FAIR DIVISION OF SETTLEMENTS: A COMMENT ON SILVER AND BAKER

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In their paper, I Cut, You Choose: The Role of Plaintiffs' Counsel in Allocating Settlement Proceeds, Charles Silver and Lynn Baker raise two fundamental questions concerning the allocation of the proceeds of settlement in mass actions: what criteria should be used to evaluate settlements and which institutions best satisfy these criteria. In the course of their argument, they also advance several claims concerning specific institutional arrangements. For example, they assert: The role of counsel in the allocation of settlements should not depend on whether the joinder of plaintiffs is voluntary or involuntary; plaintiffs’ attorneys should have a substantial role in the allocation of settlements; in voluntary mass actions, plaintiffs should be able to consent ex ante to procedures for the allocation of settlements or for their approval; horizontal equity is not a useful principle for the allocation of settlement funds; and, contrary to current practice that requires that each plaintiff be informed of the award of each party to the suit, a plaintiff need only be informed of the terms of her own award.

In this Comment I largely restrict my comments to the first, general question that Silver and Baker raise: What principles ought to govern the allocation of settlements in mass actions? To address this issue, I draw on a large literature in economics that analyzes two related distributional problems: the allocation of common costs among joint venturers and the distribution of a bankrupt's estate among creditors. This literature suggests principles both for evaluating the allocation of settlements and for institutional forms that are somewhat at odds with Silver and Baker's approach.

I begin with a brief characterization of the problem that argues that one cannot rely on private incentives to resolve the problems presented by mass

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2 See id. ("[L]awyers should be permitted, with reasonably informed client consent, to incur and help resolve all conflicts among concurrent clients so long as the clients have some common interests at the time consent is given.").
3 See id. at 1470 n.12 (referring to their prior argument for this conclusion). For the prior argument, see Charles Silver & Lynn A. Baker, Mass Lawsuits and the Aggregate Settlement Rule, 32 Wake Forest L. Rev. 733 (1997) [hereinafter Silver & Baker, Mass Lawsuits].
4 See Silver & Baker, supra note 1, at 1469.
5 See id.
actions. I then turn briefly to the allocation of common costs problem and the bankruptcy problem. Given space limitations, I sketch the arguments rather than develop them fully.

I. HYDRA-HEADED PRINCIPALS AND THEIR ATTORNEYS

Silver and Baker draw an analogy between corporations and mass actions. Plaintiffs in mass actions play the role of shareholders while plaintiffs' attorneys play the role of corporate managers. This analogy highlights two central features of any mass action. First, as in a corporation (particularly a close corporation) where the interests of shareholders may conflict, the interests of an individual plaintiff in a mass action may conflict with the interests of other plaintiffs. Second, plaintiffs in a mass action, as shareholders in a (large, public) corporation, may have difficulty controlling their attorney-agent. The first feature analogizes the problem of distribution among shareholders to the problem of allocation of a settlement among plaintiffs that concerns Silver and Baker. The second feature suggests an analogy between the problem of shareholder supervision of corporate managers and the problem of determining the adequacy of a mass action settlement's total size.

Though the analogy to corporate structure and corporate law identifies some of the difficulties presented by mass actions, the analogy fails to provide any guidance in answering the question Silver and Baker pose. The institutions that have arisen to resolve or, at least, to mitigate the agency problem and the conflicts of interest problem in corporations do not suggest parallel institutional forms for the regulation of mass actions. There are two distinct reasons for this failure.

First, distributional problems among shareholders in corporations are largely governed by the rule of equal distributions per share. This corporate rule does not translate easily to the mass action context: Plaintiffs do not own "shares" in the litigation, and there is no obvious way to calculate the "capital" contribution of a particular plaintiff to the joint enterprise. One might argue that each plaintiff contributes the expected value of her claim to the enterprise, but it is not clear that one should treat individuals with equal expected claims but different prospects of prevailing identically. It is also unclear that one should ignore the nature of the injury and look only to its pecuniary evaluation in determining each plaintiff's claims on any income from the litigation. This dis-analogy suggests that the corporate analogy might be more helpful in resolving the conflict between plaintiffs and their attorney than the conflict among plaintiffs.

Second, and most important, the corporate analogy does not help resolve the problem of determining the adequacy of the total size of the settlement in a mass action because the institutional background of corporations differs so dramatically from that of mass actions. Most notably, the control of conflicts
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of interest in corporations is greatly facilitated by the existence of numerous markets. Specifically, securities markets largely resolve conflicts of interest among shareholders in large, publicly held corporations because they permit each shareholder to choose a portfolio that best serves her preferences over time and risk. Consequently, the shareholders of any corporation should agree that its managers should maximize the expected value of the firm.\(^6\) Similarly, markets for corporate managers and the takeover market provide mechanisms for the control of managers.

The parallel markets for mass actions either do not exist or are unlikely to resolve the conflict. There is no market comparable to the securities market for mass actions. Indeed, most states bar the sale of a tort claim.\(^7\) Moreover, the market for attorneys is not likely to resolve fully conflicts of interest between plaintiffs and their attorneys. For involuntary class actions this proposition seems nearly self-evident; currently there is no market for these attorneys at all. Some commentators have argued that certain mass action claims should be auctioned off to the attorneys.\(^8\) Such an auction would only allocate total funds between the plaintiff class and its attorney; it would not allocate the total funds among the plaintiffs. Nor would the construction of an auction system that required attorneys to specify not only the total payment to the class but also the payment to each individual be workable. After all, each plaintiff would rank these bids differently.\(^9\)

The market for attorneys may not work perfectly in voluntary mass actions either. After all, most plaintiffs in mass actions are unsophisticated consumers of legal services. They probably have not previously been a party to a mass action and may know no one who has been a party.

