are given a new set of votes equal to the square root of the liquidation value of their claims. These votes can be cast either for the selected plan or for liquidation. The option that receives the majority of votes prevails. If the firm is liquidated, the proceeds are distributed according to pre-bankruptcy entitlements—by priority, and pro rata within each layer of priority.

C. Explanation

The purpose of the QV procedure is to ensure that the ex post value of the debtor is maximized through the proper choice of liquidation or reorganization, while departures from pre-bankruptcy entitlements are minimized. The theory can best be explained by moving through the stages backward.

Stage 3 guarantees that the firm will be liquidated if its liquidation value exceeds its going concern value. To see why, suppose that liquidation would give 20 creditors 10 each, and that the proposed plan would give 15 creditors a payoff of 11, and 5 creditors a payoff of 0. Thus, $LV = 200$, and $GC = 165$. Five creditors gain 20 each from liquidation relative to the plan, while 15 creditors gain 1 each from the plan relative to liquidation. This is the sort of the case that creates the risk of an inefficient reorganization driven by the fact that a supermajority of participants hope to gain at the expense of a minority.

²⁸ $3,536^2 = 12,503,296$.

²⁹ That is, if 10 times as many people support the plan, the total claims they need are one-tenth the size.

Each of the twenty creditors starts off with the same number of votes because their claims all have the same liquidation value: specifically, each has $5 \cdot \sqrt{20} = 44.7$ votes. However, because each pro-liquidation creditor gains much more by being the pivotal voter (20) than each pro-plan creditor does (1), the pro-liquidation creditors will buy claims from the pro-plan creditors. For example, if both types of creditor believe that an extra vote will increase their chance of prevailing by 1 percent, the pro-plan creditor will value that vote at only 1 cent, while the pro-liquidation creditor will value that vote at 20 cents. The pro-liquidation creditors will (individually, without coordination) buy up votes until they have at least a majority, and hence liquidation will be chosen.

Note that claims-trading can also occur in Chapter 11, and claims-trading can also result in the efficient outcome, but that, unlike under the QV procedure, this is not guaranteed. The reason is that under Chapter 11, the pro-liquidation creditors will free-ride on each other; they do not individually have the correct incentive to buy up votes.

Stage 2 ensures that the most efficient of the proposed plans is selected—subject to Stage 3. This is important. If a plan is proposed in Stage 2 that gives some creditors less than their liquidation value, then those creditors will buy votes in favor of liquidation at Stage 3. Thus, at Stage 2 voters will avoid voting for plans that violate pre-bankruptcy entitlements (in the sense of giving creditors less than the liquidation value of their claims). Instead, they will select among plans that do not violate pre-bankruptcy entitlements, and choose the one that, subject to this constraint, maximizes the ex post value of the firm.

The purpose of Stage 1 is to ensure that creditors do not propose an excessive number of plans for strategic reasons. Stage 1 ensures that plans that reach the agenda have strong support in aggregate—either from a small number of very large creditors, or a large number of somewhat smaller creditors. Because creditors who propose a plan at Stage 1 must cast their votes for that plan at Stage 2, they will only propose plans that serve their financial interest.

Let us now turn to some more concrete examples, which illustrate the way that the QV procedure works and why it is superior to the other approaches.

There are 1000 senior creditors and a single junior creditor. Each of the senior creditors has an equal claim and the single junior creditor has 51% of all the claims. (For example, the firm is worth \$1 million; the junior creditor has a claim of \$510,000; and each senior creditor has a claim of \$490.) A plan is on the table that would avoid liquidation and restructure the company. This creates value GC for the junior creditor and 0 for all the senior creditors. On the other hand, liquidation creates value l for each senior creditor, where l equals the senior creditor's claim, and value L for the junior creditor. It is ex-post efficient to restructure if and only if $GC > 1000l + L$.

