

ECONOMIC RESEARCH REPORTS

***Resolving Social Issues in a Merger:
A Fair-Division Approach***

by
Steven J. Brams
and
Maxim S. Kulikov

RR# 98-13

April 1998

**C.V. STARR CENTER
FOR APPLIED ECONOMICS**



**NEW YORK UNIVERSITY
FACULTY OF ARTS AND SCIENCE
DEPARTMENT OF ECONOMICS
WASHINGTON SQUARE
NEW YORK, NY 10003-6687**

Resolving Social Issues in a Merger: A Fair-Division Approach

April 1998

Steven J. Brams[†]
Department of Politics
New York University
New York, NY 10003

Maxim S. Kulikov[‡]
Yale Law School
P.O. Box 208215
New Haven, CT 06520

[†] Steven J. Brams is Professor of Politics at New York University. He is the author or co-author of twelve books involving applications of game theory and social-choice theory to a wide range of political and social problems. He thanks the C. V. Starr Center of Applied Economics at New York University for support.

[‡] Maxim S. Kulikov is an Olin Fellow for Studies in Law, Economics, and Public Policy at Yale Law School. He is a Book Reviews Editor at the *Yale Law Journal* and an Executive Editor at the *Yale Journal on Regulation*.

Abstract

One of the most elusive ingredients in the success of a deal is what dealmakers euphemistically refer to as “social issues”—how power, position, and status will be allocated among the merging companies’ executives. A failure to resolve these issues often leads to the destruction of shareholder wealth and portrayal of top executives as petty corporate chieftains, unable to subordinate their selfish interests to the goal of promoting shareholder well-being. In some cases, like the aborted Glaxo-Wellcome–SmithKline Beecham deal in February 1998, these effects can be dramatic.

In spite of the crucial importance of social issues in the merger negotiation process, dealmakers lack effective tools for their resolution. Adjusted Winner, a point-allocation fair-division procedure, offers such a tool. It enables parties to decide who “wins”—sometimes only partially—on what issues in a way that is equitable, efficient, and envy-free. It is easy and inexpensive to apply, even in the case that two parties have different entitlements, and virtually impossible to manipulate. Its use is illustrated by several examples, which commend it for serious consideration by corporate executives and merger professionals practicing the difficult art of dealmaking.

JEL Classification: D63, D74. *Keywords:* Fair division; mergers; social issues; adjusted winner; equity; efficiency; envy-freeness.

Resolving Social Issues in a Merger: A Fair-Division Approach

Glaxo Wellcome PLC and SmithKline Beecham PLC saw nearly \$19 billion of their stock-market value vanish in the clash of two corporate egos.¹

I. INTRODUCTION

In the aftermath of the failed Glaxo Wellcome–SmithKline Beecham deal, the financial press was full of unflattering descriptions of corporate egos run amok and the damage to shareholder interests they caused. Jan Leschly, SmithKline’s chief executive, and Sir Richard Sykes, Glaxo’s tough-talking chairman, were accused of suffering from the “great man” syndrome and allowing considerations of power and prestige to overshadow concerns for shareholder well-being.

The aborted combination of the two pharmaceutical giants, which would have been the largest merger ever, is just the most recent and the most dramatic example of merger negotiations gone awry because of the top executives’ inability to agree on the division of control in the merged entity. Several months earlier, Mellon Bank Corp. and Bank of New York Co. came close to agreeing to a merger of equals, but talks collapsed over issues of management succession. In January 1996, Boeing and McDonnell Douglas terminated their merger discussions due to the inability to agree on personnel and related issues—only to resume negotiations less than a year later because the combination, after all, made a great deal of strategic sense. Also in 1996, CCB Financial Corp. and United

¹ Robert Langrteh & Steven Lipin, *Glaxo, SmithKline Reel in Battle of Egos*, WALL ST. J., Feb. 25, 1998, at A3.

Carolina Bancshares, amid the rush of consolidations in the regional banking industry, failed to agree on a strategic merger because their executives could not resolve, among other things, who would occupy top executive positions in the merged bank and where its headquarters would be.