Consequently, the control of these conflicts of interest falls to legal institutions. These institutions, however, are handicapped in their ability to control conflicts of interest not only by the absence of well-developed markets but also by the fact that much of the information relevant to the evaluation of the legitimacy of a proposed settlement and its allocation among plaintiffs is within the control of defendants and plaintiffs’ counsel. Specifically, the

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\(^9\) The bidding strategies of attorneys would depend on the mechanism that determined the winning bid. If the winning bid were determined by majority vote among the plaintiffs, each bidding attorney would seek to maximize the payoff to a bare majority of plaintiffs, but different attorneys would not necessarily identify the same set of plaintiffs.
assessment of the value of each plaintiff's claim will depend on the information available at the time of valuation. The information available, of course, is a function of the decisions and effort in discovery of plaintiffs' attorneys.

The design of appropriate institutions to govern settlements in mass actions is fraught with difficulty. These institutions must not only control conflicts of interest but also elicit information from the very parties that the institutions constrain.

II. CHARACTERIZING ACCEPTABLE SETTLEMENTS

Silver and Baker offer two criteria for the identification of acceptable settlements. First, they argue that consent of plaintiffs in consensual mass actions should be sufficient to legitimate an allocation of settlement funds. In this paper, they focus on the claim that the basis of this consent need only be the award to the individual plaintiff rather than the full award structure which is currently required by law. In an earlier paper, they argued that this consent could be given ex ante to a non-unanimous, ex post procedure; they thus argued for reform of Rule 1.8(g) of the Model Rules of Professional Conduct. Second, they argue that any acceptable settlement must provide a plaintiff an amount at least as great as what she would have expected in an individual litigation. I find their first proposal misleading and the second proposal insufficiently demanding. Before I justify my claims, however, it is useful to provide more background to both the normative and economic aspects of the problem.

III. THE LEGAL INSTITUTIONS AT ISSUE

In this Comment, I address the question of controlling conflicts of interests among plaintiffs. It is important to recall, however, that legal institutions also may influence the conflict of interest between plaintiffs and their attorneys. These two problems are intertwined. In many mass actions, the compensation of plaintiffs' attorneys derives from the total settlement award received from the defendant. The extent to which plaintiffs' claims are satisfied thus depends on whether the total award was adequate and the extent to which plaintiffs' attorneys were compensated.

Several institutions may play a role in the control of conflicts of interest. These institutions may either be procedural or substantive. Three common

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10 See Silver & Baker, supra note 1, at 1469.
11 See id.
13 See Silver & Baker, supra note 1, at 1516.
procedural institutions that control conflicts of interest are intervention rules,\textsuperscript{14} opt-out rules,\textsuperscript{15} and voting rules.\textsuperscript{16} Substantive provisions are more varied. They may range from institutions that directly evaluate the substance of a settlement, such as the substantive standard for acceptability employed by a court in approving a class action settlement, to institutions that indirectly affect the incentives of the relevant parties. Standards governing fee awards or fee arrangements with attorneys are the most obvious institutions in this second subclass.

I wish to evaluate these institutions (or, at least, some of them). This evaluation requires a set of normative criteria that identify “good,” “acceptable,” or “legitimate” settlements. One may distinguish two sets of criteria that one may use to assess the adequacy of settlements. One set considers the ex ante effects of the standard of adequacy. So, for example, one might consider the effect of the standard on the frequency and composition of mass actions or, more generally, on the behavior underlying the causes of action in these complex litigations. Alternatively, one might assess settlement allocations in terms of their “fairness.” Fairness criteria focus either on the procedures that lead to or approve settlements or on the content of the settlement itself without reference to the ex ante effects of these rules.

Fairness criteria may identify a “normative baseline,” a minimum amount that any settlement must provide a particular plaintiff. Unfortunately, this minimum amount will not generally be independent of the institution under evaluation in two ways. First, these criteria usually incorporate some assessment of the expected gross value of each plaintiff’s claim: the product of the likely award given that the plaintiff prevails at trial and the likelihood

\textsuperscript{14} In federal actions, intervention is governed by Fed. R. Civ. P. 24. There is some question concerning how the intervention rules of Rule 24 interact with the class certification rules of Fed. R. Civ. P. 23. See, e.g., Woolen v. Surtran Taxicabs, 684 F.2d 324 (5th Cir. 1982).

\textsuperscript{15} Fed. R. Civ. P. 23 (c)(2) provides for a right to opt out of (b)(3) class actions. Opt-out rights under rules for (b)(1) and (b)(2) classes are unclear. Eubanks v. Billington, 110 F.3d 87 (D.C. Cir. 1997) held that opt out of a (b)(2) class might be permissible under some circumstances but was never required. In Brown v. Ticor Title Insurance Co., 982 F.2d 386 (9th Cir. 1992), cert. dismissed as improvidently granted, 511 U.S. 117 (1994), and Adams v. Robertson, 676 So. 2d 1265 (Ala.), cert. dismissed as improvidently granted, 520 U.S. 83 (1997), the Supreme Court avoided deciding the due process implications of the issue.

\textsuperscript{16} Voting rules in mass action settlements are less frequent than intervention or opt-out rights. They also have a less formal role, particularly in class actions where court approval of settlement is required. Some circuits have identified the reaction of class members to the settlement as an important factor to be considered in the assessment of the adequacy of a settlement. See Detroit v. Grinnell Corp., 495 F.2d 448 (2d Cir. 1974); Girsh v. Jepson, 521 F.2d 153 (3d Cir. 1975). A polling procedure may provide evidence of this reaction. See Hoffman Elec. v. Emerson Elec. Co., 800 F. Supp. 1289 (W.D. Pa. 1992).

