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Bad Arguments in Corporate Law

MELVIN ARON EISENBERG*

Corporate law has become a lively battleground in the last ten or fifteen years; few subjects have provoked as much debate in the scholarly literature and at symposia and other scholarly meetings. The major questions in this debate are whether any legal rules should be mandatory, and, if so, what these rules should be. These questions raise complex and difficult issues, which occasionally are obscured by some recurring bad arguments. The purpose of this article is to identify several of these bad arguments in the hope of removing some clutter from the stage.

I. NIRVANA AND HEAVEN

An argument often made against the adoption of any given mandatory rule is that market forces will accomplish the desired objective at less cost. A response sometimes made is that the relevant markets are seriously flawed in the given case. It is occasionally countered that this response reflects the Nirvana Fallacy, which consists of the mistaken belief that just because markets are not perfect, mandatory rules would necessarily be better.¹ The dialectic often goes something like this:

A: This issue should be governed by a mandatory legal rule.

B: We don't need a mandatory legal rule to govern this issue, because market mechanisms will accomplish the desired objective at less cost.

A: The market mechanisms you rely upon will not accomplish the desired objective at less cost, because of serious imperfections in the relevant markets.

B: You've committed the Nirvana Fallacy.

Is *B* right? It is true that mandatory legal rules are often imperfect. Therefore, it would indeed be a fallacy to believe that just because markets are imperfect, mandatory rules would necessarily be better. However, *B* here adopts a mirror-image fallacy, which consists of believing that just because mandatory rules are imperfect, markets would necessarily be better. I call

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1. For ease of expression, I will refer to the arguments considered in this essay as fallacies, although some might better be characterized by other labels, such as improper inferences.

this the Heavenly Market Fallacy, because it rests on the belief that any market, no matter how flawed, is heavenly, and therefore preferable to a mandatory legal rule.

This belief is mistaken. Although a perfect market is superior to an imperfect rule, an imperfect market may be either better or worse than an imperfect rule. Accordingly, Demsetz, who coined the phrase "Nirvana approach," used it evenhandedly to discuss both the fallacy of thinking that mandatory rules are necessarily better than imperfect markets, and the fallacy of thinking that markets are necessarily better than imperfect mandatory rules.² "[T]he same charge [of failing to analyze the workings of an alternative regime] can be levied against those who derive in a similar way the . . . policy conclusion . . . that calls for a reduction in the role played by government."³

In short, whether leaving any given matter to an imperfect market would be better or worse than governing the matter by a mandatory rule cannot be resolved by the application of an algorithm. It may be that a political norm in the United States presumptively favors market regimes.⁴ This presumption, however, affects only the burden of production. Once evidence of significant market imperfections is introduced, whether a mandatory legal rule is desirable or undesirable can be determined only by a cost-benefit analysis of the power and limits of the relevant markets and the relevant rule.

II. THE DESKTOP FALLACY

Cost-benefit analyses turn on the assessment of empirical evidence. Another kind of bad argument against mandatory legal rules turns on what kind of empirical evidence is relevant in such analyses and, in particular, on the role of empirical evidence other than statistically significant quantitative data.

A basic objective of quantitative economic analysis is to determine whether there is a causal relationship between two variables—for example, between board composition and corporate performance. Because an apparent relationship between two variables may be due simply to chance or to the effect of an intervening variable, under the canons of social science a statistical correlation will not be accepted as proof of a causal relationship unless the relationship is statistically significant at a very high level of confidence, typically ninety-five or ninety-nine percent. That requirement occasionally leads to the mistaken argument that a lack of statistically significant quantitative data constitutes a lack of empirical support. I call this the Desktop

2. Demsetz, *Information and Efficiency: Another Viewpoint*, 12 J.L. & ECON. 1, 3 (1969).

3. *Id.*

4. See SCHULTZE, *THE PUBLIC USE OF PRIVATE INTEREST* 13-14 (1977).

Fallacy, because it recognizes as relevant to the establishment of legal rules only evidence that can be verified by a scholar working at a computer, and thereby ignores whole classes of other empirical evidence.⁵

One expression of the Desktop Fallacy is that only quantitative data can serve as proper empirical support for a legal rule, so that any unquantified empirical sources, such as first-hand observations of corporate operations and insights into managerial psychology, are inadmissible. A second expression of the fallacy is to dismiss the implications even of quantitative data if these implications are not significant at the ninety-five or ninety-nine percent level of confidence.

