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MODELING THE REACTION TO FTC MERGER CHALLENGES

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Fight, Fold or Settle?:

Modeling the Reaction to FTC Merger Challenges

by

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February 1993

Coate and Bustamante: Federal Trade Commission.

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ABSTRACT

This paper models the reaction of firms to Federal Trade Commission (FTC)

I. INTRODUCTION

Scholars studying law and economics have identified four stages through which every legal dispute moves. The first stage involves an alleged injury which leads to the legal dispute. Second, the injured party decides whether to advance a claim. Once a claim is advanced, the plaintiff and defendant may negotiate a settlement of the complaint. If the negotiation fails, the dispute moves to litigation. By subdividing the legal process into these four stages, fails, dn Tm 0.0038

determinant of firms' fight, fold or settle decision is the level of the competitive overlap associated with the relevant transaction. In particular, if the competitive overlap is a small percentage of the transaction, firms generally prefer to reach a negotiated settlement with the Commission. In such cases, the settlement decision appears largely unaffected by the underlying merits of the FTC's legal position. In other cases, the merits of the case do play an important role in the litigation decision. We also find that the potential efficiencies generated by the merger affect the firms' decision-making process, with firms more likely to fight and less likely to settle if the merger is expected to offer efficiencies.

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government believes that the merger may raise competitive concerns, the government can issue a request for additional information and further delay the process. At the end of the investigation, the government chooses either to challenge the transaction or to close the investigation. The FTC's decision to prosecute has been modeled using data from the mid-1980s. Coate, Higgins and McChesney (1990)

decisions have divided the process into stages, with the government required to prove that the merger significantly raises concentration to a level that establishes a presumption that competition will be injured. The parties must then rebut the presumption that the merger is likely to lessen competition. A recent study of federal judicial merger decisions after the 1982 Merger Guidelines has found that the government must show a high Herfindahl statistic and barriers to entry in the relevant market to prevail in a merger case (Coate, 1992). Even in these cases, if the Herfindahl is not well over 1800, evidence on structural factors conducive to competition can rebut the presumption from a high Herfindahl. Thus, it appears that the merits of a case have a significant impact on the outcome of litigation.
Although in private litigation, these four stages would be interdependent (perloff and
Rubinfeld, 1988), we do not expect interdependence with the FTC as the plaintiff. The FTC would appear to base its enforcement decisions on a long run policy of preserving the competitive structure of the U. S. economy. We assume that the FTC has sufficient resources to enforce its merger policy, with the excess resources used for the nonmerger activity. Once a complaint is issued, we assume that the Commission is committed to litigating, unless the parties propose a settlement that resolves the government's concerns. In effect, we are assuming that parties cannot "cut a deal" with the Commission. We suggest two reasons for this assumption. First, as a repeat player in the merger game, the Commission must protect its reputation. (See a similar discussion along these lines in Perl off and Rubinfeld, 1988 at 156.) Second, as an administrative agency, the Commission can use its own administrative procedures to commit itself to a particular policy. (See McCubbins, Noll, and Weingast, 1987, and Fershtman and Judd, 1987.) Indeed, in practice, the Commission has the same attorneys who argued that a case be brought deal with the details of settlement. As Coate, Higgins, and McChesney (1990) point out, these attorneys are likely to be the strongest proponents of bringing the case. Thus, the respondents appear to face a finalized enforcement decision and can only

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integrate the likelihood of success on the merits and the costs of litigation into their response. We focus on the issues affecting the respondents in our model.
C. Firms' Incentives When Faced With an FfC Challenge
Along the lines of the traditional settlement literature (for example, Landes 1971 at 66-67),
when faced with an FTC decision to sue, we expect that firms will take the course of action with the highest expected value. In particular, the expected benefits of defeating the FTC (completing the merger) will be balanced against the costs of fighting the agency. For fighting to be the dominant strategy, the net benefits of litigation must exceed those of settling the case. If the net benefits to both fighting and settling are less than zero, the firm will abandon the transaction.
The benefits of fighting the FTC can be defined as the probability of defeating the FTC in
court multiplied by the expected profits from consummating the transaction. We model the probability of prevailing in court as an inverse function of the merits of the FTC's case. In the next section, we present several measures of the merits of a case.
The benefit of victory has two possible components. The first is a positive function of the efficiencies associated with the transaction, as discussed below. The larger the efficiencies, the more likely that the firms will choose to fight the FTC. 6 The second possible benefit to the merging parties comes from the expected value of any anticompetitive actions that the merger makes possible. We will use the same merits variables as we use for the probability of defeating the FTC in court. Note, however, that the merits of the case may have an ambiguous effect on a firm's decision to fight