Under Bebchuk's approach, the junior creditor will convert its junior claim into a senior claim if and only if $GC > 510l + L$. By exercising all its options (which are in proportion to his share of the claims), the junior creditor pays off 510 senior creditors in full and obtains their senior claims. It then will have a controlling stake that it can use to restructure even if the remaining senior creditors object. Clearly, this allows for inefficiency if $1000l + L > GC >$

$510l + L$. Moreover, even when reorganization is efficient, the single junior creditor may not exercise her option because she cannot raise capital to pay off the seniors in cash. Thus when the single junior creditor is not liquidity constrained she may opportunistically exploit the Bebchuk scheme and when she is it is inefficient. As noted in Subsubsection I.B.3 above, furthermore, the case of a single junior creditor is in some sense the best for the Bebchuk proposal, as it avoids the collective action problems mentioned there.

Under Chapter 11, the junior creditor would need to obtain a supermajority of senior claims in order to win, plus a majority in terms of creditors. In order to obtain a supermajority of claims, the junior creditor would need to buy out 667 senior creditors; but in order to obtain a majority in terms of creditors, the junior creditor would need to buy out *all* of the senior creditors.³⁰ The seniors would be unwilling to sell for less than l as they would each know that retaining their shares would guarantee them l . Thus the junior would make the efficient decision and the outcome would respect pre-bankruptcy entitlements. But bargaining costs may well be high, some seniors may hold out and the junior creditor will have to raise enormous funds to succeed in an efficient restructuring.

Under the QV procedure, the junior creditor receives tokens of L , plus l additional tokens for each claim she buys from the senior creditors. To prevail, the junior creditor needs x of the seniors' shares where $\sqrt{L + xl} > (1000 - x)\sqrt{l}$.³¹ Suppose that $L = 200l = 200,000$. Solving for x , the junior creditor must buy out 967 of the 1000 senior creditors to succeed. While this does not literally force her to buy out every creditor, the chance that a few hold-outs will be left effectively forces her to pay near l to every senior. She is thus very unlikely to succeed unless her proposal is efficient, especially given that any of the remaining senior creditors can compete with the junior creditor in the claims market at a much more reasonable rate to stop her from gaining such dominance. Each of them can effectively buy votes at a much lower rate as there are many more of them. Note that to win she needs a vast supermajority of the claims, even though among the seniors she still is in the minority in terms of people. Thus our proposal has many features similar to existing rules in this case and contrasts sharply with Bebchuk. However, if the junior creditor offers a plan that promises, under reorganization, the senior creditors a deal worth more on average to them than l , she will succeed because the senior creditors themselves will vote her plan in; creditors who feel strongly about the reorganization will benefit from buying claims optimally from others who know or care less.

While in principle she could follow the same strategy under current Chapter 11 rules, if she has the flexibility to give greater payouts to some creditors than others she may be able to exploit those who do not form part of the super-majority by offering the favored creditors just enough for her plan to succeed. And if she is prevented from doing so then she will be unable to pay-off exceptionally pessimistic senior creditors. In this case, pessimism about the ability of the firm reorganized under the junior creditor's management to repay the senior creditors by a

³⁰ To see why, even if the junior creditor bought out 999 senior creditors, there would then remain two creditors—the junior and the remaining senior, and so the best the junior creditor could get would be a tie with the other senior creditor.

³¹ The first term is the number of votes the junior has based, on the fact that he has his own claims (L) plus the senior claims he bought (xl), all square rooted. In the second term, the parenthetical expression shows the remaining senior creditors; each can vote the square root of its claim.

relatively small number of senior creditors could scupper a plan that the majority of senior creditors strongly believe makes them better off. Or she will be forced to raise enough funds immediately to pay off all the seniors in cash, which is subject to the same liquidity concerns that undermine the Baird approach. QV avoids these difficulties because it ensures the decision is always ex-post efficient among the senior creditors.

Let's consider a second example. Now suppose that there are 1000 senior and 1000 junior creditors, each with equal shares and equal claims. Under liquidation seniors get c , which is their full claim, and the juniors get $c/2$, half of their claim. The creditors disagree on what they get under restructuring. All of the juniors and 50% of the seniors are optimistic/risk-seeking and believe that under the plan the juniors receive (a certainty equivalent of) c while the seniors get $1.5c$. Half of the seniors are pessimistic/highly risk-averse and believe that under restructuring each will receive a certainty equivalent of $.25c$. Thus, $LV = 1500c$. If the optimists/risk-takers are correct, $GC = 2500c$, while if the pessimists are correct, $GC = 250c$. Because the optimists outnumber the pessimists by three to one, it is likely that the optimists are correct in their assessment.

