ECONOMIC ISSUES

TRANSPARENCY AT THE FEDERAL TRADE COMMISSION: THE HORIZONTAL MERGER REVIEW PROCESS 1996-2003

by

Malcolm B. Coate
and
Shawn W. Ulrick

Bureau of Economics
Federal Trade Commission
February 2005

ECONOMIC ISSUES

TRANSPARENCY AT THE FEDERAL TRADE COMMISSION: THE HORIZONTAL MERGER REVIEW PROCESS 1996-2003

by

Malcolm B. Coate
and
Shawn W. Ulrick

Bureau of Economics
Federal Trade Commission
February 2005

FEDERAL TRADE COMMISSION

DEBORAH PLATT MAJORAS	Chairman
ORSON SWINDLE	Commissioner
THOMAS B. LEARY	Commissioner
PAMELA JONES HARBOUR	Commissioner
JON LEIBOWITZ	Commissioner

BUREAU OF ECONOMICS

Luke M. Froeb	Director
Mark W. Frankena	Deputy Director for Antitrust
Paul A. Pautler	Deputy Director for Consumer Protection
Timothy A. Deyak	Associate Director for Competition Analysis
Pauline M. Ippolito	Associate Director for Special Projects
Robert D. Brogan	Assistant Director for Antitrust
Louis Silvia	Assistant Director for Antitrust
Michael G. Vita	Assistant Director for Antitrust
Denis A. Breen	Assistant Director for Economic Policy Analysis
Gerard R. Butters	Assistant Director for Consumer Protection

The authors are economists in the Antitrust I division of the Bureau of Economics of the Federal Trade Commission. The views expressed in this study are those of the authors and do not necessarily reflect the views of the Commission or any individual Commissioner. Furthermore, the views expressed here do not necessarily reflect those of the Commission or its staff regarding any pending matter.

ACKNOWLEDGMENTS

We would like to thank David Scheffman, Paul Pautler, Elizabeth Callison, and Jeffrey Fischer for helpful comments on the project and Anthony Alcorn, Brian Cross, Fulvio Cajina, Paul Golaszewski, Wendy Hanson, Karl Kindler, Michael Madigan, Madeleine McChesney, Joseph Remy, and especially, Matthew Tschetter, for research assistance in assembling the data.

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This paper empirically analyzes the Federal Trade Commission's merger enforcement decisions, to supplement the 2004 release of the Horizontal Merger Investigation Data. The study provides insights into the review process for both multi- and single-market mergers. We present concentration-based models, customized to the relevant industry, for mergers with large numbers of overlaps. When more detailed data is available (for mergers with 3 or fewer overlaps), the analyses also focus on additional factors. We find evidence to suggest that, in addition to market structure, verified customer complaints and entry considerations also affect the enforcement decision. Finally, the study notes that the Commission's enforcement policy has been stable during the 1996 through 2003 time period.

I. INTRODUCTION

Government policy is more effective when the enforcement regime is transparent, because the economy benefits from the resulting reduction in transactions costs.[1] The Federal Trade Commission has long worked to promote transparency through a number of formal and informal programs. Examples include detailed notices to aid public comment, press releases that clarify reasons for specific decisions, policy statements in speeches, and several research projects.[2] To further increase the information available to the public, the Commission recently initiated the Merger Policy Transparency Project, a comprehensive review of the facts collected in all Hart-Scott-Rodino (HSR) horizontal merger matters for which second requests were issued during fiscal years 1996-2003. Tabulations of this merger information were publicly released in February 2004.[3]

This paper supplements the data release with econometric analysis to identify statistical regularities in the enforcement data.[4] The analysis examined several variables. As would be expected, market concentration, measured in a number of different ways, is associated with the outcome of merger investigations. Other factors, such as the industry affected by the merger, viable customer concerns, and entry conditions, are also

---

[1] These transactions costs include, but are not limited to, reductions in uncertainty and risk, actual enforcement costs, and costs of over-deterrence.

[2] See for example, the Commission's statements on Itron/Schlumberger, http://www.ftc.gov/os/caselist/0310201/0310201.htm; Commissioner Leary's comment on Synopsys, http://www.ftc.gov/os/2002/07/avantlearystmnt.htm; Chairman Muris' speech on improving the use of economics in antitrust http://www.ftc.gov/speeches/muris/improveconfoundatio.htm and an overview of merger enforcement by Scheffman, Coate and Silvia http://www.ftc.gov/be/hilites/ftc20thanniversarypaper.pdf.

[3] See Horizontal Merger Investigation Data, Fiscal Years 1996-2003 http://www.ftc.gov/opa/2004/02/horizmerger.htm. Cited hereafter as the *Merger Transparency Data*.

[4] Data limitations preclude the study of the second request process, as most of the matters in which a second request is not issued are not officially briefed to the decision makers and thus no record of the analysis exists for study.

significantly related to enforcement action. In addition, merger policy seems relatively stable over the eight year period. While data limitations preclude us from formally testing for the factors that are associated with enforcement decisions in all cases, a number of models are presented to aid the public in better understanding the merger enforcement regime.

We caution those who would use the models to predict future agency actions to consider the possibility that omitted factors, correlated with both the enforcement decision and the variables actually included in the model, might bias the predictions of some of the models.

The paper will start with a review of the data collection process. Section III presents an overview of the data, along with some summary statistics. The basic modeling process is discussed in Section IV, followed by the estimation of the relevant models in Section V. As will be discussed, we will model enforcement for a broad sample of merger filings and two sub-samples – samples which focus on mergers subject to different styles of review linked to the nature of the relevant transaction. The models, considered as a group, serve to enhance the transparency of the enforcement process. Finally, an analysis of the predictions appear is Section VI, and concluding remarks are given in Section VII.

II. DESCRIPTION OF THE MERGER TRANSPARENCY DATA

The Merger Policy Transparency Project reviewed all the relevant staff memoranda prepared to aid the Commission's evaluation of horizontal mergers filed under the HSR Act between October 1995 and September 2003. Information gathered in

this review was used to create the publicly released tables and is used in this paper to estimate various enforcement models. After a brief background on the cases reviewed, this section describes the data collection process used in the Project.[5]

The data review process started with the universe of all Hart-Scott-Rodino second requests issued by the Federal Trade Commission during the review period (*i.e.*, the 281 second requests for information that were issued during fiscal years 1996 to 2003).[6] Any mergers that did not involve substantial horizontal issues or mergers that did not proceed through a full investigation (and therefore did not result in final memorandum being produced) were deleted.[7] In the end, we were left with a total of 151 horizontal transactions to study.

This sample represents a diverse set of mergers, with roughly half the transactions involving a single overlap, while 35 transactions involved five or more overlaps.[8] In the five or more overlap transactions, the competitive analysis is usually common across many markets (*e.g.*, fifteen grocery store markets in specific towns), with market-by-market analysis usually focused on market structure. Thus, the enforcement outcome can

---

[5] Staff applied the same procedures discussed in this section to gather the new data required for the supplemental analyses contained in Appendices A and B. The information released as part of the Merger Policy Transparency Project is contained in Appendix C.

[6] The Department of Justice also reviews selected classes of mergers and, therefore, entire industries are excluded from the study. For an overview of DOJ enforcement see, Merger Challenges Data, Fiscal Years 1999-2003. http://www.usdoj.gov/atr/public/201898.htm

[7] Seven investigations that were ongoing as of the end of fiscal year 2003 were also deleted, along with three other matters dropped for miscellaneous reasons. See Merger Transparency Data, supra note 3, at Table 1.

[8] Merger Transparency Data, supra note 3 at Table 2. The 784 markets identified in Table 2 of the Merger Data release contained the required Herfindahl information in 780 markets (see Table 3.1) and the necessary significant rival data in 573 markets (see Table 4.1). We found both Herfindahl and significant rival data in 570 markets. The bulk of this sample reduction is linked to the oil industry, as Table 3.3 lists Herfindahl data for 276 markets, while Table 4.3 notes significant rival data in only 78 markets. Thus, of the 210 markets deleted for lack of data on significant rivals, 198 were related to the oil industry.

be linked to concentration, but it is difficult to obtain overlap-specific information for other variables, due to the style of the analysis. In contrast, for the mergers involving a small number of competitive analyses (*e.g.*, one or two basic chemicals sold nation-wide), detailed Guidelines evaluations were available for each market.

The project involved the collection of important structural and institutional data from the staff memoranda. Two research assistants individually reviewed the relevant staff memoranda to record the Herfindahl statistics, the count of the number of significant rivals, and the institutional detail (*i.e.*, outcome of case, date, and the industry involved in the matter). For a subset of the data, the research assistants also collected information on hot documents, customer concerns, and ease of entry. Differences in coding were resolved by a reviewing economist. These variables are summarized in Table 1.

Compiling the data on market concentration data was usually straightforward. The standard staff memorandum alleged a relevant market and presented a market share table. This allowed the collection of the post-merger Herfindahl index and the change in the index caused by the merger.[9] For some of the transactions, the analysis presented alternative market definitions or multiple Herfindahl statistics. In these cases, the memoranda were reviewed to determine which market or Herfindahl statistic the researchers considered most likely to be correct. For the few cases in which the memoranda did not address this issue, information on the first market or Herfindahl statistic mentioned was recorded.

[9] In a few cases, the Herfindahl was computed from the available market share data.

The collection of the data on the number of significant competitors was more complicated.[10] The process started with the review of market share table and then identified the significant rivals from the relevant discussion of competition. The operative definition of a significant competitor was a firm whose independence could affect the ability of the merged firms to achieve an anticompetitive outcome. If the relevant anticompetitive theory was post-merger coordinated interaction (collusion), a significant competitor would be noted as a required participant in the collusive group. Alternatively, if the relevant theory was based on unilateral market power, a significant competitor would be identified as a close rival to the merging parties. The number of pre-merger significant rivals was identified for 570 of the 780 markets having useable Herfindahl data.[11]

Institutional variables related to each market included the enforcement outcome, an index linked to the date of the enforcement decision, and indicator variables for selected industries. For most mergers, coding the Commission's decision was straight-forward, because the investigation of the relevant markets led to either an enforcement action or a formal closing decision. On occasion, the parties abandoned their deal at the end of the investigation; these cases were coded as enforcement, because the Commission had effectively made an enforcement decision at the end of the investigation.[12] The time

[10] See also, Merger Transparency Data, supra note 3 at 3-4.

[11] A number of memos listed the concentration statistics, but failed to present market share tables. Without a list of the competitors, it was usually impossible to define the number of significant rivals.

[12] Three matters, in which the Commission accepted non-structural remedies unrelated to the horizontal concerns, were coded as closed investigations, because the investigations of the horizontal competitive issues did not lead to enforcement actions linked to the structural problems. In each of these mergers, the transaction was consummated, while the remedy just affected an ancillary clause not tightly related to the merger under review. For example, in General Mills/RalCorp the Commission allowed General Mills to take ownership of the RalCorp brands, but had the sales agreement changed to enhance RalCorp's ability to supply private label cereal. See, Merger Transparency Data, supra note 3 at fnt 8.

index was based on the date of the final FTC decision, which was almost always contemporaneous with the receipt of the final memoranda. This index variable made it possible to compute a binary variable to distinguish the Chairmanships of Robert Pitofsky and Timothy Muris. The industry classifications (*i.e.*, oil, grocery, and chemical) were obvious, given the products under review.

Four additional variables - hot documents, customer complaints, and two variables related to barriers to entry - were collected for a subset of the data.[13] A hot document was assumed to exist when the staff presentation noted a document, submitted by one of the merging parties, projecting that the merger would result in an adverse price or non-price effect on competition in the relevant market. The typical example involved an internal document predicting the merger would lead to a direct price increase. Documents were also considered "hot" when the inference of a price (or non-price) effect from the merger was obvious from the document. For example, a document that detailed how one of the merging parties had driven the competitive process through its interactions with the other party would support the inference that this competition would be lost by the merger. Documentary evidence of "close" rivalry between the parties, while informative to the merger analysis, was insufficient to trigger the hot document classification, because the documents did not address the post-merger competitive environment.

The files were also reviewed to obtain insights into the competitive concerns raised by the customers who tended to support enforcement action. The staff memoranda were analyzed to determine which cases exhibited strong customer complaints, and this

[13] This review is focused on 93 transactions which addressed 128 markets. See, Merger Transparency Data, supra note 3 at pages 4-6 for discussion on the selection process and the hot document and customer concern variables. An entry variable is discussed at page 7.

information was recorded in a binary variable. In general, staff offered some evaluation of the customer feed-back passed on to the Commission. If the concerns were rejected as incompatible with a theory of competitive harm or if the evidence was quite mixed (indistinguishable customers presenting opposite opinions), staff cautioned against heavily weighting the customer complaint in the final decision.[14] Therefore, the customer complaints variable was coded to reflect no viable customer complaints. In other cases, the staff verified the concerns raised by customers. These matters were recorded as strong customer complaints.

The final two variables addressed barriers to entry, a factor which would be expected to increase the probability of enforcement. To create these variables, the memoranda were reviewed for evidence on the three characteristics of entry: timeliness, likelihood, and sufficiency. Each characteristic was individually analyzed to determine if the staff memoranda made a credible finding of entry difficulties associated with the relevant consideration. The first entry impediment variable was defined to equal one if one or more of the three entry characteristics revealed entry difficulties (and equal to zero otherwise).