The reality of contemporary dealmaking, in short, is that the agreement on “objective” or “quantifiable” aspects of the merger is just one of the prerequisites to the success of a deal. According to Michael Carr, co-head of M&A at Salomon Smith Barney, “there are a lot of things that need to be in balance in a stock merger, from price/earnings ratio to earnings contributions to the social issues.”² This sentiment is echoed by Robert Kindler, an M&A partner at Cravath, Swaine & Moore: “Even transactions that make absolute economic sense don’t happen unless the social issues work.”³ *Social issues*, as we shall use the term, concern the more ineffable matters of status, role, and prestige in the merged company, as opposed to “hard” financial factors.

Despite the social issues’ obvious importance to the consummation of merger negotiations, merger professionals have so far been unsuccessful in developing negotiations techniques that can help corporate executives overcome their differences. The urgent need for such techniques is highlighted by the mind-boggling volume of deals in the recent months: In the first quarter of 1998, according to the *Mergers and Acquisitions Report*, the value of announced U.S. deals reached \$200 billion.

² Steven Lipin, *The Market Bounceback: Merger Bankers Don’t Bet on Increase in Leisure Time*, WALL ST. J., Oct. 29, 1997, at C16.

³ Steven Lipin, *In Many Merger Deals, Ego and Pride Play Big Roles in Which Way Talks Go*, WALL ST. J., Aug. 22, 1996, at C1.

Most of the current deals are not diversifying transactions. Rather, the rationale for a typical merger is the achievement of synergistic gains by combining two companies in the same industry segment. In this environment, a company's failure to acquire or merge with another firm in order to start realizing synergistic gains sooner than its rivals can be quite costly to its shareholders. Even if a merger is ultimately consummated, as in the case of Boeing and McDonnell Douglas, a failure to agree on the resolution of social issues quickly wastes resources and the extremely valuable time of top corporate executives.

In what follows, we suggest a dispute-resolution procedure that can prevent diminutions in shareholder value caused by the dealmakers' inability to divide social issues. In addition to providing a compelling solution to a problem that, potentially, can scuttle merger talks, this technique promotes harmonious working relationships between the merging companies' management teams by ensuring that each side gets what it perceives to be a "fair deal."

The latter is of crucial importance in the post-merger integration period. A recent study by Mercer Management Consulting shows that a key reason why some mergers fail to live up to the expectations is the inability of the merged company "to get people to work together productively." The most recent deal that may turn out to be less successful than dealmakers had anticipated is the \$25 billion merger-in-progress between Swiss Bank and Union Bank of Switzerland. According to the *Wall Street Journal*, a number of senior UBS executives have left the firm in recent weeks because of the dissatisfaction with the division of power between SBC and UBS managers.

The difficulty in forging cooperation between two management teams is, perhaps, inevitable, given the transformation that their relationship undergoes from the pre-merger to the post-merger period. After all, former adversaries, first in the market place and then at the negotiating table, are quite suddenly expected to work closely together and cooperate fully as their respective corporate entities attempt to meld themselves into a single organization.

To render these expectations realistic, it is crucial that neither party walk away from the merger negotiations thinking that the other party somehow got more than it deserved. We believe that *Adjusted Winner*, a dispute-resolution procedure described next, can contribute significantly to the realization of this objective.

II. ADJUSTED WINNER

A. *An Introduction*

Adjusted Winner, a point-allocation fair-division procedure developed by Brams and Alan D. Taylor, a mathematician at Union College, was designed to provide a solution to the division between two players of a set discrete goods, or issues, each of which is assumed to be divisible (we relax this assumption considerably later—only one good or issue must be divided in the end). As described in greater detail in Brams and Taylor's *Fair Division: From Cake-Cutting to Dispute Resolution* (Cambridge University Press 1996), Adjusted Winner produces an allocation of goods or issues that is

1. *Efficient*—any allocation that is strictly better for one player is strictly worse for the other, so there is no better allocation for both;

2. *Equitable*—one player’s announced valuation of its allocation is exactly the same as the other player’s announced valuation of its allocation; and

3. *Envy-Free*—neither player would trade its allocation for that of the other player, if given an opportunity to do so, because neither thinks the other’s allocation is better.