Under Chapter 11, the plan will fail. If no claim-trading occurs, then the pessimistic seniors can block the plan by voting their claims, preventing the optimistic seniors from obtaining the majority they need to prevail. If claim-trading does occur, the problem is that the optimistic senior creditors believe that they gain only $0.5c$ relative from avoiding liquidation, while the pessimistic creditors believe that they gain $0.75c$ from forcing liquidation, so trading among senior creditors will not take place.³² Thus liquidation will almost certainly occur.

Under Bebchuk's approach, every junior is willing to buy out every senior so that plan goes forward. Juniors receive only $c/2$ under liquidation. By exercising their options, they force all seniors to accept c in cash (displeasing the optimists but satisfying the pessimists), while receiving shares in the reorganized firm that they (the juniors) believe is worth c . In this case, Bebchuk's approach yields the efficient outcome (assuming that the junior creditors can raise capital to pay off the seniors), while Chapter 11 does not.

Under the QV approach, the efficient outcome will also be achieved. Consider a plan that pays c to all creditors (and assume for the moment no claim-trading). At stage 3, the pessimists will vote for liquidation, but they will clearly be outvoted by the optimists—who substantially outnumber them both in terms of number and value of claims. Thus, at stage 2 a plan that is ex post efficient will also prevail, and at stage 1 creditors have an incentive to propose such a plan.

However, there is a slight chance that the pessimistic seniors will engage in share trading that could endanger the efficient outcome. The pessimistic seniors might buy up claims from other creditors because they have (in their eyes) more to lose from liquidation ($0.75c$) than the other creditors ($0.5c$). This scenario is unlikely—because the pessimists would need to buy up claims in order to prevail but then end up holding claims to a firm that they is worth little—but it

³² Note that the junior creditors could join in to pay off the pessimistic senior creditors but only if bargaining costs are sufficiently low, in which case all of the procedures are identical in effect, as per the Coase theorem.

cannot be ruled out because QV achieves efficiency only with very high probability, not with certainty.³³

We should also mention how Baird's approach would fare in these examples. The problem with auctions is that an individual (or syndicate) must raise money to buy out all the creditors. If they can do so, and then sell claims in the reorganized firm back to the relevant stakeholders who should optimally control the firm outside bankruptcy, the optimal outcome will be achieved. But frequently, for large corporations, this will be impossible. Furthermore, the costs of "remarketing" the shares, debt claims, etc. to the "right" owners afterwards will be high: initial public offerings usually cost 7% of the value of the firm and debt issuance can cost similar amounts. Moreover, the auction approach does not enable individual creditors to aggregate their (partial) information through voting, and thus on average should produce less efficient outcomes than an approach that aggregates information. Thus the auction process can only, in a highly uncertain and costly manner, hope to achieve as efficient an outcome as the one that could be collectively determined by the creditors under QV.

The bottom line is that QV and Chapter 11, but not the Bebchuk and Baird procedures, allow for the aggregation of information and coordination of decisions among dispersed stakeholders and minimize the need for borrowing, which may be difficult given liquidity constraints. Under Baird's approach, the bidder or bidders have no way of obtaining the creditors' insider information. Similarly, under Bebchuk's approach, each junior creditor independently exercises its auction and does not convey its assessment of the firm's prospect to others. By contrast, under QV and Chapter 11 creditors aggregate information by voting. QV and Chapter 11 are thus authentic collective decision-making procedures that are justified just because ordinary market transactions cannot lead to the efficient outcome. The Bebchuk and Baird procedures assume away the problems that they purport to solve.

As between QV and Chapter 11, the advantage of QV is that it ensures ex post efficiency whereas Chapter 11 does not. A supermajority of creditors can agree to a plan that is not ex post efficient, and will do so as long as they can expropriate enough value from the minority. In the simplest case, the supermajority may slightly prefer reorganization whereas the minority is greatly harmed by it relative to liquidation. Perhaps more commonly, supermajority rules among many classes create holdout possibilities, impeding efficient restructuring plans. By contrast, under QV in such a case the minority will outvote the supermajority if and only if their plan is efficient, avoiding both tyrannical expropriation and obstructionism by the supermajority.