The second entry variable ranged from zero to three. The variable was set equal to zero if none of the entry characteristics (*i.e.*, timeliness, likelihood, and sufficiency) revealed entry difficulties. The variable was defined to be one, two, or three if one, two, or three of the characteristics revealed entry difficulties, respectively. While the ease of entry inference would still be perfectly clear when the entry index took on the value zero, a reasonable argument could be made that ease of entry became less likely as the number

[14] In a number of matters, staff did not discuss customer concerns. This collection of cases includes, but is not limited to, the pure retail matters in which customer complaints would not be expected. By construction, all of these cases are coded as not exhibiting "strong customer complaints."

of entry considerations observed to be problematic increased from 1 to 2 to 3. For example, if the staff analysis only claimed timeliness precluded entry in response to less than competitive pricing, but that analysis had discounted a specific method of quick entry, it could be still be logical for others to conclude that entry would occur. However, the error in the timeliness analysis would have no impact on the bottom line when the entry analysis also included a strong argument suggesting that entry would not be likely in response to a price increase. Thus, the sum of the number of entry conditions indicating entry impediments could represent a proxy for the overall strength of the available entry evidence.

III. Overview of the Data

Table 1 presents means for the variables, classified into two data sets and separated by outcome. The first data set is limited to the 570 market sample for which all the market structure data could be obtained. The second data set consists of the 128 observations sub-sample, for which more detailed data could be efficiently collected from the files.

In the full (570 observation) sample, the means of both the Herfindahl and the change in the Herfindahl are significantly higher, and the average number of pre-merger rivals is significantly lower, when the matter ends in enforcement action. An industry dummy variable shows enforcement action is under-represented in the oil industry, however, if the 198 oil investigations excluded from the study are considered, this under-

representation disappears.[15] Finally, no statistical difference in enforcement rates attaches to the Muris administration.

In the small sample, the means of the standard concentration variables, along with hot documents, customer complaints, and both barrier to entry variables are all significantly different in the expected direction when the sample is split by outcome. In contrast, the average values for the Muris indicator and most of the industry variables do not differ depending on the enforcement decision.

Table 2 splits the 570 observation sample into two sub-samples: one for the transactions in which the merger (1) involved four or more markets or (2) presented a quick look analysis of the competitive concerns (442 observations, almost all involving four or more markets) and another for a sample containing transactions that involved one to three markets which underwent full investigations (the 128 observation small sample in Table 1). As noted above, additional information was collected for the one-to-three market sub-sample.

The table focuses on the industry-specific means for the Herfindahl and the pre-merger count of competitors, again classified by outcome. While the limited number of observations underlying particular cells in the table constrains statistical testing, the industry-specific means are remarkably similar across the two samples. For "other" industries (Table 2, column 4), neither the average Herfindahl nor the mean number of rivals is statistically different for the two samples. The results also appear comparable for the grocery and chemical industries. Only the oil industry suggests any differences, but the results are based on too few markets to be meaningful.

[15] See note 8.

The expected industry-related differences are found in the data.[16] For the 442 observation sub-sample, the average Herfindahl is significantly higher for enforced markets in "other" industries (column 4) than it is for the enforced matters in the oil and grocery industries. In contrast, the difference is not significant for the chemical industry. Similar results are found for the closed matters, although the difference is less significant for the grocery industry, and too few chemical cases closed to allow for formal testing.[17] Testing for industry-specific differences in the small sub-sample is precluded by the limited number of observations, but general differences can also be seen in the values of the means.

IV. Modeling the Enforcement Decision

Once a second request is issued, many FTC stakeholders are interested in predicting the probability of an enforcement challenge. The publicly available tabulations of the merger enforcement data allow the calculation of rough estimates for merger challenge probabilities by simply computing historical sample means. However, the tabulations allow the predictions to focus on at most a couple of variables at a time. For example, one approach would base predictions on the Herfindahl and the change in Herfindahl information, but would have to exclude the data on the number of rivals. Similarly, another prediction could include information on rivals, but would have to exclude information on the Herfindahls. Moreover, predictions could only be made for rather coarse categories of the Herfindahl and the change in Herfindahl but not for

[16] A cursory review of the data released in the Merger Transparency Project shows enforcement is more aggressive in the oil, grocery and chemical industries. See Merger Transparency Data, supra note 3 at Tables 3.1 to 3.6 and 4.1 to 4.6.

[17] Similar results are found if the tests are applied to numbers of significant rivals.

specific values of these variables. Consider, for example, a market with a Herfindahl between 2000-3000. Using the full 780 observation sample, if the change in the Herfindahl is between 200-299 points, the tabulations predict the probability of enforcement is 61 percent. If the change in the Herfindahl is higher at 300-499, the chance of enforcement is 70 percent, and if the change is between 500 and 799, the probability of enforcement is 73 percent.[18] These tabulations are useful but treat all mergers in each range of the change in Herfindahl as having the same probability of enforcement. Thus, it appears valuable to define a model that would consider more than just a couple relevant variables at a time and allow for predictions at any feasible values of the relevant variables. This paper uses an econometric model for this purpose – specifically the logit model.

A logit model predicts a binary variable of interest (in this case, the FTC's enforcement decision) with a set of exogenous (explanatory) variables. The relevant explanatory variables in this paper include measures of market concentration; identifiers for particular industries; indicators for the presence of hot documents, customer concerns, and entry impediments; an indicator variable for the identity of the Chairman; and controls for merger activity.

The paper's fundamental model links the enforcement decision to variables such as the Herfindahl, the change in the Herfindahl and the number of significant rivals. As will be discussed in Section V, these variables probably have highly non-linear effects on the enforcement process, so we apply a logarithmic transformation to the raw data before

[18] In markets that can be characterized as five rivals going to four, enforcement appears likely in 62 percent of the cases, while in three-to-two mergers, the chance of a complaint is 85 percent (ignoring information on the industry and the Herfindahl).

the model is estimated (the variables are defined as Log-HHI, Log-Change, and Log-Rivals). Another adjustment adds an interaction term (Log-Interaction) to the model. This variable multiplies the log of the change in the Herfindahl by the log of the Herfindahl and allows the model to better predict results for common values of the variables (this will also be discussed in more detail in Section V). These four structural variables, along with various industry identifiers (*i.e.*, for the chemical, oil, and grocery industries),[19] form the core of the model, and are used to determine which of the variables impact the enforcement decision. The likelihood of enforcement is expected to rise with increases in the Herfindahl and its change and fall as the number of significant rivals increases.

A variant of the core model includes a binary variable associated with the regime shift from Chairman Pitofsky to Chairman Muris in June of 2001. To reflect the change in management, the indicator variable (Muris) was assigned to 0 for all cases decided before June 2001 and then switched to one for all cases decided after June 1, 2001. This variable allows a test of whether political leadership affected antitrust enforcement.[20]

Another hypothesis addresses the question of whether enforcement standards change with the Agency's workload. HSR filings increased dramatically from 1996 through 2000 and budget restrictions prevented the FTC from significantly expanding staff. Thus, workload changed materially over this time period. For the last few years,

[19] The public release tabulated data for four industries (oil, grocery, chemical and pharmaceutical). However, the pharmaceutical concentration data mirrored that of the full sample and therefore, no dummy variable was included in the analysis. No other industry appeared to have a large number of observations in the data set.

[20] Prior research linked Republican political power with less interventionist activity in the market for corporate control during the 1980's. See for example, Coate, Malcolm B., *The Shifting Sands of Merger Enforcement at the Federal Trade Commission*, 2 International Journal of the Economics of Business, 393-408 (November 1995).

filings have fallen, and therefore the workload variable has decreased. Two variables, the average number of merger filings over a five month period pre-dating the formal decision on the merger[21] (logarithmically transformed) and the average number of merger filings normalized by the budgeted number of full time equivalent antitrust staff in the relevant year are used to approximate the variation in workload. The expected sign of the workload variable is difficult to predict, because a bureaucracy has a number of options to address the increase in workload, only some of which would affect a marginal enforcement decision.

For example, the Agency might close solid, but relatively inconsequential, second request merger investigations to save resources in periods of peak demand for regulatory services. Here, a potential for bias exists, because the sample would over-represent closed cases when workload is high. A workload control variable could account for this effect and it would take on a negative sign. Alternatively, the Agency might issue second requests on only the strongest cases when workload is high. Again, bias may exist, if the sample would systematically under-represent closed matters. In this case, the workload variable would be positively related to the enforcement probability. Of course, it is also possible that the Agency might become more efficient; handling the new cases that arrive by redeploying resources from less essential tasks and reducing the effort on each matter (which reduces the staff hours spent on the analysis, but might not bias the decision process). Thus, it is possible that the actual enforcement regime will not be affected by

[21] The average second request is open for roughly five months and thus the filings received in the five months before the final decision represents an estimate of the actual workload facing the agency. Historical filing data was adjusted to reflect the current filing requirement of a merger valued at over 50 million dollars.

workload. The impact of a workload variable on enforcement decisions is clearly an empirical issue.

Concentration data, even supplemented with industry and temporal dummy variables, is only the starting point for the standard Commission analysis. The Merger Guidelines mandate a detailed evaluation of the competitive interactions in the market, including analysis that may identify hot documents or customer concerns.[22] Moreover, merger analysis generally entails a hypothetical analysis of entry.[23] As information on these considerations was available in the 128 observation sub-sample, it was possible to supplement the concentration-based study with a more detailed evaluation of the small sample to offer more insights into the merger review process.[24]

[22] U. S. Department of Justice and Federal Trade Commission, *Horizontal Merger Guidelines*, No. 1806 Antitrust Trade and Regulation Report (1997). See, Section 2.1 (focus on pricing and marketing practices and characteristics of buyers and sellers) and fnts 21 and 22 (focus on bidding to customers and normal course of business documents). Reviews of this information may uncover hot documents and customer complaints.

[23] Id. at section 3.1

[24] Other competitive issues may be important in specific cases, but the initial review of the files did not record the relevant information. New information is introduced in Appendices A and B.

V. Econometric Study of the Data

We estimate an econometric model of the Federal Trade Commission's decision making process to predict the outcome of a merger investigation. As the Commission's basic decision is to either challenge a merger or allow a transaction to be consummated,[25] the econometric analysis should use a model that allows for binary outcomes. We use a logit technique.[26, 27]

Within the logit procedure, we apply a logarithmic transformation to the raw Herfindahl, change in Herfindahl, and number of significant rival data to change the shape of the logit function. The resulting properties of the log-transformation are more desirable than a model measuring the relevant variables in levels and also seemed to fit the data much better.[28] As the relationship between the Herfindahl and change in the Herfindahl may also lead to highly nonlinear effects, another concentration-related index (Log-Interaction) is used to allow for a broad range of nonlinear relationships in the model. At extreme values (either very low or very high structural variables) the

[25] In most cases, when the Commission challenges a merger, the overall transaction is allowed to proceed after the acquiring firm enters into a settlement to resolve the competitive concerns.

[26] Probit models are also widely used. We chose the logit since its closed form solution simplified the implementation of our graphical analysis.

[27] Our procedure uses clustered standard errors, because many mergers involved multiple overlaps. The clustering procedure allowed for the relationship among the related observations.

[28] Since the logit function is nonlinear and bounded, the impact of using logs to predict enforcement should be explained by first discussing the effect of the logs on the index of the logit function. For example, when using log Herfindahls, the difference in the value of the index between Herfindahls of 5000 and 7000 (a 2000 point difference) is rather small. Conversely, the difference in the values of the index between Herfindahls of 3000 and 5000 (a 2000 point difference as well) is larger. The index translates to enforcement probability, since a larger index implies a greater likelihood of enforcement. Thus, relative to measuring Herfindahl in levels, the log Herfindahls will reduce the marginal effect of the Herfindahl on the likelihood of enforcement at higher Herfindahls and increase the marginal effect on enforcement at lower levels of the Herfindahls. Analogous statements can be made about the change in the Herfindahl and the number of rivals as well. Other functional forms could also be investigated. For example, in one model, we measured the number of rivals with dummy variables, but there were no substantial differences between such a model and one measuring rivals in logs.

interaction term may cause a trivial distortion of the real relationship, but its use may allow the model to better predict results for moderate values of the variables.[29] The resulting model has an S-shaped functional form. These four structural variables, along with various industry identifiers (*i.e.*, for the chemical, oil, and grocery industries), form the core of the model.

As two data sets were gathered, the statistical analysis will take place in two stages, first focusing on the large data set and then on the small data set. In addition, one model will be estimated with the data excluded from the small sample. For each model, the statistical significance of the parameters is discussed below.

Table 3 focuses on the structural data for the large, 570 observation, sample and presents the results of four different specifications. The first model in the table (column 1) defines a standard model of concentration in which the Herfindahl, the change in Herfindahl, their interaction, and the number of significant rivals affects the enforcement decision. This equation also includes the industry controls. Statistical tests of the coefficients identify all the parameters as significant. Therefore, all four structural variables appear to impact the enforcement decision. Moreover, the positive and significant coefficients of the industry dummy variables suggest differences in the enforcement regimes faced by the three selected industries (oil, groceries, and chemicals).[30] For example, setting the number of rivals to four and the Herfindahl and the change in the Herfindahl to 3360 and 810, respectively (their full sample means for

[29] To the extent the interaction term introduces error in these predictions, the effect is trivial as the impact is at the edge of the data (*i.e.*, at rather large values of the Herfindahl and the change in Herfindahl). For example, the model might predict a 98.7% percent chance of enforcement at a very high level of the Herfindahl and a *low* level of the change in Herfindahl, while the model might predict a 97% chance of enforcement at a very high level of the Herfindahl and a *high* level of the change in Herfindahl.