The procedure works by giving each player the same number of points to distribute across the goods or issues in any way it pleases. Initially, a player wins all of the goods for which its announced valuations are higher than those of the other player. Clearly, only by chance will the players win the same total number of points; in the more usual case in which the goods that each player wins give one player more of its points than the other player obtains of its points, the procedure is not equitable (in the sense described above).

To ensure that the players obtain the same number of points—as each values the different items—we must transfer some points from the player with more points initially (the “winner”) to the player with fewer points (the “loser”). Throughout we will suppose that the issues being decided are *separable*: The utility that a player derives from winning one issue (or a portion thereof) does not depend on its winning other issues (or portions thereof). In a merger context, at least, this appears to be a plausible assumption—the utility a party derives from nominating a CEO, for example, does not seem to be depend on whether the party also gets to select the combined entity’s name or headquarters.

We start with the good or issue for which the ratio of the winner’s valuation to the loser’s valuation is the lowest. In effect, we want to divide this closely contested item in such a way as to equalize the total number of points that each player receives. If

equitability cannot be achieved even by transferring 100% of this item from the winner to the loser, the transfer is repeated with respect to the item with the next-lowest ratio of winner-to-loser points. This is the “adjusted” part of Adjusted Winner.

To illustrate: Suppose that Players 1 and 2 seek to divide three goods— G_1 , G_2 , and G_3 —and have 100 points each to distribute across these goods. Suppose further that their sincere valuations of the goods (we shall comment later on sincere-versus-strategic valuations) are the ones they announce, which are given in the following table:

	G_1	G_2	G_3	Total
Player 1’s announced valuations	<u>9</u>	<u>66</u>	25	100
Player 2’s announced valuations	7	36	<u>57</u>	100

The player that puts more points on each good is assigned that good initially; in the table, we underscore its points for that good. Thus, G_1 and G_2 are assigned to Player 1, giving it a total of 75 ($= 9 + 66$) points, and G_3 is assigned to Player 2, giving it 57 points, so Player 1 is the initial winner. To achieve equitability, some goods (or portions thereof) must be transferred from Player 1 to Player 2. Note that the lowest ratio of winner-to-loser points of the goods Player 1 wins initially (G_1 and G_2) is for G_1 : $9/7 \approx 1.29$ for G_1 is smaller than $66/36 \approx 1.83$ for G_2 . Even a transfer of all of G_1 from Player 1 to Player 2, however, would not achieve an equitable division because Player 2, after the transfer, would have 57 (for G_3) + 7 (for G_1) = 64 points, whereas Player 1 would still have 66 points (for G_2).

Hence, Player 1 must give up part of G_2 . If α denotes the fraction of G_2 that Player 1 will retain, $(1 - \alpha)$ will be the fraction of G_2 it will have to give up to ensure equitability. Solving the following equation for α will ensure that the total numbers of points of Player 1 (left side of the equation) and of Player 2 (right side of the equation) are equal:

$$66\alpha = 36(1 - \alpha) + 57 + 7,$$

which yields $\alpha = 50/51 \approx .98$. Consequently, Player 1 will receive G_1 , G_3 , and about 2% of G_2 , while Player 2 will retain the remaining 98% of G_2 , which is what we call the *equitability adjustment*.

The resulting allocation is indeed equitable: Player 1 receives a total of $(.98)(66) \approx 64.7$ of its points, and Player 2 receives a total of $(.02)(36) + 57 + 7 \approx 64.7$ of its points. It is obviously envy-free, because each player receives more than 50% of what it desires and so would not want to trade its allocation for the other player's allocation (which is necessarily less than 50% in the first player's eyes). It is less obvious that the allocation is efficient, but it can be shown in general that transferring goods from the initial winner to the initial loser, according to the lowest-ratio criterion, cannot be improved on for one player without hurting the other.