6 It is unlikely that efficiencies were recognized as an antitrust defense during our period of study. Even if efficiencies were thought to have a significant impact on the outcome of the case, the 1984 Guidelines stated that the defense should be based on "clear and convincing" evidence. Appeals Court Judge and former Assistant Attorney General for Antitrust Ginsburg (1991 at 97) has recently called reaching this standard "well-nigh impossible." Further, even if defendants can meet this level of proof, only efficiencies in the relevant anti competitive market may count. See also FTC v. University Health, Inc., 938 F.2d 1206 (11th Cir. 1991)

the FTC, because an increase in the merits of the case reduces the likelihood of victory in the litigation, while possibly increasing the returns to the merger.
Fighting the FTC entails costs. The most obvious costs are the legal fees involved in
defending the merger in a preliminary injunction hearing. Further costs arise because the FTC has a policy of always following a preliminary injunction case with a complaint to its own administrative law system. (See Lopatka and Mongoven, 1992.) These proceedings, with hearings before an administrative law judge, an appeal to the FTC sitting as a court, and then (if the FTC rules for its own staff and against the merger) an appeal to a federal circuit court, can take years. We suggest, however, that these costs can be viewed as relatively constant across firms. 7
Litigation against the FTC may dings, the

even if the merits of the Commission's case are weak. (See a similar discussion along these lines in Posner, 1972 at 381.) Here we seek to test this hypothesis by focusing on the "overlap" or share of the transaction subject to the competitive concerns. We therefore suggest that the FTC may have powers more similar to a regulatory commission than a prosecutor subject to judicial review under a "preponderance of the evidence" standard. Under this hypothesis, the Commission may be able to stop many more mergers than the case law would imply.
This

action. 8 Cases were then deleted from the sample when the merger involved a partial stock acquisition (1 case), when the Commission did not have sufficient notice to complete a full investigation before moving to enjoin the merger in court (2 cases) or when the transaction was characterized as a joint venture (3 cases). This left a total of 72 cases in which the Commission voted for a complaint against a prospective merger. The parties to the transaction then made one of three choices, to litigate (13 cases or 18 percent), to abandon the transaction (30 cases or 41 percent) or to enter into a settlement with the Commission (29 cases or 40 percent).
To evaluate the relative merits of the particular challenged mergers, we reviewed both BC and
BE the staff memoranda. Each memo contained an analysis of the basic facts of the case, such as the Herfindahl index, ease of entry and competitive effects (e.g. ability to exploit market power). The BE data showed much more variance than the BC data. Generally, BC memos noted the Herfindahl was high, barriers to entry were present and anticompetitive behavior was possible, especially in the mid-to-Iate 1980's, when the BC staff had become very familiar with writing memos consistent with the Guidelines methodology. 9
The BE memos were significantly different, with some case evaluations having relatively low Herfindahls, other case discussions noting no barriers to entry and still other case reviews finding no theory of anticompetitive effects. We believe that the BE data represent the best available proxy for the competitive potential of the merger, because such analysis falls between that of the parties (all