These expressions of the Desktop Fallacy confuse canons that are appropriate to the conduct of enterprises whose major goal is to test and validate theories, such as the social sciences, with canons that are appropriate to the conduct of applied decisionmaking enterprises, such as business, government, and law. Wrongly considering that a theory is incorrect is known as a Type I error. Wrongly considering that a theory is correct is known as a Type II error. In the social sciences, a Type II error is considered much more serious than a Type I error. Why? For one thing, the only real loss that follows from a Type I error is likely to be theoretical. For another, a Type I error will probably be temporary, because if a theory is correct, further data should eventually support it. The low cost of a Type I error in the social sciences is a major reason for the canon that in those sciences, a new theory should not replace an existing theory unless the data support the new theory at a ninety-five or ninety-nine percent confidence level.

In contrast, applied enterprises are concerned with making decisions in the real world. In the real world, *not* making a change is just as much a decision as making a change: the cost of wrongly *failing* to change a business or government policy or a legal rule can be as great or even greater than the cost of wrongly changing a business or government policy or a legal rule. Unlike the social sciences, therefore, in applied enterprises the costs of a Type I error may be just as great or greater than the costs of a Type II error.

It is, of course, proper to give special regard to conclusions based on statistically significant quantitative data, and to reject empirical propositions that conflict with such data. If, however, such data are unavailable, applied enterprises must proceed on the basis of the best available evidence and the

5. I should emphasize that most of those who employ quantitative analysis do not reject other types of empirical propositions, and many of the most important contributions made by theoretical economic analysis rest in part on such propositions. For example, agency theory generally, and agency-cost theory in particular, is premised on the unquantified proposition that managers and other agents will often act unfaithfully unless checked by monitoring, bonding, or other external devices. See, e.g. Jensen & Meckling, *Theory of the Firm: Agency Costs and Ownership Structure*, 3 J. FIN. ECON. 8 (1976).

balance of probabilities. In fact, few nontrivial judgments in such enterprises either are or can be based on quantitative data that are significant at the ninety-five or ninety-nine percent confidence level. If such data were a prerequisite for action in the business world, business would grind to a halt. If it were a prerequisite for action in government or in the law, the United States would neither have declared its independence nor have adopted a single clause of the Constitution.

Of course, empirical propositions other than those based on statistically significant quantitative data should be subjected to rigorous scrutiny. Both scholars and judges should clarify the empirical bases for their conclusions so these conclusions can be held up to such scrutiny. Although this scrutiny may consist of quantitative analysis, it may also consist of testing propositions against experience derived in other ways.

There is another, more technical reason why it is fallacious to reject quantitative data that are not significant at the ninety-five or ninety-nine percent confidence level. Because of limits on the sensitivity of the methodology employed in event studies, many phenomena may have an impact that, although economically important, is not of a sufficient magnitude to be registered by that methodology. For example, Professors Elliott Weiss and Lawrence White conducted an event study of the effect that seven major Delaware judicial decisions had on stock prices of Delaware corporations.⁶ Each of these decisions made important changes in significant governance rules. One commentator characterized four of the decisions as "radical departures from prior law,"⁷ and a fifth as breaking new ground.⁸ Yet Weiss and White found that the market reaction to the decisions was almost uniformly not statistically significant.⁹ In a comment on the Weiss and White data, Professor Merritt Fox pointed out that even if changes in governance rules are negatively priced by the market, under the standard technique used in con-

6. See Weiss & White, *Of Econometrics and Indeterminacy: A Study of Investors' Reactions to "Changes" in Corporate Law*, 75 CALIF. L. REV. 551, 569-602 (1987) (studying effect on share prices of: *Unocal Corp. v. Mesa Petroleum Co.*, 493 A.2d 946 (Del. 1985); *Maldonado v. Flynn*, 413 A.2d 1251 (Del. Ch. 1980), *rev'd sub nom. Zapata Corp. v. Maldonado*, 430 A.2d 779 (Del. 1981); *Weinberger v. UOP, Inc.*, 426 A.2d 1333 (Del. Ch. 1981), *rev'd*, 457 A.2d 701 (Del. 1983); *Lynch v. Vickers Energy Corp.*, 429 A.2d 497 (Del. 1981); *Lynch v. Vickers Energy Corp.*, 383 A.2d 278 (Del. 1977); *Singer v. Magnavox Co.*, 380 A.2d 969 (Del. 1977)). The market's reactions to the Delaware Supreme Court and chancery court decisions in *Maldonado* were measured separately.