Moreover, Chapter 11 and QV have similar impacts on prebankruptcy entitlements. Chapter 11 ensures that priority rules are at least respected for liquidation values—that a junior creditor will not be paid if a senior creditor does not receive at least liquidation value—but allows creditors to divide any surplus beyond that. Under the QV approach, the proposal that will be selected in stage 2, among all efficient proposals, is the one that minimizes the maximum loss any creditor believes she will take from the proposed plan relative to liquidation as this minimizes the chance anyone will kill the efficient proposal as discussed in the examples above. Thus, violations of prebankruptcy entitlements will be minimized but not eliminated. But QV

³³ The inefficiency that is possible is precisely of this form: that an individual extremely opposed to the "correct" action will scupper it by buying up a large number of claims to oppose it. See Weyl, *supra*.

allows such violations only where the gains from a more efficient reorganization are large. Both procedures allow priority rules to be violated for the surplus above liquidation value—but whereas for Chapter 11 these violations will largely be arbitrary, for QV they will advance ex post efficiency.

As noted, the Bebchuk approach throws out gains from aggregating information and coordinating behavior and unrealistically assumes away liquidity constraints. Thus, it will frequently produce ex post inefficiency. Moreover, the Bebchuk proposal allows violations of prebankruptcy entitlements. Junior creditors can easily buy up 51 percent of the senior claims, forcing the remaining 49 percent to receive equity in the reorganized firm. Then the junior creditors (now 51 percent of shareholders) can expropriate or partially expropriate the senior creditors (now 49 percent of shareholders) through majority rule. Thus, the Bebchuk approach is inferior to QV along both dimensions—maximizing ex post efficiency and respecting prebankruptcy entitlements.

Finally, the Baird proposal does preserve prebankruptcy entitlements, and thus along this dimension is superior to the other three procedures. But because it assumes away liquidity constraints, the advantages of information aggregation and the costs of remarketing claims, it cannot produce ex post efficiency in those circumstances where bankruptcy is necessary.

We can gain greater insight into the relative advantages of the four procedures by pursuing the analogy of eminent domain mentioned earlier. Suppose a part of town includes buildings that are currently owned by mix of poor and middle-class homeowners, and small businesses. A developer determines that the property would be worth more if owned by wealthy homeowners and high-end businesses. The developer's task is to facilitate the sale of properties from the current owners to the future owners.

Under an unregulated market system, the developer would have no role at all—and often this may be the case. The high-end households and businesses simply enter transactions with the low-end households and businesses on an individual basis, until all the properties are transferred. This is analogous to the sale of stock and debt in an ordinary (solvent) corporation to various investors in piecemeal fashion. The problem is that many high-end entities will not buy unless they know that all (or nearly all) of the low-end entities sell to high-end entities, and that cannot be guaranteed through unregulated transactions. This is the problem with the Bebchuk proposal: it treats each junior creditor's decision (analogous to that of a high-end buyer) to buy out a senior creditor (analogous to a low-end seller) as independent of one another when in fact that are tightly interconnected.

Hence the role of the developer. Under the analogy to the Baird approach, the developer simply buys up all the properties, develops them, and then resells them to the high-end entities. This also can work, but the problem is that the developer may lack the capital to buy up so many properties, and be unable to persuade lenders to lend to him. Moreover, the developer may not be able to determine the individual valuations of potential buyers and thus be unable to calculate the price at which he can resell the property, in which case he will not want to buy it in the first place.

Drawing on Bebchuk, one can imagine sophisticated variations of this approach that overcome some of these problems, but the obstacles remain large. Imagine that the buyers enter into transactions with owners under which buyers are given an option to withdraw from the deal if not enough other high-end buyers also enter the transaction. It is easy to see that buyers or sellers may not want to enter such transactions because someone must bear the risk that not enough sales are made, and not everyone may be willing to take these risks.