[30] The result could be generated by a selection issue, as oil, grocery and chemical cases destined to close might not warrant a second request in light of the Commission's expertise in these markets.

four significant rivals), predicts an enforcement probability of 97 percent for an oil merger, 93 percent for a chemical merger, 92 percent for a grocery merger, but only 57 percent for industries in the other category.

An unreported regression examines the industry-specific coefficients of the concentration variables. Specifically, the core model was expanded to include separate concentration variables for each industry: oil, grocery, chemical, and other.[31] A Wald test rejects the hypotheses that the coefficients of the concentration variables are equal across industries.[32] The most notable difference involves the variable denoting the number of significant pre-merger rivals. This variable is statistically insignificant in the oil and grocery industries but significant for chemical and other industries. Moreover, the coefficients on the concentration variables are more likely to support enforcement in the oil and grocery industry. Thus, the industry-level concentration coefficients suggest that the pooled model in Table 3 reflects a general overview of the enforcement process, but that the model may not be the best representation for a specific analysis.

Columns 2 through 4 analyze how merger policy changes in response to differences in political leadership and agency workload. An indicator variable for the Muris Chairmanship is introduced in column 2, and two variables intended to proxy for workload - the ratio of merger filings to full-time equivalents and the log of the number of merger filings - are introduced in columns 3 and 4. The coefficients of these variables are not statistically significant, and the inclusion of any particular variable does not substantially alter the impact of the other exogenous variables. Thus, the results are

[31] The core model already allows for different intercepts.

[32] Chi-square statistic is 29.9 which is greater than the critical statistic of 21.0 for 12 restrictions.

suggestive that merger enforcement policy has remained relatively stable during the 1996 to 2003 time period.

Table 4 examines how enforcement policy differs for the 442 markets generally associated with four or more overlaps and the 128 markets for which we have more specific data. The first two columns of the table repeat the core model from Table 3, but estimate it separately for these two sub-samples. A Wald test suggests that the coefficients of the two models differ as the equal coefficient hypothesis can be rejected at the 10 percent critical level.[33] The most obvious difference again involves the coefficient measuring the impact of the number of significant rivals. This coefficient is statistically insignificant for the 442 observation sample, but significant in the small-sample (128 observation model). An unreported regression on the 442 market sample (*i.e.*, one allowing separate coefficients for each industry) suggests that even at the industry level, the number of rivals is insignificant for matters having four or more overlaps.[34] The coefficients for the oil and grocery industry variables also differ over the two samples. In light of the few oil and grocery observations (four and nine, respectively) retained in the small sample, it is difficult to make much of this result.

We can use the coefficients of the model (Table 4, column 2) to gain a sense of the effect of the number of rivals on predicted enforcement for the small sample.[35] For example, letting the Herfindahl be 4000, the change in Herfindahl be 800 and the number

[33] Chi-square statistic is 13.48 which is greater than the (90 percent) critical statistic of 13.36 for 8 restrictions.

[34] The number of significant rivals has no statistical effect across the sample (joint Chi-square test statistic for the hypothesis that all four industry-related rivals coefficients are zero is 7.05, below the relevant critical level of 9.49 for four restrictions. Thus, the hypothesis of no effect cannot be rejected.)

[35] The Rivals variable is insignificant in the 442 observation sample, and thus predictions are not calculated.

of rivals range between 3 and 5 predicts the probability of enforcement to be 81 percent for the three-to-two merger but only 39 percent for the five-to-four transaction. (Section VI discusses predictions in more detail.)

The third column of Table 4 adds the hot document and customer complaint variables to the small sample model.[36] The structural variables retain their magnitude and significance, while customer complaint variable is strongly significant in the expected direction.[37] The hot document variable fails to have a significant effect on the probability of enforcement, a result apparently caused by an outlier in the data.[38] The last column of Table 4 presents the results of a model in which the entry index is added to the regression.[39] Here, the entry variable suggests that enforcement is more likely when the entry index is high, although this result could be driven by the easy-entry cases. The other variables also retain their significance levels in this broad-based model.[40]

---

[36] A more complex formulation of the model uses data gathered to supplement the Merger Transparency Project. It is presented in Appendix A.

[37] The customer complaint effect is robust to changes in the definition of the complaint variable and the specification of the data set. For example, if the customer complaint variable is coded as one if the staff finds either strong or moderate complaints; the significant effect is still observed. Likewise, excluding the 12 retail-related markets from the analysis has no material effect on the customer concern coefficient. Interestingly, the coefficient on the hot document variable is positive and marginally significant if the twelve retail-related cases are deleted from the sample.

[38] Excluding outliers from the analysis is problematic, because data should not be dropped without a reason. Appendix B notes the staff's affirmative finding on a failing firm defense justifies the exclusion of three observations (including the outlier). In the revised regressions, the hot document variable has a significant effect on the probability of enforcement when the customer complaint cases are not excluded.

[39] As the simple entry variable perfectly identifies closed cases when the variable takes on the value zero, this entry indicator variable cannot be used in the statistical analysis of the overall sample. It is used to underpin analysis in Table 5. The entry index variable is logarithmically transformed to allow for a more non-linear effect on the enforcement probability. To enable computation at all the possible values (0-3), a one is added to the data series before the transformation.

[40] The oil industry indicator variable even becomes significant, but because the variable is based on only four observations, the interpretation of this result is problematic. The binary entry variable cannot be used as an explanatory variable in the logit model (as a zero value perfectly predicts closing). However, the binary entry variable underpins the analysis in Table 5.

The inclusion of the more detailed variables improves the ability of the model to predict outcomes. The core model (column 2) is successful in predicting the outcome in only 82 percent of the cases, while adding the customer complaint variable (column 3) improves the performance to 87 percent and including both customer complaints and the entry index (column 4) allows the broad model to exhibit a 92 percent success rate.

Table 5 presents alternative analyses in which cases having strong customer complaints or easy entry are examined separately from those that do not. These alternative analyses are undertaken because almost all (over 98%) of the cases having viable customer complaints and none of cases exhibiting easy entry result in enforcement. That is, easy entry and complaints almost perfectly predict the outcome. Thus, it is interesting to examine separately the markets for which the outcome is not easily predicted by specific information, to see how the other factors affect enforcement in those markets. (In the next section, we also examine whether the results from these models are similar to other models presented in this paper.)

The model in the first column of Table 5 deletes the 19 observations for which the review of the staff memoranda suggested that entry was easy.[41] Re-estimating the model with the reduced data set does not change the significance of the structural results, though they change slightly in magnitude.[42] In the next two columns, all 51 observations in which the staff found serious customer complaints were deleted and the model is re-estimated, first without and then with an entry control variable. The most notable change

[41] Of the 29 Muris administration analyses, five found ease of entry. For the 99 pre-Muris matters, 14 identified ease of entry. These ratios are not significantly different (t-statistic .41).

[42] In an unreported regression, the entry index is not statistically significant (t-test 1.59) at the conventional 10 percent critical level (t-score 1.67), thus the entry variable was dropped from this regression. The oil dummy variable is also excluded, because the deletion of the easy entry cases precludes the estimation of an oil industry effect.

that occurs after this deletion is that the coefficient of the rivals variable becomes larger.[43] However, to truly compare the models, predicted probabilities should be calculated (and are later in this paper). In the last column, the data set was reduced to 58 observations by deleting all the observations with either ease of entry findings or substantiated customer complaints. The structural variables remain statistically significant.

VI. Analysis of the Models

While the statistical significance of the various coefficients identifies relationships in the data, it is necessary to evaluate the model at particular values to determine the overall impact of the variables on enforcement probabilities. Two considerations are relevant: first do the various models offer materially different predictions and second, do the key supplemental explanatory variables matter to the enforcement projection. Both questions are addressed below, through the analysis of various models.

In evaluating the models, it is important to account for the fact that the market structure variables are correlated. For example, for four or five rivals, the Herfindahl and change in Herfindahl are typically between 2300 to 3800 and 250 to 1250, respectively. Larger Herfindahls and deltas are very unlikely given four or five rivals. Conversely, when there are only two or three rivals, larger values of the Herfindahl and delta are possible and even quite likely. In fact, with two or three rivals, relatively low levels of these variables (*e.g.*, Herfindahl below 3000 or change below 700) are unlikely. The

[43] Additionally, removing cases with hot documents does not lead to substantive changes in the results.

model will only predict meaningful results if the relevant concentration parameters are compatible. Hence, we only make predictions at such values.

In Figure 1, we graph the enforcement probabilities for the three core models (the first, defined in Table 3, column 1, using 570 observations and the other two defined in the first two columns of Table 4, using 442 and 128 observations, respectively). There are three plots in the figure; each fixes the number of significant rivals. The top graph, labeled "3 rivals," is for three pre-merger rivals. The second graph, labeled "4 rivals," is for four rivals, and so forth. The horizontal axes on the plots represent the Herfindahl, and the vertical represents the likelihood of an enforcement action. In each of the plots, the change in the Herfindahl is held constant at the mean value corresponding to the respective number of rivals in the full data set. Each chart, then, shows how the likelihood of enforcement generated by the three models varies with the Herfindahl.

Overall, the models generate similar prediction structures, although some differences are obvious. For three rivals, the 128 observation model is most likely to predict enforcement. For four rivals (approximately the sample mean of the rivals variable), all the models offer almost identical predictions. Finally, for five rivals, enforcement is most likely for the 442 observation sample (this result is the opposite of that found for the 128 observation model with three rivals). In sum, the graphs in Figure 1 suggest that the choice of model will have some impact on the enforcement prediction.

Figure 2 illustrates how the Herfindahl and the change in Herfindahl affect the predictions of the broad model (Table 4, column 3). The figure shows the predicted enforcement probability as a function of the Herfindahl and change in Herfindahl, for three different values of the rivals variable. All other variables are held constant at zero.

The marginal effects can be visualized by noting the difference in predicted enforcement at different points.

As can be seen in markets having three pre-merger rivals, the predicted probability of an enforcement action is typically very high, especially for values of the Herfindahl and delta where observations are likely to occur. Further, changes in the Herfindahl-related variables do not change the likelihood of enforcement by very much for Herfindahls above 5000. Herfindahls below 4500 have a more noticeable marginal effect on enforcement but there are not a lot of observations in that range. (If an additional figure was provided for two-to-one mergers, enforcement would appear almost certain.)

The second graphic illustrates the likelihood of enforcement for four-to-three mergers. The probability of enforcement does not seem to really respond to increases in the Herfindahl index until the index approaches 2500. Then we observe a gradual increase until the probability tops out somewhat above 40 percent. The change in the Herfindahl also appears to affect the probability of enforcement. As can be seen, holding the Herfindahl constant but increasing the magnitude of the change in the Herfindahl increases the likelihood of enforcement. The final plot predicts enforcement for five pre-merger rivals. These transactions are usually not subject to enforcement action, although the graph shows that values of the Herfindahl over 3000 trigger a small chance of enforcement.

One can compare the three plots in the figure to see how the number of rivals matters. As can be seen, the likelihood of enforcement at specific values of the Herfindahl and delta are noticeably lower when there are four pre-merger rivals than

when there are three, and even lower when there are five rivals. Overall, Figure 2 clearly shows how the concentration variables materially affect the enforcement predictions.

Table 5 reported broad models that exclude cases exhibiting easy entry and/or strong customer complaints. As discussed, we estimated these models to address the potential predictive problems associated with easy entry and strong customer complaints. Figure 3 visually compares the model that excludes markets having complaints (Table 5, column 2) to the model that includes a dummy variable set to zero to signify lack of complaints (Table 4, column 3).[44] Analogous figures could be generated that examine the impact of excluding cases having easy entry or how the models differ as other explanatory variables vary.

There are three graphs in Figure 3, each for a different level of rivals (three, four, and five). In each graph, the change in the Herfindahl is held constant at the sample mean corresponding to the respective number of rivals, and the various dummy variables are zeroed out. As can be seen, the two models generate similar predictions, but some small differences are obvious. Thus, the choice of model for customer concerns can have some impact on the enforcement prediction.

The impact of customer complaints is illustrated in Table 6. Two sets of predicted probabilities are displayed. The first matrix predicts enforcement when there are no significant complaints, and the second predicts enforcement when there are

[44] One could also compare the broad model when complaints exist. Specifically, note that Table 5, column 2 (or column 3) excludes markets having complaints. As reported in the text, this is because enforcement is virtually certain for markets having complaints. Thus, a viable prediction when there are complaints is that enforcement is virtually certain. To compare, one can calculate the enforcement probabilities according to the broad model when there are complaints. In fact, Table 6, referred to earlier, does so for several values of the Herfindahl and delta. As can be seen, for most values of the Herfindahl and delta, the broad model predicts a very high likelihood of enforcement. However, for low levels of Herfindahl (*e.g.*, 2000), the model does not predict a substantial probability of enforcement action (this scenario occurs only a few times in the data).

complaints. Both use the broad model in Table 5, column 1 (*i.e.* the model estimated with the sub-sample limited to markets having entry impediments). In both sets of predictions, the number of rivals is set to four, and hot document and industry effects are zeroed out.

Taken together, the matrices in Table 6 show the importance of verified customer complaints. For a relatively substantial level of the Herfindahl (*e.g.* 3000 to 4000), the model predicts that staff highlighting a customer concern will almost guarantee an enforcement action. On the other hand, if no complaints exist, enforcement is not likely at these levels of concentration.

Even at lower levels of concentration (*e.g.* Herfindahl equal to 2000), the existence of complaints can have a very large impact on the likelihood of enforcement. For example, without the existence of complaints, the likelihood of enforcement is between two and 25 percent, for deltas between 200 and 800. This likelihood is between 29 and 86 percent for markets with complaints. Similarly, as can be seen, the existence of complaints can increase the likelihood of enforcement for matters having high concentration.