Adjusted Winner can easily be modified to accommodate bargaining situations in which the parties' relative entitlements are not equal (see "Unequal Entitlements"). This is accomplished by endowing one player with a larger number of points or, alternatively, multiplying the points assigned to one of the players by an appropriate fraction to account

for unequal entitlements. Regardless of which technique is used, the allocation produced by Adjusted Winner remains efficient, equitable, and envy-free.

Unequal Entitlements [Sidebar]

Suppose that Player 1 in the preceding example is entitled to receive 40% more points than Player 2—that is, Players 1 and 2, respectively, receive points in the ratio $7/5 = 1.4$. Then the points of Player 1 would come from obtaining G_1 , G_2 , and a fraction of G_3 , denoted α (left side of the equation below), and the points of Player 2 would come from obtaining the complementary fraction of G_3 multiplied by the entitlement ratio (right side of the equation):

$$66 + 9 + 25\alpha = (7/5)[57(1 - \alpha)].$$

Solving this equation for α yields $\alpha = 6/131 \approx .0458$. Thus, Player 1 would receive $66 + 9 + (.0458)(25) \approx 76.1$ of its points and Player 2 would receive $(.9542)(57) \approx 54.4$ of its points after the equitability adjustment. Despite unequal entitlements, it can be shown that this outcome is efficient and envy-free. For example, Player 2 receives more than 50 of its points and hence would not envy Player 1. But if Player 1 were entitled, say, to twice as much as Player 2 (instead of 40% more), then Player 2 would receive less than 50 of its points (actually, 41.0 points). In this case, we would say that while Player 2 would envy Player 1 *as a whole* (for getting 59.0 points), it would not envy the “half” of Player 1 (that receives 29.5 points) that it is proper to compare itself to, given the “double” entitlement that Player 1 has.

In addition to producing an allocation with the aforementioned desirable properties, Adjusted Winner can be implemented at a very low cost: All that is necessary is a reliable third party, such as a law firm with no prior relationship to either side, that can make the equitability-adjustment calculations. This makes the procedure eminently practicable in a variety of settings, from divorce settlements to treaty negotiations. Adjusted Winner, as we will illustrate, can also be profitably utilized in merger negotiations, thereby expediting the bargaining process.

B. Adjusted Winner in a Merger

Suppose that two companies—Company 1 and Company 2—are contemplating a merger. Assume the companies agree on an exchange ratio whereby shareholders of Company 1 would own 60% and shareholders of Company 2 would own 40% of the combined entity after the merger. Several social issues, however, remain outstanding: the surviving company’s name; the location of corporate headquarters; the split of the chairman and CEO positions; and, finally, which side will lay off some of its employees to eliminate overlapping operations.

Applying Adjusted Winner, assume that each side distributes its 100 points across the issues as shown in the following table:

	Name	Headquarters	Chairman	CEO	Layoffs	Total
Company 1	6	<u>35</u>	19	<u>14</u>	<u>26</u>	100
Company 2	<u>21</u>	15	<u>28</u>	12	24	100

Then it is easy to show that (see “Merger Example”) Company 1 will select the name of the combined entity and its chairman. Company 2, on the other hand, will select the combined entity’s headquarters and CEO. There will be an equitability adjustment on layoffs such that 97.6% will come from Company 1 and 2.4% from Company 2. This allocation gives each company 24% more than its entitlement, which can be shown to be the unique efficient, equitable, and envy-free division.

Merger Example [Sidebar]

The underscored assignments indicate, initially, that Company 1 gets to select the combined entity’s headquarters and CEO. Also, all the layoffs (at least temporarily) are expected to come from Company 2’s side. Company 2, on the other hand, gets to select the combined entity’s name and chairman. The initial assignments, however, result in Company 1’s winning 75 of its points and Company 2’s winning 49 of its points, which is inequitable even with Company 1’s greater entitlement of 60%.