On the other hand, it appears that plaintiffs cannot consent ex ante to a non-unanimous rule of approval of settlements. See Hayes v. Eagle-Picher Indus., 513 F.2d 892 (10th Cir. 1975).
that the plaintiff will in fact prevail. More generally the expected value of plaintiff's award is the weighted average of awards he might receive at trial, each award weighted by the likelihood that plaintiff will receive that amount. This value, however, depends on the procedural devices. Consider for example an attorney who represents multiple plaintiffs with related claims. The value of each plaintiff's claim may depend on the order in which these claims are litigated. This dependence may arise simply because, after several trials, the attorney has learned how best to present evidence. Alternatively, some procedural rules may affect the value of the claim. In a jurisdiction that has a rule of nonmutuality of estoppel and that permits the use of a prior judgment as a sword, the expected value of the last claim litigated is higher than the expected value of an identical first claim because the probability of success in the last claim is significantly higher.\footnote{See Note, Exposing the Extortion Gap: An Economic Analysis of the Rules of Collateral Estoppel, 105 Harv. L. Rev. 1940, 1948 & tbl.1 (1992). From the plaintiffs' point of view, sequential litigation may yield a higher expected total payoff than a mass action that joins all the claims. Ideally, the plaintiffs would contract to share the awards so that no plaintiff would be disadvantaged by the order in which the claims were litigated.}

Second, and related, the procedural devices of the institution determine in part the costs of litigating in various groups. The class action, for example, renders feasible the litigation of claims that individually would not merit litigation because the cost of litigating a single claim exceeds its expected value. Consequently, the net value of a plaintiff's claim in a particular joinder depends on these procedural rules.

IV. TWO ECONOMIC APPROACHES TO THE ASSESSMENT OF THE FAIRNESS OF ALLOCATION OF SETTLEMENTS

Economic analysis suggests a straightforward approach to the development of adequacy criteria that look to the ex ante effects of the standard of adequacy. If, for example, one seeks to deter the conduct of defendants that underlies plaintiffs' claims, then one seeks rules that insure that actions are brought when such injury occurs. This line of analysis may argue for very loose standards when plaintiffs' attorneys, rather than plaintiffs, are the motivating force in the initiation of legal actions (because loose standards are apt to maximize the return to plaintiffs' attorneys).

In this Comment, however, I shall focus on criteria for the evaluation of the fairness of an allocation of a settlement. In an earlier paper, I offered a framework for the assessment of the fairness of settlements in class actions.\footnote{See Lewis A. Kornhauser, Control of Conflicts of Interest in Class-Action Suits, 41 Pub. Choice 145 (1983). The argument of Section IV.A summarizes and, to some extent, modifies parts of the argument in that essay.} This framework treated, as Silver and Baker do, the class action as a cooperative venture among plaintiffs. For the joint venture to be desirable, the total
net value of the plaintiffs' claims—i.e., their expected gross awards less the costs of litigation—must be higher when they join their claims than when each litigates individually. A key question for this cooperative venture is the allocation of the costs of litigation among themselves. In this context, the common costs of litigation can be understood as an investment by the plaintiffs necessary for the production of the gross value of their claims. This allocation of common costs problem has been extensively studied in the economics literature.19

One might regard the costs of litigation not as an investment necessary for the production of value but as a tax on the values that should already accrue to each plaintiff. This tax leaves the plaintiff group with a fund that is inadequate to satisfy each claim in full; the plaintiffs must then determine how to allocate the losses occasioned by this general tax. In effect, one may regard the plaintiffs as creditors facing a debtor with too few resources to satisfy all the claims on it. This perspective uses the value of the plaintiffs' gross award as the relevant baseline. Again, this bankruptcy problem has been extensively studied in the economics literature.20

Economic analyses have adopted two related approaches to these problems. First, they have identified principles that one might impose on any solution to a particular problem. The analyst then seeks to identify some allocation rule that satisfies all the relevant principles of distribution.21 Second, one can associate to each problem a cooperative game. Various concepts of cooperative game theory then serve to identify a set of admissible allocations.22 The next two sections address each of these problems in turn.

A. The Allocation of Common Costs Problem

Collective representation of individuals with related claims potentially confers a variety of benefits on the plaintiff clients. When the claims are related, both factual investigation and the development of legal arguments may benefit all clients. Consequently, single representation reduces the costs of proceeding with the action. In addition, the particular joinder and sequencing of cases may affect the likelihood of prevailing on a claim or the size of an award.23

21 See, e.g., id. at 1-2.
22 See, e.g., Young, supra note 19.
23 As noted above, see supra text accompanying note 17, several features of a legal regime and litigation might be responsible for different results from this sequencing. First,
From this perspective, one might argue that any acceptable allocation of a settlement among plaintiffs would allocate the common costs of litigation and settlement among them. Moreover, one might approach the question of what constitutes a fair allocation of costs in two different ways. First, one might articulate a substantive standard of fair allocation of costs. Two such standards have immediate, though perhaps naive, appeal: (a) an equal division standard that allocates the costs of litigation equally among all plaintiffs and (b) a proportional division standard that allocates the costs of litigation among plaintiffs proportional to the (expected) value of the claims. Second, one might impose a more abstract condition that one believes any acceptable allocation should satisfy. Both Silver and Baker and the economic approaches to the allocation of common costs problem adopt this second approach. Moreover, the analysis of the allocation of common costs allows us to determine the extent to which the equal division and proportional division standards satisfy the conditions imposed under this second approach.

Silver and Baker argue that any allocation must be individually rational: The settlement award to a plaintiff must be at least as great as the expected value of the individual action she could have brought. Indeed, they argue that individual rationality is the only condition that an allocation must meet.

Economic analyses of the allocation of common costs problem agree that an allocation must be individually rational for each plaintiff, but they also require that the allocation satisfy additional requirements of group rationality. Consider any joinder of a (sub)set of plaintiffs: The total settlement amount

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some claims may present more sympathetic facts and hence influence the development of the law. Second, plaintiffs' attorneys may learn from early trials how best to present the case, thus improving subsequent plaintiffs' prospects of prevailing. Third, some procedural rules may act to the advantage of the plaintiff. If, for instance, a jurisdiction recognizes a rule of nonmutuality of estoppel and permits a prior judgment's use as a sword, the expected value of later (but, identical) claims exceeds the expected value of earlier claims. See Note, supra note 17, at 1948 & tbl.1.