Table 7 examines the impact of entry on the merger review process. The table records predicted enforcement for four models. The table varies the concentration statistics and when relevant, the entry index;[45] all the other variables are set to zero. The broad model, with entry, is addressed first, using both the version estimated with the 128 observation sample (Table 4, column 4) and the version estimated without the easy entry observations (Table 5, column 1). In the broad model, the enforcement prediction

[45] The Herfindahl and change in Herfindahl are set to their sample means corresponding to the respective number of rivals.

increases with the entry variable, indicating entry impediments affect the review process. Not surprisingly, this evidence matters more for structurally marginal cases. For the model excluding the easy entry cases, the predictions show enforcement in structurally weak cases (*i.e.*, five rivals) is unlikely (22 percent chance of enforcement) even with solid evidence on barriers. Structurally sounder cases (i.e., three or four rivals) generate enforcement probabilities between those associated with an entry index of 2 and 3 in the more general model (Table 4, column 4). Thus, it appears that predictions based on high values for the entry index are qualitatively compatible with those generated from a model based on a pure entry effect (*i.e.*, when easy entry cases are excluded from the analysis).

The bottom portion of the table repeats the analysis using the final two columns of Table 5 (which exclude matters with clear customer complaints from the analysis). Again, entry appears to have an important effect on the predictions, with something of a trade-off between concentration and entry evidence obvious for moderately concentrated markets (investigations in most highly concentrated markets end in enforcement unless entry is easy, while investigations in most marginally concentrated markets close). When ease of entry data is used to exclude selected observations from the sample, one usually finds enforcement probabilities comparable to those associated with values of two or three for the entry index. Comparing the top half of Table 7 (estimated with all the data) to the bottom half of Table 7 (estimated only with matters without strong customer complaint findings) shows the predictions are remarkably similar. As long as the customer concern variable is set to zero, comparable predictions can usually be generated.

VII. Conclusion

The statistical analysis generates a number of enforcement policy insights (although the possibility that the data review process did not allow for the recovery of all important variables argues for caution in interpreting the predictions). First, increases in the Herfindahl and change in Herfindahl generally make enforcement more likely, as do reductions in the number of significant competitors. Second, the industry may matter as the model predicts that enforcement is more likely in the oil, grocery, and chemical industries. Third, the models show no structural shifts during the eight year period examined here; that is neither political control of the Federal Trade Commission nor the merger wave is statistically related to the enforcement outcome.

Enforcement predictions depend to some extent on the ability of the analyst to undertake a comprehensive analysis of the relevant competitive concern. For matters exhibiting four or more competitive overlaps (often, but not always, mergers in the oil and grocery industries) Herfindahls matter, but the number of rivals does not affect the evaluation process. For matters with three or fewer market overlaps, it is possible to show that other variables, such as customer concerns and entry conditions significantly impact the merger analysis. These results do not appear sensitive to the exact data used to estimate the model.

Table 1 – Means of the Variables by Outcome, FY1996-2003
(large sample of all markets with data; small sample of overlaps with detailed data)

		Enforce Means	Close Means
Variable	Variable Definition	Large Sample Small Sample	Large Sample Small Sample
HHI	Post Merger Herfindahl recorded from BC memo.	5220* 5833*	3055 3271
Change	Change in Herfindahl recorded from BC memo.	1774* 1903*	703 825
Interaction	Product of Herfindahl and Change in Herfindahl	- -	- -
Rivals	Count of pre-merger number of significant rivals in the market	3.29* 2.94*	5.20 5.08
Hot Documents	Indicator variable for hot documents found in either party's files	- .202*	- .051
Customer Complaints	Indicator variable for staff verification of customer complaints.	- .562*	- .026
Entry Indicator (0-1)	Indicator variable for staff finding of entry impediments	- 1.00*	- .513
Entry Index (0-3)	Sum of variables for timeliness, likelihood and sufficiency of entry.	- 2.38*	- 1.10
Oil Industry	Indicator variable for market in oil industry.	.120* .011	.194 .077
Grocery Industry	Indicator variable for market in grocery industry.	.293* .067	.178 .077
Chemical Industry	Indicator variable for market in chemical industry.	.132* .190**	.054 .077
Other Industries	Indicator variable for market not explicitly coded above.	.445* .730	.574 .769
Muris Cases	Indicator variable for merger evaluated after June 1, 2001	.166 .236	.178 .205
Filings	5 month moving average of HSR monthly filings (in log form).	5.06** 4.97	4.99 4.91
Filings/FTE	HSR Filings divided by budget full-time equivalent antitrust staff	.734* .677	.680 .653
Observations	Count of Number of Markets reviewed by outcome	441 89	129 39

* (**) statistically different from the value for closed cases at 95 (90) percent confidence

Table 2 – Selected Means for Sub-Samples, FY 1996-2003
(442 obs. in large (4+ overlap markets) sample)
(128 obs. in small (3- overlap markets) sample)

Enforced Matters	Oil Industry	Grocery Industry	Chemical Industry	Other Industries
HHI (4+ Markets)	4522*	4088*	5500	6024
HHI (1-3 Markets)	2712	4426	5212	6172
Rivals (4 + Markets)	4.4*	3.7*	3.3*	2.8
Rivals (1-3 Markets)	5.0	3.5	3.3	2.8
Observations (4+ Markets)	52	123	41	136
Observations (1-3 Markets)	1	6	17	65

Closed Matters	Oil Industry	Grocery Industry	Chemical Industry	Other Industries
HHI (4+ Markets)	1488*	2974**	3482	3647
HHI (1-3 Markets)	2273	3815	2876	3357
Rivals (4+ Markets)	8.3*	4.6	5.8	4.0
Rivals (1-3 Markets)	5.3	3.7	5.0	5.2
Observations (4+ Markets)	22	20	4	44
Observations (1-3 Markets)	3	3	3	30

*(**) significantly different from the value for the Other Industries classification at 95 (90) percent confidence.

Table 3 – Econometric Analysis of Enforcement for Large Data Sample, FY 1996-2003
(t-statistics in parentheses)

	Core Model (570 obs)	Core Model with Muris (570 obs)	With Muris & Merger Wave I (570 obs)	With Muris & Merger Wave II (570 obs)
Log-HHI	7.013* (3.09)	7.066* (3.13)	7.194* (3.11)	7.211* (3.14)
Log-Change	8.015* (2.94)	8.084* (2.95)	8.236* (2.97)	8.243* (2.97)
Log-Interaction	-.8696* (-2.70)	-.8783* (-2.72)	-.8958* (-2.72)	-.8971* (-2.74)
Log-Rivals	-1.760* (-2.04)	-1.782* (-2.00)	-1.804* (-2.12)	-1.798* (-2.10)
Oil Industry	3.090* (4.26)	3.131* (4.29)	3.068* (4.09)	3.057* (4.14)
Grocery Industry	2.139* (2.83)	2.126* (2.76)	1.879* (2.65)	1.942* (2.62)
Chemical Industry	2.345* (2.61)	2.345* (2.64)	2.324* (2.67)	2.305* (2.68)
Muris Cases	-	-.1045 (-.19)	.2592 (.35)	.2052 (.28)
Filings/FTE	-	-	1.462 (.87)	-
Log-Filings	-	-	-	.7272 (.74)
Constant	-60.62* (-3.16)	-60.99* (-3.20)	-63.07* (-3.23)	-65.82* (-3.27)
Likelihood	-204.3	-204.2	-202.6	-203.0

* (**) The coefficient is significantly different from 0 for five (ten) percent two tail test.

Table 4 – Econometric Analysis of Enforcement for Sub-Samples, FY 1996-2003
(t-statistics in parentheses)

	Core Model (442 obs)	Core Model (128 obs)	Broad Model (128 obs)	Broad Model (with entry) (128 obs)
Log-HHI	7.890* (2.72)	13.51* (2.98)	12.38* (2.40)	17.91* (2.31)
Log-Change	9.083* (2.79)	15.91* (2.98)	13.48* (2.31)	17.84* (2.02)
Log-Interaction	-.9691* (-2.52)	-1.825* (-2.95)	-1.583* (-2.34)	-2.130* (-2.06)
Log-Rivals	-.8228 (-.74)	-3.639* (-3.55)	-3.742* (-2.77)	-3.896* (-3.18)
Hot documents	-	-	-.3208 (-.36)	-.8420 (-.80)
Customer Complaints	-	-	3.741* (2.59)	4.453* (3.33)
Entry Index	-	-	-	4.205* (4.02)
Oil Industry	3.214* (4.30)	.9581 (.65)	1.957 (1.30)	3.833* (3.26)
Grocery Industry	2.380* (2.75)	-.1943 (-.16)	.7796 (.62)	.7846 (.49)
Chemical Industry	2.740* (1.97)	2.013* (2.27)	2.167* (2.34)	2.497* (2.39)
Constant	-70.64* (-2.84)	-111.8* (-2.89)	-100.3* (-2.26)	-148.8* (-2.25)
Likelihood	-146.9	-47.00	-36.53	-23.27

* (**) The coefficient is significantly different from 0 for five (ten) percent two tail test.

Table 5 – Alternative Analysis of Enforcement for Small Sample, FY 1996-2003
(t-statistics in parentheses)

	Exclude Easy Entry Cases (n = 109)	Exclude Viable Complaints (n = 77)	Exclude Viable Complaints (n = 77)	Exclude All Flagged Cases (n = 58)
Log-HHI	17.66* (2.64)	10.96* (2.36)	14.91* (2.03)	15.50* (2.46)
Log-Change	18.93* (2.41)	12.52* (2.29)	15.07** (1.76)	17.20* (2.15)
Log-Interaction	-2.234* (-2.46)	-1.486* (-2.33)	-1.838** (-1.83)	-2.054* (-2.21)
Log-Rivals	-3.089* (-2.32)	-5.238* (-3.01)	-6.148* (-2.68)	-4.893* (-2.33)
Hot documents	-.4013 (-.43)	-.09914 (-.11)	-1.201 (-1.10)	-1.070 (-1.21)
Customer Complaints	2.945* (2.08)	-	-	-
Entry Index	-	-	3.977* (4.31)	-
Oil Industry	-	2.089 (1.36)	4.215* (3.12)	-
Grocery Industry	.3320 (.20)	.8938 (.71)	1.149 (.81)	.6425 (.43)
Chemical Industry	2.381** (1.84)	2.177* (2.29)	2.591* (2.66)	2.384** (1.84)
Constant	-144.1* (-2.50)	-85.66* (-2.18)	-118.6** (-1.91)	-122.4* (-2.28)
Likelihood	-24.85	-32.16	-20.24	-20.87

* (**) The coefficient is significantly different from 0 for five (ten) percent two tail test.

Table 6 – Implications of Customer Complaints for Merger Enforcement Predictions
(Rivals fixed, by Post-Merger Herfindahl and Change in Herfindahl)
(all predictions are percentage probability of enforcement)

Predictions of the Broad Model* (Table 5, column 1) - Complaints set to zero

Rivals 4-to-3	200	400	800	1600
2000	2	8	25	N/A
3000	19	32	50	N/A
4000	55	62	68	74
5000	82	81	80	79

Predictions of Broad Model* (Table 5, column 1) - Complaints set to one.

Rivals 4-to-3	200	400	800	1600
2000	29	62	86	N/A
3000	82	90	95	N/A
4000	96	97	98	98
5000	99	99	99	99

* In the Broad model, hot documents and industry variables set to 0.

Table 7 – Implications of Entry for Merger Enforcement Predictions
(all predictions are percentage probability of enforcement)

		Entry Index		
Model (observations)	0	1	2	3
Table 4, column 4 (128)				
2 rivals (7896 (2929))	28	88	98	99
3 rivals (4803 (1402))	6	52	86	95
4 rivals (3685 (850))	1	13	46	74
5 rivals (2874 (554))	*	2	9	26
Table 5, column 1 (109)				
2 rivals (7896 (2929))	NA	96	96	96
3 rivals (4803 (1402))	NA	90	90	90
4 rivals (3685 (850))	NA	64	64	64
5 rivals (2874 (554))	NA	22	22	22
Table 5, column 3 (77)				
2 rivals (7896 (2929))	39	91	98	99
3 rivals (4803 (1402))	7	52	85	95
4 rivals (3685 (850))	1	11	38	66
5 rivals (2874 (554))	*	1	7	18
Table 5, column 4 (58)				
2 rivals (7896 (2929))	NA	97	97	97
3 rivals (4803 (1402))	NA	89	89	89
4 rivals (3685 (850))	NA	59	59	59
5 rivals (2874 (554))	NA	18	18	18

NA - model is not applicable in the particular fact situation
* - predicted enforcement probability is less than .5 percent
For results from Table 5-1 and 5-4, the entry index is not in the model, so the predictions are invariant to the value of entry impediments (other than the entry index is known to be greater than 0, suggesting some evidence on entry conditions.) All calculations set customer complaints, hot documents, and industry indicator variables to 0.