In particular, notice that $75/49 \approx 1.53$ is slightly more than the 50% greater ownership entitlement ($60/40 = 1.5$) of Company 1. Accordingly, Company 1 must give back points on the lowest-ratio issue on which it won ($26/24 \approx 1.08$ on layoffs is less than $14/12 \approx 1.17$ on CEO and $35/15 \approx 2.33$ on headquarters). Setting Company 1’s points (left side of the equation) equal to $3/2 = 1.5$ of Company 2’s points (right side), we obtain

$$35 + 14 + 26\alpha = (3/2)[28 + 21 + 24(1-\alpha)].$$

Solving for α yields $\alpha \approx .976$. Thus, 97.6% of the layoffs will come from Company 1 and 2.4% from Company 2.

It is easy to verify that the allocation of social issues produced by Adjusted Winner is, in fact, equitable in an extended sense: Company 1 wins $35 + 14 + 26(.976) \approx 74.4$ of its points, and Company 2 wins $28 + 21 + 24(.024) \approx 49.6$ of its points, which are each 24% above their 60-40 entitlements. The allocation is also efficient and—what is probably even more important in a bargaining setting dominated by strong personalities—envy-free in the sense we described in the earlier unequal-entitlements example.

Once the relevant issues have been identified and the parties have made their point assignments—which, to be sure, may require considerable effort—the application of Adjusted Winner is easy, requiring only a basic knowledge of high school algebra and a few minutes of calculations. The only issue the parties may still have to resolve is what it means to win a specified percentage of the item that is subject to the equitability adjustment. This is the question we take up next.

C. Potential Drawbacks

Despite Adjusted Winner's apparent effectiveness as a conflict-resolution procedure, two aspects of its design may render its use impracticable in some merger negotiations. First, the procedure assumes that the one good or issue on which the equitability adjustment must be made, which is not known in advance of applying the procedure, is divisible. This may or may not be the case. For example, whereas it seems easy to agree on what it means that $x\%$ of layoffs would come from one side and $(100 - x)\%$ from the other, dividing the location of the combined entity's headquarters is hardly

a feasible proposal. Second, the procedure can, in theory, be manipulated by a party that has inside information about the other party's point allocations across the issues.

The first problem is potentially serious, but it can be successfully dealt with in most merger negotiations in a variety of ways. The second problem is of less moment—the potential for manipulation is very remote and unlikely to be a serious obstacle to the implementation of Adjusted Winner. We discuss each problem in turn.

1. Potential Indivisibility

One way the indivisibility problem can be mitigated, if not solved, is by having the players agree that what it means to receive a given percentage of the equitability adjustment issue would be worked out only after that issue has been determined. After such a determination has been made, the players need only be concerned about splitting this issue in a particular way (e.g., 60-40).

Which side wins the larger amount, however, would remain secret. This would help to ensure that the players agree on the definition of winning $x\%$ of a certain issue, because each player, *ex ante*, would not know whether it was the relative winner or loser. For example, after it has been determined that the issue subject to the equitability adjustment is who will be chairman of the surviving company, the players might agree that receiving 40% on this issue (i.e., being the relative loser) means nominating the chairman for the first four years after the merger, whereas receiving 60% (i.e., being the relative winner) means nominating the chairman thereafter. This is somewhat similar to the “divide-and-choose” method of cake-dividing, whereby one player cuts a cake into

two pieces and the other player chooses its preferred piece. Ex ante, the cutting player has no incentive to make the pieces unequal, because he does not know whether what he perceives to be the bigger piece will actually be taken by the choosing player.

As a second approach to dividing an issue, the players might agree that winning one or more collateral issues (i.e., issues not divided according to Adjusted Winner) may constitute sufficient compensation for letting one of the players win the entire issue on which the equitability adjustment is to be made. This technique becomes especially appealing if only a small percentage of the issue needs to be transferred from one player to the other. For example, suppose that the issue subject to the equitability adjustment is once again the chairmanship of the company, but now assume that only 5% of this issue has to be given up by the initial winner. The parties might agree that the initial winner would nominate the chairman in perpetuity and that the other party, in return for its concession, would get to select a law firm to serve as an outside general counsel to the combined company (this issue, presumably, would be relatively inconsequential and would, therefore, be outside the scope of the Adjusted Winner procedure).