7. Fischel, *The "Race to the Bottom" Revisited: Reflections on Recent Developments in Delaware's Corporation Law*, 76 NW. U.L. REV. 913, 942 (1982).

8. See Fischel, *The Appraisal Remedy in Corporate Law*, 1983 AM. B. FOUND. RES. J. 875, 894-96.

9. See Weiss & White, *supra* note 6, at 582. For *Unocal*, however, Weiss and White found statistically significant positive returns to a Delaware portfolio on the fourth and ninth days after the announcement of the decision. *Id.* The results for a non-Delaware portfolio were generally comparable. *Id.*

ducting event studies, that pricing would not necessarily be discernible at a statistically significant level:

For the price change that accompanies [an] announcement . . . to be considered statistically significant, it must be sufficiently different from zero that one can, with reasonable confidence, reject the "null hypothesis" that the true effect . . . is zero and that the observed change results solely from other chance factors. The "standard error" is a statistically derived estimate of the tendency of these other factors to cause the *observed* price changes to deviate from the *actual* effect . . . on prices. Assume for our example a standard error of 0.65, which is representative of the standard errors in the Weiss and White tests. The observed adjusted price change would have to be at least 1.3% before we could reject the null hypothesis with 95% confidence. There is less than one chance in twenty that an increase of 0.1% in the actual value of a sample portfolio will be accompanied by an observed change in prices sufficiently large, that is, 1.3%, to be considered statistically significant.¹⁰

Phenomena that are not of a sufficient magnitude to be registered under standard event-study methodology may nevertheless be important. For example, Fox observes that if the value of Delaware corporations was reduced by 0.1%, the aggregate loss in value would be approximately \$1 billion. This observation would apply equally to widespread governance rules established by managerial actions.

In short, a relationship may be significant in making decisions concerning governance rules for corporations even though the relationship does not satisfy the statistical tests for establishing a new theory in the social sciences. Moreover, a relationship may fail the test of statistical significance only because the relevant methodology is insufficiently sensitive. Therefore, relationships that are not statistically significant may nevertheless be economically significant.

III. THE MOUSE-TAIL FALLACY

The Desktop Fallacy mistakenly treats a lack of statistically significant data as a lack of significant empirical support. A mirror-image fallacy mistakenly treats statistical significance as real significance, that is, as importance. This is a fallacy because "statistical significance" is a technical term that concerns only whether an observed relationship is real or is the product of chance variation or the effect of an intervening variable. Statistical significance does not either measure or depend upon whether a relationship is important.¹¹ I call the fallacy of confusing statistical significance and

10. Fox, *The Role of the Market Model in Corporate Law Analysis: A Comment on Weiss and White*, 76 CALIF. L. REV. 1015, 1036 (1988) (emphasis in original; footnotes omitted).

11. See D. FREEDMAN, R. PISANI & R. PURVES, STATISTICS 487 (1980).

importance the Mouse-Tail Fallacy, after an illustration by Steven Jay Gould: "Mouse tails may be 'significantly' longer in Mississippi than in Michigan—meaning only that average lengths are not the same at some level of confidence—but the difference may be so small that no one would argue for significance in the ordinary sense."¹²

Here is an example of the Mouse-Tail Fallacy in corporate-law scholarship. It is generally accepted that agents, including corporate managers, have interests that may diverge from those of their principals. An important issue in corporate law is whether market forces adequately align the divergent interests of managers and shareholders, so that mandatory legal rules to accomplish an adequate alignment impose undue costs. Some argue that market forces have this effect, and among other things point to the techniques of management compensation.¹³ The argument is that there is a statistically significant relationship between management compensation and corporate performance, and compensation techniques therefore provide managers with an adequate incentive to act in the shareholders' interest.

In fact, although the relationship between management compensation and corporate performance is statistically significant, it is not economically significant, or at least not sufficiently significant to outweigh the gains that a manager can reap by acting in his own interests—for example, by taking steps to maintain and enhance his position. The lack of economic significance is most obvious in the case of salary and bonus. A study by Professors Michael Jensen and Kevin Murphy found that on average a chief executive's salary and bonus change only 1.4 cents for each change of 1,000 dollars in shareholder wealth.¹⁴ For the median case in a sample examined by Jensen and Murphy, a swing of \$800 million in shareholder wealth (from losing \$400 million to gaining \$400 million) would produce a difference of only \$10,800 in the pay of a CEO.¹⁵ The relationship between salary and bonus on the one hand, and

12. Gould, *Through a Lens, Darkly*, NAT. HIST., Sept. 1989, at 16.

13. See, e.g., Coughlan & Schmidt, *Executive Compensation, Management Turnover, and Firm Performance: "An Empirical Investigation,"* 7 J. ACCT. & ECON. 43, 46 (1985); Fischel, *supra* note 7, at 919.