8 By checking the records on second requests issued, Commission enforcement actions and agency
files we found very few transactions were abandoned after the staff completed their analysis, but before
the Commission decision. In a few cases, withdrawn deals were refiled latter and the Commission
moved to enjoin the transaction. Thus, almost all of the mergers withdrawn before a Commission vote
were abandoned because either (1) the deal collapsed or (2) the cost of H-S-R compliance was too high.
9 This observation does not imply that the BC analyses are biased. The sample of 72 cases were
all recommended by Tc 4.977 0 e69544s were all th8j -0.0066 Tc45 0 Td ,m (of)Tj -0.035 Tc 0.7795 0 0 10.96164.35 133.45soTm (9)Tj -0.0287

proposed mergers are procompetitive) and the BC staff (all challenged mergers are anticompetitive). In the few cases involving multiple overlaps, the data from the most anticompetitive overlap is recorded.
A number of the memoranda also contained limited information on merger-related
efficiencies. Although these analyses did not always generate a clear recommendation as to the relevance or the level of efficiencies, we believe it is reasonable to measure the strength of the efficiency concerns by the number of pages dedicated to dealing with the efficiency question in both
the BE and BC analyses.to In effect, the strength of the parties' efficiency defense is measured by
the number of pages in the staff memos needed to explain these issues to the Commission. The discussions in the staff memos are in very large part a response to the parties' efficiency claims. We note that the FTC (and Department of Justice) policy of requiring evidence to support efficiency
claims gives parties -2.4 Td (c77k6.21 4 (a)ml2676 0 Td n)Tj 0.00195s to

number of stores sold were used. Finally, the memos contained the date they were forwarded to the Commission, which is used to define the general time of Commission action. By computing the time in months from a base at January 1984 (the date of the first case in the sample), it is possible to test for changes

Table 2
Variables Means b~ Fight, Fold and Settle Status
(Standard Deviations In Parentheses)

Variable Fight Fold Settle Overall N=13 N=30 N=29 N=72

OVERLAp123 82.69 62.73 17.34 48.06 (26.54) (32.32) (20.65) (37.55)

Efficienciesl23 22.50 11.53 5.345 11.02 (19.2) (11.97) (6.744) (13.27)

HERF 3647 3960 4664 4187

(1974) (2120) (3170) (2574)

CHERF 1083 1209 1443 1277

(1017) (1073) (1695) (1341)

Barriers .8462 .8667 .6897 .7917
(.376) (.346) (.471) (0.409)

Collusion .7692 .7000 .6207 .6806
(.438) (.466) (.494) (0.470)

HERFB 2985 3766 3526 3529

(2312) (2396) (3861) (3034)

HERFC 2985 3633 3483 3456
(2312) (2546) (3894) (3096)

HERFBC 2548 3213 3268 .6204 -1.21 Td (.917))Tj 8.097 0 Td (272546))T

Log Formulations of Key Variables

Efficiencies 123 2.780 2.125 1.443 1.969
(0.95) (0.944) (0.894) (1.037)

VALUE23 3.934 3.876 6.061 4.766
(1.41) (1.1023) (1.726) (1. 775)

SALES12 6.354 7.519 8.079 7.534
(2.21) (1.698) (1.387) (1.77)

HERFB 6.832 7.182 5.699 6.521

(3.054) (2.892) (3.943) (3.406)

Efficiencies-2123 .1051 .06283 .03121 .05784
(.0884) (.0610) (.0374) (.0642)

1 indicates that the mean of the variable for fight outcomes is statistically different from the mean for fold outcomes at the 10 percent level.

2 indicates that the mean of the variable for fight outcomes is statistically different from the mean for settle outcomes at the 10 percent level.

3 indicates that the mean of the variable for fold outcomes is statistically different from the mean for settle outcomes at the 10 percent level.

Bold highlighting of the superscripted numbers indicates that the relevant means are different at the five percent level. Also, all t-tests allow for differences in the variances. Assuming equal variances would increase the number of significant differences.