Some of these features suggest that joinder into mass actions may not be optimal for plaintiffs. Indeed, in some instances, if plaintiffs could agree to share the receipts of all their litigations, sequential, rather than joined, actions would maximize the expected profits of the plaintiff group. Such sharing arrangements are probably not permissible under the rules barring champerty. See supra note 7. As a consequence, an attorney representing multiple clients faces a conflict in the sequencing of cases. Similarly, opt-out rights may present problems of fairness as the plaintiffs who opt out may still enjoy some of the benefits of the collective litigation.

24 The proportional division standard thus encompasses two distinct standards: One allocates costs proportionally to the amount of a successful claim; the other allocates costs proportionally to the expected value of a claim.

25 Both impose conditions on the minimal amounts some set of plaintiffs should receive. Silver and Baker require each plaintiff to receive as much as she would receive litigating alone. See Silver & Baker, supra note 1, at 1516. The approach to the allocation of common costs game is more complex. It is described in detail below. See text accompanying notes 27-29.

allocated to these plaintiffs must be at least as great as the expected value of an action brought by this group of plaintiffs.\footnote{This statement is slightly inaccurate. This subset of plaintiffs should get in the settlement at least as much as it could have gotten had it not participated in the class. It might be that this group would itself have done best to have brought multiple actions rather than a single action on its own behalf.} Put differently, an allocation satisfies these conditions if there is no subset of plaintiffs who could have done better by litigating separately from the class. These conditions then define a \textit{stand-alone property}.

Considering a slight modification of the stand-alone property is useful. The stand-alone property requires that each subset of plaintiffs do at least as well litigating in the "grand coalition" of all plaintiffs as it would have done had it litigated separately. These conditions seem to imply that the grand coalition of all plaintiffs do equally as well as it would have done; put formally, the final constraint is an equality rather than an inequality. When the stand-alone property is interpreted in this way—with equality for the grand coalition—an allocation that satisfies the stand-alone property is in the \textit{core} of the game.\footnote{The core is a solution concept for a game defined in characteristic function form. To define this concept, consider an n-person (transferable utility) game. ("Transferable utility" simply means that players can transfer the benefits (or payoffs) of the game among themselves.) The characteristic function of a game assigns to each possible coalition \( S \) of \( s \) players a value \( v(S) \). This value function \( v(S) \) is interpreted as the amount that the coalition \( S \) can guarantee itself. The value function \( v(S) \) is the characteristic function form of the game. Let \( N = \{1, 2, \ldots, n\} \) be the grand coalition of \( n \) players.

Consider some allocation \( X = [x_1, x_2, \ldots, x_n] \). This allocation is in the core if and only if (1) for each coalition \( S \) contained in \( N \), it satisfies the constraint \( \sum_{j \in S} x_j \geq v(S) \) and (2) \( \sum_{j \in N} x_j = v(N) \).

The constraints (1) are identical to the corresponding constraints in the definition of the stand-alone property. The constraint (2) is more stringent than the parallel constraint in the definition of the stand-alone property which requires that \( \sum_{j \in S} x_j \geq v(N) \).

The stand-alone property imposes many more stringent conditions on a
settlement allocation than the individual rationality constraint advocated by Silver and Baker.\footnote{One might quantify this difference by comparing the number of constraints imposed by Silver and Baker to the number of constraints imposed by the stand-alone property when the action joins $n$ plaintiffs. Individual rationality imposes $n$ constraints but the stand-alone property imposes $2^n - 1$ constraints. For small $n$, the difference is small: For $n = 2$ individual rationality imposes 2 constraints and the stand-alone property 3 constraints. But for even moderate $n$, the difference is large. If $n = 10$, for example, then individual rationality imposes 10 constraints but the stand-alone property imposes 1023. Of course, if some plaintiffs have identical claims, a number of these constraints will be identical.}

Moreover, to determine whether a settlement allocation satisfies the stand-alone property, one needs information about the settlement awards and underlying claims of each litigant. If the stand-alone property is an appealing criterion for the evaluation of settlements, then it undermines Silver and Baker's recommendation that each plaintiff need be informed only of the amount of her award. If a plaintiff (or a court) is to police the attorneys of the mass action effectively, she requires information on the structure of the entire settlement.

Two different approaches might justify the adoption of the stand-alone property as a standard for evaluating settlements. The first argument applies most forcefully to class actions, where joinder is forced rather than consensual. In these circumstances, the stand-alone property has a pragmatic appeal. As noted, to satisfy the stand-alone property, an allocation must provide each plaintiff and group of plaintiffs with as much as they would have received had they litigated separately. If no settlement would do this, one might question the desirability of the particular joinder of parties.\footnote{Alternatively, one could question the competence of the plaintiffs' attorneys.}

Second, one might justify adoption of the stand-alone property as a criterion for an acceptable allocation of a settlement on normative grounds. Fairness would seem to require that no subgroup do less well as part of the mass action than it would have done litigating on its own. One may perhaps see the normative appeal of the stand-alone property by considering the situation if it is not met. Then some subgroup will in fact be subsidizing some other subgroup.\footnote{On the relation between the stand-alone principle and the no-subsidy principle, see Herve Moulin, Axioms of Cooperative Decision Making 89-95 (1988).}

There seems no reason to favor one subgroup over another.