Under a Chapter 11 analogy, the developer (acting perhaps with the city's eminent domain powers) could force a transaction conditional on a vote. The developer could, for example, propose prices for various properties—prices that could be a function of various factors such as the risk preferences of buyers and sellers—and then call a vote on his plan. If a majority approves the plan, it goes through. Or there could be a supermajority requirement—subject or not to various protections (for example, all owners could be guaranteed payments equal to the purchase price they paid). Whatever the rule, the developer could design a plan that made the winners only a bit better off while entirely expropriating the losers, keeping the surplus for himself.³⁴

A QV-style procedure can avoid these bad outcomes. If properly designed,³⁵ it aggregates the information and preferences of sellers, thus ensuring that the development project is *ex post* efficient, while limiting the risks of transfers among sellers. If sellers vote on whether to accept the offer, the developer will offer a plan that both compensates the sellers fully for their losses and that maximizes the benefits received by the seller most harmed by the sale, following Rawls's rule of maximin fairness. Furthermore, the incentives of each individual to invest in improving their land, or the company they hold debt in, are optimal. While unequal treatment is possible, it will be limited by the floors to the maximum extent possible—while the QV voting ensures that the development project takes place only if it increases value.

* * *

A final possible concern is that managers will delay entry into bankruptcy because they lose their jobs and (typically) the value of their equity in bankruptcy. Thus, a super-efficient bankruptcy process may perversely cause inefficient delay of bankruptcy, resulting in the failure to maximize the value of the firm. This problem has been much discussed in the context of the rules of Chapter 11.³⁶ To the extent it is valid, the solution is not to reject QV and maintain the current system, but to modify QV so that managers receive a payoff for timely entering the debtor into bankruptcy or are sanctioned for delaying bankruptcy.

D. The Role of the Bankruptcy Judge

As we saw in section B, the bankruptcy judge would continue to play a role under our bankruptcy reform. She would screen plans, and she would continue to engage in all the other

³⁴ Similar procedures were in fact used in Britain and Japan when they industrialized. See Scott D. Kominers & E. Glen Weyl, *Concordance Among Holdouts*, Harv. Inst. of Econ. Research Discussion Paper (2012).

³⁵ Cf. *id.*

³⁶ See, e.g., Adler et al., *supra*; Viral V. Acharya et al., *Creditor Rights and Corporate Risk-Taking*, 102 *J. Fin. Econ.* 150 (2011).

functions of bankruptcy judges—evaluating claims, resolving disputes, approving debtor-in-possession financing, administering voting, and so on. She would also need to estimate a preliminary liquidation value of the firm.

But the bankruptcy judge's work would be greatly reduced—in two main ways. First, under current law, the bankruptcy judge must attach a value to the reorganized firm, so as to ensure that creditors do no worse than they would in Chapter 7. Commentators are skeptical that the bankruptcy judge can do this.³⁷ If it were possible, then voting would not be necessary in the first place. Thus, the valuation process produces a great deal of arbitrariness. By contrast, under QV, the bankruptcy judge would not make going-concern valuations. Because QV, unlike the current voting system, produces efficient outcomes, the judge would not need to act as a backstop to prevent expropriations or other bad outcomes.

Second, the judge's role in voting would be much simpler and more determinate. Under the current system, judges must, among many other things, approve proposed classes. The problem with classification is that plan proponents can game the system by dividing similar creditors into different classes or combining different creditors into the same classes. The judge is supposed to prevent this strategic behavior, but there is no easy way to determine how similar claims are to each other, and to draw lines between similar claims and different claims, and hence arbitrary determinations are a danger. Under QV, by contrast, the court is required to make virtually no judgment calls.

III. Recent Developments in Chapter 11: Of Hedge Funds, Claims-Trading, and Derivatives

One might argue that we don't need another proposal for reforming Chapter 11's voting rules. Chapter 11 is either beside the point because firms don't use it any more,³⁸ or the new problems with Chapter 11 are so great and overwhelming that a simple revision of the voting system cannot solve them. But Chapter 11 remains relevant and important,³⁹ and, as we show, QV would help overcome the most serious problems that now hamper corporate bankruptcy.