Figure 1 – Enforcement Predictions by Values of the Herfindahl
(from Table 3, column 1 (570), Table 4, column 1(442) and Table 4 column 2 (128))

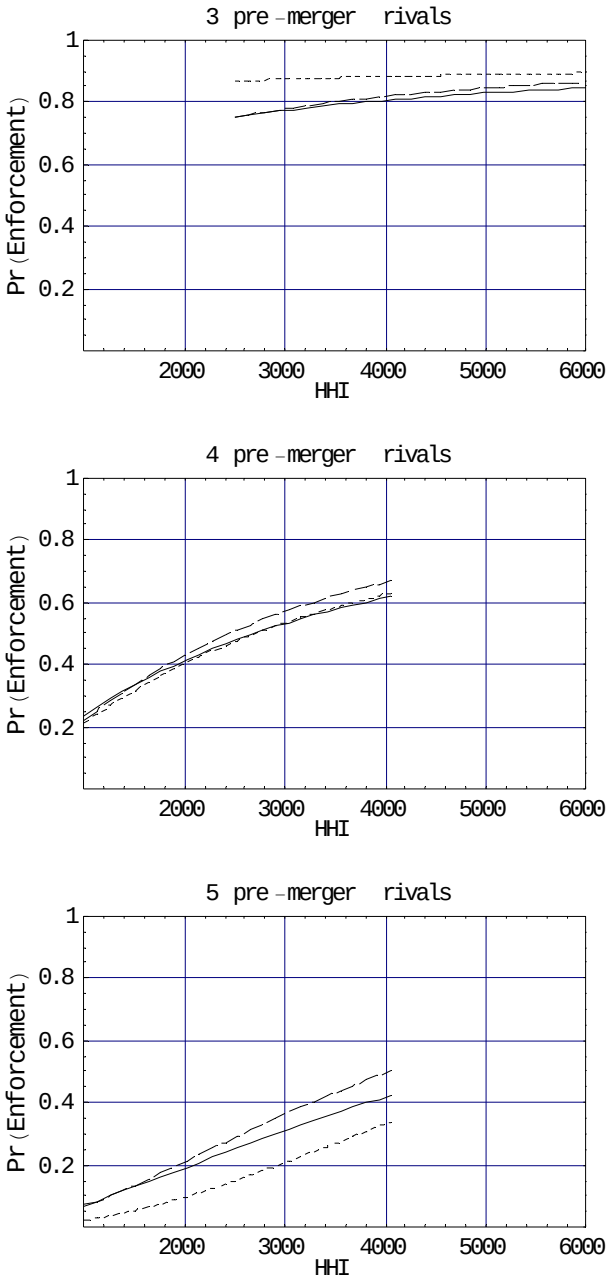


Figure 2 – Enforcement Predictions by Values of the Concentration Variables
(model from Table 4, column 3 (128), rival count pre-merger)

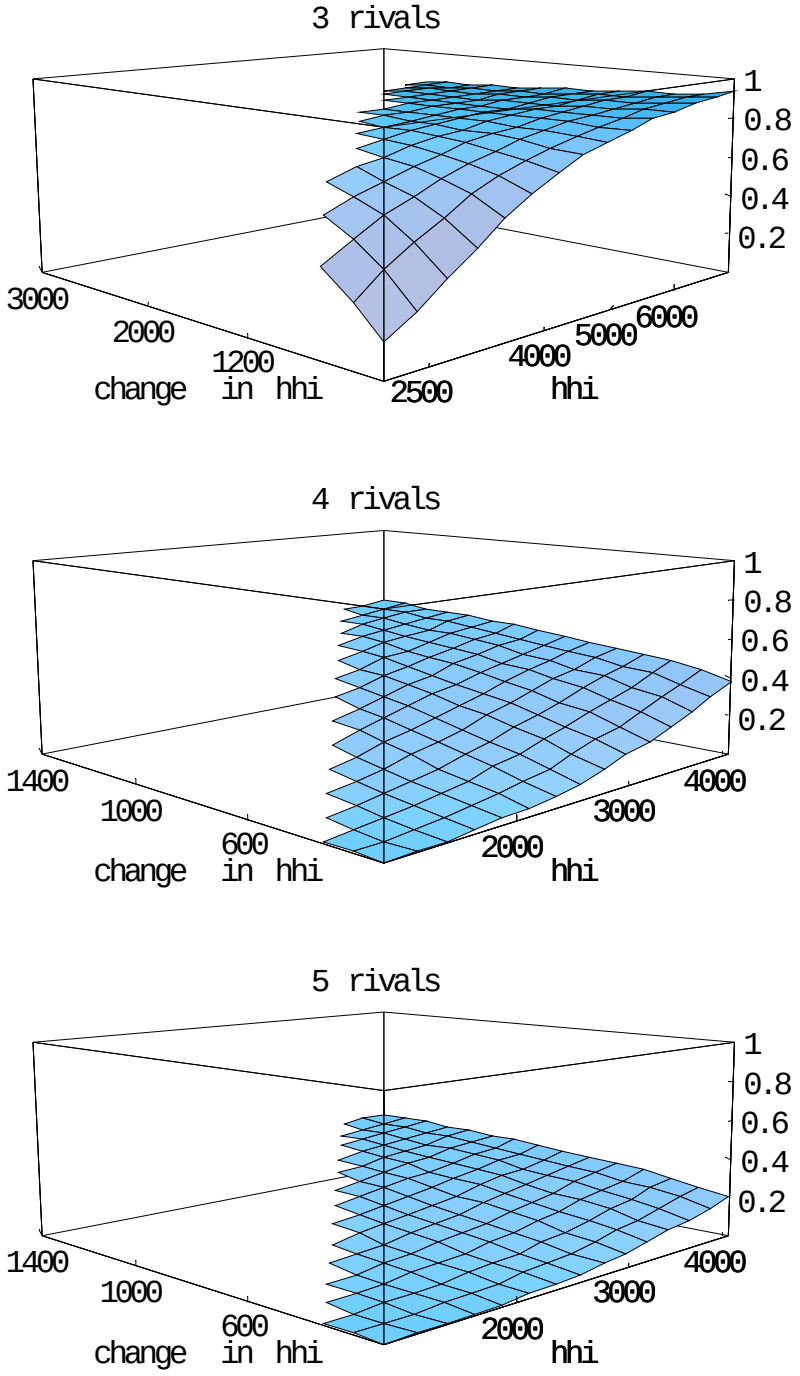
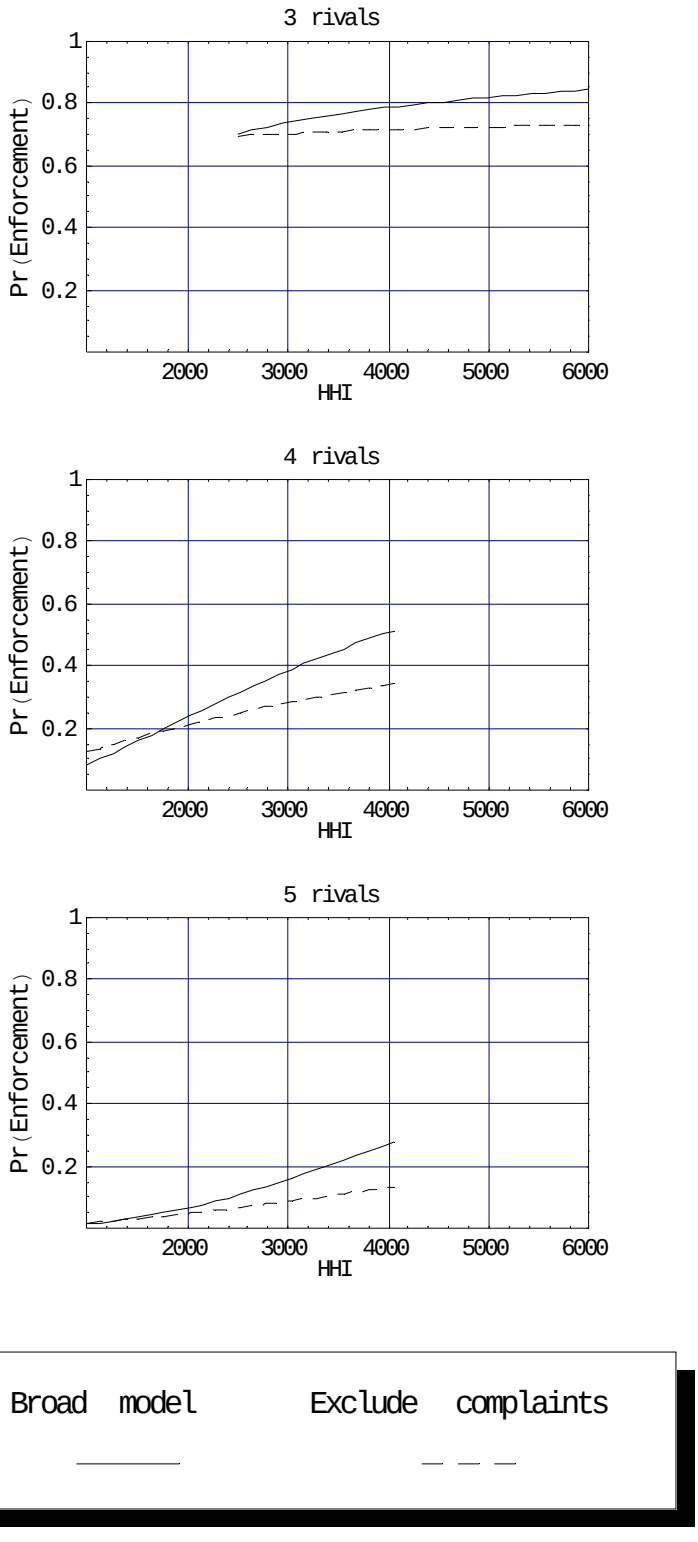


Figure 3 – Enforcement Predictions by Values of the Herfindahl (no complaints)
(from Table 4, column 3 (128) and Table 5, column 2 (77))



Appendix A – Theory-Specific Structural Models

While the core of the paper focused on regressions using the data from the Merger Policy Transparency Project, it is possible to extend the analysis using information concerning the homogeneity of the product examined in each market. When combined with market share data, information on product homogeneity can be used to define a model that best fits the anticompetitive concern. The derivation, estimation, and analysis of such a model are presented below.

A further review of the files associated with the small (128 observations) sample was undertaken to determine if the products in the relevant market were relatively homogeneous (and thus relatively susceptible to coordinated interaction) or relatively heterogeneous (and thus relatively indicative of unilateral concerns). The product in question had to be a very close substitute for the other products in the market to merit the relatively homogeneous classification. Significant geographic or product differences were sufficient to preclude coding as a homogeneous product.[1]

This information on product homogeneity was combined with data on the market shares of the parties to exogenously classify the theories of concern associated with the relevant cases as either coordinated interaction or unilateral effects and then customize the structural variables for the relevant Guidelines theory. The first rule records all relatively homogenous goods markets as subject to coordinated interaction (collusion) concerns, unless the existence of only two pre-merger rivals implies a unilateral dominant firm theory should be used. The second rule classifies all heterogeneous goods markets

[1] 23.6 percent of the 89 enforcement actions involved homogeneous goods markets, while 23.1 percent of the 39 closed investigations focused on homogeneous goods. The difference in the percentages is not statistically significant.

as subject to unilateral concerns, whenever the market share of the merging parties exceeds 35 percent. When the share of the merging parties falls below 35 percent, some form of coordinated interaction is presumed to represent the theory of concern.[2]

The formal theory indicates that the number of significant rivals should drive the review process for unilateral effects theories, and the combined effect of the Herfindahl index, the change in the Herfindahl index, and the interaction between these variables should influence the competitive analysis in collusion cases.[3] In effect, this model splits apart the four structural variables and limits their previously discussed effects to particular types of transactions. Such a model, if correct, would improve the ability to forecast enforcement by focusing the analysis on the most relevant variables.[4] The other control variables, discussed in the text, would be equally relevant to this model.

Table A-1 examines the possibility that the theory of competitive concern (*i.e.*, unilateral effects or coordinated interaction) determines the variables that affect the predicted enforcement outcome. Because merger evaluations of three or more overlaps might not contain enough detailed industry analysis to focus the competitive effects evaluation on a specific theory of concern, the data are limited to the 101 observations in which the merger involved only one or two overlaps. In the first column of Table A-1,

[2] The Guidelines arguably do not allow for a presumption of a unilateral effects theory if the combined share is below 35 percent in a differentiated products market. Id at Section 2.211. The use of a coordinated effects model is a theoretical presumption for the statistical tests in this paper.

[3] For more details on this theory, see Coate, Malcolm B., "Merger Enforcement Under the 1992 Merger Guidelines," Federal Trade Commission, 2004. This paper focuses on mergers in which only a single overlap is studied and thus is able to address the competitive issues in more depth.

[4] Enforcement matters are more likely to exhibit unilateral effects theories than closed investigations (77.5 percent of enforced matters have unilateral theories, while only 51.3 percent of closed matters are based on unilateral effects theories. The difference is statistically significant.)

the broad model (with entry) is re-estimated for the 101 observations.[5] No material differences are observed, as all the significant results are still obtained. This suggests that the fundamental model is not affected by the sample reduction.

The regression model in the second column simplifies the analytical structure to focus on the three Herfindahl-related variables (the Herfindahl statistic, its change, and the interaction term) for collusion cases and the number of rivals for unilateral effects cases.[6] The results for both the three collusion variables and the single unilateral effects rivals variable are statistically significant. Likewise, the customer complaint and entry variables retain their statistical significance.

This model can be compared to one that includes separate concentration variables for the collusion and unilateral cases (*i.e.*, separate Herfindahl, change in Herfindahl, interaction, and rivals variables for collusion and unilateral cases). A Wald test on this (unreported) model concludes that the coefficients excluded in column 2 are not significantly different from zero.[7] Thus, for matters with only one or two overlaps, it appears that enforcement is affected by only the three concentration variables for collusion theories and only the number of significant rivals for unilateral effects theories. Column 3 repeats the custom specification for a model that includes the Muris indicator. The coefficient on that variable remains insignificant.