An overall measure of the economic merits of the case would

o f varvant of HERFB)Td (differ1omes)Tj730.00

be present, the index would take on the value of the Herfindahl and proxy the likelihood of a competitive problem. On the other hand, if barriers were considered low, the index would be zero indicating that anticompetitive effects were unlikely. A more sophisticated index (HERFC) integrates the projected competitive effects variable into the analysis only for relatively low levels of concentration. In particular, if the Herfindahl was under 2400 (and barriers present), one would require some evidence that collusion was likely before using the Herfindahl index as the proxy for the anticompetitive effect. 13 On the other hand, if the Herfindahl index exceeded 2400, one could simply use the Herfindahl to proxy the anticompetitive effect if barriers were high. Thus, the aggregate variable would be the Herfindahl if either the Herfindahl was over 2400 with barriers

present or the Herfindahl was under 2400 b barriers were simpusion

was storj 0.0021 T0 2.32 0 Td (effecxistTj -0.0014 Tc 2.713 0 Td (2400)Tj 0.0

186.447 03.318 03..f over

effe1Tj 0.0099 T354.08-443 47d78 Td (simpmill)Tj -0.03 TT293.2

simpeffect 0.0335 Tc 3.871 577d (to)if 0.0018 c 2.7110 8744d (1

This approach assumes that the domestic subsidiaries of foreign companies negotiate with the FTC in the same way as domestic corporations.
The OVERLAPA variable allows a test of the robustness of the overlap relationship.
OVERLAPA is derived from OVERLAP, with the value changed to 100 percent when a divestiture could require selling the entire business. For example, a firm composed of multi-product plants (with at least one product subject to a competitive concern) will be assigned a value of 100 percent, instead of a ratio based on the sales linked to the competitive concern, because a divestiture could require selling all the plants. 14 Sophisticated divestitures, however, such as selling equipment or technology, may be possiblet5 so the adjusted overlap variable may not be necessary. The variable, however, does allow for a test of the robustness of the result. The final variable represents the average monthly time associated with each type of outcome. Generally, these results support our theories with small overlaps and large transactions more likely to settle and weak structural cases or clear efficiencies more likely to litigate. Because the variables may be interrelated, however, a more sophisticated analysis is needed to fully evaluate the fight, fold or settle decision.
Table 2 also presents the means for the natural logarithms of a number of key variables. 16
The variable names match those used in the first part of the table, with the exception of Efficiencies-2 which is defined by the ratio of the pages in the BC and BE memos on efficiencies to the total

14 The construction of the OverlapA variable is not exogenous, because the classification of the transactions required judgement that occurred after the fight, fold or settle decision was made. The

number of pages in the memos. The logarithmic formulations will be used in the later statistical analysis to allow the variables to have a nonlinear effect.
C. Econometric Techniques
The basic econometric

value of the efficiencies were capitalized in the price of the transaction. 17 Thus, a positive sign is expected on the efficiency variable in the fight equation, while a negative effect could be found in the settle equation.
The merits variable appears best measured as the interaction of the Herfindahl variable and
the barriers-to-entry variable using BE data, although other proxies for the merits will be considered. This variable was left in nominal form to allow competitive concerns to increase relatively linearly with

Thus, the appropriate value variable can be estimated by multiplying the share of the deal retained (1
- OVERLAP) by the value of the deal.

IV. ESTIMATION OF THE MODEL
A. Presentation of the Results
The multinomiallogit model is defined by two equations: one for the odds of the fight versus
fold variable and the other for the odds of the settle versus fold variable. The value variable is set equal to the value of the firm being acquired, given the choice made by the parties. Thus, if the parties accept a divestiture settlement, VALUE will equal the value of the target company minus the value of the assets to be divested. This requires us to use McFadden's conditional multinomiallogit model,

The significance statistics show the Herfindahl-barrier (HERFB) variable and the Herfindahl-barrier/collusion (HERFC) variable18

Table 3
Multinomial Logit Model with Various Merits Variables

HERFB HERFC HERFBC HERF

VALUE .7664- .7796- .6353- .6719-
(2.37) (2.42) (2.18) (2.26)

Fight Equation

OVERLAP .03977- .03948- .03915- .03989-
(2.19) (2.22) (2.18) (2.25)

Efficiencies 1.626- 1.622- 1.447- 1.442-(2.40) (2.41) (2.18) (2.20)

STRUCTURE -.0004086* -.0003963* -.0001754 -.0001619

(-1.74) (-1.68) (1.02) (-0.73)

Time -.01925 -.01935 -.01510 -.01327
(-.89) (-.89) (-.73) (-.66)