Baird and Rasmussen, for example, contrast traditional bankruptcy proceedings and modern versions in order to show that rules that worked well in the past are not suitable for current conditions.⁴⁰ In the traditional proceeding, the corporation that entered bankruptcy typically had one large secured creditor, a bank, whose loan was secured by all of the firm's assets, and numerous dispersed general creditors, all of whom had an interest in seeing the value of the firm maximized through liquidation or reorganization. The firm owned significant physical assets that would retain their value only if kept together—assets like railroad tracks or machinery. In Chapter 11, management would retain control of the firm by paying off the

³⁷ See David A. Skeel, Jr. *Markets, Courts, and the Brave New World of Bankruptcy Theory*, 1993 *Wis. L. Rev.* 465, 509 (1993).

³⁸ Douglas G. Baird & Robert K Rasmussen, *The End of Bankruptcy*, 55 *Stan. L. Rev.* 751 (2002).

³⁹ For the importance of Chapter 11 proceedings during the financial crisis, see Stuart Gilson, *Coming Through in a Crisis: How Chapter 11 and the Debt Restructuring Industry Are Helping to Revive the U.S. Economy*, 24 *J. App. Corp. Fin.* 23 (2012).

⁴⁰ Baird & Rasmussen, *Anti-Bankruptcy*, 119 *Yale L. J.* 648 (2010).

secured creditor or giving it a lien on the firm's post-bankruptcy assets. The general creditors took a largely passive role. The larger creditors would participate on a creditor's committee but permit the management to set the agenda. The rules of Chapter 11 operated to give creditors homogenous claims—loans with different maturities and interest rates were converted to dollar-amount claims—so that the creditors shared an interest in maximizing the value of the firm by keeping its assets together when they were worth more together than they would be dispersed throughout the market. Classification rules allowed for some variation in interests, but essentially the majority/supermajority system, where creditors are relatively homogenous, and the rules requiring equal treatment, should lead straightforwardly to the optimal outcome, whether liquidation or renegotiation. As Baird & Rasmussen note, tyranny of the majority is not a danger when voters are homogenous (and, we would add, required to treat each other equally).⁴¹ The main criticism of Chapter 11 proceedings at the time was that they were slow, that management too often remained in control, and that shareholders often received equity thanks to management's agenda-setting power—but bankruptcy courts gradually addressed these problems in the 1990s by shifting control from managers to creditors.⁴²

In the last ten years, corporate bankruptcy has been transformed—largely as a result of the rise of hedge funds and of financial engineering.⁴³ The typical debtor no longer enters bankruptcy with a single large secured bank creditor. Thanks to increasing reliance on syndication, the debtor may have numerous secured creditors, including hedge funds that seek a piece of the firm's business rather than payment of its loan. Senior creditors may thus wrestle for control of the firm in bankruptcy with junior creditors. The junior creditors themselves now have conflicting interests.⁴⁴ Today, ordinary creditors—like trade creditors and passive bondholders—sell their claims, both prior to and during bankruptcy, to hedge funds and other distressed debt professionals. Unlike the old passive creditors, who sat on a creditor's committee but accepted and acted on the advice of an investment bank, the hedge funds come to the bankruptcy proceeding with their own sources of information and theories as to how the firm should be restructured, and this produces conflict where before creditors acted in concert.

Another source of conflict is the availability of derivatives that permit creditors to take multiple positions in the firm. Hedge funds, unlike traditional trade creditors and bondholders, possess the sophistication necessary to take advantage of financial engineering. A hedge fund might take senior positions to maximize its control, while shorting senior debt and buying junior debt, so that it profits if senior creditors are underpaid. In one case, a hedge fund held junior claims in a debtor but short positions in the bonds of the debtor's parent which was not in bankruptcy—and so it had an incentive to use the control over the debtor that it had as a result of its junior claims to ensure that the firm collapsed so as to ensure no payout to the parent, which might then default on its debts, resulting in a payoff to the hedge fund.⁴⁵ Creditors can also sell

⁴¹ Id. at 654.

⁴² Adler et al., *supra* at 2-3.

⁴³ Id.; and see Jonathan C. Lipson, *The Shadow Bankruptcy System*, 89 *Bos. Univ. L. Rev.* 1609, 1629-1632 (2009).

⁴⁴ For evidence, see Kenneth M. Ayotte & Edward R. Morrison, *Creditor Control and Conflict in Chapter 11 Bankruptcy*, 2 *J. Legal Analysis* 511 (2009).