It is also possible to test to determine if the model in column 2 can be further simplified to the model in column 4 that posits the structural analysis should focus on

[5] The oil industry variable is also deleted in these specifications, because an insufficient number of oil mergers remain in the sample. The entry index, although imperfect, is retained to control for the possible quality of the entry evidence and allow the statistical analysis to offer a simpler test of the relevant competitive effects theories.

[6] The model also allows for a different intercept for unilateral effects cases.

[7] The joint Chi-square statistic is 6.95 which is less than the critical value of 9.49 for 4 restrictions.

only the Herfindahl index and number of rivals. The Wald test of the joint hypothesis that the coefficients for both the change in concentration and interaction variables are zero leads to the rejection of the restrictions.[8] This implies that all three structural indices may impact collusion cases when focusing on matters with one or two overlaps.

The model in column 2 can be used to generate predictions for both collusion and unilateral effects scenarios. Collusion cases with Herfindahls in the mid-3000's are almost certain (generally 90 percent or above) to suggest enforcement when the entry evidence is extremely strong (index 2 or 3 before logarithmic transformation). Comparable unilateral effects cases with four rivals are less certain enforcement targets. Entry evidence has little impact on enforcement probabilities when concentration is below 3000, or five rivals exist.

The implications for the theory of concern can also be derived. A number of results are interesting. First, unilateral effects theories predict enforcement is likely in two-to-one and three-to-two markets usually without specific evidence beyond entry impediments. Weaker structural evidence (*e.g.,* four-to-three markets) requires evidence of customer complaints to forecast enforcement. Second, given evidence on entry impediments, the collusion model predicts that enforcement is likely if the Herfindahl is above 3500, with a material change. Conversely, for Herfindahls under 3000, enforcement appears unlikely. This seems to imply that some explicit evidence (*e.g.*, customer concerns) is necessary for an enforcement action on a collusion theory unless the Herfindahl is well into the 3000's. Finally, customer complaints generally have a substantial impact on enforcement probabilities, so matters with moderate concentration

[8] The joint Chi-square test statistic is 6.26 which is above the critical value of 5.99 for two restrictions. This implies the restrictions should not be imposed.

appear likely to be enforced when customer complaints are identified for either unilateral effects or collusion cases.

In sum, there is evidence that different structural variables systematically drive the enforcement outcome in different types of competitive settings. The number of rivals matters in unilateral effects cases, while the Herfindahl levels and changes matter in coordinated interaction cases.

Table A-1 – Analysis of Enforcement for Customized Theories, FY 1996-2003
(t-statistics in parentheses)

	Broad Model[1] (n =101)	Custom Model (n =101)	Custom Model with Muris (n =101)	Broad Model[1] (just 2 var.) (n =101)
Log-HHI Collusion	24.52* (2.72)	66.23* (2.13)	64.58* (2.02)	6.082* (3.03)
Log-Change Collusion	23.80* (2.30)	81.11* (2.04)	78.87** (1.90)	-
Interaction Collusion	-2.790* (-2.34)	-9.328* (-2.01)	-9.070** (-1.86)	-
Log-Rivals Unilateral	-3.982* (-2.34)	-7.709* (-2.64)	-7.718* (-2.73)	-4.231* (-2.24)
Hot documents	-1.232 (-1.27)	-.08904 (-.07)	-.05254 (-.05)	-.9895 (-1.04)
Customer Complaints	5.207* (3.41)	3.430* (3.76)	3.449* (3.74)	5.263* (3.28)
Entry Index	6.647* (3.02)	3.952* (3.26)	3.949* (3.26)	6.653* (2.90)
Unilateral		582.2* (2.18)	567.9* (2.07)	-
Grocery Industry	-.2775 (-.10)	.4233 (.21)	.3969 (.21)	.009171 (.00)
Chemical Industry	3.011* (2.47)	2.938** (1.75)	2.933** (1.75)	2.805* (2.61)
Muris Cases	-	-	.1418 (.09)	-
Constant	-209.0* (-2.66)	-576.5* (-2.17)	-562.2* (-2.06)	-51.67* (-2.84)
Likelihood	-14.86	-16.42	-16.41	-15.80

[1] all structural coefficients included under both collusion and unilateral theories.
*(**) The coefficient is significantly different from 0 for five (ten) percent two tail test.

Appendix B – Further Analysis of Hot Documents

The insignificant statistical result associated with the hot document variable is surprising in light of the apparent explanatory power of the variable in the Merger Policy Transparency Project data release. This Appendix integrates information on the failing firm status of the acquired firm into the analysis in an attempt to more fully understand the effect of the hot document variable and ensure the existing results are robust. The data for addressing this issue were collected from the 93 memoranda covering the 128 markets of concern. Under the Guidelines, a failing firm defense would justify closing an investigation even if the other structural data pointed to enforcement action. By integrating this new variable into the model, it is possible to investigate the robustness of the hot document results.

The files were reviewed to identify the matters in which the staff analysis effectively accepted the failing firm status of the acquired firm. The standard Guidelines analysis determines whether a firm (1) will be unable to meet its financial obligations in the near future and (2) has made unsuccessful good-faith efforts to elicit reasonable alternative offers for the assets in question.[1] While the staff has reviewed a number of transactions in which the parties allege an inability to meet financial obligations and a lack of alternative purchasers, the review of the memoranda focused on identifying those situations in which the staff accepted the arguments. For the 1996-2003 time period, the review identified two mergers (three markets of concern), in which the failing firm defense appeared to be warranted. These three markets were flagged for deletion and the

[1] The Guidelines also note the firm would not be able to reorganize under Chapter 11 of the Bankruptcy Act and the assets of the failed firm must exit the market, but for the merger. These requirements rarely play a role in the analysis.

analysis was re-focused on the 125 observations in which the failing firm status of the firm did not play a material role in the outcome.[2]

To obtain some understanding of the robustness of the results based on the initial data, four models, introduced in Tables 4 and 5, are re-estimated in Table B-1. The first two models re-estimate the specifications from columns 3 and 4 of Table 4. Note, all the core results (concentration, customer complaints, and, when included, entry) remain statistically significant, with comparable magnitudes. Moreover, in both specifications, the hot document variable is now significant, so a finding of hot documents will increase the likelihood of enforcement action. The magnitude of the coefficient is roughly half the size of the customer complaint variable, suggesting a hot document finding will have less of an impact on the outcome than a customer complaint finding. Of course, since the underlying Logit model is nonlinear, the difference in enforcement probability will depend on the values taken on by the other variables.

The third model duplicates the presentation in Table 5 column 1, as the 19 easy entry matters are now deleted. Again the results appear comparable, but now the hot document variable is statistically insignificant.[3] Finally, the last column in Table B-1 matches the fourth column in Table 5, as the data are limited to those matters in which the staff reports (1) some entry impediments but (2) no serious customer concern. As with the other three regressions, the standard variables retain their significance. Using this more limited data set, the hot document variable fails to show statistical significance.

[2] One of these deleted markets contained a hot document finding.

[3] If the entry index is incorporated in the model, the hot document variable remains marginally significant (t-statistic 1.71). Unlike the model in Table 5, the entry index remains marginally significant in this estimation (t-statistic 1.95).

The new failing firm data allows the deletion of three observations from the sample. This leads to the construction of models that can identify the impact of the hot document variable on the probability of enforcement decisions.

Table B-1 – Analysis of Enforcement Focusing on Hot Documents, FY 1996-2003
(three failing firm observations deleted, t-statistics in parentheses)

	Broad Model (n =125)	Broad Model (entry) (n =125)	Exclude Easy Entry Cases (n =106)	Exclude All Flagged Cases (n =55)
Log-HHI	13.40* (2.51)	18.33* (2.18)	23.05* (3.38)	21.06* (3.14)
Log-Change	14.19* (2.34)	16.79** (1.78)	24.22* (3.07)	22.81* (2.78)
Interaction	-1.678* (-2.38)	-2.042** (-1.85)	-2.896* (-3.13)	-2.738* (-2.85)
Log-Rivals	-3.414* (-2.82)	-3.920* (-3.30)	-2.852* (-2.50)	-4.219* (-2.26)
Hot documents	1.669** (1.75)	2.782* (2.61)	1.115 (1.10)	.4075 (.37)
Customer Complaints	3.585* (2.61)	5.002* (3.25)	2.405** (1.86)	-
Entry Index	-	6.077* (4.00)	-	-
Oil Industry	1.983 (1.30)	4.886* (3.27)	-	-
Grocery Industry	2.139 (1.32)	4.190* (3.91)	-	-
Chemical Industry	1.998* (2.15)	2.122* (2.00)	1.760 (1.35)	1.707 (1.41)
Constant	-108.7* (-2.38)	-152.1* (-2.13)	-187.2* (-3.25)	-168.3* (-3.00)
Likelihood	-33.13	-15.69	-21.15	-17.97

*(**) The coefficient is significantly different from 0 for five (ten) percent two tail test.

Appendix C – Horizontal Merger Investigation Data, Fiscal Years 1996-2003

(this document was re-printed from http://www.ftc.gov/opa/2004/02/horizmerger.htm)

To promote transparency in merger enforcement, the Federal Trade Commission staff has reviewed its horizontal merger investigations during fiscal years 1996-2003. Specifically, the staff has tabulated certain market structure information as it relates to the Commission's decision whether or not to seek relief in the specific markets investigated.[1] The information presented in the attached tables has been extracted from contemporaneous Commission staff memoranda written at the time of each investigation to advise the Commission on its enforcement decision.[2] In addition, for a subset of these investigations (those with three or fewer markets), the staff also has tabulated the Commission's enforcement decisions based on the presence or absence of "hot documents" and "strong customer complaints" identified during the investigation.

The FTC issued HSR second requests in 281 mergers from fiscal years 1996 through 2003.[3] Because market shares and concentration are most relevant when evaluating horizontal competitive effects, omitted from the data are transactions, or individual markets, in which a challenge was based on other theories of competitive effects.[4] Thus, excluded from this data review were transactions for which the theory of

[1] Because this review of horizontal merger investigations was limited to those matters in which a Request for Additional Information ("second request") was issued, this information does not reflect a random sample of merger transactions.

[2] The memos were reviewed independently by two staff reviewers, and any discrepancies in the information recorded by these reviewers was reconciled by a third staff reviewer.

[3] This number differs slightly from that reported in the FEDERAL TRADE COMMISSION AND DEPARTMENT OF JUSTICE ANNUAL REPORT TO CONGRESS ("HSR Report") because for a few transactions multiple second requests were issued.

[4] Table 1 provides information on the categorization of the 281 transactions.

competitive harm was concern about vertical control or monopsony power. Also excluded are transactions where the concern was elimination of potential, rather than actual, competition, as well as those transactions where the competitive concern stemmed from influence obtained through partial, rather than majority, ownership. Finally, the data review includes neither transactions where the investigation was ongoing as of October 1, 2003, nor investigations that were closed prior to the development of a complete record concerning market structure.[5]

MARKET STRUCTURE VARIABLES

Data tables 3.1 through 4.6 provide information on market structure variables in the 151 horizontal merger investigations meeting the selection criteria described above. These 151 transactions involved 784 postulated relevant markets,[6] including markets in which relief was sought ("enforced")[7] and in which relief was not sought ("closed").[8]

[5] Because some investigations were closed shortly after the issuance of a second request, market structure data sufficient to justify inclusion in this report may not have been collected for every case. For example, in some cases, Commission staff may have determined very quickly that the evidence obtained could not support the market definition postulated in the second request. Second request investigations closed upon the receipt of limited, but dispositive information, are categorized as "Quick Looks" in Table 1. For any transaction where complete information on market structure conditions was available, the transaction was included in this data review, regardless of how quickly the investigation may have been closed.

[6] Table 2 provides a frequency distribution of the number of cases involving multiple markets. Twelve matters in the oil industry account for 276 markets, and 14 matters in the grocery industry account for 152 markets. Thus, these two industries represent 17 percent of the cases and 55 percent of the markets in the data presented.

[7] "Enforced" includes situations when the parties to a merger abandoned the transaction after a full investigation.

[8] "Closed" cases include three instances where the Commission required non-structural relief: General Mills, Inc., Docket No. C-3742 (requiring elimination of non-compete provision and elimination of restrictions on transfer of manufacturing and sales rights for private label products) (Decision and Order, May 16, 1997); LaFarge, S.A., Docket No. C-3852 (requiring elimination of a contractual provision imposing significant cost penalty on LaFarge for quantities of cement produced in excess of 85% of acquired plant's capacity) (Decision and Order, Feb. 12,1999); and Provident Companies, Inc., Docket No.

Herfindahl-Hirschman Index & Change in the HHI

Table 3.1 presents data tabulations based on the Herfindahl-Hirschman Index (HHI) measure of market concentration,[9] the change in HHI (Delta)[10] for 780 markets, and the Commission's decision whether to seek relief.[11] Tables 3.2 through 3.6 present this information separately for the grocery industry; the oil industry; the chemical industry; the pharmaceutical industry; and "other" industries.

Significant Competitors

A "significant competitor" is a firm whose independence could affect the ability of the merged firms to achieve an anticompetitive outcome.[12] For purposes of this data review, "significant competitor" has been defined in relation to the competitive effects theory that was the most plausible basis for the investigation.[13] When the primary concern was that the transaction would allow the remaining firms to coordinate their conduct, significant competitors have been defined as "required participants in the

---

C-3894 (requiring merging firms to submit individual disability claims data to an independent entity that publishes actuarial tables, studies and reports) (Decision and Order, Sept. 3, 1999).