The constraints imposed by the stand-alone property are virtually identical to the definition of the core of an associated game in characteristic function form,\footnote{Game theory describes games in three different ways. See Martin J. Osborne & Ariel Rubinstein, A Course in Game Theory 2-3 (1994). The most fundamental description is the extensive form, which describes the form of the game in detail. See id. at 3, 89. Much analysis, however, occurs of games in strategic (or normal) form, which describes the game in terms of the payoffs to each player as a function of the strategies that each adopts once. See id. at 3, 11. The normal form description derives from the extensive form description.} which I shall call the allocation of common costs game.\footnote{} In fact the
stand-alone property and the definition of the core of the allocation of common costs game differ in only one respect. The stand-alone property requires that the plaintiffs as a whole do at least as well in settlement as they would do litigating. Put differently, the aggregate value of the settlement must be at least as great as the expected value of the entire litigation. The definition of the core requires that the aggregate value of the settlement equal the expected value of the entire litigation.\textsuperscript{34}

This difference between the definition of the stand-alone property and the definition of the core corresponds to differing assumptions about the allocation of the surplus generated by settlement.\textsuperscript{35} When parties settle rather than litigate their dispute, any (additional) costs of litigation are avoided and hence available for distribution among the parties.\textsuperscript{36} The definition of the core assumes that the benefit of these avoided costs accrues either to defendants or to plaintiffs' attorneys rather than to plaintiffs. The stand-alone property assumes that at least some of these benefits may accrue to plaintiffs.

A simple example may help to clarify the stand-alone property and the core. Suppose we have three identical plaintiffs—call them Able, Baker, and Carr—each of whom has a claim against the same defendant. Each plaintiff expects an award of 7; the expected award of each plaintiff does not depend

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\textsuperscript{34} See Osborne & Rubinstein, supra note 32, at 258-59. The difference between the definitions of the stand-alone property and the core differs in only one respect. The stand-alone property requires the grand coalition \(N\) (of all class members) to receive an amount \(v(N)\) at least as great as the expected amount they would receive if they litigated as a class. The equivalent core condition requires that \(v(N)\) equal the expected amount they would receive if they litigated as a class.

\textsuperscript{35} Recall that the definitions of the stand-alone property and the core differ in only one respect. The stand-alone property requires the grand coalition \(N\) (of all class members) to receive an amount \(v(N)\) at least as great as the expected amount they would receive if they litigated as a class. The equivalent core condition requires that \(v(N)\) equal the expected amount they would receive if they litigated as a class.

\textsuperscript{36} Consider a simple model of settlement in which both plaintiff and defendant are risk-neutral. Suppose that, if plaintiff wins at trial, she will receive \(D\) in damages. Suppose further that plaintiff will win with probability \(p\). Finally, suppose that plaintiff's costs of litigation (above the costs of settlement) are \(c_p\) and defendant's costs of litigation (above the costs of settlement) are \(c_D\). Then, plaintiff would be willing to accept in settlement any amount \(A\) greater than \(pD - c_p\), her expected return from litigation. Similarly, defendant would be willing to pay in settlement any amount \(B\) less than \(pD + c_p\). The difference between these two amounts is \(B - A = c_p + c_D = c\), the total cost of litigation. The settlement surplus to be divided between the parties. The definition of the core assumes that defendant gets the entire surplus.
on how the claims are joined (or ordered) for litigation.\textsuperscript{37} Suppose further that, if a plaintiff litigates alone, the cost of litigation to her is 6. If precisely two of the plaintiffs litigate together, the cost of the litigation to these two plaintiffs is 9; and if all three plaintiffs litigate together, the cost to them is 12.

Silver and Baker impose three conditions on any settlement: Each of the three plaintiffs must do better in the settlement than she would have (expected) to do had she litigated alone. In this instance, then, the individual rationality constraint of Silver and Baker requires that any settlement award each plaintiff some amount greater than $I$ (equal to the expected award 7 less the cost of gaining that award 6). The stand-alone property (as well as the definition of the core) imposes an additional four conditions on any settlement: Three of these require that each pair of plaintiffs receive a combined settlement award of at least 5 which is the combined, net (expected) value of a joint litigation: the sum of the two expected awards of 7 to each plaintiff less the cost 9 of litigating the joined claims. The fourth condition requires that the combined settlement awards of all three plaintiffs be at least 9, which the three would expect from a mass action that included all three claims: the three expected awards of 7 less the cost 12 of the litigation.\textsuperscript{38}

Obviously, many settlements that satisfy the Silver and Baker constraints do not satisfy the stand-alone property. Awarding each plaintiff 2, for example, satisfies the individual rationality constraints of Silver and Baker, but it fails to satisfy any of the other four constraints imposed by the stand-alone property. A settlement of 2 to each plaintiff thus awards some of the benefits of the economies of scale of litigation to the defendants or to plaintiffs' attorneys rather than to plaintiffs themselves.

There are, of course, many settlements that satisfy all seven constraints, the most obvious one being an award of 3 to each plaintiff. Any settlement that awarded more than 3 to each plaintiff would also satisfy all seven constraints. Note that a settlement that satisfies all constraints of the stand-alone property need not treat all plaintiffs equally. Consider a settlement in which Able receives 2 while Baker and Carr each receive 3.5. One easily confirms that all seven stand-alone constraints are satisfied.

Some further details about the properties of the core will be helpful. First, not every game—indeed not every allocation of common costs game—will have a non-empty core. Put differently, in some circumstances, there may be \textit{no} settlement allocation that satisfies all of the core requirements. Consider a variant of the stylized litigation discussed above. As before, there are three plaintiffs Able, Baker, and Carr with identical claims. Each claim has an ex-

\textsuperscript{37}Thus, I have assumed that either there is mutuality of estoppel or nonmutuality cannot be used as a sword. Further, I have assumed that plaintiffs' attorneys do not benefit in the prosecution of one action from the prosecution of prior actions.

\textsuperscript{38}The definition of the core requires that the aggregate settlement equal 9.
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expected award of 7 independent of whether it is litigated alone or joined with either of both of the two other claims. Litigating a claim separately costs 6, and litigating all three claims together costs 12. Unlike the prior example, however, litigating two claims together costs only 7. Presumably, there are substantial economies from litigating two claims but the joinder of the third claim to the litigation provides only small savings. Still, pursuing all three claims together minimizes litigation costs.