⁴⁵ Lipson, *supra* at 1616-18.

their credit risk to investors while retaining voting rights, leading to the phenomenon of “empty voting,” where parties without an economic stake in a debtor enjoys control over it.⁴⁶

In sum, while in the old days the relative homogeneity of stakeholders ensured that a creditor’s committee could function adequately, and that parties had a joint interest in maximizing the value of the debtor, today stakeholders are heterogeneous, and their heterogeneity overwhelms voting rules and procedures that assume homogeneity. In this setting, stronger disclosure rules,⁴⁷ while helpful, cannot solve the problem.⁴⁸ When interests are heterogeneous—where some creditors have a strong interest in reorganization and others do not, for example—tyranny of the majority looms large, and the rules of Chapter 11 that are designed to soften its harsh edges are either inadequate or lead to bargaining impasses.

But heterogeneity is exactly the problem for which QV is designed. Recall that QV both enables and compels voters to disclose their relative intensity of interest in an outcome, and ensures that it plays a proportionate role in determining the result of the vote. In our example above, we assume that three special creditors have “external interests” in seeing a firm reorganized. While in the past, those external interests would have usually been a trade creditor’s interest in maintaining a relationship with the debtor, or a manager’s interest in staying at the helm, those interests could be the ones described by Baird and Rasmussen—an interest in obtaining a portion of the debtor’s business, or in receiving a CDS payout, or what have you.

Even the most worrisome forms of behavior are addressed by QV. Recall our example of a firm X that is in bankruptcy. A junior creditor also owns a CDS that pays off if X’s parent defaults on a bond. Thus, the junior creditor may seek to undermine efforts by other creditors to save X, especially if the parent has loaned a large amount of money to X. Under the current system, the junior creditor can block efforts to reorganize by buying a large enough share of the claims on X. It may be possible for other creditors to form a coalition to pay off the junior creditor, but that will be difficult at best.

By contrast, under QV the junior creditor’s gambit would almost certainly fail. The reason is simple: there is someone on the other side of the CDS, someone who must pay the junior creditor if X defaults. That person will buy as many votes under QV as the junior creditor will, and in this way cancel out the junior creditor’s influence.⁴⁹ No costly bargaining is necessary, and the other creditors will determine the fate of X. In fact, as mentioned above, the ability to trade votes separately from shares only makes our bankruptcy procedure operate more

⁴⁶ Henry T.C. Hu & Bernard S. Black, *The New Vote Buying: Empty Voting and Hidden (Morphable) Ownership*, 79 S. Cal. L. Rev. 811 (2006).

⁴⁷ As advocated by Lipson, *supra*.

⁴⁸ Although many law professors see the rise of hedge funds and financial engineering as a “problem,” as described in the text and accompanying notes, a recent paper finds that in fact hedge fund participation in Chapter 11 has generated efficiency gains—increasing total debt recovery, improving stock market responses to bankruptcy filings, leading to fewer liquidations, and so on. See Wei Jiang, Kai Li, & Wei Wang, *Hedge Funds and Chapter 11*, 67 J. of Finance 513 (2012). In addition, complaints about derivatives are based on anecdotal evidence, not statistical evidence; there are good reasons for the special treatment of derivatives in bankruptcy. See Franklin R. Edwards & Edward R. Morrison, *Derivatives and the Bankruptcy Code: Why the Special Treatment?*, 22 Yale J. Reg. 101 (2005).

⁴⁹ The CDS payer would need to buy a claim in order to participate in bankruptcy, but that would not be difficult.

faithfully like QV, reducing the liquidity requirements of efficiency. Thus QV is empty voting-proof in a way that current procedures are not.⁵⁰

Conclusion

We have provided only a thumbnail sketch as to how the QV voting system could be adapted to corporate bankruptcy, but we believe enough to justify further research to work out the details. Obviously, many of the difficulties in corporate bankruptcy are untouched by QV, which is focused only on the (major) question of determining whether the debtor should be liquidated or reorganized. Nonetheless, if properly implemented, QV should result in an improvement of the current system.

⁵⁰ See Dekel & Wolinsky, *supra*.

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