Although such negotiations might become more complex than those in which the issue subject to the equitability adjustment is readily divisible, they would certainly be easier than having no starting point to decide who is more entitled to get the chairmanship or win on any other significant issue. Furthermore, the parties would have a strong incentive to reach agreement on that issue—such as adequate compensation to the other party for not winning—because the parties, without knowing which is the relative

winner or loser, would not know whether such compensation would be added to or subtracted from their respective payoffs.

As a third approach to dividing an issue, the parties might agree to let a mutually acceptable arbitrator decide what it means to get a specified percentage of the chairmanship or other indivisible issue. Once again, the advantage provided by Adjusted Winner is that only *one* issue will have to be resolved by a third party.

A fourth approach would be to perform the equitability adjustment on an issue that *is* easily divisible, such as layoffs, even though the ratio of the parties' valuations for that issue is not the lowest. The obvious drawback of doing this is that the resulting allocation would not be efficient; the sacrifice in efficiency, however, may be relatively small if the ratio of valuations is almost the lowest. In that case, the parties may prefer to forego some efficiency gains for the sake of producing an allocation that is both equitable and envy-free.

Finally, if everything else fails, the parties may abandon Adjusted Winner completely and revert to traditional negotiating techniques. Presumably, they would do so if the procedure did not find a mutually acceptable solution; in the process, however, Adjusted Winner might suggest the outlines of one. Moreover, it would do so at a very low cost, at least after the issues have been identified, and what winning and losing on each means to each side has been decided.

Thus, the parties would not waste an appreciable amount of resources if the procedure were ultimately abandoned. However, they should probably agree in advance

whether Adjusted Winner, like a mediator, would pave the way for a possible settlement; or, like an arbitrator, it would bind the parties to the settlement in produces.

2. *Inside Information*

A potential drawback of Adjusted Winner is that it may fail to induce a truthful or sincere revelation of the players' preferences if one of them has exact knowledge of the other player's valuations. In this case, the player with inside information may attempt to manipulate its point assignments in such a way as to get more points than it "deserves" (see "Manipulability").

Manipulability [Sidebar]

The procedure's theoretical susceptibility to manipulation can be easily illustrated in the case of two issues. Suppose Player 1 values the issues equally, and Player 2 knows that it will truthfully allocate 50 points to each issue. Suppose further that Player 2's true valuation is 70-30. In that case, assuming the announced valuations must be integers, Player 2 should allocate 51 points to the first issue and 49 points to the second one. The initial outcome will be that Player 2 will get all of G_1 (which it values at 70), and Player 1 will get all of G_2 (which it values at 50). After the equitability adjustment, only a small fraction of G_1 ($1/101$) will be transferred from Player 2 to Player 1, because Player 2's *announced* valuation of G_1 (51) is only slightly higher than Player 1's announced

valuation of G_2 (50). As a result, Player 2 will get 69.3 points and Player 1 will get only 50.5 points, based on the players' *true* valuations.

Conversely, Player 1 can exploit Player 2 if it has reliable information about Player 2's true valuations. If Player 1 assigns 69 points to G_1 and 31 points to G_2 , there will be a transfer of $39/139$ of G_1 from Player 2 to Player 1, giving the latter 64.0 points and the former only 50.4 points (again based on their *true* valuations).

Note that Player 2, the exploiter in the first example, would be hurt drastically if it followed its exploitative strategy of 51-49 and Player 1's announced valuation of G_1 turned out to be, say, 52 points rather than 50. Player 2, in this case, would get all of G_2 (for which its true valuation is 30) and $3/103$ of G_1 (for which its true valuation is 70), giving it the total of 32.0 points. By contrast, had Player 2 been truthful, it would have gotten 57.4 points. Note, also, that whichever player is the exploiter, the exploited player always receives slightly more than 50 points, so Adjusted Winner remains envy-free even when there is exploitation based on an asymmetry of information. Moreover, it gives a better allocation for both players than what a simple 50-50 split on each of the issues would produce (i.e., exactly 50 points for each player).