[9] The Herfindahl-Hirschman Index of market concentration consists of the sum of the squares of the market shares of the competitors in the relevant market.

[10] The change in the HHI measures the impact of a merger on market concentration, as measured by the market shares of the merged firms and their competitors.

[11] In a few instances for which market share information was not provided, we have imputed HHI and Delta information based on the number of firms operating in the market. There remain four markets for which we could not obtain reliable HHI and Delta information and these markets were dropped from the tabulations.

[12] The merging firms are always considered significant competitors.

[13] For a discussion of the main theories used in horizontal merger cases, see U.S. Department of Justice and Federal Trade Commission, Horizontal Merger Guidelines (revised April 8, 1997), §§ 2.1-2.2.

collusive group." When the primary concern was that the transaction would result in the exercise of unilateral market power, significant competitors include those firms identified as "close rivals" (even if they may not be close enough to constrain a price increase),[14] as well as those that might reposition or otherwise affect the likelihood of an anticompetitive price increase. Data are available for 573 relevant markets.[15]

Table 4.1 presents information on the Commission's decision to seek relief along with information on the number of significant competitors in the market, both pre- and post-merger, assuming consummation of the transaction. Tables 4.2 through 4.6 present similar information, but separately by industry.

HOT DOCUMENTS & CUSTOMER COMPLAINT DATA

Tables 5.1 through 8.2 provide information on the Commission's decision to seek relief in cases where the Commission staff identified one or more party documents clearly predicting merger-related anticompetitive effects ("hot documents") or where the Commission staff received "strongly credible" customer complaints about the likely anticompetitive effects of the transaction in one or more markets. For these two variables, a subset of the original sample of transactions was reviewed.

[14] These firms usually have market shares in excess of 10%, but market shares are not determinative of significance. For example, in a particular market, a firm may have a low market share, having just entered the market with an innovative product. Nevertheless, that firm would be considered a significant competitor if it had the ability to constrain the merged firm's behavior. In other situations, the definition of a significant competitor may rely on a firm's ability to expand output to defeat a price increase; existing market shares may be a poor predictor of that ability.

[15] Significant competitor information is not available for 211 markets; 198 of these markets are in the oil industry.

Hot Documents

Data on "hot documents[16]" were collected for all fully-investigated transactions involving three or fewer relevant markets. This subset consists of 93 cases, involving 128 markets.[17] Table 5.1 presents the HHI and the Delta, together with the decision whether or not to seek relief, for markets in which Commission staff identified hot documents. Table 5.2 presents the same information for markets where no hot documents were identified. Tables 6.1 and 6.2 provide information on the number of significant competitors and the decision to seek relief for markets in which staff had or had not identified hot documents, respectively.

Customer Complaints

Data on the strength of customer reaction to the merger are presented in Tables 7.1 through 8.2. Customer reaction has been recorded as a "strong customer complaint" where customers expressed a credible concern that a significant anticompetitive effect would result were the transaction allowed to proceed. All other customer reactions (i.e.,

[16] A document is "hot" if it predicts that the merger will produce an adverse price or non-price effect on competition. The most obvious situation involves acquiring party documents that predict a price effect stemming from the merger. The price effect is not necessarily quantified and may be qualified by the use of words such as "likely"or "possible." In a slightly less obvious situation, a document may indicate that the recent entry of the acquired party blocked the incumbent's plans to raise price, instead forcing a small but significant price reduction. On occasion, the evidence relates to non-price competition, for example, when the documents indicate a merger might delay the acquiring firm's need to add capacity. Documentary recognition of close competition between the merging parties is not sufficient to qualify for "hot document" status, because a range of other factors could preclude a price effect.

[17] The number of transactions in this subset represents 62% of the transactions reviewed. By industry, the review involved approximately 17% of the oil industry transactions, 29% of the grocery industry transactions, 64% of the chemical transactions, 78% of the pharmaceutical transactions, and 71% of the "other" industry transactions.

weak or non-credible complaints, no reaction, support for the transaction) have been recorded as "no strong customer complaint."[18]

Data on whether or not there were "strong customer complaints" was collected for all transactions involving the investigation of three or fewer markets, provided that these markets were not purely retail.[19] This subset consisted of 87 cases, involving 116 markets.[20] Table 7.1 presents HHI and Delta information, together with the decision whether or not to seek relief, for cases where "strong customer complaints" were received. Table 7.2 presents the same information for cases where no "strong customer complaints" were received. Tables 8.1 and 8.2 are the corresponding tables reflecting the number of significant competitors, the decision whether or not to seek relief, and whether any "strong customer complaints" were received, respectively.

ENTRY

Tables 9.1 through 10.2 present the Commission's decision to seek relief based on the Commission staff's evaluation of entry conditions. Data on entry conditions were

[18] This variable is influenced, but not controlled, by information on customer neutrality toward or support of the transaction. Multiple customers are contacted during an investigation. To the extent that neutral or favorable customer feedback by some customers caused the staff to question the credibility of the concerns by other customers, the customer opinion variable has not been coded as "strong." However, mere differences of opinion among customers generally are not sufficient to undermine a clear complaint.

[19] These data do not include mergers involving a combination at the purely retail level of distribution; i.e., grocery stores, funeral homes, and cable television providers. Retail mergers are not expected to produce strong customer complaints because customers are small and dispersed. However, other retailing-related markets have been retained in the sample where a market intermediary existed to advance consumer interests. For example, in the acute care hospital business, where health insurance providers effectively shop for hospital services on behalf of their individual enrollees, the opinions of insurers often are viewed as a reasonable proxy for consumer opinions.

[20] The number of transactions in this subset represents 58% of the transactions reviewed. By industry, the review involved approximately 17% of the oil industry transactions, 64% of the chemical transactions, 78% of the pharmaceutical transactions, and 69% of the "other" industry transactions.

collected for all fully-investigated transactions involving 3 or fewer markets. This subset, which is the same as that for "hot documents," consists of 93 cases involving 128 markets. Entry is defined to be easy where the staff determined that entry meets the timeliness, likelihood, and sufficiency criteria discussed in the Horizontal Merger Guidelines. If entry does not meet any one of these criteria, then entry is determined to be difficult.

Table C-1

HSR Second Requests During Fiscal Years 1996-2003
Categorized by Nature of Transaction and Theory of Potential Violation

Nature of Transaction	Number of Second Requests
Horizontal Theory	151
Vertical Theory	17
Potential Competition Theory	12
Buyer Power (Monopsony) Theory	8
Joint Venture	3
Miscellaneous	3
Filing Withdrawn by Parties During the Investigation	54
Closed after a Quick Look	26
Investigation Open as of October 1, 2003	7
Total	**281**

Table C-2

FTC Merger Investigations During Fiscal Years 1996 - 2003
Categorized by Number of Relevant Markets

Number of Relevant Markets in the Investigation	Number of Mergers	Total Relevant Markets
1	78	78
2 - 4	38	106
5 - 15	26	192
16 - 50	5	134
50 +	4	274
Total	151	784

Table C-3.1

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
All Markets
FY 1996 through FY 2003

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/14	17/20	18/8	17/4	3/2	0/1	0/0	0/0	***55/49***
	1,800 - 1,999	0/4	5/4	5/3	12/1	12/2	0/0	0/0	0/0	***34/14***
	2,000 - 2,399	1/1	1/5	7/4	22/11	31/8	1/1	0/0	0/0	***63/30***
	2,400 - 2,999	1/1	4/1	4/3	13/4	41/11	25/3	0/0	0/0	***88/23***
	3,000 - 3,999	0/2	2/2	3/1	6/1	15/6	49/11	28/7	0/0	***103/30***
	4,000 - 4,999	0/0	0/2	1/1	3/0	8/1	6/0	42/2	0/0	***60/6***
	5,000 - 6,999	0/0	2/0	3/2	3/1	6/0	7/1	63/12	20/2	***104/18***
	7,000 +	0/0	0/0	0/0	1/0	2/0	5/0	11/1	81/2	***100/3***
	TOTAL	***2/22***	***31/34***	***41/22***	***77/22***	***118/30***	***93/17***	***144/22***	***101/4***	***607/173***

Table C-3.2

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
Grocery Markets
FY 1996 through FY 2003

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	1,800 - 1,999	0/0	0/1	0/0	0/0	0/0	0/0	0/0	0/0	***0/1***
	2,000 - 2,399	0/0	0/3	1/2	6/2	5/0	0/0	0/0	0/0	***12/7***
	2,400 - 2,999	1/1	3/0	3/0	5/3	14/1	5/0	0/0	0/0	***31/5***
	3,000 - 3,999	0/2	1/1	1/0	2/0	9/2	13/1	8/0	0/0	***34/6***
	4,000 - 4,999	0/0	0/0	0/0	1/0	2/0	1/0	21/1	0/0	***25/1***
	5,000 - 6,999	0/0	0/0	0/0	0/0	0/0	0/1	10/1	7/1	***17/3***
	7,000 +	0/0	0/0	0/0	0/0	0/0	0/0	1/0	9/0	***10/0***
	TOTAL	***1/3***	***4/5***	***5/2***	***14/5***	***30/3***	***19/2***	***40/2***	***16/1***	***129/23***

Table C-3.3

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
Oil Markets
FY 1996 through FY 2003

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/14	17/17	18/6	17/2	3/1	0/0	0/0	0/0	***55/40***
	1,800 - 1,999	0/4	5/3	5/3	12/1	12/0	0/0	0/0	0/0	***34/11***
	2,000 - 2,399	1/1	0/2	5/1	15/3	22/4	1/0	0/0	0/0	***44/11***
	2,400 - 2,999	0/0	1/0	0/0	4/0	13/3	12/2	0/0	0/0	***30/5***
	3,000 - 3,999	0/0	1/0	1/0	1/0	3/0	11/1	4/0	0/0	***21/1***
	4,000 - 4,999	0/0	0/0	1/0	0/0	0/0	0/0	0/0	0/0	***1/0***
	5,000 - 6,999	0/0	0/0	2/0	0/0	1/0	0/0	6/0	2/0	***11/0***
	7,000 +	0/0	0/0	0/0	0/0	1/0	2/0	1/0	8/0	***12/0***
	TOTAL	***1/19***	***24/22***	***32/10***	***49/6***	***55/8***	***26/3***	***11/0***	***10/0***	***208/68***

Table C-3.4

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
Chemical Markets
FY 1996 through FY 2003

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/0	0/0	0/1	0/0	0/0	0/0	0/0	***0/1***
	1,800 - 1,999	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	2,000 - 2,399	0/0	1/0	1/0	0/0	1/0	0/0	0/0	0/0	***3/0***
	2,400 - 2,999	0/0	0/1	1/0	4/0	6/2	2/0	0/0	0/0	***13/3***
	3,000 - 3,999	0/0	0/0	1/0	2/0	0/0	2/1	4/0	0/0	***9/1***
	4,000 - 4,999	0/0	0/1	0/0	0/0	2/0	2/0	5/0	0/0	***9/1***
	5,000 - 6,999	0/0	0/0	0/1	0/0	0/0	1/0	2/0	4/0	***7/1***
	7,000 +	0/0	0/0	0/0	0/0	1/0	0/0	1/0	15/0	***17/0***
	TOTAL	***0/0***	***1/2***	***3/1***	***6/1***	***10/2***	***7/1***	***12/0***	***19/0***	***58/7***

Table C-3.5

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
Pharmaceuticals Markets
FY 1996 through FY 2003

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	1,800 - 1,999	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	2,000 - 2,399	0/0	0/0	0/0	1/0	0/0	0/0	0/0	0/0	***1/0***
	2,400 - 2,999	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	3,000 - 3,999	0/0	0/1	0/0	0/0	1/0	1/0	3/0	0/0	***5/1***
	4,000 - 4,999	0/0	0/0	0/0	0/0	2/0	2/0	1/0	0/0	***5/0***
	5,000 - 6,999	0/0	1/0	0/0	0/0	0/0	1/0	2/0	1/0	***5/0***
	7,000 +	0/0	0/0	0/0	1/0	0/0	0/0	2/0	5/0	***8/0***
	TOTAL	***0/0***	***1/1***	***0/0***	***2/0***	***3/0***	***4/0***	***8/0***	***6/0***	***24/1***

Table C-3.6

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
"Other" Markets
FY 1996 through FY 2003

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/3	0/2	0/1	0/1	0/1	0/0	0/0	***0/8***
	1,800 - 1,999	0/0	0/0	0/0	0/0	0/2	0/0	0/0	0/0	***0/2***
	2,000 - 2,399	0/0	0/0	0/1	0/6	3/4	0/1	0/0	0/0	***3/12***
	2,400 - 2,999	0/0	0/0	0/3	0/1	8/5	6/1	0/0	0/0	***14/10***
	3,000 - 3,999	0/0	0/0	0/1	1/1	2/4	22/8	9/7	0/0	***34/21***
	4,000 - 4,999	0/0	0/1	0/1	2/0	2/1	1/0	15/1	0/0	***20/4***
	5,000 - 6,999	0/0	1/0	1/1	3/1	5/0	5/0	43/11	6/1	***64/14***
	7,000 +	0/0	0/0	0/0	0/0	0/0	3/0	6/1	44/2	***53/3***
	TOTAL	***0/0***	***1/4***	***1/9***	***6/10***	***20/17***	***37/11***	***73/20***	***50/3***	***188/74***