Again, there are seven core requirements to the allocation of common costs game. Three of these requirements concern the award to a single plaintiff. Each plaintiff must receive at least 7 in settlement because the value of an individual litigation is its expected award 7 minus the cost 6 of procuring that award. A second set of three requirements concerns each of the three possible joinders of two plaintiffs: \{Able, Baker\}, \{Able, Carr\}, and \{Baker, Carr\}. Each set of two plaintiffs must get at least 7 in settlement because each expects an award of 7 (for a total of 14) for which they will expend 7. Finally, the three plaintiffs together must receive 9 because, if they litigate together, each expects an award of 7, for a total of 21, at a cost of 12. (Recall that the definition of the core requires that the aggregate value of the settlement equal the expected value of the entire litigation.)

One may quickly see that no allocation of a settlement of 9 can satisfy all of these requirements. Let $A$ be the award to Able, $B$ the award to Baker, and $C$ the award to Carr. Let us write the three constraints on the two-plaintiff litigations:

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\begin{align*}
A + B &\geq 7 \\
A + C &\geq 7 \\
B + C &\geq 7
\end{align*}
\]

When we sum these up we get the inequality:

\[
2(A + B + C) \geq 21, \text{ or } A + B + C \geq 10.5
\]

But we know that the three plaintiffs together will not receive more than 9.\(^{39}\)

A game with an empty core does not necessarily imply that the defendant would not propose a settlement that satisfied all the constraints of the stand-alone property; but it does make such an outcome less likely.\(^{40}\) Indeed, one

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\(^{39}\) For further discussion (in a different context) of the solutions to this game, see Jean-Pierre Benoit & Lewis A. Kornhauser, Game Theoretic Analysis of Legal Rules and Institutions, *in* 3 Handbook of Game Theory (Robert Aumann & Sergiu Hart eds., forthcoming 1998).

\(^{40}\) The definition of the allocation of common costs game ignores the litigation costs of the defendant. A settlement that meets the stand-alone property constraints must only exceed the expected awards less plaintiff's litigation costs, an assumption that assumes that
can see that, for a settlement to satisfy the stand-alone property, the plaintiffs must capture at least 9% of the surplus provided by settlement.

Second, as noted earlier, the allocations that satisfy the stand-alone property (or are in the core) may look very unfair. Return to the first example above (where a core exists). Consider the allocation of 1 to Able, and 4 each to Baker and Carr. This allocation satisfies the core constraints, but it treats Able radically differently from Baker and Carr, even though the three plaintiffs are identically situated relative to the defendant. Notice that in many class actions, net expected value to a plaintiff litigating alone is 0. The core constraints might then consider acceptable a settlement that provided many litigants an award of 0.

This formulation of the problem permits the analysis of the two substantive criteria mentioned at the outset of this Section. Recall the two substantive criteria of fair allocation of the common costs of litigation. The equal division standard divides the costs of litigation equally among the plaintiffs. The proportional division standard divides the costs of litigation proportionally among the plaintiffs. Each standard identifies a clear benchmark for a settlement allocation: allocate each plaintiff the expected award from litigation less her fair share of litigation expenses. Call this benchmark under the equal division standard, the *equal division* allocation; and under the proportional division standard, the *proportional division* allocation.

The equal division allocation is always in the core of the allocation of common costs game, hence any allocation at least as large as the equal division allocation satisfies the stand-alone property and implements a particular conception of equal treatment. The proportional division standard, however, is not always in the core; hence this conception of equal treatment may be incompatible with the stand-alone property.

the defendant is able to extract the entire surplus available from settlement. This settlement equals the sum of plaintiffs' and defendant's litigation costs. Consider the example discussed supra text accompanying note 37. Suppose the defendant incurs a flat cost of 5 per litigation. Thus, if all three claims are joined, the defendant has an expected outlay from litigation of 21 + 5 = 26 while the plaintiffs have expected net gain of only 21 - 12 = 9. Settlement yields a savings of 17 to the "community" of plaintiffs and defendant. The core constraints assume that the defendant, or the defendant and the plaintiffs' attorneys, capture the entire savings of 17. It is empirically implausible that the defendant should capture the entire surplus; it is normatively unpalatable that defendant and plaintiffs' attorneys should divide the gain and give nothing to plaintiff.

41 See Kornhauser, supra note 18, at 160 ("Corollary 1.1").

42 See id. ("Proposition 2").

43 Its incompatibility depends on at least two factors. First, the proportional division allocation does not lie in the core when some plaintiff's or group of plaintiffs litigation costs are disproportionately small relative to the expected value of their claims. Second, plaintiffs must capture a sufficiently small amount of the surplus litigation cost so that the value of the aggregate settlement does not permit an allocation superior to the proportional division allocation but in the core.
Finally, one should note that, in general, a requirement that an allocation of the settlement be approved by majority rule by the plaintiffs does not insure that the allocation satisfies the stand-alone property. A similar conclusion holds if an individual's vote is weighted by the value of her claim. The reason for this failure is easily seen by analogy to the logic of legislation. For an allocation to prevail under majority rule, it must attract at least 50% of the vote. An allocation might direct the entire settlement to 51% of the plaintiffs and hence "pass" but still fail to provide the other 49% of the plaintiffs with an award that meets even the individual rationality constraint imposed by Silver and Baker. It might be in the interests of the defendants' and plaintiffs' attorneys to structure an award in this fashion because defendants can more cheaply deliver funds to one type of plaintiff rather than another. This differential cost in the satisfaction of a settlement is easy to understand when relief is injunctive; the cost of injunctive relief to the defendant bears no particular relation to the value of that relief to plaintiff. In the case of monetary awards, however, the argument is less obvious. One might claim, however, that a defendant can more cheaply satisfy the claims of plaintiffs whose injury has matured than the claims of plaintiffs whose injury has not matured. In the latter case, the defendant faces greater uncertainty.