14. See M. Jensen & K. Murphy, *Performance Pay and Top-Management Incentives 5-6* (University of Rochester Managerial Economics Research Center Working Paper No. 89-08, 1989) (copy on file at *The Georgetown Law Journal*).

15. If it is assumed that all increments in salary and bonus are permanent and that all CEOs will receive the increments until age 70, the average present value of the cash flow resulting from the sum of the change in salary and bonus from the present year until the year of retirement would add or subtract thirty cents per thousand dollars to the average chief executive's wealth. *Id.* at 8-9. However, bonuses are supposed to be dependent on performance, and a change in bonus therefore should be transitory, not permanent. Furthermore, these assumptions produce only an average present value for all chief executives and are therefore of no relevance for chief executives who are about to retire, and of limited relevance for chief executives who are close to retirement.

There is also a statistically significant relationship between the value of executive stock options and the returns on common stock. However, this relationship also lacks economic punch. Jensen

corporate performance on the other, is a mouse tail. Salary and bonus may tend to align the interests of shareholders and managers, but the alignment effect is not economically significant.

In short, just as a relationship that is *not* statistically significant may be economically significant, so a relationship that *is* statistically significant may not be economically significant.

IV. THE AVERAGE-CONDUCT FALLACY

Quantitative studies are typically designed to determine whether there is a statistically significant relationship between two sets of variables, such as compensation and corporate performance. The presence of such a relationship often has important implications. However, it is easy to mistakenly place undue weight on such relationships by treating them as sufficient to determine whether a mandatory legal rule would be desirable without examining the distribution of those cases that are not consistent with the overall relationship. I call this mistake the Average-Conduct Fallacy.

The Average-Conduct Fallacy reflects a fundamental misunderstanding of the use of statistical evidence in determining whether mandatory legal rules are desirable. A relationship between two *groups* of data may be statistically significant even though many *members* of each group are not related in a manner consistent with the underlying relationship. In determining whether conduct should be governed by a mandatory legal rule, therefore, it is not enough to say that there is a significant overall relationship. Rather, all cases, including those that are not consistent with the observed relationship, must be taken into account. We may wish legally to prescribe or prohibit conduct just because it does not cluster around the norm. For example, although most parents probably would send their children to school even in the absence of a legal rule requiring them to do so, we mandate primary education just because we believe that a number of parents would not. Similarly, once most members of an industry have adopted a given safety practice voluntarily, a mandatory legal rule may be adopted precisely to force the holdouts to conform.

Whether any given type of conduct should be made subject to a mandatory legal rule or left to private ordering depends on a case-by-case comparison of

and Murphy found that a \$1,000 increase in the inflation-adjusted market value of common stock corresponded to only a 15¢ increase in the value of a chief executive officer's stock option. Furthermore, although shareholders will always lose money when stock prices go down, the value of executive stock options often remains constant despite a downturn in trading price because boards often reduce the exercise price to compensate for a reduction in the price of the underlying shares. *See, e.g.,* Cohen v. Ayers, 596 F.2d 733, 735-43 (7th Cir. 1979) (shareholder challenge to board of directors' cancellation of stock options and subsequent issue of new stock options at lower exercise prices); Michelson v. Duncan, 407 A.2d 211, 223 (Del. 1979) (shareholder challenge to amendment of plan and subsequent issue of new stock options at lower prices).

the cost of regulating the conduct of those who do not voluntarily conform to a desired norm with the cost of failing to regulate that conduct. This analysis cannot be accomplished by looking only at average conduct. For purposes of determining legal rules, the presence of a statistically significant relationship tells us something that is very important, but it does not tell us everything that is very important.

V. CONCLUSION

Both microeconomics and quantitative analysis have enriched law in general, and corporate law in particular. However, corporation law, like all other law, must be shaped by all of human experience, not simply by econometric data, and by all quantitative data that are relevant, not merely by quantitative data that are statistically significant. Quantitative data can teach us much that is very important, but some experience is too noisy or too complex to be adequately dealt with solely by econometric techniques, and some data that are highly relevant to decisionmaking are screened out by tests of statistical significance. Bad arguments result when ungrounded algorithms are substituted for empirical analysis, and when econometric techniques are invoked without an understanding of both the great power of these techniques and their limits.