Although theoretically possible, the exploitation of one player by the other is exceedingly unlikely to take place in most bargaining settings. First, the assumption that one player possesses *perfect* intelligence about the other player's valuations is not very plausible. If a potential exploiter miscalculates, possibly because the other player's distribution of valuations turns out to be just slightly different from expected, the exploiter could be punished quite severely. Not only might the resultant allocation fail to

be envy-free (from the exploiter's perspective), but the exploiter could also end up with substantially fewer points than it would have obtained had it been truthful.

Second, the assumption of an asymmetry in the intelligence that each side possesses is very implausible, at least in a merger context—except, of course, in the extreme case where one player has a spy in the other's camp. In general, however, it is more realistic to assume that players have roughly similar knowledge about each other's valuations. In that case, *each* player might attempt to exploit the other, making the outcome of the game very difficult to predict.

This is because each player would have to predict not only the other player's valuation, but also what the other player *thinks* the first player's response to that valuation will be. The players' interaction in this scenario would involve a potentially infinite series of guesses and counter-guesses about each player's responses and counter-responses. As game-theorists would say, there then would be no Nash equilibrium in pure strategies.

When information about the other party's valuations is symmetrically distributed, a player is as likely to be hurt by as benefit from its attempt at exploitation. This is because half the time it would outguess the other player and half the time it would be outguessed. Clearly, the players would have no incentive to engage in manipulative conduct if the magnitude of gain multiplied by the probability of success is no greater than the magnitude of loss multiplied by the probability of failure. Worse, manipulative strategies provide no assurance of envy-freeness (i.e., each player's obtaining at least 50 points), rendering their choices even more risky. It seems likely, therefore, that truthful,

or almost truthful, revelation of preferences would be in the parties' interests most of the time, motivating them to be essentially sincere in their point allocations.

In sum, unless one party suspects that the other has a spy in its camp (a suspicion that in and of itself should call the feasibility of the deal into question), Adjusted Winner can, for all intents and purposes, be considered manipulation-proof. Nevertheless, the parties should not be forced to abide by the allocation generated by a procedure that they suspect might have been manipulated to their disadvantage. Each player should, therefore, be given an option to reject the allocation produced by Adjusted Winner, unless, contractually, both agree beforehand to abide by the outcome it produces.

Even if the procedure is ultimately abandoned, the resources spent on Adjusted Winner's implementation (once the parties have defined the issues and winning-versus-losing positions on each) are not likely to be substantial. The parties would, therefore, be well advised to give the procedure serious consideration, particularly in seemingly intractable conflicts in which an efficient, equitable, and envy-free allocation seems elusive, if not beyond the pale.

CONCLUSION

In April 1998, Wall Street was rocked by news of the \$70 billion blockbuster merger between Travelers and Citicorp, which was quickly followed by several other gigantic mergers in the financial-services industry. These deals, in our view, highlight the need for effective dispute-resolution techniques in merger negotiations. Although the key

players in the Travelers-Citicorp deal seem so far to have resolved social issues satisfactorily, participants in future mergers, large or small, may not be so fortunate.

While not providing a panacea to the problem of negotiating over social issues in a merger, Adjusted Winner can help the dealmakers reach agreement on allocations of such issues. In a setting wherein each negotiator prides himself or herself on the ability to obtain the best possible deal, an allocation that is *not* efficient, equitable, and envy-free either (1) would not be accepted at all or (2) would be potentially disruptive of the parties' working relationships in the future. In either case, shareholder value would be destroyed in the clash of corporate egos and strong personalities. In our view, Adjusted Winner offers a strikingly simple procedure to forestall this potential problem.