Table C-4.1

FTC Horizontal Merger Investigations
Number of Significant Competitors
All Markets
FY 1996 through FY 2003

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	128	5	***133***
	3 to 2	156	28	***184***
	4 to 3	102	32	***134***
	5 to 4	32	20	***52***
	6 to 5	13	19	***32***
	7 to 6	2	8	***10***
	8 to 7	6	6	***12***
	9 to 8	0	4	***4***
	10 to 9	2	1	***3***
	10 +	0	9	***9***
	TOTAL	***441***	***132***	***573***

Table C-4.2

FTC Horizontal Merger Investigations
Number of Significant Competitors
Grocery Markets
FY 1996 through FY 2003

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	15	0	***15***
	3 to 2	40	5	***45***
	4 to 3	54	10	***64***
	5 to 4	16	4	***20***
	6 to 5	3	2	***5***
	7 to 6	1	1	***2***
	8 to 7	0	1	***1***
	9 to 8	0	0	***0***
	10 to 9	0	0	***0***
	10 +	0	0	***0***
	TOTAL	***129***	***23***	***152***

Table C-4.3

FTC Horizontal Merger Investigations
Number of Significant Competitors
Oil Markets
FY 1996 through FY 2003

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	13	0	***13***
	3 to 2	12	0	***12***
	4 to 3	6	0	***6***
	5 to 4	7	3	***10***
	6 to 5	6	8	***14***
	7 to 6	1	5	***6***
	8 to 7	6	1	***7***
	9 to 8	0	2	***2***
	10 to 9	2	0	***2***
	10 +	0	6	***6***
	TOTAL	***53***	***25***	***78***

Table C-4.4

FTC Horizontal Merger Investigations
Number of Significant Competitors
Chemical Markets
FY 1996 through FY 2003

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	21	0	***21***
	3 to 2	11	0	***11***
	4 to 3	16	2	***18***
	5 to 4	8	2	***10***
	6 to 5	2	2	***4***
	7 to 6	0	0	***0***
	8 to 7	0	1	***1***
	9 to 8	0	0	***0***
	10 to 9	0	0	***0***
	10 +	0	0	***0***
	TOTAL	***58***	***7***	***65***

Table C-4.5

FTC Horizontal Merger Investigations
Number of Significant Competitors
Pharmaceutical Markets
FY 1996 through FY 2003

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	11	0	***11***
	3 to 2	9	0	***9***
	4 to 3	4	0	***4***
	5 to 4	0	1	***1***
	6 to 5	0	0	***0***
	7 to 6	0	0	***0***
	8 to 7	0	0	***0***
	9 to 8	0	0	***0***
	10 to 9	0	0	***0***
	10 +	0	0	***0***
	TOTAL	***24***	***1***	***25***

Table C-4.6

FTC Horizontal Merger Investigations
Number of Significant Competitors
"Other" Markets
FY 1996 through FY 2003

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	68	5	***73***
	3 to 2	84	23	***107***
	4 to 3	22	20	***42***
	5 to 4	1	10	***11***
	6 to 5	2	7	***9***
	7 to 6	0	2	***2***
	8 to 7	0	3	***3***
	9 to 8	0	2	***2***
	10 to 9	0	1	***1***
	10 +	0	3	***3***
	TOTAL	***177***	***76***	***253***

Table C-5.1

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
All Markets
FY 1996 through FY 2003

Hot Documents Identified

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	1,800 - 1,999	0/0	0/0	0/0	0/0	0/1	0/0	0/0	0/0	***0/1***
	2,000 - 2,399	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	2,400 - 2,999	0/0	0/0	0/0	1/0	1/0	0/0	0/0	0/0	***2/0***
	3,000 - 3,999	0/0	0/0	0/0	0/0	1/1	1/0	2/0	0/0	***4/1***
	4,000 - 4,999	0/0	0/0	0/0	0/0	1/0	0/0	0/0	0/0	***1/0***
	5,000 - 6,999	0/0	0/0	0/0	1/0	0/0	0/0	3/0	1/0	***5/0***
	7,000 +	0/0	0/0	0/0	0/0	0/0	0/0	1/0	5/0	***6/0***
	TOTAL	***0/0***	***0/0***	***0/0***	***2/0***	***3/2***	***1/0***	***6/0***	***6/0***	***18/2***

Table C-5.2

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
All Markets
FY 1996 through FY 2003

No Hot Documents Identified

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/2	0/0	0/2	0/0	0/0	0/0	0/0	***0/4***
	1,800 - 1,999	0/0	0/2	0/0	0/0	0/0	0/0	0/0	0/0	***0/2***
	2,000 - 2,399	0/0	0/0	0/0	1/1	3/3	0/1	0/0	0/0	***4/5***
	2,400 - 2,999	0/0	0/0	0/1	0/1	3/4	2/1	0/0	0/0	***5/7***
	3,000 - 3,999	0/0	0/1	0/1	0/0	0/3	6/2	3/3	0/0	***9/10***
	4,000 - 4,999	0/0	0/2	0/0	1/0	3/1	2/0	7/2	0/0	***13/5***
	5,000 - 6,999	0/0	1/0	1/0	1/0	0/0	2/0	8/2	5/1	***18/3***
	7,000 +	0/0	0/0	0/0	1/0	1/0	1/0	6/0	13/1	***22/1***
	TOTAL	***0/0***	***1/7***	***1/2***	***4/4***	***10/11***	***13/4***	***24/7***	***18/2***	***71/37***

Table C-6.1

FTC Horizontal Merger Investigations
Number of Significant Competitors
All Markets
FY 1996 through FY 2003

Hot Documents Identified

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	8	0	***8***
	3 to 2	3	0	***3***
	4 to 3	6	2	***8***
	5 to 4	0	0	***0***
	6 to 5	1	0	***1***
	7 to 6	0	0	***0***
	8 to 7	0	0	***0***
	9 to 8	0	0	***0***
	10 to 9	0	0	***0***
	10 +	0	0	***0***
	TOTAL	***18***	***2***	***20***

Table C-6.2

FTC Horizontal Merger Investigations
Number of Significant Competitors
All Markets
FY 1996 through FY 2003

No Hot Documents Identified

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	29	1	***30***
	3 to 2	25	6	***31***
	4 to 3	13	10	***23***
	5 to 4	2	12	***14***
	6 to 5	2	3	***5***
	7 to 6	0	1	***1***
	8 to 7	0	1	***1***
	9 to 8	0	1	***1***
	10 to 9	0	0	***0***
	10 +	0	2	***2***
	TOTAL	***71***	***37***	***108***

Table C-7.1

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
All Markets
FY 1996 through FY 2003

Strong Customer Complaints

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	1,800 - 1,999	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	2,000 - 2,399	0/0	0/0	0/0	0/0	2/1	0/0	0/0	0/0	***2/1***
	2,400 - 2,999	0/0	0/0	0/0	1/0	0/0	1/0	0/0	0/0	***2/0***
	3,000 - 3,999	0/0	0/0	0/0	0/0	1/0	4/0	4/0	0/0	***9/0***
	4,000 - 4,999	0/0	0/0	0/0	0/0	3/0	0/0	3/0	0/0	***6/0***
	5,000 - 6,999	0/0	0/0	1/0	0/0	0/0	1/0	6/0	4/0	***12/0***
	7,000 +	0/0	0/0	0/0	0/0	0/0	0/0	7/0	12/0	***19/0***
	TOTAL	***0/0***	***0/0***	***1/0***	***1/0***	***6/1***	***6/0***	***20/0***	***16/0***	***50/1***

Table C-7.2

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
All Markets
FY 1996 through FY 2003

No Strong Customer Complaints

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/2	0/0	0/2	0/0	0/0	0/0	0/0	***0/4***
	1,800 - 1,999	0/0	0/2	0/0	0/0	0/1	0/0	0/0	0/0	***0/3***
	2,000 - 2,399	0/0	0/0	0/0	1/1	1/2	0/1	0/0	0/0	***2/4***
	2,400 - 2,999	0/0	0/0	0/1	0/1	3/4	1/1	0/0	0/0	***4/7***
	3,000 - 3,999	0/0	0/1	0/1	0/0	0/2	2/1	1/3	0/0	***3/8***
	4,000 - 4,999	0/0	0/2	0/0	1/0	1/1	2/0	3/1	0/0	***7/4***
	5,000 - 6,999	0/0	1/0	0/0	2/0	0/0	1/0	2/2	2/1	***8/3***
	7,000 +	0/0	0/0	0/0	1/0	1/0	1/0	0/0	4/1	***7/1***
	TOTAL	***0/0***	***1/7***	***0/2***	***5/4***	***6/10***	***7/3***	***6/6***	***6/2***	***31/34***

Table C-8.1

FTC Horizontal Merger Investigations
Number of Significant Competitors
All Markets
FY 1996 through FY 2003

Strong Customer Complaints

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	25	0	***25***
	3 to 2	14	1	***15***
	4 to 3	8	0	***8***
	5 to 4	0	0	***0***
	6 to 5	3	0	***3***
	7 to 6	0	0	***0***
	8 to 7	0	0	***0***
	9 to 8	0	0	***0***
	10 to 9	0	0	***0***
	10 +	0	0	***0***
	TOTAL	***50***	***1***	***51***

Table C-8.2

FTC Horizontal Merger Investigations
Number of Significant Competitors
All Markets
FY 1996 through FY 2003

No Strong Customer Complaints

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	10	1	***11***
	3 to 2	10	3	***13***
	4 to 3	10	10	***20***
	5 to 4	1	12	***13***
	6 to 5	0	3	***3***
	7 to 6	0	1	***1***
	8 to 7	0	1	***1***
	9 to 8	0	1	***1***
	10 to 9	0	0	***0***
	10 +	0	2	***2***
	TOTAL	***31***	***34***	***65***

Table C-9.1

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
All Markets
FY 1996 through FY 2003

Entry Easy

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/1	0/0	0/2	0/0	0/0	0/0	0/0	***0/3***
	1,800 - 1,999	0/0	0/1	0/0	0/0	0/0	0/0	0/0	0/0	***0/1***
	2,000 - 2,399	0/0	0/1	0/0	0/0	0/0	0/1	0/0	0/0	***0/2***
	2,400 - 2,999	0/0	0/0	0/0	0/0	0/1	0/1	0/0	0/0	***0/2***
	3,000 - 3,999	0/0	0/0	0/0	0/0	0/2	0/1	0/1	0/0	***0/4***
	4,000 - 4,999	0/0	0/2	0/0	0/0	0/1	0/0	0/1	0/0	***0/4***
	5,000 - 6,999	0/0	0/0	0/0	0/0	0/0	0/0	0/2	0/1	***0/3***
	7,000 +	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	***0/0***
	TOTAL	***0/0***	***0/5***	***0/0***	***0/2***	***0/4***	***0/3***	***0/4***	***0/1***	***0/19***

Table C-9.2

FTC Horizontal Merger Investigations
Post Merger HHI and Change in HHI (Delta)
All Markets
FY 1996 through FY 2003

Entry Difficult

Enforced/Closed

		Change in HHI (Delta)								
		0 - 99	**100 - 199**	**200 - 299**	**300 - 499**	**500 - 799**	**800 - 1,199**	**1,200 - 2,499**	**2,500 +**	***TOTAL***
Post Merger HHI	**0 - 1,799**	0/0	0/1	0/0	0/0	0/0	0/0	0/0	0/0	***0/1***
	1,800 - 1,999	0/0	0/0	0/0	0/0	0/1	0/0	0/0	0/0	***0/1***
	2,000 - 2,399	0/0	0/0	0/0	1/1	3/3	0/0	0/0	0/0	***4/4***
	2,400 - 2,999	0/0	0/0	0/1	1/1	4/3	2/0	0/0	0/0	***7/5***
	3,000 - 3,999	0/0	0/1	0/1	0/0	1/2	7/1	5/2	0/0	***13/7***
	4,000 - 4,999	0/0	0/0	0/0	1/0	4/0	2/0	7/1	0/0	***14/1***
	5,000 - 6,999	0/0	1/0	1/0	2/0	0/0	2/0	11/0	6/0	***23/0***
	7,000 +	0/0	0/0	0/0	1/0	1/0	1/0	7/0	18/1	***28/1***
	TOTAL	***0/0***	***1/2***	***1/2***	***6/2***	***13/9***	***14/1***	***30/3***	***24/1***	***89/20***

Table C-10.1

FTC Horizontal Merger Investigations
Number of Significant Competitors
All Markets
FY 1996 through FY 2003

Entry Easy

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	0	0	***0***
	3 to 2	0	4	***4***
	4 to 3	0	5	***5***
	5 to 4	0	5	***5***
	6 to 5	0	2	***2***
	7 to 6	0	1	***1***
	8 to 7	0	1	***1***
	9 to 8	0	0	***0***
	10 to 9	0	0	***0***
	10 +	0	1	***1***
	TOTAL	***0***	***19***	***19***

Table C-10.2

FTC Horizontal Merger Investigations
Number of Significant Competitors
All Markets
FY 1996 through FY 2003

Entry Difficult

		Outcome		
		Enforced	**Closed**	***TOTAL***
Significant Competitors	2 to 1	37	1	***38***
	3 to 2	28	2	***30***
	4 to 3	19	7	***26***
	5 to 4	2	7	***9***
	6 to 5	3	1	***4***
	7 to 6	0	0	***0***
	8 to 7	0	0	***0***
	9 to 8	0	1	***1***
	10 to 9	0	0	***0***
	10 +	0	1	***1***
	TOTAL	***89***	***20***	***109***