This defect in voting rules suggests a difficulty with Silver and Baker's argument that one should permit plaintiffs in voluntary actions to agree ex ante to procedures for approving settlements. Majority rule has obvious attractions ex ante to which plaintiffs might succumb, yet it fails to insure that an allocation will meet the stand-alone property.

B. The Bankruptcy Problem

The allocation of common costs game views the mass action as a joint enterprise of the plaintiffs. The expected "revenues" of this enterprise are simply the expected award in the litigation; the expected profits are the expected revenues less the common costs of litigation. The allocation of common costs game then identifies allocations of expected profits that are acceptable.

One might view the mass action very differently. One might consider it more like a "bankruptcy" proceeding in which each plaintiff has a claim against the funds available for settlement. This bankruptcy problem can be characterized by the amount $A$ of assets available for distribution among the claimants, and the size $x_i$ of each plaintiff's claim.

This approach does not consider the costs of forgone litigation as relevant to the allocation of the fund. Rather it assumes that the fund has already

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44See Kornhauser, supra note 18, at 166 ("Proposition 4").
45Of course, if it fails to meet the stand-alone property it will not satisfy the equal division standard.
been created; one must simply divide the assets. Unlike the analysis of the allocation of common costs problem, then, the approach to the bankruptcy problem separates the question of the appropriate distribution of funds from the question of the adequacy of the settlement's total size.

To specify further this formulation of the problem, one must identify each plaintiff's baseline claim. Two possibilities present themselves. One might argue that each plaintiff has a claim to the expected damage award in a litigation (gross of litigation costs). Alternatively, one might argue that each plaintiff has a claim to the gross award she would receive in the event of litigation. The former baseline discounts the gross award by the probability that the plaintiff will prevail. The latter ignores plaintiff's prospect of prevailing. Notice that if plaintiffs capture the entire surplus generated by the settlement, the value of the aggregate settlement will exceed the sum of the values of their discounted claims. The first baseline of discounted claims, then, permits an interpretation of the problem of the allocation of the settlement as a bankruptcy problem only if plaintiffs capture no more than their share of the litigation costs. The second baseline of undiscounted claims permits an interpretation of the allocation of the settlement as a bankruptcy problem as long as the defendant's litigation costs are sufficiently small relative to the aggregate value of the plaintiffs' claims regardless of how much of the surplus plaintiffs extract in settlement.

Legal systems have used a variety of different allocation rules to solve the bankruptcy problem. In addition, commentators have proposed a number of additional allocation rules. The U.S. Bankruptcy Code, for example, employs a proportional allocation rule (within priority classes). I consider two other rules. One, the constrained equal allocation rule, gives each agent an equal amount as long as the agent does not receive more than her claim. Finally, I consider the Talmudic rule, which has been inferred from two different texts in the Talmud. One text analyzes a dispute over a garment: Party 1 claims the entire garment while Party 2 claims half the garment. The contested garment rule of the Talmud awards Party 1 three quarters of the garment.

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46 Recall the analysis of the simple settlement game, supra note 36. Using that notation, the bankruptcy problem formulation makes sense only if the plaintiffs' share of the total litigation costs is no more than \( c_i/(c_p + c_d) \).

47 To pursue the example of the simple settlement game presented supra note 36, the best plaintiff can do in settlement is \( pD + c_p = S_{\text{max}} < D \) if and only if \( c_p < D/(1 - p) \).

48 See Thomson, supra note 20.


50 Thomson's survey discusses several additional rules. See Thomson, supra note 20, at 3-9.

51 That is, each claimant \( k \) in the problem \((A, c)\) receives the smaller of her claim \( c_k \) and an amount \( E \) where \( E \) is chosen so that the sum of the awards equals \( A \), the total value of the available assets.

garment and Party 2 one quarter. The second text discusses three related bankruptcy problems. In each problem there are three creditors: Creditor 1 has a claim of 100, Creditor 2 a claim of 200, and Creditor 3 a claim of 300. When the debtor's assets are 100, the Talmudic rule allocates each creditor an equal share of 33.33. When the debtor's assets are 200, the Talmudic rule allocates 50 to creditor 1 and 75 to each of the remaining creditors. When the debtor's assets are 300, the Talmudic rule yields a proportional division of (50, 100, 150).

From these examples, economic analysts have inferred a general formula for the Talmudic rule. When the total claims on the estate exceed twice the estate, each claimant receives either half her claim or some amount $t$, whichever is smaller, and with $t$ chosen so that the sum of the awards equals the estate. When the sum of the claims is less than twice the estate, each claimant receives its claim less the smaller of half its claim or some number $t'$ where $t'$ is chosen so that the sum of the awards equals the estate.

As in the study of the allocation of common costs problem, one might begin by enunciating principles that one believes a bankruptcy allocation rule should meet. Or one might analyze some game that is associated, under reasonable assumptions, with a particular bankruptcy problem. Analysts have employed both techniques.

One might consider principles of very different types. For instance, one might consider very abstract principles of political justice. In the study of the bankruptcy problem, for instance, analysts have considered a constrained utilitarian principle: One should allocate the bankrupt's estate so as to maximize the sum of the utilities of the creditors subject to the constraint that no creditor receive more than her claim. If one accepts this objective, and if creditors have identical, strictly concave utility functions, then one must adopt the constrained equal allocation rule.  