Sales -1.032- -1.047- -.7769- -.7320-
(-2.45) (-2.47) (-2.26) (-2.19)

Constant -1.174 -1.148 -3.060 -3.520
(-.28) (-.28) (-.77) (-.86)

Settle Equation

OVERLAP -.04930- -.04904- -.05195- -.04964-
(-2.06) (-2.06) (-2.20) (-2.10)

Efficiencies -1.102- -1.109- -1.087- -1.107-
(-2.19) (-2.20) (-2.19) (-2.20)

STRUCTURE .00000480 .00003537 .00002269 .0001884

(.03) (.23) (.16) (.98)

Time .03149 .03100 .02836 .02759

(1.47) (1.45) (1.35) (1.29)

Sales .1936 .2116 .2478 .3466

(.51) (.56) (.69) (.93)

Constant -2.792 -3.074 -2.474 -4.127
(-.78) (-.86) (-.72) (-1.08)

Pseudo R -square 0.549 0.547 0.532 0.535
Chi-square 82.30 82.06 79.84 80.94

T -statistics in it89 0 Td (-st40-2.f.095Tj 8.816 09Tj 0.0278 Tc 80a618 0 T2.549)Tj 8.805308) i TiTj 0.01

� .80Tj 10.06five

Table 4
Robustness Analysis for Multinomial Logit Model

Log(HERFB) OVERLAPA ADJUSTED FOREIGN
EFFICIENCIES
VALUE .7226- 1.389- .7670- .6494-
(2.16) (3.17) (2.48) (2.02)

Fight Equation
OVERLAP .03815- 2.583* .03360- .03845-
(2.07) (1. 76) (2.08) (2.03)

Efficiencies 1.710- 1.386- 14.76- 1.961-(2.37) (2.46) (2.21) (2.41)

HERFB -.2852 -.0006127- -.0003625* -.0005150-
(-1.61) (-2.33) (-1.68) (-2.05)

Time -.02638 -.02472 -.03056 -.003240
(-1.14) (-1.18) (-1.42) (-.13)

Sales -.9382- -1.548- -.9894- -1.131-
(-2.26) (-3.23) (-2.51) (-2.49)

Constant -.8581 1.998 2.126 -.9302
(-.19) (.54) (.59) (-.22)

Foreign -21.36
(-.001)
Settle Equation
OVERLAP -.0508- -3.962- -.04822- -.05414-
(-1. 99) (-3.40) (-2.16) (-2.20)

Efficiencies -1.008- -.9084* -13.89 -1.027-
(-2.04) (-1.74) (-1.51) (-1.98)

HERFB -.2451 -.000009269 -.000007850 -.00002786
(-1.34) (-.06) (-.05) (-.18)

Time .03432 .03820 .03525' .03472
(1.59) (1.58) (1. 79) (1.51)

Sales .1789 .03711 .09951 .2198
(.46) (.09) (.29) (.59)

Constant -.9879 -5.678 -3.716 -2.417

(-.27) (-1.26) (-1.14) (-.69)

Foreign -.8938
(-.57)
Summary Statistics

Pseudo R-square 0.554 0.574 0.515 0.571
Chi-square 82.94 85.94 76.46 85.78 S1les 9 0-0.0374) P

The second column replaces OVERLAP with OVERLAPA, the variable that measures the maximum possible overlap. As noted above, this variable

a role in the litigation decision. The

accurate with setths.r05lv7

example, assuming a case has the attributes described by the mean of

Changing the level of efficiencies has similar, if smaller effects. Raising the efficiency
variable one standard deviation while holding all other variables at their sample means generates a reduction in the fold rate to 66.6 percent, a decrease in the settle rate to 7.4 percent, and an increase in the fight rate to 26.0 percent. Lowering the efficiency variable one standard deviation reduces the probability of folding from the base case of 22.9 percent to 47.5 percent, raises the settle rate to 51.8 percent, and lowers the fight rate to a tiny 0.6 percent.
Raising the structure variable HERFB one standard deviation while holding all

V. CONCLUSION

The results of the fight, fold or settle model have clear implications for antitrust policy. The econometric model shows that firms are very unlikely

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