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53 See id. at 198-99. Note that the proportional rule would allocate the garment (2/3, 1/3) and the constrained equal allocation rule (1/2, 1/2).
54 See id. at 195-96. This allocation agrees with the allocation under the constrained equal allocation rule but differs from the proportional allocation of (16.66, 33.33, 50).
55 The constrained equal allocation rule awards each creditor one third of the debtor's assets while the proportional rule yields an allocation of (33.33, 66.66, 100).
56 The constrained equal allocation rule awards each creditor 100.
57 See Thomson, supra note 20, at 6. For the three creditor problem above, when the estate equals 100, $t = 50$; when the estate equals 200, $t = 75$; and when the estate equals 300, each claimant receives half her claim.
58 See id.
59 They have also employed bargaining theory. For a survey of these approaches to the bankruptcy problem, see Thomson, supra note 20.
60 See H. Peyton Young, Equity: In Theory and Practice 192 (1994).
61 This theorem is stated in Young, see id., but the property follows immediately from the diminishing marginal utility assumption embedded in the strict concavity assumption.
Constrained utility maximization, however, requires some further justification as the social objective. A policymaker interested in maximization of utility presumably should be concerned about the ex ante effects of the bankruptcy allocation rule. In the context of commercial bankruptcy, this interest would imply concern for the effects of the rule on the credit market initially. In the context of mass actions, this interest implies a concern for the incentives of attorneys to pursue these claims on behalf of plaintiffs and for the underlying behavior that generated the claims initially.

Alternatively, one might consider intermediate principles, the justification of which would be grounded in more practical concerns or in less abstract principles of justice. I consider five such principles that have received the attention of economists.62

The first principle, claims boundedness, requires that the allocation to each claimant not exceed her claim. This principle simply articulates the content of the property right held by the creditor. The second, symmetry, requires that individuals with equal claims should receive equal amounts.63 This principle asserts a limited notion of equality among creditors. The third, invariance with respect to claims truncation, asserts that an individual's share should not depend on the extent to which her claim exceeds available assets. The fourth, composition, asserts that the allocation should not depend on whether the claims process is divided into parts. Consider, for example, a standard bankruptcy situation in which debtor's assets of $A$ are allocated. Suppose that subsequently, some additional assets $B$ are discovered. These additional assets are insufficient to satisfy all the remaining claims. A rule that satisfies composition would allocate to individual $k$ the same amount in the bankruptcy problem $(A + B, c)$ as the sum of the allocations from the problems $(A, c)$ and $(B, c - e)$ where $e$ is the allocation in the problem $(A, c)$. Pragmatic concerns of administration might argue for the principle of composition. Finally, linearity requires that, for fixed claims, each creditor's award should vary linearly with the size of the estate.64 Linearity, like composition, might be justified by pragmatic concerns.

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63 In the bankruptcy context, the assumption that the size of the claim is its only relevant attribute may be more compelling than in some mass actions. For example, one might believe that the nature of the physical injury that caused the harm might be relevant so that the heirs of an individual who died of disease $X$ should receive more than the heirs of one who died of disease $Y$ even though the monetary value of the claims is identical.

64 This phrasing is not quite accurate. Consider some vector of claims $c$ and two asset pools $A$ and $A'$ with $A < A'$. Suppose the rule $F$ awards the vector $F(A, c)$ when the estate has size $A$ and the vector $F(A', c)$ when it has size $A'$. Linearity restricts the awards that occur for any estate the size of which is between $A$ and $A'$. Specifically, suppose that the estate has size $B$ with $A < B < A'$. Then there is some $r$ such that $B = rA + (1 - r)A'$. 
It has been shown that the constrained equal award rule is the only rule that satisfies the four conditions of claims boundedness, symmetry, invariance with respect to claims truncation, and composition. The proportional rule, by contrast, is the only rule that satisfies claims boundedness and linearity.

Analysts have also identified the bankruptcy problem with a game in characteristic function form. The construction of this game assumes that any group \( S \) of players will receive at least the value of the debtor's assets that remain after all claims other than \( S \)'s have been paid. Under this construction of the game, several other properties exist. First, the constrained equal award rule is the point in the core that exhibits the least inequality. Second, the Talmudic rule is the nucleolus of the game. The nucleolus, in this context, is defined as the allocation that minimizes the dissatisfaction of the most dissatisfied group of creditors. The nucleolus thus evokes Rawls's difference principle.

This brief discussion should suggest that the economic analyses of the bankruptcy problem may serve as a rich source of potential allocation rules for settlements of class actions. They similarly are a suggestive source of criteria and principles against which to evaluate these various rules of allocation.

V. CONCLUDING REMARKS

The allocation of common costs problem and the bankruptcy problem provide two distinct analogies to the problem of allocating settlement funds.
in mass actions. The prior discussion suggests that the economic analyses of these problems offer many suggestions both for appropriate rules to allocate settlement funds and for the justification of these rules. Implementation of either approach requires that the court or other reviewing agency know the expected value of each plaintiff's claim, a set of facts also necessary to implement the regime proposed by Silver and Baker.\textsuperscript{3} The allocation of common costs approach requires knowledge (or an estimate) of the costs of litigating various joinders of the plaintiff. This information may be less readily available.

The allocation of common costs approach to settlements in mass actions seems to me more promising than the bankruptcy approach because the allocation of common costs approach permits a unified analysis of the problem of allocating settlement funds and of both controlling, and providing incentives for, plaintiffs' attorneys. The stand-alone property requires that each plaintiff, and each set of plaintiffs, do as well as they could have done by litigating alone (or in a particular joinder). The property thus permits the use of the settlement surplus to pursue other social goals. For example, assignment of a larger proportion of this surplus to plaintiffs' attorneys will promote the institution of these mass actions. Assignment of a larger proportion to defendants might promote settlement.

Finally, the analysis of the allocation of common costs problem suggests that, in at least two respects, Silver and Baker do not provide sufficiently stringent conditions for the adequacy of settlement allocations in mass actions. The individual rationality constraint that each plaintiff receive at least as much in settlement as she would have received litigating alone does not sufficiently constrain attorneys in the allocation of settlement. Moreover, the analysis of voting rules suggests more careful scrutiny of any ex ante consent to procedures for the allocation of settlements.

\textsuperscript{3} Silver and Baker would inform each plaintiff of the expected value of her claim. See Silver & Baker, supra note 1, at 1469.